The Role of Indigenous Management Systems, Values and Myths in Natural Resource Conservation: The Chitral Model

By

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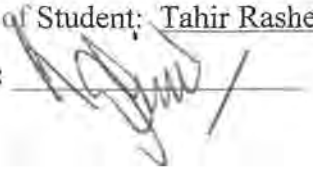
Dated: 

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Dated: 11th June, 2019

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This is to certify that the research work presented in this thesis, entitled **"Role of Indigenous Management Systems, Values and Myths in Natural Resource Conservation: A Chitral Model"** was conducted by **Mr. Tahir Rasheed,** under the supervision of Dr. Syed Anwar Iqbal, Ex-Associate Professor Department of Anthropology, Quaid-i-Azam University, Islamabad.

No part of this thesis has been submitted anywhere else for any other degree. This thesis is submitted to the Department of Anthropology, Quaid-i-Azam University, Islamabad, in the partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Field of **Anthropology**, Department of Department of Anthropology, Quaid-i-Azam University, Islamabad.

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DEDICATION

This publication is dedicated to Dr. Mohammad Taghi Farvar (late) – former President of the ICCA Consortium, for his love, tireless work and as a voice for the rights of indigenous people and local communities across the world. I found this old man from a *Shahsevan* indigenous tribe of nomadic pastoralists of Iranian Azerbaijan a person of high aims, an interdisciplinary scientist and activist leader for the conservation of nature and the customary rights of indigenous peoples and traditional communities to govern their natural resources and to define and earn sustainable livelihoods. He will be remembered, as he strived for the wellbeing of voiceless communities.

"Dhoondo gah ager mulkoun mulkoun

Milnay kah nahi, nayaab hain hum"

You may search country to country

You won't be able to meet, as we are rare

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Tahir Rasheed

ABSTRACT

THE ROLE OF INDIGENOUS MANAGEMENT SYSTEMS, VALUES, AND MYTHS IN NATURAL RESOURCE CONSERVATION: THE CHITRAL MODEL

Studies of the ancient civilizations of the world have revealed that thousands of years ago the concept of indigenous institutions for conducting social, economic-ecological and political affairs of the society existed. Chitral is yet another essential part of Pakistan which owns a heritage of thousands of years of social and cultural evolution. The human societies that were existent in Chitral had traditional values that, in context, exhibited as much capability and depth as any other developed society of the world. Here organizations evolved with time to accommodate the needs of the modern age yet managed to keep their original form to some extent intact. The existence of traditional systems is, therefore, not a new concept for the people of Chitral. Even in today's era, the people of Chitral still apply a range of ancient indigenous principles in conducting the affairs of their daily lives in a better and sustained way. Today, this entire heritage, culturally and technologically, lies in tatters and no one can be blamed more for this than the number of actors. However, my research signifies a strong nexus between natural resource management and cultural diversity (especially values, myths & effectiveness of traditional management systems) and suggests that success in natural resource management is possible provided the cultural diversity is protected and conserved accordingly. It is quite clear that loss of cultural diversity is part and parcel of the same socio-ecological processes leading to natural resource management.

It has been concluded that indigenous management practices, as traditional knowledge, have still a tendency to offer to biodiversity conservation provided the mechanism and systems for the reactivation and protection of this knowledge is within the context of prevailing socio-cultural and ecological setting of Chitral. However, the challenge is how to reactivate the indigenous management systems and how to institutionalize rules and values among the communities.

More importantly, the importance of ecological anthropology has emerged in recent years, mainly owing to its relevance to contemporary concerns with the state of the general environment. It has the real potential to inform and instruct humans about how to construct sustainable ways of life by preserving both cultural as well as biodiversity through an adaptation mechanism. The solution to the issues will address the potential divergence between individual and collective interests. Sustainable natural resource management is a collective goal for which a holistic approach is needed on the part of the stakeholders. However, it is the role of the communities and researchers who could determine or perceive the collective goals and not necessarily the policy makers.

PREFACE

This was an intimidating and tedious task for any anthropologist; however; fortunately, I was able to accomplish it with the continuous cooperation and engorgement of my supervisor, colleagues, and friends. The first and foremost task was to get hold of the confidence of the community and build a relationship of trust before initiating this assignment. I intermingled with the communities so exceptionally and rightfully took the critical advantage of being part of them from whom I had to interact and collect the information in the future.

The other pressing challenge was to establish my impartiality and detachment from different socio-cultural biases to make the work genuine so that the findings could help to manipulate indigenous managed natural resource areas efficiently. The old timers of the area, hunters, storytellers, youth and women I met during my interaction in the field seemed well versant of their ecology, culture, seemed very committed, knowledgeable, and hospitable and provided me a constant support and innovative ideas to make this study interactive, digestible and informative for the readers.

This thesis emanated from a participatory process and is based on the experience of a range of experts as well as non-specialists. As and when the data from the field was gathered, it was reviewed and finalized after detailed deliberations. Some passages of the text are relatively repetitive, restating a point or concept several times from slightly different perspectives. This repetition is not an editorial oversight; it is a cultural idiosyncrasy in the region that, in practice, enhances the level of comprehension of listeners and readers, alike.

Six Chapters of the thesis presents distinguish anthropogenic and ecological features of the area. I am quite convinced that this effort will be worthwhile and look forward to being used as a reference by the Anthropologists, ecologists, researchers, and academicians. At the beginning of each chapter, there is an introduction to the topic supported by information regarding its need and importance. In the second part of the chapter, the topic has been further highlighted with the specificity of the study area.

Chapter 1 features an introduction of the study area, explains its background and highlights the rationale of the study. The chapter also elucidates the characteristics of a traditional management system in Chitrali context.

Chapter 2 deals with the anthropogenic setting of Chitral and methods and material used during data collection. It also discusses how to administer the economic, social, ecological, and political affairs of Chitral effectively in the context of the region's social and cultural history. For this purpose, the traditional and modern concept of social organization, the importance of being organised in a modern-day society, its need, and advantages, have been highlighted.

Chapter 3 discusses different anthropogenic theories and highlights the evolution of ecological anthropology and its importance concerning contemporary concerns with the state of the overall environment.

Chapter 4 mainly focuses on the documentation of major indigenous management systems and their role in natural resource conservation. It highlights the need and importance of these institutions in contemporary society and also discusses its public importance.

Chapter 5 highlights the role of indigenous values and myths remained or still effective in Chitral. It also discusses the reasons for the disintegration of these systems.

Chapter 6 is about how possible disintegration or erosion of traditional institution exerts an impact on different segments of society. The data is supported by 5 case studies. Finally, it discusses, in detail, the possibilities of the reintroduction of traditional institutions and their role in the conservation arena.

Chapter 1

INTRODUCTION

Chitral, the land of different cultural and biological contrasts is among the loftiest regions of the world with an area of 14,850 square kilometres. It is bounded on the northwest by the Hindukush, on the northeast by the Karakoram and --- the south by the Hindu Raj ranges. It is separated from the rest of the country by Hindu Raj ranges, the only contact being through passes over 3,000 meters.

Studies of the ancient civilizations of the world have revealed that thousands of years ago, the concept of traditional institutions for conducting social, economic-ecological, and political affairs of the society also existed in Chitral. The human societies that were existent in this part of the region had traditional values that, in context, exhibited as much capability and depth as any other developed society of the world. Institutions evolved with time to accommodate the needs of the age, yet managed to keep their form to some extent intact. In traditional Kho society, the foundation of the communal unit remained a well-ordered and robust array of grades or ranks from the bottom to the top of society. Due to its geographic location, which leads to protracted periods of physical isolation from the surrounding areas in winter, most resources, in particular, have traditionally been shared. Historically the people have always collaborated for mutual benefit in activities like the conservation and distribution of water, management of pastures, protection of forests and wildlife, and defense against invaders. For instance, Systems, values, and myths that originated hundreds of years ago seem still valid today, speak volumes of the wisdom of the ancient Khowar society. In bygone times, both high and low elevation pastures were used wisely. Horses, yaks, cattle were left to roam freely in the high pastures to safeguard against thieves, and guards called '*waals*' (protectors) were appointed. Under this arrangement, two or three households took the responsibility of driving the herd to a safe place where it could be effectively guarded. All of the households in the village took turns at this responsibility. The pastures at lower elevation were reserved for small livestock such as goats and sheep, which needed to be corralled safely in the evening.

1.1 An Overview of biodiversity/natural resource management

The totality of the life forms on earth is called biodiversity. It includes all the faunal and floral Species, ecosystems, and genetic material composition. While natural resource can be defined as amounts of the bio as well as and geodiversity, exist in different ecosystems.

Direct use and non-use values of biodiversity and biological processes provide services and benefits to the human beings in numerous ways, e.g., food, shelter, water filtration, predation, nutrient recycling, soil formation, oxygen production, water purification, pollination, symbiosis,. We all are dependent for our livelihood and other days to day affairs on biodiversity.

Climate change, wars, poverty, unsustainable resource use, population increase, and ignorance of indigenous knowledge regarding wise use of resources are the few underlying causes for the deterioration of biodiversity. Researchers have a consensus that in years to come, climate change would have significant impacts on the biodiversity of the world in general and some part of our region in particular. The projections about climate change indicate that water availability and its quality, especially in arid and semi-arid areas of the region, will decrease in future by 10-30%, while droughts and floods will emerge as a common phenomenon with increased number or intensity. This situation would have negative impacts on food security and natural resources, especially in the subsistence agro-pastoral systems.

On the other hand, the role of ecosystem services is also quite imperative in meeting the basic needs of urban as well as rural inhabitants. So, any negative impact on the biodiversity may affect the trade-offs between environment and development.

Researchers also warned that if the present trend continued accordingly, we would lose about 20 percent of its living species by the year 2020[1]. The other concerning issue due

[1] "Biodiversity & the Global Crisis" 2000.

to the corrosion of the biodiversity is the loss of genetic diversity (genetic variations in plants and animals). We are/will lose the genetic resources especially for food and agriculture as it is considered the raw material essential for crop genetic improvement and are crucial in climate change adaptation and meeting the food security needs of the humans.

The trend of centralized policies, nationalization of the resources and use of policing in wildlife management, isolation of indigenous people from its management and undermining the centuries-old traditional management systems has resulted in lack of ownership and unsustainable resource use. Moreover, issues of competition and conflicts between natural resources and human populations over resource use have not been addressed adequately in planning procedures[2]. In the past indigenous resource management institutions, values, and myths were quite active to manage these resources on a sustainable basis. They were seen to hold the key to ecologically sustainable development. They had direct long-term interests in the protection of natural treasures and their reinforcement. The weakening or breakdown of these institutions has deepened the crises by augmenting the natural resource degradation process in their respective areas.

Contemporary research about indigenous land tenure regimes suggests that nationalization may be a failing purpose [Lane and Moorhead, 1994][3]. State institutions fail to provide adequate management at the local level and, as any particular community no longer owns either resource nor does one feel any responsibility to protect. At the same time, not only are natural resources being over-exploited, but the traditional means by which communities might protect them are also lost.

Once the abode of remarkable cultural and biological diversity, Chitral has also experienced considerable ecological damage, especially after its merger with Pakistan and a shift from customary to statutory laws. Much of its natural resources have destroyed for fuelwood,

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2 EU, DFID and IUCN."Biodiversity – what is it, and why is it being lost?"Biodiversity in Development, Biodiversity Brief 19.

3 Lane,C. and Moorehead,R[1994],

timber, grazing, and fencing of houses as well as agriculture. The scenario not only deprives the community from the direct benefits accruing the sustained supply of forest products including wood, medicinal and other plants of economic importance, and wild animals that would have sustained them and their future generations but also resulted in a loss of watershed value and tourism potential.

1.2 Indigenous Management Regimes in Chitral

As mentioned earlier that due to solid cultural bindings in Chitral, communities have been practicing the indigenous management systems, traditional knowledge, myths and using their beliefs in metaphysics as a successful tool in conserving their natural resources for centuries. Some of these indigenous natural resource management systems are known as "*Saq, Hujjati, Perhteik, Pechheik, Qalangi."* These systems provide safeguards against indiscriminate hunting and genocides of wildlife and associated flora are also an age-old code of conduct, which were strictly followed by the local hunters. The laws were framed to save natural resources as much as possible. Seasonal hunting, restriction of hunting of females, site of supernatural beings (fairies), and honor of the life of the predators were some relevant code of conducts for the hunters quite commonly practiced in Chitral. The secure cultural bindings and beliefs were also an integral part of the Kho society that played a significant role in nature conservation. Recent research shows strong linkages between culture and biological diversity and suggests that biodiversity conservation and protection of cultural values and norms are interconnected while on the contrary the loss of cultural diversity is directly influenced from the socio-political processes considered responsible for the loss of biodiversity [Dasmann1991, Durning 1992; Colchester 1994; Wilcox & Duil 1995; Alcorn, 1993; Maffe, 1999].

In Khowar society, the concept of pre-Islamic deities has partially been Islamized, using Islamic terms instead of old ones. Kho people firmly believe that mountains are the abode of fairies and Ibex, Deer, and Markhor are their animals. The fairies are believed to be the custodians of the mountains and wildlife. Their areas are thought to be "Oshiru*"* [pure places], and one should enter such areas after purifying themselves. The fairies allow the hunters to hunt only those animals that are allowed to be hunted by them. No one can hunt

without pleasing the particular fairies and her consent [Baig, 1994, 97; Faizi, 1996]. It is also strongly believed that the fairies take strict action if one tries to pollute the particular mountains or streams in the high mountains [Hussain, 2002][4]. While discussing the facts of traditional beliefs and myths in natural resource conservation, Wilson [1993][5] mentioned that strong beliefs and customs had successfully protected and revered the sacred grooves of forests in Kenya. Small patches of forest, strictly protected by customary laws, also exist in Chitral for many centuries. These areas are mainly in the Kalash valley. Such patches may not be so crucial in terms of natural resource conservation, but a single tree in a graveyard, shrines, and prayer sites may be several hundred years old and are a valuable source of genetic material for plant breeding purposes.

In Chitral, especially in Kalasha and Wakhi communities, drinking water sources such as springs, streams, and rivers are considered sacred. They are very sensitive in protecting the watershed areas of these water bodies, particularly forests with a faith that the spirits of these streams and rivers reside in those areas. Due to this, cutting of forests is not allowed while women, especially during their menstrual periods, are also not permissible to streams and rivers.

Such taboos ensured that the area's primary source of water is not polluted. Although the protection of forests around the rivers is based on religious and cultural beliefs, however, they are contributing significantly in ecosystem management. Wilson, [1993] works on the topic conclude that:

> *"They are of great biological and cultural significance of the local people. Today they are found tucked away behind tourist hotels and hidden among plantations and pastures. As the elders pass away, the ancient traditions regarding the sacred groves are also dying. The younger generation tends not to care so much for customs and moves away in search of jobs and better farmland."*

[4] Hussain, M. 2002. IUCN, Monthly News Letter

[5] Wilson, A. [1993], Sacred Grave and the elders? In kemf, op. Cit.

1.3 International Recognition of Indigenous Communities and Paradigms

Most of the conservation pundits convinced that indigenous management systems, values, myths, and knowledge have still a tendency to offer to biodiversity conservation. While article 10 (C) of the Convention on Biological Diversity (CBD) emphasizes parties to protect the biological resources by applying traditional and cultural practices that are fully compatible with conservation. The World Commission on Environment and Development (WCED) also recognized in the Brundtland Report[6]the value of the traditional rights of the indigenous communities, including the resource management system and the importance of the traditional ecological knowledge. The report clearly states that recognition of traditional organizations and protection of their indigenous/traditional rights and privileges in order to manage and sustains their resources through their own and time-tested management paradigms and customary laws should be a prerequisite in conservation efforts. [WCED 1987:115-116.].

Above statement recognizes the rights of indigenous communities to their resources, importance of the indigenous management systems, and their due role in decision making.

Today, this entire heritage, culturally and technologically, lies in tatters and no one can be blamed more for this than the number of manipulating actors. One of the disquieting situations confronting by the traditional communities is that while science has started recognizing the importance of traditional natural resource management systems, values and myths, these systems are eroding with a rapid pace mainly due to globalization that has made our world both culturally and biologically uniform. [WWF, 1998a, 1998b].

The World Conservation Congress [WCC] held in Montreal in 1996 Resolution 1.50 [Montreal, 1996] advised to the member states that:

[6]World Commission on Environment and Development [WCED]. 1987. *Our Common Future*. New York, Oxford University Press.

"….Respect for cultural diversity, including linguistic diversity, as a basic condition to maintain and protect indigenous knowledge […] establishment of national policies to ensure the promotion, recovery, systematization, and strengthening of indigenous knowledge related to biodiversity with the prior informed consent of the peoples concerned."

International conservation-based organizations such as WWF, IUCN, and UNCED also highlighted some of the dimensions of the social context of centuries-old systems by quoting it in Caring for the Earth:

"Hunting, fishing, trapping, gathering or herding continue to be major sources of food, raw materials, and income. Moreover, they provide native communities with a perception of themselves as distinct cultures, confirming continuity with their past and unity with the natural world. Such activities reinforce spiritual values, an ethic of sharing, and a commitment to stewardship of the land, based on a perspective of many generations [IUCN/UNEP/WWF 1991: 61].

Anthropologists and conservationists are quite convinced that traditional systems can also play their role in the formulation and implementation of sustainable development policies and programs primarily in countries of the south. According to the World Commission on Environment and Development [1987:12]:

" Their traditional rights should be recognized, and they should be given a more decisive voice in formulating policies about resource development in their areas ."

1.4 A Dialogue between Anthropology and Ecology

A breakthrough witnessed in 1980 when dialogue between anthropology and ecosystems ecology was disconnected due to several critiques on the ecosystem theories of Rappaport 1968, Kemp 1969, Thomas 1973, 1976. The concept of ecosystems ecology

emerged as a study of complex systems, due to its radical critique of science [Odum 1983, Prigogine and Stengers 1984; Salthe 1985; Holling 1986, Wicken 1987].

Due to the tireless efforts of the anthropologist's ecosystems- ecology emerged as a new reality and got international recognition and identity. Ecosystem ecology started, getting prominence in research publications and universities around the world. Simple deterministic models and equilibrium communities substituted with complex adaptive and holistic system mainly due to the sharp criticism from renowned anthropologists. This shift in new ecology un-wrapped new vistas and ultimately increased the importance of anthropology as a whole. Now a consensus has been built among most of the anthropologists and critiques that due to this shift anthropology and the other social sciences have accepted ecology as never before. As result of this drastic change ecological anthropology, human ecology, ethnobotany, historical ecology, environmental history, political ecology, ecofeminism, environmentalism, environmental justice, symbolic ecology, ethnoveterinary, ethnoecology, evolutionary ecology, environmental anthropology, ecological economics, etc. have emerged as specialized subjects and got the attention of the students in different universities of the world. Anthropologists also attempted successfully by producing insightful reviews [Biersack 1999, Kottak 1999, Little 1999, Scoones 1999]. According to Scoones [1999], however, despite adopting new ecology, it has yet not been incorporated into their conceptualizations. However, they are still quite optimistic about the successes of environmental history, in new studies of structure, agency, and scale, and case studies of adaptive management and institutional context.

In addition to ecology, the study of indigenous management systems, values, myths, and beliefs is valued in several fields. For instance, in livestock, forestry, wildlife, agriculture, and pharmacology, ethnoscience has a significant role. They were the anthropologists who conducted the earliest systematic studies of indigenous management systems, values, and myths. There is an agreement among the anthropologist that due to the contribution of ancient ethnobotanists, veterinarians, agriculturists, and water engineers ethnoecology may be considered a subset of ethnoscience. It is the efforts of the ethnoscience

(both ancient and contemporary) that helped in validating the indigenous knowledge in fields as mentioned above.

A debate between contemporary science and indigenous management systems, values, and myths is another area that needs to be analyzed. If we critically go through the western since we come across Humboldt's writings of 1807 who as a pioneer discussed the concept of an ecosystem in its writings while traditional ecosystem concepts even in my locale (Chitral Region) are centuries old. Ancient models of ecosystem management are also time tested under different conservation situations. Pandey, [2002a] also supports this argument by stating that it is least important if present paradigms are not tested in the field. The best thing of Indigenous management paradigms is that they own by the communities and successfully create a conducive environment in natural resource conservation at an eco-system.

Generally, there is a realization among the scientists, anthropologists, and the conservationists that indigenous management systems, values, and knowledge tend to play an active role in the conservation and protection of the natural resources. This recognition is mainly to a realization that instead of a significant role of the scientific knowledge towards conservation and management of the resources, it has otherwise contributed to the depletion of socio-ecological resources. Secondly, literature also indicates that still most of the centuries-old indigenous management paradigms and knowledge systems are not recognized as a product of holistic systems of perceptions, relationships, and organizational arrangements.

I still argue that the management of natural resources, especially in the developing world, is more a matter of managing anthropogenic odds than caring for biological aspects. In Pakistan, it is a simple reality that the majority of the natural resource management models that isolated the indigenous communities have failed while the most successful example of conservation of the natural resources mainly depends on a system of indigenous management.

Now the most crucial task is to explore significant reasons for its disintegration and possibilities to put in place the mechanism and system for the reactivation and protection of this knowledge by fully respecting their intellectual property rights. On the other hand, critics oppose standard resource management by augmenting that the joint control and ownership at resources ultimately and inevitably lead to overexploitation because the benefits to each will always exceed the cost. However, by agreeing partly with the statement, I still argue that the anthropology of indigenous cultures and management systems, myths and values remained significant factors in the development of culture and society and considered a key to the conservation of command natural resources of the Chitral as far as back its history. In my point of view, these institutions have all the ingredients such as shared values, defined roles, responsibilities, conflict resolutions mechanisms and enjoy trust & ownership from the respective communities, a prerequisite for any social organization. For that purpose and especially in the light of the preceding discussion of different anthropologists and ecologists, the need of a careful investigation emerged to explore the strengths and weakness of the indigenous knowledge and values for natural resource conservation. Anthropology advocates for comparative analysis; however, to accomplish this, one has to unpack all the constituent elements to compare. This study takes up the implied challenges laid by [anthropologists & ecologists] by contributing to a greater understanding of cultural ecology, which still has durable bindings in northern Pakistan and especially in Chitral.

From the preceding pages, it will be revealed that the thesis attempts to explore the following:

- Indigenous management systems, values, myths, and the ways & means people used/use for analysing their mutual resources meaningfully in a sustained way;
- Human-nature relationship where indigenous communities have been utilizing, worshiping, conserving nature and its various components from time immemorial;
- The principles which have either be changed with a rapid pace due to utilitarianism and globalization;

- The major factors, responsible for the viability of indigenous institutions, their effectiveness in the present-day era, the ongoing erosion, and their possible viable role in natural resource conservation and protection.

Chapter 2

ANTHROPOGENIC SETTING OF CHITRAL AND METHODS EMPLOYED FOR THE STUDY

Chitral (locals call it Chitrar and Pashtuns call it Qashqar) is a mountainous district of the Khyber Pakhtoonkhawa (KP) with 14,850 sq.km area and dissected in 30 main valleys, and numerous sub-valleys with an estimated population of Chitral is 318,689 (162,082 males and 156,607 females). The area that is now Chitral has inhabited for at least 4,000 years[7]. Its people belong to over a dozen different cultures and speak more than 14 languages. Chitral, with a history of a princely state of about 400 years, is situated in the extreme northwest of the state of Pakistan. It is an arid mountainous area with sparse agriculture having altitude from 1050m at Arandu to 7685m at Tirichmir, the highest peak of Hindukush Mountain range. This landlocked region has a rich history and culture resulting from an ancient political entity close to the great empires of Russia, China and India for more than eight centuries -13th-20th centuries [Ghufran,1962].

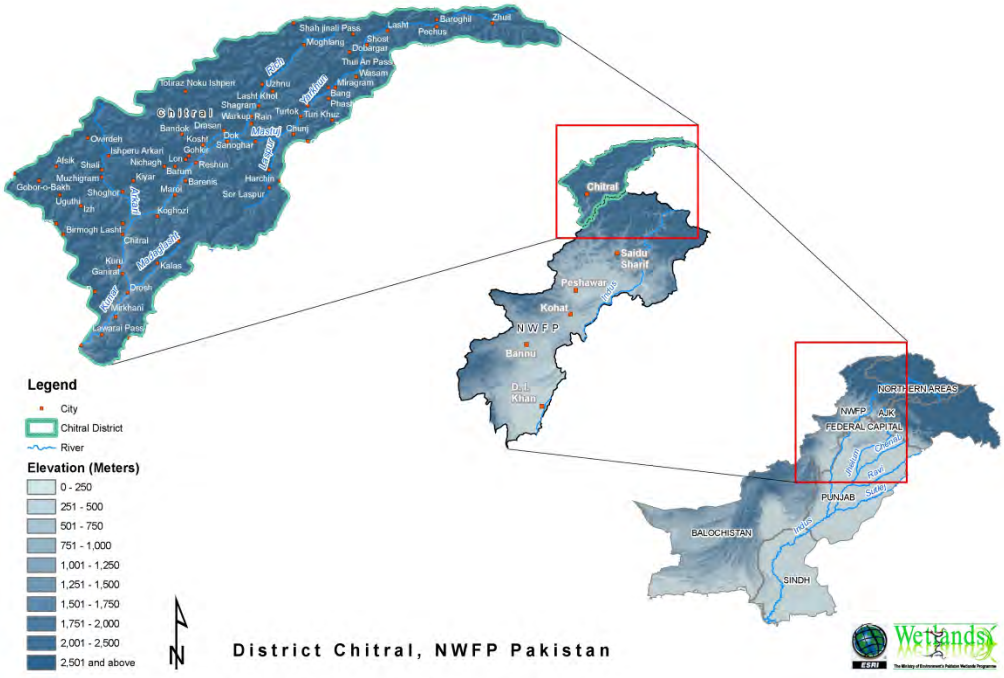
Various forces pushing into the southern valleys of the Hindukush especially, from the north, Badakhsha, Turkistan and other places in Afghan, Russian or Chinese territory, have influenced the history of Chitral. From 500 BC it remained under various neighboring powers including the Persians, the Kushans, and the Chinese who received tribute from local chiefs. It is a belief that a contingent of Alexander's forces also passed through Chitral in 326 BC. Local chiefs of the primitive age include Bahaman, Razhawai, Balasing, Nagar Shao and Somalik who ruled until the advent of the 13th century. It gained the status of a princely state with the establishment of the Rais family's reign in 1320 AD. The Katoor family succeeded the Rais rulers in 1580 AD who ruled Chitral till July 1969. In 1969, the state was merged with Pakistan, making it a district of KP and placed under Provincially Administered Tribal Areas (PATA) Regulations. To carry out these reforms, an Additional Political Agent was appointed to help the state administration. The policies and practices of land tenure and resource ownership evolved during this period have all the bearing on the present day rights

[7] Chitral Conservation Strategy

of use of the land resources. The State of Chitral linked itself with the mainstream of the sub-continent when it signed a friendship treaty with the Maharaja of Kashmir in 1876 [Ghufran: 63:128] and eventually British India in 1885 [Ghufran:63:135]. It was under these treaties that British rule extended to Chitral in 1895.

In addition to this historical background, Chitral has unique topographic as well as demographic characteristics. The rugged mountainous tracts throw out spurs, which allow only a few outlets to the adjoining areas. It was through these passes and windows that settlers and invaders from Turkistan and Afghanistan chose to seek their fortune in these inaccessible valleys in the past. It is due to its secluded nature that people belonging to more than a dozen cultural backgrounds living in a confined and secluded society speak at least 14 different languages. Agriculture and livestock rearing are the mainstay of their economy and significantly contribute to their subsistence. The per capita income of the Chitral is comparatively lower than other parts of Pakistan. As independent states for centuries and due to their isolated situation from the rest of the world, it was able to develop its indigenous system of community organization and natural resource conservation. The area had limited resources, and for their optimum and sustainable use, it was necessary for the people to adopt specific measures, which could satisfy and sustain their needs to some extent. Safeguarding communal rights and privileges by every individual was another principle to be followed to make their small world worth living. Thus, with time, the communities developed set systems and values for the efficient and sustained use of their natural resources, e.g., land, forest, pastures, fauna, and water.

Figure 1 Map of Pakistan indicating Chitral[8]



In the fragile environment of the mountainous district, there lives a heterogeneous community with ethnic diversity dispersed in 32 valleys, speaking 12 languages and two religions, Islam and Kalasha. Climatically as well as culturally the district is divided into two zones. The lower zone comprises of Drosh, Chitral and Lotkhow tehsils. This zone has got forest resources of Oak and Deodar and wildlife of Markhor as unique characteristic. The upper zone comprises of Mulkhow, Torkhow and Mastuj tehsils having only alpine ranges and highland pastures with birch, juniper, and wildlife of Himalayan Ibex. Above the elevation of 7500 feet, arable land yields a single crop. The population mainly depends on agro-pastoral products for subsistence[9].

2.1 Location and Administration

Chitral is in the northernmost district of the KP, and it has a distance of about 322 kilometers from Peshawar the provincial capital of the province. Due to its unique geographical location, it has distinctive strategic importance in the area. It boards with China

[8]The Map is the courtesy of WWF's Wetlands Program.

[9] An Integrated Development Vision (Chitral Conservation Strategy)

and Afghanistan while in Pakistan it is bounded with Dir and Swat districts of KP and Ghizar District of Gilgit-Baltistan (GB). The district is divided into two tehsils, Chitral and Mastuj, and is administered through the district administration. The majority of the inhabitant is Kho, however significant number of Pashtuns, Kohistanis, and Gujjars (mostly nomads) also reside in the area. The language of local inhabitants is Khowar, made up of words from various dialects. In some parts such as Lotkhow, Madaklasht, Kalasgraam local dialects are used to communicate with each other; however, they also know and speak Khowar. Most of the population of the district is more or less Muslims. They constitute 99.1 percent of the total population. Kalash tribe is the only non-Muslim tribe that forms less than one percent of the total population and speak their own dialect Klashwar.

2.2 Physical Geography

The valley of Chitral lies in the Hindukush mountain ranges. The region is comprised of eastern Irano-Turanian type of vegetation [Ahmad and Sirajuddin, 1996]. Physical geographers term the mountains of the area as Hinduraj and consider it the extension of Hindu-Kush while climatic geographers described it is geology as Trans- Himalayas due to its floral, faunal and climate similarity with the Himalayan region. The ideal location of the Chitral region further signifies its importance due to its convergence with Hindu-Kush and Himalayas, mountain ranges (Hamayun *et al*. 2003).

Chitral has more than 40 peaks over 6,100 m while the altitude varies from 1,094 m to 7,726 m. Valley has land access from different rugged passes mainly closed in winter due to heavy snowfall.

The district is made up of some 30 valleys including Broghil, Laspur, Mulkhow, Torkhow, Trich, and Mastuj. The numerous peaks and valleys consider as an important watershed of the Chitral River. The early tributaries or the river run through the mountains in, narrow, steep-sided valleys, and play a pivotal role in the ecology and the land use of the region [Chitral Brief][10]

[10]The text of this section adopted from the report " Chitral Brief"

2.3 Climate

The climate of the Chitral is distinctly continental. The climate of the Chitral is distinctly continental. Seasonal migration is a common phenomenon due to harsh winters. Most of the inhabitants, along with their livestock shift to lower areas for their subsistence. They return to their respective areas in spring. Meteorological data indicates that three months (December to February) are the coldest mainly due to a sharp decline of mercury. The area receives maximum precipitation during these months. Upper Chitral gets frequent and heavy snowfall during these months. Spring is quite pleasant while during summer (June to August) mercury rises and considered the hottest months, especially in lower parts of Chitral. However, summer is quite tolerable in the upper parts of Chitral. The metrological department has recorded maximum temperature to 36 ^{o}C at low lands, while at high altitude the mercury remained low up to -9 ^{o}C with windy and frigid nights.

Long term temperature and precipitation records are available from different locations. In general, the area is characterized by low precipitation. Mean rainfall in Drosh and Chitral towns (Lower Chitral) is approximately 650 mm and 500 mm, respectively, occurring mainly in the spring and winter. Summer and autumn are dry, with the area receiving barely 10–25 mm of rain per month. In Upper Chitral, annual precipitation is as low as 200 mm, received mostly as snow in the higher elevations.[11]

The winter and spring precipitation are essential, especially for the Rabi crops. Although the annual precipitation falling at valley floor tends low, individuals' storms in total may be quite high. These occasional but intense rainfall events have considerable hydrological and geomorphologic significance, especially in terms of erosion. The autumn and winter form about eighty percent of the total annual rainfall. It is due to the thunderstorms that often give torrential rains and cause damages due to floods.

Chitral does not receive its share from the monsoon as moisture becomes exhausted over the plains of India and Pakistan before reaching to these remote mountainous valleys.

[11]The Chitral Conservation Strategy (CCS)

However, Rambor and Avirat Gol valleys are marked with different seasonal temperatures, mainly due to physiographic features. The climate of the area is dry-temperate.

2.4 Rural and Urban Distribution

Most of the inhabitants of Chitral live in rural areas. With a rural population of 288,000, it constitutes 90.39 percent of the total population. Most of the people of the rural areas are poor and quite vulnerable to different economic shocks.

The share of the urban population of the district is minimal as only 31 thousand people live in the urban locality of the Chitral that constitutes 9.61 percent of the total population. Before the merger of the state, there was only one middle school established by His Highness Sir Nasirul Mulk in Chitral state. The literacy ratio of the district among the population aged ten years and above is 40.30 percent, which was very low in 1981, i.e., 12.7 percent. The literacy ratio in females has increased from 2.3 percent in 1981 to 22.09 percent in 1998. Likewise, in the male population, it had increased by more than double from 24.12 percent in 1981 to 58.02 percent in 1998.

2.5 Rivers and Streams

Chitral River is the main river that originates from the Chiantar glacier. Most of the large and small stream drains into it. The open areas comprise all the fans deposits that are found at the mouth of all the torrents or streams. The origin of these alluvial fans can be attributed to temperature, humidity, weathering, and extreme climatic conditions, which cause the rocks and stone burst. These streams play a significant role in the socio-economic conditions of the local people as these streams cater to their drinking as well as irrigation needs.

2.6 Bio-cultural Diversity

2.6.1 Biological Diversity:

Chitral's flora is similar to that of Central Asia, while fauna meanwhile, resembles that of the Western Palaearctic Faunal Region, with a slight oriental mix from the south. Wide variations in altitude, from 1,094 m at Arandu in the south to 7,726 m at Tirichmir in the north, compensate for the arid climate, making the area an ideal habitat for a variety of plants and animals. Chitral also serves as a corridor for the seasonal migration of birds. The number of mammal species recorded in Chitral to date is 45, which accounts for about half of all mammals recorded in the KP as a whole while 195 species of resident and migratory birds, 42 reptiles such as two tortoise species, 12 lizard and 14 snake species are also found in the valley[12][KP wildlife dept. notes].

Isolation and solitude lead to a high degree of endemism, variety of rock, soil and vegetation, and thus biodiversity. Then is the dynamism leading to a variety of succession stages of vegetation and the associated wild fauna. Variation in temperature, radiation, wind exposure, snow cover, is the other factors that lead to diverse flora and fauna. Because of remoteness and inaccessibility, the ecosystem is not much exposed to modifications and changes. The dry temperate coniferous forest is found on the lower and inner slopes of the district between 1,500 and 3,000 meters while the oak scrub forest is found between 1,500 to 2500 meters. So far 64 endemic plant species have been reported by the researchers' in the region. Species of significance include Himalayan lynx (*Felix lynx*), Musk deer (*Moschus chrysogaster),* Markhor (*Capra falconeri),* Tibetan Wild Ass (*Equus hemionus kiang),* Himalayan Black bear (*Ursus arctos)* Blue Sheep (*Pseudois nayaur*) Snow leopard (*Uncia uncial*), Marco Polo Sheep (*Ovis ammon polii*) and the Himalayan ibex (*Capra ibex*). Himalayan Snowcock (*Tetraogallus himalayensis),* Koklas pheasant (*Pucrasia macrolopha),* Monal pheasant (*Lophophorus impejanus),* Griffon Vulture (*Gyps*

[12]The Chitral Conservation Strategy (CCS)

himalayensis), Golden Eagle (*Aquila chrysaetos)* and Snow Partridge (*Lerwa lerwa)* are the famous birds of the district.

2.6.2 Geophysical diversity:

Differences between geological features and dynamic landscape make them attractive and unique for the visitors. Rock type, apparent folding in the rock mass, volcanism, glacial outbursts, avalanches, torrents, uplift erosion are some features that make a significant difference from the viewpoint of a visitor. Add to this the special prominence bestowed upon the area by the mountain peaks, lakes, springs, streams wilderness (contrast between tamed and wild), solitude, freedom of action, opportunities for challenges, exposure to dangers, and one comes across a variety of nature, seldom seen in the monotonous plains of the country. Because of fragility, the mountain ecosystem becomes susceptible if intervened in an unnatural and unsustainable manner [per. communication Iqmail shah].

2.6.3 Metaphysical and cultural diversity:

Metaphysical and cultural diversity is another attribute of diversity that makes a particular environment different from others. Since Nature Tourism brings together cultures from different parts of the country, from the sizzling plains in the south to the cold and awe-inspiring heights in the north. Similarly, cultures from abroad also leave behind some of their prints and in return, take away something to be shared with relatives and friends. Spiritual diversity, including sacredness, mysticism, fear, pilgrimage, shrines, and archaeological, and historical monuments can be found in the mountains. A simple way of life-based on subsistence economy and indigenous resources and knowledge and understanding of medicinal-food plants are some of the aspects of metaphysical diversity. Cultural diversity, among others, includes traditional structures of houses, stone carvings, tracks, wooden bridges, tombs of saints.

2.6.4 Natural Capital

Besides the wildlife and forests, other natural resources include livestock, grains, fruits, vegetables, medicinal and economic plants, fish, and minerals. The economy is chiefly agro-pastoral. The upper parts of the district either have very shallow soils developed from the row or comprise bare rock with some soil material only in cracks and crevices, while the lower parts of the district have deep stony soils formed by the alluvial fans of streams coming down the mountain slopes. Stony soils of the river terraces and alluvial fans have been cultivating at many places for at least a few centuries.

Ninety percent of the populations of the target communities depend on agriculture for their subsistence. The chief source of irrigation is mountain streams from where water channel has been erecting, and this water has made available to the agriculture. Landholding capacity of the inhabitants of the district is less than an acre. Major Crops are wheat, maize, barley, and paddy while vegetables and fruits are also growing for domestic consumption in the upper valleys of Chitral. Mostly land is cultivated through traditional practices. However, in plain areas of the Chitral agriculture machinery like tractor and thrashers are also used [(Agricultural Statistics Wing, 1996)].

Very few people in Chitral possess livestock more than they require for their use. Some people have sheep and goats for sale. Since Sheep/Goats can cause softening of the ground, which results in a flood of mud during the rains, the people of lower Chitral have grown this perception and discourage the keeping of Sheep and Goats. Ponies and donkeys are kept for carrying the load. Cows are kept almost in every home for milk. In upper Chitral, yaks are also reared. Horses are reared for playing polo match, which is very common.

Sheep, goats, and cattle are grazed freely in all types of uncultivated lands, and fodder is obtained from the forests, nearby hill slopes, and alpine pastures. Oak and

other bushes are also lopped for fodder in winter, and the lopping is generally very severe. Goats are frequent, and large cattle are few. The breeds are weak for their milk, meat, and wool production. A few yaks are also kept [in upper Chitral] besides horses and donkeys. The fodder is generally limited to support better and increased livestock products [Agricultural Statistics Wing, 1996].

The climate of Chitral is suitable for cold water fisheries. Although there is an excellent scope for the development of trout fisheries in Chitral; however, it is not advisable to raise this due to its invasive behavior. The Government established trout hatcheries at Jaghoor and Bomburet with a production capacity of 120,000 and 130,000 fries respectively. In addition to the government sector trout culture in the private sector through trout farming on a commercial basis is also being developed. There are about ten fish farms established in the private sector at an area of about 5.95 acres.

The minerals resources of Chitral have never been exploring adequately. The exploitation of Chitral's mineral wealth had begun in the time of the Raees, with the mining of orpiment in the Terich valley (Biddulph 1977 [1880]: 62). Other minerals extracted locally included silver, crystallized quartz, lead, potassium nitrate, and antimony (Din 1987: 19–20). Iron ore and copper deposits were also discovered (Biddulph, 1977 [1880]: 62).

The illiteracy and lack of enterprise of the inhabitants prove a useful bar to the profitable exploitation of minerals even for internal use. Orpiment or yellow arsenic was discovered in the Lotkhow valley in Terich village. It is extracted but in small quantity. Lead is found in various parts in small quantity but is not exported. The best quality of marble stone is available in Chitral.

The cash economy is improving with the introduction of tourism, commerce, and development projects of govt, and NGOs, still the primary natural resource-based economy with little cash flow is not changed and is still the subsistence economy. In

villages bordering forests, log houses used to be constructed in the past, and large quantities of timber were required. With the appreciation of the wood prices and a bit of improvement in transportation, the practice has been discouraged to a large extent. Still, appreciable quantities of timber are required for house construction. Due to high prices of cement and steel, the timber is used as scantlings and balks and as binders in masonry works.

In lower Chitral, all these demands are met with from the forests, however, in upper Chitral, where there are no natural forests; these demands are met from poplars grown on their house compounds and along water channels. Deodar, Blue pine, Fir and Spruce are the main timber trees in Chitral forests. The oak branches lopped for the leaf fodder are chiefly used as firewood. However, the locals living near the forests ruthlessly cut the oak forests, for firewood and supply to the towns, in lower Chitral as well as upper Chitral. Where oak is absent in lower Chitral, deodar is cut down. In upper Chitral, the firewood demand is generally met from the bushes raised and protected on the wastelands near to the cultivated lands and also from natural dwarf bushes thinly available on slopes. The scarcity of firewood is evident, and uprooting of bushes from the already barren hill slopes is not an uncommon practice, throughout Chitral. Quite a few medicinal plants are available in the area, but none has been a subject of commercial use, a few making the part of vegetables and traditional medication. Chilgoza and Zera have been of some importance to the communities as cash products. Swati *Schizo thorax* is the common indigenous fish species found in the main Chitral River. In the tributaries of the main river, where the water is not turbid, trout fish has been introduced as sports fish. In general, the fish resource is limited and has not been a significant substance in the local economy of natural resources. Many minerals and precious and semi-precious stones have been discovered, but very few have been put to exploitation for the arduous terrain and climate and no infrastructure for their exploitation. One main reason is that the district is land-locked. Very little has been added from minerals to the economy of the communities and state so far.

2.7 Human Capital

The population pressure in the district has increased manifold, as the increase in population was 52.6% between 1981 and 1998. Human capital is considered to be an essential asset of Chitral [GoP, 2001]. Although such data is not available for each village, discussions with the local inhabitants and officials of the concerned department confirmed that population pressure had increased considerably in different valleys of Chitral during the last 20 years.

A key component of human capital is the level of education and literacy in the community as it allows people to access and retain sources of livelihoods. Several empirical studies have also shown that education, especially female education, is closely tied to increased household income and better health for children. The overall literacy rate of the communities is a positive aspect of human capitals. There are many governments as well as private schools in Chitral town. Education level has also improved in the past few decades due to the presence of several schools opened by the Agha Khan Rural Support Program [AKRSP].

The overall literacy rate, especially female literacy rate, points to good potential for women to be involved in both income generation and awareness-raising activities. Only a few institutions are providing technical and vocational training.

During discussions, lack of technical training has emerged as one of the major reasons for unemployment; however, still, a fair number of people are employed in different governmental and non-governmental organizations. Community consultations with women in most of the villages of the study area identified the need for a trading center.

Health services are a strong component of human capitals for Kho community. There are hospitals in Chitral town and medical facilities available to the inhabitants. However, in household interviews, people identified that expenditure on health services was a significant source of debt.

2.8 Financial Capital

The focal sources of income and occupation in the study area villages present a mixed picture. The household economy is no longer completely reliant on agriculture or natural resource use and livelihoods, on the whole, have diversified into a mixture of technical jobs, labor [both agricultural and non-agricultural], government and small business. Only high-altitude areas show high reliance on natural resource use for income and occupations. The Agriculture, Labor [agricultural, non-agricultural, skilled and unskilled], Trade/business [contractors, drivers], and Employment [Army, Federal Government Departments, Provincial Government Departments, NGOs] are some of their worth mentioning basis of income.

Livestock rearing was the primary source of the subsistence for the core communities in the past, but due to literacy, it is now replaced with agriculture, labor, and employment. However, the economies of the rural communities still rely on livestock rearing as the primary source of their income. Many seasonal occupations, i.e., Services, agriculture, sale of Non-Timber Forest Products (NTFPs), supplements the livestock rearing, handicrafts and rug making and provide a basic income for a majority of low and some middle-income households. A seasonal calendar of occupations reveals that summer is the critical season for supplemental income while in winter, low activity is undertaken for some mainstream occupations. The main occupation in Chitral emerged as follow:

- Livestock
- Agriculture
- Labour (agricultural, non-agricultural, skilled and unskilled)
- Trade/business (contractors, drivers)
- Employment (Army, Federal Government Departments, Provincial Government Departments, NGOs)
- Shops

The occupations, as mentioned above, are supplemented with several seasonal occupations that provide significant income for a majority of low and some middle-income households. The seasonal occupations include the followings:

- Collection and sale of Non-Timber Forest Products (NTFPs) including pine nuts, mushrooms, medicinal plants, and other products;
- Handicrafts – cap making, embroidery, jewelry, rug making, etc.;
- Animal Hunting;
- Vegetable gardening;

The income of the inhabitants is high from April to October/November due to the influx of tourist and availability of labor while the leanest months for income-related activities are during winter (December-March) to slag season.

The discussion with communities reveals that a high expenditure during summer mainly due to agricultural inputs but also since this is a season for weddings and other costly expenses. Winters are generally a time for low expenditure. However, fuelwood is the main expenditure category during winter, especially since its price rises significantly during winter. Based on the professional level, availability of sources of employment, and the local labor market economy, three wealth categories were identified, i.e., rich, middle income, and poor.

At present, the Ismaili communities are organized in institutions that can generate financial capital through savings, contributions in the shape of community or revolving funds while Sunnis, as well as Kalasha communities, are far behind due to particular social and religious concerns. The capacity for establishing such institutions cannot, however, be discounted, as people are already well organized into social organizations that can be re-oriented to include the generation of financial capital within their mandate.

The proportion of poor and middle-income households is roughly the same for each locality/village. Since sources of income vary according to the season, there are indications

that poor households face considerable financial hardship during winters. They are reliant on informal credit and any savings to make ends meet during the lean months. In particular, the availability of labor-related jobs is in short supply during winter, and it is possible that there is male out-migration during that time to neighboring towns and cities.

During seasonal cycles of poverty, the poorer households rely on informal credit from shopkeepers and other sources. This debt is usually paid back without interest when the income is steady. Reliance on this type of credit indicates that poor households face acute shortages of money during winter.

Other formal sources of credit also exist, including local banks and NGOs. Local banks provide loans on a 12% interest rate for a fixed period. NGOs provide credit facilities for income generation. These include AKRSP, First Micro-Finance Bank, Sarhad Rural Support Program. However, formal sources of credit are available for only middle-income households as poorer households are not able to guarantee payment within the fixed period with interest [mark up]. Their low level of income and lack of ability to access and fulfill the procedures of banking institutions is another reason that they are unable to access these institutions. Non-Banking credit facilities offer them better repayment terms.

The communities also accumulated financial capital in other forms, mostly through livestock ownership. Other goods such as vehicles are another form of accumulation for middle and high-income households. Even poorer households own a cow for meeting dairy needs at the household level. Often livestock is sold to convert into cash. Data indicates that significant health and social occasions (such as wedding and travels) were identified as the most important reasons for liquidating Capitals.

2.9 Social Capital

The data present a mixed picture of strength in terms of social capitals. The Kalash have their own distinctive culture and follow their customs and traditions. The people of the other ethnic groups (Suuni and Ismailies) area mainly consist of tribes but do not like to be recognized from their tribal affiliation. However, the Kalash people still value the tribal nomenclature and are mainly recognized by the tribes. The social and indigenous resource

management institutions, values, and myths are quite active to manage their resources on a sustainable basis. They had direct long-term interests in the protection of natural treasures and their reinforcement. Due to secure cultural bindings, the Kalashi, Ismailies, and in some extend Suunis have been practicing indigenous management systems, traditional knowledge, and values as a successful tool in conserving their natural resources for centuries. These social and indigenous management systems are known as *"Moon, Graam Saq, Hujjati, Qalangi."* The numbers of organizations set up by different developmental NGOs is not very useful due to stringency against the NGO culture. Although there are conflicts within the village, there is also an active system of community development and promotion of community interests. There is rarely any friction between villages based on castes. Some underlying tension exists between the Ismaili and Sunni communities.

Traditional resource use management practices have been in place since long at the village level. Although no formally constituted organizations for resource management are in existence, each village has an informal committee of elders who set regulations on natural resource use and enforce them. These regulations enforce proper felling of trees from areas allotted to each community, collection of only dry wood from the forest, restrictions on damaging the forest through such practices as dragging trees/branches, and allocation of grazing rights.

2.10 Statecraft and Natural Resource Management

Chitral is well known for its rugged landscape, diverse and endemic floral and faunal species, and unique culture. However, very few of us are aware of the rich tradition of customary law and indigenous statecraft this beautiful region possesses for centuries. Its heritage is more than 700 years old and mainly comprises off diverse subjects from internal security, governance, natural resource management, and land tenure system.

Being a princely state as of any feudal mountain state, Chitral's customary law mainly influenced by the norms, traditions revolved around natural resources. Mostly all the natural resources were controlled by the rulers as the very foundation of the statecraft depend on lands: cultivated, cultivatable, and its resources: forests, pastures, water, big and small game. The ruler used them to influence the warlords, influential persons, religious leaders,

family members notables, and some time to the rebels. Interestingly the distribution of natural resources (land, water, etc.) was entirely temporarily, and any time could be taken back by the rulers. The insurgents were punished by confiscating their lands. Barren cultivable lands were leased among interested individuals and groups for cultivation as state property and were controlled through appointed state officials. However, the areas having wildlife remained the chattels of princes and mainly conserved as their hunting grounds. Only the state guests were allowed to join the game fun and were considered prohibited for the commoners.

The idea of establishing traditional institutions was to administer these resources efficiently. The person who breached the laws was held responsible accordingly to the rules and procedures of the devised code of conduct. Committees of notables were formed to decide the disputes between individuals or clans, and their decision was binding. However, in case of any undetected damage to the natural resources (hunting, cutting of trees), the whole village was held responsible, and the compensation or fine was collected from the whole social unit.

2.11 Sectarian and Regional Harmony

The most important feature of the district Chitral is its peaceful environment. The inhabitants of the district are peace-loving and accommodative. Except for minor patches of sectarian violence between Sunnis and Ismailis in the past, the whole of the district enjoys complete sectarian harmony. It is the peaceful environment of the district that attracts thousands of domestic and foreign tourists each year. According to Marsden, popular representations of Pakistan's KP province have long featured simplistic images of tribal blood feuds, fanatical religion, and the seclusion of women. The rise to power of the radical Taliban regime in neighboring Afghanistan enhanced the region's reputation as a place of anti-Western militancy. Immersed in the lives of the Frontier's villagers for more than ten years, Magnus Marsden's evocative study of the Chitral region challenges all these stereotypes (Marsden 2005). Despite the strong influence of Talibanisation in the surroundings of Chitral (Nooristan-Afghanistan, Sawt, and Dir-Pakistan), Chitral still enjoys religious harmony.

During my three and a half years tenure in Chitral, I have not witnessed any act of dissonance based on religion or sect among the Chitralis. However, the effects of unrest, sectarian, and religious disharmony prevail in the country at large might be felt in the near future. However, in case of a local conflict, Islahi Committee is responsible for conflict resolution. The Islahi Committee generally resolves conflicts over management and use of resources and household disputes. In Rumboor and Laspur area, people frequently contact Islahi Committee to settle such disputes. In Five years (2008-2013) Islahi Committee in Shekhandeh Rumboor has solved five significant conflicts over the use of pastures among local and surrounding communities, and the decision of the committee was abided by all people of the area. Members of a particular Kin or tribe nominate their representatives for such committees. In the case of Lower Chitral (Sunni dominated area), the representatives are selected on Mosque level. The offenders are forced to pay the fine (decided on the nature of the offense and customary rule) failing to which results in an even worse penalty such as social boycott or expulsion of the offender to use natural resources for a particular time. The collected income is mainly used for cumulative work and even distributed among the household basis. Mostly such income is spent on building small infrastructure projects; however, if more than one village is involved in such committee, the amount is distributed based on Mosques (Masjids as well as Jamat Khanas).

2.12 Customary Laws (*Dastor-ul-Amal*)

Previous studies revealed that indigenous communities having a direct link either with nature or natural resources have generally seemed more transparent in their thinking and believes in living with harmony by conserving and protecting the resources accordingly. They have also convinced the role of sustainable use in natural resource conservation, and this ultimately leads to evolving indigenous system of the use of natural resources. For this purpose, they have coined their own rules, regulations, and procedures to govern and manage their areas harmoniously. These laws, regulations, and procedures were owned and adopted with minor changes by their next generations. Even the laws, rules, and procedures adopted to address the highly sensitive areas such as equitable distributions of shares and demarcations of the areas were also respected and remained in force for many generations.

So, as a result, very comprehensive and well-regarded laws evolved to govern day to day social interaction. Most of these laws and procedures were unwritten; however, considered a very comprehensive code of conduct to address the daily chores of then generations efficiently. These were the customary laws that provided the baseline to different dynasties such as Raees, Katoors, and Mehtars to frame their laws and regulations for governance.

In Chitral, the natural resource use practices of resident communities and nomads (Gujjars) were structured in principle by institutions produced and reproduced through the statecraft spreading over centuries. In almost every valley, the community has two groups of people: one, Miraskhor (proprietary rights), second, Dastorkhor (user rights). In some cases (especially in newly built towns and villages), a third category also exists as non-right holders. They are the people who came/brought from outside Chitral as a workforce or grazed their animals (mostly Gujjar tribe) during different dynasties. The non-right holders are also called absentee Miraskhor.

As discussed earlier that the absentee Miraskhor were not limited to tenancy. They were hired to work in the army, graze the animals, watch and ward of the natural resources, (wildlife, firewood, and timber). While Dastorkhors is the permanent resident of a community, however, Miraskhors were not necessary to be a permanent resident or a member of the resource-fringed community.

According to Ikmail Shah, a senior wildlife official, Miraskhor have the liberty to enjoy all rights of Dastorkhor and Miraskhor. However, a Miraskhor for one type of resource in a valley might not be a Miraskhor for another resource, and someone else might be Miraskhor for the other resource. The structuring and restructuring of the laws locally called Dastorul Amal or Customary Laws is a legacy of the princely state.

It is quite interesting that the customary laws are not uniform but framed according to the needs and ground realities of a particular valley or community. In broad generalized norms, the Miraskhor had the rights and responsibilities for making lands for cultivation. Their other tasks are to manage the use of timber from forests, hunting of animals and birds,

use of medicinal and economic plants, making and maintenance of tracks and trails, constructing houses, receiving grazing tax from outsiders. The procurement of firewood and grazing of livestock in forests and pastures and regulating any protection measures decided for the conservation of these natural resources are some other central responsibilities of Miraskhor. Dastorkhor was sharing the rights and responsibilities for obtaining bonafide needs of timber for house construction, obtaining firewood in quantities fixed by Miraskhor and grazing of livestock in forests and pastures of the kinds and number of animals decided by Miraskhor. The different natural resources were briefly explained as follows at the merger of the Chitral state

2.12.1 Timber

Forests are the property of the state in Chitral while Miraskhor and Dastorkhor both had the rights and concessions to fulfill their firewood needs. However, the state had the right to fulfill its requirement first and before give any concessions to the community. They also gave contracts to contractors to collect windfall, dead, and diseased tree from the forests and establish the sales depots to cater to the needs of the communities. In case such trees were not available in the nearby forests, they were also allowed to cut green trees accordingly. Cutting of protected trees such as deodar for domestic use or local sale depots was not allowed in order to ensure its conservation and propagation. To ensure the imposition of rules and regulation and handle with the culprits effectively, different positions were created by the rulers. They were called Jungle-Wal, Muharir and Jungle-Afsar and their responsibility were to ensure watch and ward over timber, wildlife, firewood.

2.12.2 Fuelwood

Dry trees, fallen branches, and material were allowed to the communities to fulfill their fuelwood needs. The fuelwood could be obtained for domestic use as well as for sale. The villagers could obtain firewood from the forests falling in the boundaries of the village. Cutting of green oaks trees is forbidden, and in case of any breach, the state officials take strict action.

2.12.3 Wildlife

In the history of Chitral, no specific laws or rules for the management of wildlife existed. The hunting was generally free for all people, and people procured meat in winter through the hunting of ibex, markhor, and birds. They also sold the skins and horns of animals for fetching some money. After 1895, with the involvement of British India in the Princely State administration, some instructions and bylaws were issued from time to time. Some of these laws were enforced, and others could not be implemented. These included imposing restrictions on driving with men and dogs, reservation of certain nullahs for the personal use of a ruler for a particular period, issuing of individual shooting licenses with a fee payable to a ruler. The provision of licenses to hunt the kind and number of big animals also evolved with time. Initially, when the license was introduced for a year of shooting, the holder could hunt five markhors, six ibex and an unlimited number of urial, bears, and leopards. Later it was provided to allow four markhors, six ibex, six urials, and an unlimited number of bears and leopards. Afterward, the shooting of immature and pregnant females was prohibited. There was no separate staff in the old state for the administration of the wildlife and position was not changed till 1975 when the KP Wildlife Act was promulgated and extended to all KP including Chitral.

The Dastor-ul-Amal emerged at the defunct of Princely State for control over game animals, mainly the ibex and markhor (urial was no more of interest for its meager population left), was more intricate. In some valleys, the Miraskhor in terms of agriculture lands was not the custodian of the big game. In general, the valleys, with excellent potential for the hunting of these animals, were allotted to members of ruling families [Governors] or those with local authorities (Hakims). Some gols were allotted to particular families or clans' outsiders to the valleys, and they were vested with regulatory and use rights, having no other Miraskhor's or Dastorkhor's rights in the gol. Other Miraskhors were then sharing the use and hunt of an ibex but were not involved in regulating the game of the area.

2.12.4 Grazing

Every village could graze their cattle in the forests and pastures or could cut the branches of oak for fodder from forests falling within the village boundaries. The forest in each village was divided into three parts and grazed each portion turn by turn each year. For lopping of oak trees, the tree is also divided into three parts, two sides and the middle of the tree. One-Third of the trees are cut each year. For the pastures grazed by the outsiders, the grazing tax (*Qalang)* was received by the Miraskhor. Inside the valleys and in the pastures, crops and fodders were cultivated by Miraskhor. However, there were pastures where someone outsider to the valley collected such grazing tax, and the residents of the valley had no rights of grazing their cattle in these pastures.

2.12.5 Medicinal and Economic Plants

Except for zeera and chilgoza, which were collected and sold as a cash crop by Miraskhors, perhaps no other medicinal and profitable plant have been of concern to the communities. Dastorkhor was not entitled to collect and deal in these two species, and it was a cash crop for Miraskhor. However, other medicinal plants could be collected by Dastorkhor for local use only.

2.12.6 Minerals

Minerals have been the state property, but for communities, no economic or subsistence activity involves these minerals. It has not been generally dealt with by Dastor-ul-Amal, the reason being lack of access for marketing and the lack of capacity and infrastructure for exploration.

2.13 Statutory Laws

After the merger of Swat, Dir and Chitral, princely states, in 1969, the batch of Provincially Administered Tribal Areas were extended, to have a gradual extension of the Provisional civil and criminal codes of laws of settled areas. Dir-Swat Land Disputes Enquiry Commission was set up and in pursuance of their recommendations; the Distribution of Property (Chitral) Regulation, 1974 was issued.

Two orders of Home Dept: of the Govt. of KP of even date, 31st July 1975, one declaring the schedule of properties as State Property of the former state of Chitral and the other declaring the schedule of properties as the personal or private property of the Ex-Mehter, Saiful Maluk Nasir had then followed. These two orders are rooted as fundamental laws of the land tenure and resource tenure in Chitral district by the government.

The schedule of state properties includes some shops in Chitral Bazar, all public rest houses, public recreation grounds, public buildings, forests, except trees standing in cultivated lands, chiragahs (pasture), shikargahs (hunting areas), wastelands, mines and minerals, mountains, public roads, rivers, nullahs, office buildings and forts of Governors and hot springs. The forests, pastures, wildlife, wastelands, mountains and mines, and minerals are subject to such concessions to the public, which the government may determine, and especially subject to the following concessions to the public.

a) Obtain firewood from forests (dry only)
b) Obtain timber for private use under a permit
c) Grazing of cattle to be regulated by the government
d) Obtaining 60% Royalty share on the sale of timber.

The schedule of personal or private properties of the ex-Mehter Saiful Maluk Nasir includes lands in Chitral Gol, Garam Chasma, Balach, Kuck, Zhitar Sanik, Purgol (Shishi Koh), Gardens at different places, *Qalangi* lands in Arandu and Shishikoh, two houses and one rest house and arms and ammunition. All land properties mentioned in the schedule are measured and given in the local unit Chakoram.

The inhabitants of Chitral District, as well as the ex-Mehter of Chitral, believe that these orders are not implemented and that the people have not accepted these orders. Perhaps through the system of “might is right,” the laws are molded and remolded in each one’s vested interests.

In the orders of declaring the state properties, the 'public' has not been defined and perhaps means all resources equal for all people. The concession of timber on the permit (found only in lower Chitral) is equally obtainable by the people of Upper Chitral. This was not the case in customary laws, and the bona fide needs from the forests were meant for local communities.

The three acts, including Pakistan Forest Act, 1972; KP Wildlife Act, 1975; and KP Fisheries Ordinance, 1974, dealing with natural resources were extended to the district Chitral and agencies were created to enforce these acts.

According to the order of Govt. of KP, dated 20.12.75, all forests in Chitral have been declared 'Protected Forests' under the Pakistan Forest Act, 1927. This order entails declaring all trees therein reserved and prohibition of quarrying of stones, burning of lime or charcoal, breaking up or clearing of land for cultivation, for building, for herding cattle or any other purpose in any such forest. In 1981, in a meeting of Council of Advisors [Cabinet of KP in Martial Law Rule], it was decided that the words Protected Forests be recorded in the column of ownership [title] in the settlement record. In case of a claim by an individual for proprietary rights of land in the forest area, such claims can only be valid if the land had been bought before 15th August 1969. It was further argued in the council that in the notification of Protected Forests, the rights and concessions of the village communities had been safeg.0uarded which could be incorporated in the Wajibul Arz of the village under the settlement.

Till 1984, the harvesting of the forest had remained suspended in Chitral due to royalty share dispute amongst inhabitants of forests and non-forests areas, and also between the forest-dwelling communities and absentee landlords.

In 1989, during the visit of the Prime Minister of Pakistan, the people complained about the misuse of forest royalty share being received by disputed owners, who were anti-people elements. The suggestion was given for review of the system and the utilization of

the amount of royalty on development schemes, schools, roads, drinking water, health in this area.

The permits of trees issued by the Forest Dept. for house construction to the residents of the forest valleys and absentee communities have been a subject of confusion while allocating such permits to different valleys. The more influential, the more he deters the forest department and individuals to issue and receive permits of timber from the forests with his right to royalty share, even if the silvicultural availability is there. In some valleys, like Kalash Valleys, people had to protest against issuing excessive timber permits to non-local communities. In 1990, the Chief Minister, KP, directed that the permits from three Kalash Valleys must be stopped. In 1980, one deputy secretary of Home dept., Govt. of KP hailing from the forest area of Chitral, addressed Divisional Forest Officer, Chitral, that the people who had no rights in the forests had obtained permits and were destroying the forests. He desired, no permits can be issued without his written consent. The people of interior forested and non-forested valleys, mainly from upper Chitral, are settling in Chitral, Drosh and Booni towns for better commerce and comforts and the demand for timber has increased manifold, as many people have two houses, one in downtown and one up in the valley.

In the two basic documents, of Govt. of KP the word shikargah signifies the areas of an ibex. However, with the extension of the KP Wildlife Act, 1975, all the wildlife species, are the property of the govt as notably mentioned in the schedules I and III. Similarly, the wildlife resource by species and group is a property of the Govt as well. The protected forests under the Forest Act are de-jure the game reserves under the wildlife act. This practice gives additional protection to wildlife through land tenure. However, while employing the provisions of wildlife sanctuary or national park under the wildlife act, the community's resistance to the regulation and control of the habitat component of wildlife species is always a problem.

Under the present statutes, the concessions of grazing were to be regulated by the government, but no steps have been taken. Communities are likely to resist if any regulatory measure is applied firmly. Similarly, large quantities of firewood are obtained from green

trees of all kinds, even deodar, for local use as well as for sale. There is no control of the forest department on rapid reduction of the forests of the firewood species.

2.14 Saga of Mix Rule

Chitral may be the other parts of PATA, remained in the transition from Dastor-ul-Amal to PATA laws, and still, the land tenure and resource tenure are under the mix rule of the two. The selection of valleys was required to identify the nature of misrule or nature of conflicts arising from the land tenure and resource ownership in Chitral as a result of mix-rule.

2.15 Communication

Rugged mountain peaks and narrow, isolated valleys characterize the northernmost district of Pakistan. Access to the rest of the country and the surrounding region is through mountain passes, mostly closed in winter.

The Lowari Pass [10,400 ft] in the south connects Chitral to Upper Dir district and is the primary land route out of this district. The Shandur Pass (12,700 ft) leads to Gilgit and from there via the Karakoram Highway to the rest of the country. Because of extreme weather conditions, both these routes remain closed for about half a year from December to May. During this period the only access to and from this district is by PIA air service, which is itself subject to the erratic weather. People with an urgent need to reach Peshawar and other areas and suppliers of food/items especially perishable goods tend to use a road that passes through Kunar Province of Afghanistan and re-enters Pakistani territory at Nawa Pass in Bajaur Agency. I had the experience to travel on the route of Kunar-Afghanistan to reach Peshawar in winter. These 200 kilometers stretch of road through Afghanistan is in poor condition but has the advantage of being an all-weather route. However, its users frequently face harassment, hold-ups, and sometimes the loss of valuable goods to outlaws inhabiting this area.

The risk of using this passage is carried out because of the lack of alternative during the winter months. Most bulky items such as ghee, sugar, and wheat are stocked well before the onset of winter in order to last out the season.

The district administration has to frequently liaison with and approached the local Afghan Shura (committee of notables) to ensure the peaceful passage of travelers on this route and to control the activities of outlaws in the area. Despite this, tribal problems and disputes led to frequent closures of the route, causing great hardships to the residents of this district.

The construction of Lawari tunnel is in progress and hopefully will be completed in 2011 –12. Within Chitral district itself, there are only 150 kilometers of blacktopped roads for a total area of 14,500 square kilometers. The vast majority of tracks are shingle or dirt roads.

2.16 People and Conflicts

In general, the people of Chitral are very peaceful, so any significant conflict seldom occurs in the area except on the user rights of the natural resource available. However, minor conflicts related to natural resource use are relatively common between communities.

The conflicts over natural resource use are mainly due to the unclear boundaries and consumptions, lack of alternatives for dependence on natural resource use, unavailability of civic amenities, and lack of action to address the situation concerning civic amenities. Traditional resource use management practices have been in place since long at the village level. These institutions are responsible for resolving any intra/inter conflicts. The people are bound to accept the decision of the elders; however, few people also disobey the decision and prefer to go to the courts for their settlements. Although no formally constituted organizations for resource management are in existence, each village has an informal committee of elders who set regulations on natural resource use and enforce them accordingly.

2.17 Shocks to livelihoods

The major shock to livelihoods in the past has been from severe floods. Catastrophic floods took place in the district in 1992. This affected life, property, and livelihoods. In recent years, the communities have taken steps to stop the occurrence of floods through planting trees and construction of check dams to curb soil erosion.

2.18 Seasonality

There is a strong seasonal effect on livelihoods among the indigenous communities. Sources of livelihoods are limited during winter, especially for those employed as laborers and small business/technical jobs. Agricultural production is also confined to the summers. Livelihoods are also affected during winter due to disruption of road links leading to scarcity of several consumer goods and other inputs required for sustaining livelihoods. Due to disruptions in supply, a thriving "black market" in several consumer goods emerges during winter. Lack of competition and collusion between shopkeepers and suppliers allows them to store consumer goods and later sell them at exorbitant prices. Prices of fuelwood, in particular, rise sharply during winter. Seasonal effects on livelihoods are felt the most by poorer households who often slide into debt as a result of lack of income. The lack of community savings mechanism means that the poor are unable to secure any year-long "savings pot" that they can use during times of hardship.

2.19 Traditional Institutions for the conservation of Natural Resources

Various local institutions/indigenous tools are still operative in the valley of Rumboor Awirat Broghil in one form or another mostly inhabited by the Kalashies. However, in upper Chitral mostly inhabited by the Ismailis and Sunnis of lower Chitral also obey the rules and regulations of indigenous systems. The most significant of these is *Dane* meaning strictly prohibited. The practice is used to ensure prudent use of natural resources through the imposition of intermittent bans and restrictions on natural resource use. In *Dane* prominent figures of the society are bestowed superior authorities to monitor that any of the community members would not violate the *Dane.* Deviation from *Dane* often results in fines and social containment of the violators. The same institution is also used to ensure the appropriate use

of agriculture produces, fruits, and vegetable. No one is allowed to touch the *Daned* agricultural produces, fruits and vegetables before these items are ripe. Similarly, collections of unripe NTFPs are prohibited. The violation again results in fines and social exclusion of the ill-behaved. Both Peter Parkees and Saifullah Jan of the opinion that current development policies and mushrooming of NGOs have also disintegrated indigenous institutions, especially in Kalasha community. This analysis seems partially right; however, it needs practical research on how these NGOs have contributed negatively towards the indigenous institutions?

2.20 Material and Methods

The research for this thesis was conducted from June 2003 to July 2007 on different on and off visits of the selected sites. Having previously visited Chitral number of times, I was familiar as well as quite sensitive regarding the cultural, religious, and social values of the region. I was not fluent by any means in Khowar language; however, by the passage of time started understanding the language that otherwise could have been a significant barrier in data collection. My initial visits were sponsored mainly by the World Wide Fund for Nature-Pakistan (WWF-P) from 1996 till 2000 as an employee to share my expertise with different project executants. I was posted to Chitral as a Social Scientist in 2001 and remained there till July 2005. Because of my previous experience, posting, interest in Chitral, bio-cultural diversity, and excellent attitude of Kho people attracted me to select it as a locale of this study. Data collection phase of this thesis was, as usual, an intimidating and tedious task; however, I used both the traditional as well innovative methods in accomplishing the task accordingly. The first and foremost task was to get hold of the confidence of the community and build a relationship of trust before initiating this assignment. I intermingled with the respondents, and rightfully took the critical advantage of being part of them to whom I had to interact and collect the information in the future. The other significant challenge was to establish my impartiality and detachment from different socio-cultural biases to make the work original. To become well versant of the socio-cultural and ecological issues I spent off and on, four years in the study area. Mode of communication was mainly in Urdu; however, my stay in Chitral enabled me to understand and fairly communicate in Khowar while an interpreter hired, especially interacting with the Kalasha community. By living with community and interaction with them helped in gaining the trust of the respondents and

ultimately helped me in obtaining the authentic data otherwise those people might not have voluntarily and openly shared information which is very sensitive to them and which lays the foundation of their identity. Rural societies in general and in Chitral, in particular, are inherently suspicious of strangers and consequently hard to involve in interactive anthropological research. Many of the subjects that were dealt during data collection, such as land tenure or women's rights, were sensitive issues in Chitral and required indirect, often oblique approaches, to acquire accurate and relevant information. When one avenue of approach to an issue failed, another had to be explored until a complete picture had been built up. The process of gathering the vital data had the potential, from the outset of the data collection, to become quite convoluted.

During the data collection, I used both traditional Mashqulgi (informal discussion in sitting rooms and public places) and innovative tools such as Participatory Rural Appraisal (PRA). I spent weeks and weeks with the communities and keenly observed their daily chores by attending their religious and cultural rituals, weddings, meetings and social gatherings. Generally, my stay was in the hotels however also enjoyed local hospitality while living with locals to observe their everyday situation. I also spent two weeks in the pastures with the shepherds to visit their sacred sites, objects, know tales, myths, and experience their routine activities accordingly. This process helped me to be as close as possible to experience what the shepherds do in the field. Keeping in view certain odds in mind most of my research methods, revolved around unstructured and informal interaction with local inhabitants in which I allowed the situation to dictate where I went and what I did, following what Lyon [2000] called a successful tool for data collection and Bernard [1995] calls 'informal interviewing'.

This data emanated from a participatory process and is based on the experience of a range of experts and laymen such as hunters, old-timers of the area, local intellectuals and managers of traditionally managed areas. As and when the data from the field were gathered, it was reviewed in different meetings and finalized after detailed deliberations. Some passages of the text are relatively repetitive, restating a point or concept several times from slightly different perspectives. This repetition is not an editorial oversight; it is a cultural

idiosyncrasy in the region that, in practice, enhances the level of comprehension of listeners and readers, alike.

Random sampling techniques were used during the data collection process. For the purpose of the study, the district was divided into three geographical areas, i.e., Upper, central, and lower Chitral. Unstructured interviews of three hundred (300) key informants from all three ethnic groups were collected supported by case studies, participant observation, and trend analysis. All the data collection techniques then compared with one another in order to eliminate the information that was weak in reliability and validity.

The research analysis and signifies the traditions and rituals in establishing identity. A proper and significant methodological approach is required to achieve the objectives and finding the solution for the research problem. Qualitative research helps in documenting social drama which occurs between the self and the other who leads towards the detail description of the actor's cognitive and symbolic actions, and further decoding the meanings attached with observable behaviors.

Qualitative research technique was therefore adopted for acquiring the ethnographic data for the research in hand. Ethnography means writing about people and is associated with anthropological studies.

The secondary data for this study was collected from a library in the form of, journals, articles, and documentary programs about the mythical tribe of Kalash people. The secondary data helped to understand the changes that occurred in the region with time.

2.21 Unstructured Interviews

After attaining trust and confidence of the target community, I streamlined my objectives through unstructured interviews [Bernard 1995: 210-236].

Bernard [1995] defines that key informant interviewing is an integral part of ethnographic research. Good informants are people with whom you can talk easily, who understand the information you need and who are glad to give it to you or get it for you.

The other reason for selecting this method was that it remained mainstays of earlier anthropological work to know the information about the cultures of society. Key informants provided the most reliable information, especially regarding the physical geography, institutions and institutional roles and relevant community events. During my first interaction and stay with the community I identified individuals have/had any stake with indigenous natural resource management such as notables, hunters, old-timers of the area [both women and men], storytellers, local intellectuals, religious leaders and managers of traditionally managed areas. For instance, unstructured interviews with shepherds of Rumboor area provided immense information about *Dane* area its boundaries, flora, and fauna, and customary laws existed for centuries. They showed sacred groves and its basis, object (trees, stones, rocks, etc.) considered to be a god or the abode of a god and its immediate surroundings. They also shared taboos associated with such sites included the prohibition of cultivation or cutting of trees and the restriction of access to the river on certain days and persons in certain conditions (such as women during their menstrual period).

I continued conducting unstructured and informal interviews throughout my stay in Chitral with other stakeholders of the study area. Very few structured interviews were also conducted from the government representatives of Chitral such as district, forest, and wildlife officials. Most of the time interviews were conducted directly by me however, in Kalasha community, I used a translator mainly due to language problem. I realized that the informal interviews seemed more effective than the structured ones as most of the necessary information emerged through the unstructured interviews. Anyhow structured interviews too proved more helpful with the educated lots and the government representatives in acquiring the required information accordingly.

2.22 Field notes

I used certain codes [Fischer et al. 1996] to create my main categories during data collection to ensure the things in order. This was a routine work and done daily. Mostly the field notes were written in the same evening and then shared it with the locals in the following morning to ensure its authenticity. After sharing with the locals, I codified them with allotted codes. The notes were then shared with the supervisor every month for his valuable comments and input. After incorporating the comments of the supervisors, these notes were filed for further use. Certain categories, such as anthropogenic, economic, social, ecological were created for easy review. [Lyon 2002: 47] express the importance of field note as follows:

> *"... Content coding is of obvious value for the post-fieldwork phase of research; it is equally valuable during the data collection phase. After allowing myself the liberty of 'stream of consciousness' field note writing, I forced myself to focus on what my notes were about. What was my field note entry actually saying? Who was involved? Content coding allows cursory formal description without complicating the research in sophisticated analysis before all the information is produced."*

Sample of my field notes indicates how coding for social, ecological and cultural context recorded for the best use of collected information [a modified version of Lyon 1998] is given as annex 1.

2.24 Participation as Observer

Keeping in view the participant observation as a unique qualitative research technique that conferred the anthropologist's prospect to study the people in reality; it was used to collect the data from the field. I engaged myself as a participant with the community that was being studied to observe their culture. I also maintained my role being a participant as an observer, and an observer as a participant while avoiding going native. It was not easy to participate in the daily activities of Kalasha community due to their socio-religious and cultural differences, yet a concerted effort was made to observe of their routine and daily activities while staying with them for weeks. Besides, while having a good rapport with them

and key informants, it became possible to find out their real problems their family backgrounds and their way of living. According to Malinowski, [1961: 8.]:

> *"As I went on my morning walk through the village, I could see intimate details of family life, of toilet, cooking, taking of meals; I could see the arrangements for the day's work, people starting on their errands, or groups of men and women busy at some manufacturing tasks"*

2.25 Case Studies

According to Holling [1998], science can be dived in to "two extremes". One can be named as experimental, reductionist, and narrowly disciplinary, while the other is termed as interdisciplinary, comparative, and experimental. He furthered his discussion by stating that the second integrative stream is the science of complex systems. Anthropologists remained in a state of complicatedness in compelling to sieve out their complex subject of study through the first stream of science. In my case, as well ecosystems are quite complex, so single dependent variables are not considered an appropriate choice for a convincing explanation. Keeping in view the limitation, case study comparisons sometimes remain the only option.

This tool helped me while collecting comprehensive data and conducting an intensive investigation of my topic, especially regarding the traditional management systems. Three case studies conducted on Tushi-Shasha Community Game Reserve, *Dane* traditional conservation systems in Ramboor valley and stigma of state-owned conservation systems, helped me know the factual position. I took the case studies of important ecological (conservation & Protection) events that were directly related to the topic of research. While completing the case study, I used the technique of social mapping/historic/trend analyses that helped me to know about the locale's geography and social dynamics and historical trends. The maps of each study area were also prepared with the help of residents. A complete map of the study area with a clear indication of the places of social importance was made during the last days of fieldwork. The social map helped me to understand the nature and routine of social gatherings, daily movements of people of village and history of socio-ecological

changes. It also helped in understanding the human geography of the village, especially the relationship between the natural and cultural landscape.

2.26 Participatory Rural Appraisal (PRA)

Over the past few decades, Participatory Rural Appraisal (PRA) has emerged as a significant tool to collect and authenticate the required data. My experience with the development sector authenticates that PRA enhances the capacity of social scientists to learn from the community members and to investigate, analyze, and evaluate constraints and opportunities. I used a range of techniques such as social mapping, trend and historical analysis to collect the data and information in order to improve my understanding of the socio-cultural aspects of the locale.

The traditional practice of Mashqulgi, in which I sat with the people in their sitting rooms and noted detailed and verbatim account of their important events associated with natural resource management, in a relaxed and friendly atmosphere. Key informants from the communities were contacted before going to the field, and some of the respected people from each community always accompanied me during the PRA. These key informants routinely briefed the community about my activities and dispelled any doubts that the villagers might have had about communicating freely with outsiders. These tools helped me in generating a primary data set to cross-check information that was already collected through the methods mentioned above.

2.27 Problems Faced by the Researcher

In the start, local communities, especially the Kalasha people, tried to be distanced and treated me as an alien. They were not open and remained conscious of the objectives of the study until a trust established accordingly. Secondly, I felt it very difficult to make them understand the purpose of the study and my stay in the field. Some misconception and distrust had been implanted in them by the NGOs, their field staff, enumerators, nonprofessional researchers making false promises to bring projects and certain monetary benefits. It was experienced that field staff of various NGOs and contractual staff who were given a task to collect data kept vigilant on the new entrants as well, approach them instantly.

They present themselves a friendly, best knowledgeable, and helpful person of the area, but they intended to get money for sharing any right or wrong information. Rapport building through a reasonable stay in the field and frequent contact with street children and other stakeholders of the area made it possible for the Researcher to build trust for the collection of reliable data. After having stayed in the field, frequent direct interaction, or interaction through the influential local people, I was able to build trust, and collect the required data successfully.

Another area where I felt some difficulty, especially interacting with the Kalasha community was the language barrier. Though my stay in Chitral enabled me to understand and somehow interact in Khowar language; however, interaction in Kalashwar remained a limitation until the engagement of a local translator.

2.28 Locale and Significance of the Study

The indigenous ways and means developed by the mountain communities of Chitral for the management and conservation of their resources make a fascinating study of human endeavor, to meet their social requirements with the help of meager resources available in their surroundings without depending on external aid or income in the earlier and primitive ages. An inquiry into some of the indigenous strategies evolved in Chitral for resource management highlights the vision, wisdom, and knowledge of a mountain community on a burning issue of today, i.e., the sustainability of natural resources and human activities. Therefore, age-old traditions and mechanisms for the management and conservation of natural resources in Chitral were worth studying for future planning. A survey of available material on the topic and secondary data show that the people of this area had involved various conservation strategies in the past. Glimpses of such traditions are found in the language, mythology, and social system of the society.

The data also revealed that in mid-seventies the advent of government institutions and modern notions of conservation in various forms and erosion of time tested local resource management institutions, badly wobbled the long-standing commitment and ownership of local communities for nature. Once the custodian of their environment, the

local communities retaliated in a very harsh manner to the government increasing role in resource management activities and modern alien notions. The result was irreversible damage to the fragile resource base. Secondary data exhibited that traditional systems, values, and myths emphasize a great deal on the active participation of local communities in every bit of planning, decision making, and implementation of interventions targeting conservation of the natural resource.

2.29 Study Rationale

There exists a common notion that the contemporary conservation models that now dominate the conservation strategies all over the world are a legacy of the indigenous people who established community conserved areas first. Traditional societies have usually established though, sacred areas within their lands and water bodies, where human activities are very strictly, limited and regulated. This tradition of protected areas is still alive and functioning in many parts of the world, although lacking respect, recognition, and support from modern society.

While considering Kho society in light of the preceding discussion following questions emerge and need a careful investigation to explore the strengths and weakness of the indigenous knowledge and values for natural resource conservation to explore as:

- New bio-cultural axiom: that Pakistan's biodiversity might only be conserved by conserving/preserving the diversity of cultural and vice versa.
- Either we can correlate between bio-diversity richness and cultural diversity

These are areas where environmental historian and researchers have to make a significant contribution. The study has tried to explore the answer to these questions using the parameters and principles of anthropological science. Following were few objectives of the study:

- Highlight the importance of indigenous management systems through focused research, including their documentation and comparative evaluation of these systems in different socio-cultural settings;

- Explore the possibilities of integration of traditional knowledge and modern management systems for effective and sustainable natural resource management;
- Investigate strengthens and weaknesses of indigenous management systems and their impacts on conserving natural resource;
- Review the causes of erosion of these institutions and the possibility of their revival.

Chapter 3

An Evolution from Cultural to New-Ecology

Anthropologists defined ecological anthropology as the study of the nature-culture relationship over time and space. These relations could be between the population dynamics, social organization, cultures, and their surrounding environment. Ecological anthropology as a subfield of anthropology assists to examine the ways that how relations form the population's economic, social, and political life and how a population influences its surrounding environment. [Salzman and Attwood 1996:169]. It is the Haekel [1870] who worked on ecology and shared with us its modern understanding. He defined it the study of the economy, household and animal organisms or other words a relationship of animals with the biotic and abiotic environment. Darwin further narrated these relations either beneficial or detrimental for the struggle of existence" [Netting 1977:1].

The saga of evolution started as a reaction to Darwin's theory when few anthropologists looked towards environmental determinism as a mechanism for any further explanation. We are quite aware that Charles Darwin [The Origin of Species,1859] a new called "synthetic theory of evolution" mainly based on the idea of descent with modification. According to this theory, more persons/animals are born than can survive, and this ultimately arises the competition between them. So, the Individuals with favorable characteristics survive to reproduce, and mainly it is the environmental context that determines whether or not a trait is beneficial.

I consider Julian Steward, one of the pioneers and the anthropologist contributed a lot for the advancement of cultural ecology. He initiated field research on Native Americans of western United States from 1920s-30s, on their interaction with the natural environment. The credit of developing a formal theoretical and methodological framework for cultural ecology during 1950-60 also rests with Steward. He used a new term multilinear evolution for a process of multiple pathways for adapting to the same biome over time. In order to support the newly coined term "multilinear evolution" he compared the cultural ecology of societies at the same level of socio-cultural integration (tribes, chiefdoms, states) in the same

biome (e.g., deserts, savannas, or tropical rainforests). His research revolved around the detailed ethnographic investigations of the cultural ecology by identifying the natural resources that the indigenous communities' use for their subsistence and how the native people established institutions for the wise use and management of the resources. He also explored different factors that influence other aspects of the culture. Though new components of the anthropogenic research, however, Steward's work on cultural ecology is still considered as an underlying general theme for the anthropologists.

Environmental determinism was considered unnecessary in 19960s by the then anthropologists for the ecosystem approach. While on the other hand, cultural materialism of Marvin Harris was also criticized mainly due to his stance that cultural features as adaptive. His research deterministic even though few anthropologists consider the cultural materialism more deterministic than cultural ecology [Milton 1997].

Moran [1990:16] criticizes the ecosystem approach for its tendency to endow the ecosystem with the properties of a biological organism, a tendency for models to ignore time and structural change, a tendency to neglect the role of individuals, and a tendency to overemphasize stability in ecosystems.

Neofunctionalism is a 1960s revision of British structural-functionalism that experienced renewed activity during the 1980s. Some neo-functionalists, influenced by Parsons, analyze phenomena in terms of specific functional requisites. Others, although they place less emphasis on functional requisites and examine a variety of phenomena, also share similarities with functionalism by focusing on issues of social differentiation, integration, and social evolution. Finally, some neo-functionalists examine how cultural processes [including ritual, ideology, and values] integrate social structures. Generally, there is little emphasis on how phenomena meet or fail to meet system needs [Turner and Maryanski 1991].

Neofunctionalism differs from structural-functionalism by focusing on the modeling of systems-level interactions, particularly negative feedback, and by emphasizing techno-

environmental forces, especially environment, ecology, and population, thereby reducing culture to adaptation [Bettinger 1996:851]. Both neo-functionalism and structural-functionalism explain phenomena regarding the needs they fulfill. They consider problematic cultural behaviors to result mainly from benefits they generate that are essential to sustaining or improving the well-being of larger systems in which they are embedded, these systems being cultures in the case of structural-functionalism and ecosystems in the case of neo-functionalism [Bettinger 1996:851].

Structural-functionalists believe these benefits are generated by behaviors that reinforce group cohesion, particularly ritual, or that provide the individual with adequate mechanisms for coping with threatening psychological situations by means such as religion or magic. Neofunctionalists, on the other hand, is concerned with issues that relate directly to fitness similar to that in evolutionary biology [Bettinger 1996:852]

From 1950s-1960s, Brent Berlin, Charles Frake and Harold Conklin, etc. are considered a pioneer in developing ethnoecology within cultural ecology to explore different aspects more specifically. Ethno-ecological research deliberated on how different cultures examine different aspects of their environment. However, this view was mainly based on their classification of particular domains of nature, such as soils, animals, birds, wild plants, or insects. As the language plays a vital role in the classification, so ethnoecology functions at the crossroads of linguistics and cultural anthropology. It is mainly due to cultural ecology and ethnoecology that have generated in-depth, comprehensive and dependable traditional environmental knowledge that was the outcome of millennia old of adaptation of the communities of their ecosystems in a particular habitat. For instance, Shinwari and Humayun Khan has shown that only in one valley of Swat Pakistan 200 species of plants from the seed to the reproductive adult stages available which, local inhabitants use for food, medicines, crafts, building, and other purposes that ultimately provides how a community interacts with their ecosystems accordingly. Critiques argue that anthropologists have to explore in detailed the relationship between saying and doing of indigenous people in their respective areas in order to exceed the confines of solely linguistic investigations and ultimately become more relevant to ecology.

In the 1960s, due to Julian Steward's efforts, ecological anthropology considered as a sub-field of anthropology. Initially, this development emerged in response to cultural ecology. The focus of Steward's research was focused on culture as a unit of analysis by analyzing different modes of subsistence as methods of energy transfer and how they establish other aspects of culture. Earlier ecological anthropologists believed that a unit of analysis should be humans. They considered culture as a mean by which the ecological population (humans) change and become accustomed to their surrounding environment. It was typified by, functionalism, systems theory and negative feedback analysis [Kottak 1999]

Then eventually the prominent anthropologists mapped human population's cultural features keeping in view their surrounding environmental information. The main objective of drawing a correlation was to highlight environmental determinism. [Milton 1997]. The attempts of seasoned Boas, Malinowski, and others led to the realization that environmental determinism could not sufficiently account for observed realities, and a weaker form of determinism began to emerge [Milton 1997]. On the other hand, Julian Steward came up with a new term 'cultural ecology.' According to Netting [1996:267], Steward analyzed adaptive responses of similar environments that seem responsible for the cross-cultural similarities. His theory focused on a culture core, which mainly revolved around economic arrangements and subsistence activities. [Steward 1955:37].

We see that from 1960 to 1970, environmental determinism and cultural ecology started losing lost support within anthropology. Conklin [1954] coined a new term of ethnoscience. Eventually, his anthropogenic methods and work were used in exploring ethnobotany on the understanding of knowledge systems. Other anthropologists and researcher also jumped on and explored new vistas by developing quantitative methods to know relative importance, distribution, and usefulness of a species to the people. In addition to developing quantitative methods, ethnobotany emerged as an essential discipline together with the other aspects of the natural world. Ethno-botanists started to be recognized as

ethno-biologists as these disciplines are comparatively more appropriate to explore the human-environment interactions with the surrounding environment. Ethno-biologist also provides opportunities to analyze external factors and people's relation effectively.

As the things moved further, the ecological anthropologists came up with a new school of thought, including the ethnoecology, historical ecology, and ecosystem model, [Barfield 1997:138]. Anthropologists thought that ecological anthropology and the study of adaptations would help to explain customs and institutions [Salzman and Attwood 1996:169]. Ecological anthropologists considered that species (populations) are not in contact with the whole environment around them, but instead with a specific habitat consisting of certain selected traits. Also, each population has its adaptations institutionalized in the culture of the group, especially in their technologies [Salzman and Attwood 1996:169].

One can divide the ecosystem anthropology into three stages, mainly due to a reaction to the previous one rather than merely an addition to it. The first stage is characterized by the work of Julian Steward and Lesile White, the second is termed neo-functionalism and neo-evolutionism, and the third one is called processual ecological anthropology.

Despite the difference of opinion and criticism on each other's work a consensus agreement also exists that ecological approaches have played a significant role in the advancement of anthropological knowledge. Especially we witness the emergence of a new scientific viewpoint after the application of biological ecology to cultural anthropology. Anthropologists also agree that extended sustainability models to the development are mainly due to ecological anthropology. Any research or study under an ecological framework provide better opportunities to the anthropologists to know more about any indigenous community's close interaction with its environment. It is due to this subfield that our perceptions about the consequences of the development of the Amazon enhanced. While this emerging framework also played a pivotal role especially in understanding complex culture concerning their ecosystem in northern parts of Pakistan.

During 1960s-80s, renowned anthropologists such as Andrew P. Vayda, John Bennett, Roy A. Rappaport, and others work helped in transforming cultural ecology into ecological anthropology. This accomplishment was due to their study on the role of human population in the processes of energy flow and nutrient cycling within their ecosystem by applying a system approach. Their emphasis was also on the collection of quantitative data. For instance, Rappaport experimented with New Guinea's Tsembaga people known for shifting horticulture by measuring their caloric input and output. He made a link of customs and rituals in maintaining a balance between human and pig populations as competitors of the same food. This research gained fame, and during 1964-1974 and number of international biological research organizations did their research on the similar system of the ecological framework.

From 1980-1990 due to the extensive efforts of the anthropologists, two additional methodological and theoretical frameworks were emerged develop. This effort helped in exploring ecological anthropology on a scientific basis and on more holistically. The credit goes to Marvin Harris as one of the pioneers who enthusiastically worked on the development of cultural materialism as a research strategy by exploring and sharing the ecological rationale underlying various aspects of culture. He rated infrastructure necessary and most influential mainly due to its role as the ultimate adaptive mechanism for the endurance of individuals and society. He emphasized that infrastructure is mainly responsible for the rest of the cultural system. His work was mainly on rituals, customs (sacred cow) and prohibition of eating (eating pork by Jewish and Muslims) by sharing the explanatory power of cultural materialism.

Similarly, Harris emphasized that Hindus does not slaughter cow mainly due to its more benefits such as milk, dung, fuel, fertilizer, and plowing than meat. Evolutionary ecology also emerged as another innovative framework. According to anthropologists such as Eric Alden Smith and Bruce Winterhalder, the focus of adaptation rests with individuals. They decide to use their natural resources based on cost and benefits. This shows a direct link between human ecology with evolutionary theory.

However, both frameworks were criticized by the anthropologists. Despite the criticism by the contemporary anthropologists, both frameworks helped in taking forward the human-environment relationship as simplistic and reductionistic. Nevertheless, both have proven to have some validity and utility in advancing the anthropological.

Ecological anthropology further expanded the research options in 1990 with the addition of historical, political, or spiritual aspects of human ecology and adaptation. William Balee, John Bennett, and Carole Crumley, among others, developed a diachronic approach to examining the interactions between the socio-cultural and environmental systems over extended periods as they transformed one another within a regional landscape. Previous research had been mostly synchronic, examining a particular society as if it was isolated, traditional, static, and timeless, and also as if the society had no lasting cumulative impact on its environment. The latter was static as well. For instance, in the African Republic of Guinea, conservation pundits and natural scientists described the leftover forests near villages saved from deforestation by villagers mainly due to surrounding savannas. However, James Fairhead and Melissa Leach believed that these forest patches were conserved because of the rituals of the villagers and declared the efforts and forests more than anthropogenic than purely natural. The number of studies on historical ecology gives more consideration than cultural ecology on the impact of external factors (cultural content, globalization) on societies or ecosystems.

In the beginning, different anthropologists and critiques were of the view that ecological anthropology it static, oversimplified, and mainly based on circular reasoning. This criticism has shifted from oversimplification to cultural relativism, with an argument that in its original form, it relies on cultural relativism as the norm [Kottak 1999]. In my personal opinion in our contemporary world, very few cultures are left that live in isolation. Even these cultures still influenced by different development agencies (government as well as non-government), proactive media, and the local economy. In response, we see a shift of the discipline more towards applied ecological anthropology, environmental anthropology, and political ecology.

We witness a clear but complex relation of the inhabitants with their environment in ecological anthropology. Inhabitants of any ecosystem are directly affected by either positive or negative impacts on their lands, flora, fauna, and climate, around them. It's the ecological anthropology that enables us to know that how inhabitants of an ecosystem shape their environment and how these relations help in forming their social, economic, and political life of a population [Salzman and Attwood 1996:169]. In a general sense, ecological anthropology attempts to provide a materialist explanation of human society and culture as products of adaptation to given environmental conditions [Seymour-Smith 1986:62]. Now it seems quite clear for the anthropologists and other researchers that how political ecology is vital in human-environment interactions. It also has strong links with issues of social, environmental justice and economic situation of any society. One can study how the economic policies of international lending institutions, regional blocks, and national government influenced the economies of third world countries like Pakistan. An anthropologist can help in finding a link between human rights and the environment that is relatively juvenile in Pakistan as most of the regulatory bodies seem unaware about this nexus and ultimately failed in addressing it coherently and coordinated way. It has now been established that nourishment, health, housing and livelihood are the subsistence rights and then ultimately become the part of human rights. So, to better comprehend the environmental human rights situation of Pakistan in general and Chitral in Particular anthropologists can assist in digging out that how any shift in the natural resource management or use paradigm of any community undermines their subsistence rights and then eventually affect the human rights too.

I think that anthropologists especially involved with ecological as well as environmental issues, confront challenges. Though they have similar concerns both for nature and the culture, however, feels difficulty in their analysis when nature and culture are either in competition or conflict. For instance, one can quote the example of Makah Indian Tribe of Washington states were in confrontation with the conservation groups in the mid-1990s for the resumption of their hunting rights of grey whales as part of their cultural traditions. Nevertheless, these were limited rights; however, no one was ready to show any leniency in compromising their rights. While another example might be from my locale Chitral where the wildlife department was adamant in giving centuries-old grazing rights of

the communities in a newly established National Park, while in retaliation communities were involved in the illegal cutting of forests and indiscriminate hunting of the wildlife. In such cases the role of an environmental anthropologist emerges with great significance, how can play a role of mediator between the conservation as well as cultural groups to secure a win-win solution since they are sensitized accordingly of both disciplines/situations.

Faith and spirituality are undoubtedly other factors beyond historical and political factors that have a powerful influence on human-environmental interactions and in addressing environmental issues. Religion is an ancient cross-cultural, while spirituality is an integral part of religion but mostly depends upon personal relationships with other individuals, nature, and the supernatural. Persons who practice spiritual ecology are quite convinced that aggravating natural resources and environmental issues can be addressed and arrested through a fundamental change in the way humans relate to nature. These changes could be in the attitudes, values, and behaviors of any person. No religion is either being blamed for the cause or solution of any ecological crisis but can be very useful in modifying the conducts and creating an enabling environmentally friendly orientations. Religious beliefs and superstitions have an essential influence on how people behave with their nature and their level of acceptance to a change.

On the other hand, anthropologists are of the view that indigenous technologies are much cheaper and easy to operate and manage than the scientific one and have a tendency to play an imperative role in the sustainable management of natural resources. It is mainly due to a realization that scientific knowledge has failed to contribute its role in the development of societies and the conservation of natural resources. [Murdoch and Clark, 1994].

Since 1990 we witness a shift when some of the considerable diversification of approaches within ecological anthropology put more emphasis on applied rather than basic research. Even though worsened eco-crises anthropologists focused more on highlighting and addressing practical environmental issues. Survival, adaptation, and change concerning culture and communities remained the key subject of the anthropologists by pursuing various approaches within ecological anthropology. However, they concentrated their research on practical aspects such as the role of traditional knowledge of the traditional communities to

promoting substitute means of economic development. They also looked at the sustainability of the alternative economic models within the local, national, and global perspective. Few anthropologists attempted to know the relationship between local communities and protected areas established by the public sector and conservation organizations to conserve natural resources, while some of them declared this act as an issue of human right. Most of them were of the opinion that by declaring the area as protected is an encroachment of the outsiders and the centuries-old traditional rights of the communities compromised. Anthropologists also consider how variables such as gender, socioeconomic class, nationality, and identities relate to environmental matters.

After the emergence of eco-system ecology as a study of complex system, it has not only answered most of the early criticism but purposes theory and methods to address ecosystem as complex system started playing an important role. Keeping into consideration the mature and sensitive anthropological interests regarding ecological as well as environmental concerns different renowned organizations such as Anthropology and Environment unit of the American Anthropological Association's membership has approached to hundreds. Special periodicals, textbooks and anthologies; and specialized training programs at various universities are part new prominence attained around the world. Now instead of its overriding concern with equilibrium systems, climax communities, and simple deterministic models it started recognized by complex adaptive systems that possess intriguing structural qualities, such as resilience, hierarchy, scale, nesting, dissipative structures, and autocatalytic design, emergence, development, directionality, history, co-evolution.

After redefining the ecology of the ecosystems, the situation in anthropology is quite dynamic. Now anthropologists and other social scientists and their disciplines have started recognizing the importance and value of ecology. Departments either of the universities or colleges are offering historical ecology, ethnobotany, ethnoecology, environmental justice, environmental history, political ecology, eco-feminism, symbolic ecology, human ecology, evolutionary ecology, environmental anthropology, ecological anthropology, ecological economics, sustainable development, traditional ecological knowledge [TEK], conservation,

environmental risk, and liberation ecology. Anthropologists and scientists have conducted several reviews [Biersack 1999, Kottak 1999, Little 1999, Scoones 1999]. Scoones writes that the “theoretical framings” of the social sciences often presuppose the “discussions of the environment on an equilibrial view, excluding the chance of engagement with newer debates in ecology” [Scoones 1999: pp. 489].

Today very few ecological anthropologists pledge to the notion of cultural ecology. Studies conducted within cultural ecology were limited to egalitarian societies. Furthermore, it is a theory and methodology used to explain how things stay the same, as opposed to how things can change [Balee 1996]. There is an apparent lack of concern for the historical perspective, as well. By the 1960s, many anthropologists turned away from Steward’s views and adopted the new idea that cultures could be involved in mutual activity with the environment. The term ecological anthropology was coined to label this new approach.

Though still, there are specific challenges in integrating human and biological ecology. However, the most inflexible continue to be disciplinary boundaries and the inherent complexity of the subject matter. I am quite convinced that boundary issue can be addressed through initiating research by different journals of ecology.

Furthermore, environmental issues are also influenced by economic, political, and ecological aspects. Most of the conflicts of the world are due to environmental issues too. Few of the countries of sub-continent that are vulnerable to environmental conflicts include including Afghanistan, Bangladesh, Nepal, Pakistan, and Sri Lanka. Particularly the issues about climate change have furthered the environmental problems and communities around this part of the region have become prone to it. For instance, floods of 2010 in Pakistan were termed as a slow-motion catastrophe. It swiped away lives in an instant, and an estimated 17 to 20 million people were affected. The widespread devastation caused by high floods in the country in a matter of less than a month presented horrid pictures of people, livestock and property being swept away by the surging waves fed by a torrential downpour. Entire villages were wiped out and infrastructure severely damaged in different parts of the country. That had caused a situation of conflict in Pakistan. Ecological as well as environmental

anthropology have significantly proved to be central disciplines in contributing research from local to a global level in handling natural resources, floods, and other environmental issues effectively. Anthropologists have a significant contribution in highlighting crucial natural resource as well as environmental issues such as habitat destruction, population explosion, natural resource depletion biodiversity loss, pollution, and other hazards such as floods etc. The new paradigm will provide an opportunity to marry the latest ecological research thinking with anthropogenic aspects.

I am quite convinced that ecological as well as environmental anthropology have paved a way and maturity in developing our understanding about the human ecology of local, national, and global levels. However, that future depends on replacing ecocide with eco-sanity, and that in turn requires far more attention to the information and insights of the disciplines and professions that contribute to environmental studies including ecological and environmental anthropology. Ecocide is by far the greatest threat to the security of every being on planet Earth. Eventually, the prosperity of any society is directly dependent on its healthy habitat. For instance, the projection of future climate change indicates that a sharp decrease in water availability and quality in arid lands is quite evident in the next few decades. This is likely to have severe impacts on food security, natural resources such as endangered species and water, especially in the subsistence agro-pastoral systems. So, ecosystem ecology will help to deliberate on the interventions, procedures and institutional arrangements required to cope up with climate change considerations, including adaptation measures so that they are further enhanced and accounted for in natural resource policies and management. It will help in exploring the following:

Identify the information and knowledge gaps in natural resource management and climate change;

Know the impacts and risks of climate change to natural resources such as floods, droughts, and food security issues;

Know the severity of these impacts on the ecosystem in the future (short, medium and long term)

Chapter 4

INDIGENOUS NATURAL RESOURCE MANAGEMENT SYSTEMS IN CHITRAL

The capacity to develop and form organized groups is probably one of mankind's earliest survival strategies. The innate social, cultural, and economic inter-dependence of human beings has favored the development of organizations throughout the known history of humanity.

These Organisations enabled people to work for common interests and made it possible to identify mutual needs correctly. Studies of the ancient civilizations of the world have revealed that thousands of years ago the concept of organizations for conducting social, economic, ecological and political affairs of the society existed in one or the other form.

The human societies that were existent in the valleys of Karakoram and Hindukush Range had traditional values that, in context, exhibited as much capability and depth as any other developed society of the world. Organizations evolved with time to accommodate the needs of the age yet managed to keep their original form to some extent intact. The existence of an organization is, therefore, not a new concept for the people of Chitral. Even in today's day and age, the people of Chitral still apply a range of ancient indigenous principles in conducting the affairs of their daily lives in a better and sustained way.

In the evolution of traditional natural resource management system human experience has been recognized as a source of knowledge and studies of the Indigenous knowledge of people is considered one of the rich sources of information on the development of various disciplines in humanities. We know that new emerging disciplines such as ethnobotany, traditional natural resource management systems, values, myths, folk ecology, ethnoecology, traditional knowledge, customary law is the legacy of Aboriginal people. They have

developed and practiced these disciplines for centuries until they got recognition accordingly [Johnson,1992].

The old and traditional concept of folk ecology, ethnobotany, traditional ecological knowledge, and resource management in Chitral is well depicted in two proverbs of Khowar. They say “Choti Choti Daryah” (These are drops of waters which make a river). Another proverb goes; “Boghako Chakey Angar mo dophawey” (Do not ask an outgoing fellow to put off the fire). These two concepts join together to make a modus operandi for resource management in Chitral. A firm belief in saving and protecting the resources and a determination not to leave the place of birth makes a code of conduct for the conservation of nature. He who has to leave his native place is not supposed to rely on. He who is determined to live in the community knows that the environment, the biodiversity, and the eco-system have to be passed on to his coming generations, so he takes care of nature and natural resources. This futuristic vision and tendency of caring for nature have been instrumental in the evolution of the indigenous mechanism for the use of range resources, game resorts, pastures, and farmlands. However, this heritage is under threat due to many reasons that include erosion of values, socio-economic progress, and material development **[**Faizi 1996]. Following is a short description of indigenous resource management system of Kho.

4.1 Traditions of resource management in Khowar

Khowar, the predominant language of Chitral has got a rich vocabulary depicting the ways of resource management and conservation. For instance, words such as *Oshniru* (pure and unpolluted), Chetu (impure), Saq (imposing a ban on the use of woodland), *parhtiek* (blocking the movement of a flock or herd or banning a portion of pasture or meadow to the users for a particular period), *Pecheik* (to compel someone to give up a bad habit or plenty), *Kushun* (smoke, source of pollution) etc. quite frequently used in Khowar language. All these show the attitude of the primitive society in the past towards conservation strategies and resource management. Apart from these, there are also some fables and old sayings on this topic in Khowar; A famous proverb goes: - “Baramush ki Baramush boi, ma nirwazro chogh aloya” (had the headman been a competent person my harrow would have never been stolen). In another proverb they say “Reni shum ki hoi lou istani goi” when the dog is incompetent,

then the fox climbs the rooftop). Such sayings stress on the need of a competent headman and guard to protect the environment from the miscreants and predators.

4.2 Chitral and natural resources management Institutions

Participatory management of natural resources, especially forests, wildlife, and associated resources, is not a new phenomenon to the people of Chitral. Since ancient times, communities residing in the region have developed various tools to ensure conservation and sustainable use of natural resources. Data collected from different stakeholders identified the following traditional institutions responsible for the socio-ecological management of the area.

- Organizations at the regional level;
- Organizations at the Graam or village level; and
- Organizations at the domestic level

4.3 Regional organizations

In traditional Kho was society, the foundation of the communal unit is a reliable and well-ordered array of grades or ranks from the bottom to the top of society. Due to the geographic location of Chitral, which leads to protracted periods of physical isolation from the surrounding areas in winter, most resources and natural resources, in particular, have traditionally always been shared. Historically the people have always collaborated for mutual benefits in activities like the conservation and distribution of water, management of pastures, forests and natural resources, and defense against invaders. Systems that originated hundreds of years ago but are still of relevance today, speak volumes of the wisdom of the ancient Kho was society.

4.4 Farm Lands/Orchards

In the traditional Kho society, farmlands and three alternative arrangements managed orchards. At first instance, each family used to look after his crops and orchards. This is a standard practice in the case of people having small landholdings. The 2nd alternative was

farming through tenants[13] , and this is a way of doing things by the elite class who possessed larger quantities of land. Another alternative was leasing out. It is a common practice by both the classes.

Yield per each unit of land was sufficient for the need of farmers. The state procured ten percent approximately of the produce as a compulsory tax of ushr.[14] According to Islamic Law, it was sold to the needy people from the state stores, and any shortage of food grain was met out of this stock. No food was imported from outside.

4.5 Forests

In Chitral, forests and range resource are considered the most valuable assets of the community. The management measures devised and applied for the protection and conservation depended on the scale and quantity of the resources. In the upper Chitral, more restrictions were observed on the cutting of forests for timber and firewood purposes due to the scarcity of the resources. While in the central and lower Chitral, fewer restrictions have been imposed by the decision makers of the indigenous institutions. The main reason for this concession was the abundance of forest as well as range resources in the southern part of Chitral. These resources were mainly used by the inhabitants of both parts of Chitral based on their established rights as Miraskhor or Dastorkhor. The tribes, clans or families who had propriety rights over a forest, alpine range or highland pasture were considered Miraskhor. The enjoyed the right to grow crops in highland pastures, shoot game animals and receive "Qalang" (grazing tax) from the outsiders. They were allowed to sell their grazing rights either to Miraskhor or Dastorkhor with the consent of the respective tribe.

While on the contrary, Dastorkhor had only user rights in forests, woodlands, alpine ranges, or grazing lands. Their rights mainly depended on the availability of resources in the particular valley. In densely forested areas such as Shishikuh, Ashiret, Beoli, Jinjiretkuh, Bomburet, and Chitralgole, etc less restriction was imposed on Dastorkhor for the collection

1 Indigenous Resource Management in Chitral, a report of IUCN-Pakistan.

[14]Ushr is a tax levied on agricultural produces

of fuelwood and timber. In parts of upper Chitral such as Mulkhow, Torkhow, Mastuj, and Lotkhow, they got fewer opportunities on the exploitation of both fuels as well as timber due to the scarcity of trees and vegetation.

Indigenous communities had formed time tested, centuries-old institutions to ensure the wise use of their resources. For that purpose, they were adhered to follow an unwritten customary law (Dastor) honoured by successive generations of Kho over centuries in the past. It was considered a credible code of conducted enjoyed full respect and ownership by the local inhabitants. Abiding of the Dastor was obligatory for the communities. The resources were conserved and used by the locals on the following principles:

4.5.1 Timber

According to Dastor; timber was allowed to the Miraskhor (owner) and Dastorkhor (User) for construction of house in the southern thickly wooded zones of Chitral and Drosh. Both Miraskhor and Dastorkhor were not allowed to sell their rights to anybody. In case of any breach, they were either levied fines or their rights were withheld by the institution responsible for the management of such resource.

4.5.2 Fuel Wood

The collection of fuelwood was allowed to both Miraskhor as well as Dastorkhor; however, preference was given to Miraskhor to fulfill its needs first. Though Dastor remained silent however the people assumed that they had to collect the dead and dried or fallen trees from the forests. In the verbal code of conduct, it is called “Chuchu” (fallen) or “Cherdu” (dry one). As far as the alpine rangeland of the northern zone is concerned, there were precautionary measures and specific restrictions for collecting firewood, may it be birch, willow or any other species of low growing shrubs like Artemisia. The range of resources are divided into three main categories: -

4.5.3 *Hajati*

In the alpine ranges, a small quantity of juniper, birch, willow, and Asiatic poplar is allowed to use in the construction of houses and making agricultural tools such as a plow. This type of wood is called *“Hajati”* (worth using), and it is allowed to the

owner class only. No one is allowed to sell or cut the wood more than their allotted quota. Otherwise, they are fined, and all the wood is confiscated by either the community or the regulatory bodies. *Hajati* is still operational in some regions of Chitral where indigenous management systems are still intact.

4.5.4 *Chogh*

The young shoots of birch and willow are used in basketry. This concession is allowed only to the owners. In order to ensure the propagation of particular species rooting out the plant is strictly prohibited. The person has to ensure the institution that he will not destroy the habitat and fully adheres the code of conduct in its actual letter and spirit. He has to show and get cleared its tools to the regulatory bodies before going to the area.

4.5.5 *Palik Daru*

Fuelwood is called "*Palik Daru*" in Khowar. Most of the inhabitants in Chitral relay on this source of energy for centuries. As mentioned earlier, there were no restrictions on fuelwood collection in the southern zone of Drosh and Chitral in the past. The communities interviewed felt that they have enough resources of firewood at present and thus have taken no steps to stop the extraction of firewood or impose restrictions on its use. It is freely brought and sold in the market. However, in the northern and western zone of Mastuj, Torkhow, Mulkhow, and Lotkhow, wood is scarce on the mountain slopes and highlands; therefore, people have adopted several measures to check deforestation in these mountains and side valleys. Mostly they have grown fast-growing species to fulfill their energy needs or use fuel-efficient technologies that consume less wood.

4.5.6 *Saq*

Saq is the original method of conservation. It remained quite successful and still operational in some regions of Chitral such as Ramboor, Bamborate valleys to check deforestation accordingly. *Saq* is administered through devised rules by the community. The bylaws are dynamic and framed keeping in view the ground realities and objectives of the community. A similar type of conservation models also exists

in other parts of the country and are known as *Pargure* (in Pushtoon areas) and *Rakh* (in Punjab, Balochistan, and Sindh). They are considered quite successful in arresting the floral as well as faunal losses efficiently. Opening of *Saq* is called as *Saqo bechey rik* whereby decision will make how long this area will remain open and how much one could get benefit from the area during the *Saq* period. *Saq* System is quite common in the Laspur Watershed area, and this system is implemented when the need is felt. The local community of Laspur imposed *Saq* in Bashqar Gol. The *Saq* committee regulates the use of rangelands and fuelwood collection for the stipulated time to provide a rest period for the growth of the resources. The members of this committee perform their duties turn by turn during fuelwood collection season (November). During November, Bashqar Gol is opened for 5-10 days, and the households of the owner villages are allowed to collect their designated (right) quantity of fuelwood. Owing to the overuse of forests in the Bashqar Gol the committee has implemented a ban on the collection of fuelwood from the area for ten years since 2001. The members from the committee assure the implementation of the ban. The village/gram elders usually declare *saq* and nominate a person who is called as "Ann wall" to look after the protected area and prevent any violation in the area. *Ann wall* is not paid but enjoys additional benefits from the "*Saq*" area in the form of collecting more fuelwood than others. Ann wall is given full authority to decide on penalty and set on fire the seized resources gathered unlawfully from the protected areas. Similarly, Gol wali means range protection, and this was a valuable tool to ensure participatory management of natural resources. Traditionally all the range resources were managed through a collective system timber, and game animal are taken as assets of the rangelands. There used to be a tribe or cluster of tribes who were in possessions of the range resources including timber and game animals, birds. Under the participatory management, only a few families or members of a specific tribe are allowed for hunting during certain months of the year. Similarly, timber from typical range forest was not allowed to every individual in the community. It was the privilege of certain tribes and families. The management tool of GOLWAL was there to ensure that the community is vigilant, and there is no violation of rules. This system was well in place in Laspur and Bashqar Gol valleys of Chitral. Different

forms of *Saq* practiced in different parts of Chitral and contributing significantly in the conservation of forests in the valley:

A. *Aam Saq*

"*Aam Saq*" (general ban) is imposed on wood cutting and grazing areas on need basis. This paradigm restricts the inhabitants to enter into the protected area declared under this regime. Areas such as Ochusht Chitral and Laspur Mastuj are under this ban. All the restrictions are abiding by the people; otherwise, a social embargo is observed against the person who breaches the agreed code of conduct.

B. ***Khas Saq***

"*Khas Saq*" is unique ban on many undesirable activities in a rangeland or pasture for a particular period. For example, axes, sickles and sharp weapons are not allowed, or fire weapons are banned in a protected locality for a specific class, i.e., the "Miraskhor" or Dastorkhor. This type of *Saq* is imposed successfully in Bashqar gol Laspur valleys of Chitral. There is a collective realization that the protected areas model that now dominates the conservation strategies all over the world is a legacy of the indigenous management systems which established protected areas first. During my stay in Chitral for data collection, I observed the positive impacts where human activities are strictly limited and regulated by traditional institutions such as *Saq*. This tradition of conservation is still alive and functioning in many parts of Chitral despite lacking respect, recognition, and support from modern society.

C. *Muqarar Saq*

Muqarar Saq is quite active in Shandur and Bashqar gol (Laspur). Under this regime, different areas of the tribes or clans are protected; however, they are allowed to collect a certain quantity of fuelwood for consumptive use on the sustained way. Miraskhors are allowed to take 5 to 10 donkey loads while Dastorkhor's share remained less than the Miraskhors. In case the regulatory bodies feel that resource extraction is not sustainable and may damage the area can ban or reduce the agreed quota.

4.5.7 *Parhteik*

Parhteik is used for checking the indiscriminate cutting of certain species of plants by the owners or users. The species is conserved or protected due to its ecological or

religious-cultural value. This model is quite successful in protecting a species from extinction. There are quite several examples such as patches of birch, Juniper and Artemisia species that have been given protection by the communities of Rezhun Laspur, Bashqar gol, and Balim and Booni Mastuj respectively. According to Inayatullah Faizi, the college authorities of Khandan have also imposed *Parhteik* and now emerged as the habitat of a number of plants as well as bird species.

4.5.8 *Pecheik*

Pecheik (snatch or confiscate) is an unwritten code of conduct for the successful execution of "*Saq*." The laws are framed to penalize the violators by a high-level committee of elders/notables. This committee is called "*Saq doyu*" in Khowar and comprised of influential members from the Miraskhors. Its ToRs includes regulation of rules, ensure vigilance, and deals with the day to day affairs of the institution. The high powered committee ensures that the community is abiding the rules, and no one is breaching the rules. It also notifies to the concerned persons that he has exhausted its quota and warns him in case of any misconduct. The committee is fully empowered to conduct sudden raids and in case of any breach is liable to confiscate the wood or fine the guilty. Community is bound to honor its verdict, and no one is allowed to go to the court of law against the decision.

4.6 Sagacious use of pastures

Pasture or grazing land is called "Mal Rochini" in Khowar. These grazing lands are adjacent to the human settlements, hamlets, and villages with the scarcity of resources and used for grazing during the fall, winter and spring seasons. These are sunny slopes of mountains, small plateaus, and alluvial fans. People at the grass-roots level love their pasture as much as they love their home and hearth. Pastures are divided into three categories according to size and resources. In bygone times, both high and low elevation pastures were used. Horses, yaks, cattle were left to roam freely in the high pastures to safeguard against thieves, guards called 'waals' (protectors) were appointed. Under this arrangement, two or three households took the responsibility of driving the herd to a safe place where it could be adequately guarded. All of the households in the village took turns at this responsibility. The pastures at lower elevation were reserved for small livestock such as goats and sheep, which

needed to be safely corralled in the evening. Following are a few traditional systems used for the wise use of pasture in Chitral.

4.6.1 *Qalangi*

Qalangi means open for the outsiders. This system is imposed in certain areas that have abundant resources. The Miraskhor, owner clan or family rents out their rangelands or pastures to herders mainly the Gujjars for a fixed *qalang* or grazing fee. The fee is fixed according to the nature of agreement based on resource availability, accessibility, and animals. Different animals have a different fee for grazing and payable either in the form of cash or kind such as butter, ghee, or cheese. The pastures of Shah Jinali (Torkhow) Bashqar gol (Laspur) Chumarkhan (Mastuj) Golen (Chitral) Shishikuh (Drosh) Gobore (Lotkhow) Aviret gol (Lotkhow) and AGraam (Lotkhow) are a few examples of qalangi pastures.

4.6.2 *Ghari*

Ghari is another model of using summer pastures by the Miraskhor and Dastorkhor. These pastures are comparatively nearer to the settlements used as summer resorts by the community. Due to the sacristy of resources outsiders discouraged or banned to use these pastures. Certain pastures have human settlements and also used as croplands. *Ghari* is quite active in Torkhow, Mulkhow, Mastuj, Booni and Laspur areas of Chitral.

4.6.3 *Peasali*

This system revolves around the shepherding the animals collectively by the villagers through a selected shepherd. For this purpose, active, energetic, and trustworthy boys are selected/hired from their village to graze their sheep and goats in the pastures. The owners of the goats were bound to give ration '*onaar*' by sharing one roti (bread) for the young peashal (shepherd*)*. While on different festive occasions, the herder was given a share that consisted of wheat, maize, or oats. By the rule, herder had to graze the goats of the villagers for three years, and at the termination of his contract, he was also given few kids and lambs born during his shepherding. Though this system has limited to a few places; however, traditional communities who still believe in strong cultural values is practicing this model in their respective areas.

4.6.4 *Sot Seri*

Sot Seri is an alternative to '*peashali*.' In places where '*Peashali*' is not practiced due to any reason grazing of animals was a duty of every household on their turn. In case someone could not perform its duty, then they have to arrange any labourer from the market or deposit the amount to the committee member responsible for the operational aspects of Sot Seri. Then the member has to hire a person to graze the animals accordingly. This model is still practiced in limited areas of Chitral with certain modifications.

4.6.5 *Batai*

Batai (Paid for shepherding**)** have mostly replaced *Peasali* and Sot Seri in Chitral. This is mainly due to the non-availability of the young *Peashal* in the villages. Now the villagers hire a person from the market to graze their livestock. As an additional incentive, the shepherd is also allowed to gaze his limited number of animals in the pastures. Though this system is most prevalent in Chitral, however, considered less ecological sensitive as a hired person lacks the ownership of the areas and least interested in the conservation as well as protection of pastures.

4.7 Rules of Shepherding

The indigenous time tested but unwritten rules, bylaws, and code of conduct exited among the communities for the wise use of resources and proper conservation of their grazing areas. These rules were abiding both for the owners as well as shepherds. Shepherds were aware of the sensitivity of the habitat and had a grazing plan to avoid certain likelihoods of overuse. The committee responsible for the management of such institutions was vigilant enough to take remedial measures in case of any breach from any party. According to the notables during data collection, the shepherd who failed to abide the code of conduct had to deposit a certain amount as fine and was blacklisted from any further assignment. Myths also played a pivotal role in making the house in order. The mythical concept of "Shawan" was

used rather still in practice in certain areas to make it binding on the community to abide by these rules.

According to these myths, the activities that seemed harmful for the ecosystem or habitat are supposed to displease “Shawan,” and ultimately, one can face the anger of superstitious custodians of the pastures. Due to this burning of grasses, killing marmots, rats, snakes and washing clothes or taking a bath in running waters are banned in the pastures. By these acts, the “Oshniru” (pure) environment of the pasture becomes Chetu (polluted) and “Shawan” gets furious. Her anger may result in retaliation against the shepherd or his herd. Fire weapons are also a banned item, and predators are to be kept away from the herd through precautionary measures. These measures include burning animal dung outside summer settlements at night, beating drums and exhibiting clothed models of human figures in the camping area.

4.8 Livestock Products and Traditional Institutions

People of Chitral remained self-reliant in livestock and its products from time immemorial mainly due to their geographical isolation, especially in winters. They have traditional methods to preserve their dairy products such as butter, desi ghee (saturated oil), and cheese. During my stay with shepherds, I witnessed the preservation methods of the indigenous communities. Cheese and butter are filled in tins and sometime cartons made of birch and poplar barks. These cartons were then stored in underground bunkers. In winters, the collected items are then sold for their food and clothing. In upper Chitral, mutton is dried for the winter days. This is also quite common practice in Afghanistan and Pushtoon areas of Pakistan. In Pushtoo language it is called Landhi. Cheese is served to the guests and considered one of the essential items for the festivals of Kalasha people. Animals are also slaughtered on religious, social, and cultural ceremonies. Livestock provides relief during an economic shock and are sold to ease the hardship of the family. Woollen Patti is a trademark of Chitral and is liked by tourists from other parts of the country. The local items made of animal skin such as shoes, jackets, and bags are also made and used locally.

4.9 Hunting in Chitral

Chitral valley is quite famous for its wildlife. Several large, medium and small mammals, pheasants, migratory birds, and reptiles inhabit in this part of the region. Hunting of animals remained the primary hobby of the local inhabitants and considered part and parcel of their daily life. One can see, Markhor, Ibex Musk deer, Snow leopard, Black bear, Snow Partridge and long-tailed Marmot in the wilderness of Chitral. The indigenous people have a long history of living with harmony with wildlife and being fully aware of their importance from time immemorial. They have chalked out a number of rules and code of conduct for the hunters and shooters of the big game. Shawan mythology has a significant role in the conservation of wildlife. These superstitious creatures are considered the owners and custodians of wild animals. Hunters have to follow a specific code of conduct to avoid any displeasure from the "Shawan." Hunters are supposed to please the fairies and seek the help of "Shawan" for peaceful co-existence and a successful hunting adventure. Following are a code of conducts considered obligatory in the traditional society of Chitral.

4.10 Hunting Rights and Code of Conduct

According to the traditional "Dastor" or bylaws hunting of big game, animal is the right of the Miraskhors in their respective Nullahs or designated areas. Very few people belong to the owner class and among them intensely exercise the right of hunting. Besides, there were professional people among the commoners who were called "Mershikar." They trained hawks and dogs for hunting and assisted the owners in hunting. These people are experts in locating, fixing, and shooting the big game. The amateurs used to have an "ustad" (tutor) for the purpose and learn the "rules of business." Their services are hired by the owners to enjoy hunting in the wilderness. After the merger of Chitral state into Pakistan and replacing the customary laws by the statutory laws, wildlife became state property. Due to this shift, traditional hunting is no more practiced in the valley. Trophy hunting is allowed for the foreigners as well as locals; however its affordability is the major constraint for the locals.

4.11 Code of Conduct

Quite elaborative and extensive code of conduct had been framed by the indigenous societies to discourage indiscriminate hunting and genocide of wildlife since centuries. These were strictly followed till recently by the hunters to avoid any unrecoverable damage to the wildlife. These are:

4.11.1 Seasonal Hunting

Mating and pairing seasons considered sensitive and hunting was banned during spring and summer. The rationale behind this prohibition was to ensure the breeding of animals and caring for their offspring's accordingly. However, hunters were exempted in case of "Thawazhu" (the lonely he-goat trespassing from one valley to another). This is considered a very adventurous and tiring expedition as "male goat" often managed to escape in the rugged mountains and seldom hunted by the shooters.

4.11.2 Restriction on the Hunting of She-goat

The traditional code does not allow the hunters to shoot any of she-goat during pregnancy and nursing of a baby-lamb/kid. As mentioned earlier, that the rationale behind this restriction is to provide a safe breeding ground to the animal to propagate her race safely. In the case of a breach, strict action was taken against the violator of the code of conduct. That included fines or social boycott of the guilty person by the community.

4.12 Construction of Roads and Bridges

In the past, it was the duty of the local people to manage and safeguard the roads, footpaths and different bridges between adjoining villages. For this purpose, a committee 'jirga' was formed that allocated duties to different tribes. Each tribe provided appropriate construction tools and a guard or 'serwaal,' who were paid in kind, was posted at every bridge

4.13 System of Irrigation

The local people constructed irrigation channels, and it was their duty to look after them. Traditional knowledge is used to construct the water channels by applying gradient force to transport the water from higher elevations to lower elevations. In the difficult terraces, pipes and wooden planks are also used to transport the water. The number of studies

has been conducted that narrates how gravity was used by the indigenous people in transporting the water in ancient times. For instance, farmers used gulas (tree trunks) in transporting rainwater to their farms. The other objective of using the tree trunks was to minimize the seepage losses [Sharma and Sinha,1993]. Each household was bound to provide workforce and the necessary tools for this purpose. Every summer, a man called a 'meerzhovay' was appointed to take care of the irrigation channels, and each household was obliged to pay him a fixed amount of grain.

Apart from this, every year in March and June, the channels were cleaned. For this purpose, each household or individual was required to clean that part of the channel that passed through their land or compound. In the event of a natural catastrophe like flood damage to the channel head works, the whole village shared the responsibility of repairing it. One individual from each household was required to participate in the repair work or to provide a hired labourer until the repairs were complete. This can be quoted an outstanding example of self-help for problems solving within the means of society. They also protect the watersheds of the valley to ensure sustained supply of water for drinking as well as irrigation purposes since centuries.

Now it's quite clear that indigenous people are the pioneers in developing and applying the traditional vegetation management systems that still exist in Tropical Asia [Pandey, 1998 and 2002a], South America [Atran *et al.*, 1999; Gomez-Pompa and Kaus, 1999], Africa [Infield, 2001], and other parts of the world [Brosius, 1997; Berkes, 1999]. Indigenous people still practice specific values and ethics in order to manage and conserve and regulate their natural environment accordingly [Callicott, 2001]. Such models are interlinked with indigenous rainwater harvesting that ultimately helps in planting the trees, propagating rangelands and associated flora which in turn support a variety of fauna. Same is true for Chitral as its traditional water harvesting techniques have successfully provided substantial amounts of water both to nature and society.

4.15 *Graam* level Organisations

The indigenous unit of Social Organization is called "*graam*." It is a village unit in which different tribes collaborate for the management of natural resources. In some localities, due to geographical interrelationships, most villages had one or more *graams*. Each *graam* had its mosque, a separate graveyard and a separate pasture for their livestock. The passage of time has weakened traditional values and degraded this custom to the extent that it is now only applied to burials. New methods have been adopted for the other issues related to the original *graam* system, and this traditional arrangement has lost its effectiveness. A Khowar proverb quotes a dialogue between two ladies. One of them asks the other to explain how an army is raised. Her reply is simple; "Our husbands join hands, and that is the army". Joining hands for a common cause or community tasks is in the very nature of the people of Chitral. All farming and herding activities are organized at *Graam* level. Special occasions, festival, and other events are managed by this unit. In the social hierarchy, "*Graam*" is smaller than a village and more prominent than a household. Trust and confidence are the spirit behind this system. The conventional values of *Graam* are binding on every member of the *Graam*. During the past days, there were no complaints or litigations on matters related to the settlement of community affairs. Participation of all people in the traditional institution is a prerequisite for its successful implementation wherein people, belonging to a particular area and benefitting from a particular part of natural resources, called as *Gram*, become part of the management system. Though the village elders are given a waiting age due to their age; however, clans, family and personal integrity are few other pre-requisites of *Grams* membership. Accountability is chiefly embedded in the traditional system; all people, including the managers of *Graam*, are equally responsible for good governance and transparency. The roles and regulation governing the gram system are known as "Gramkhali" have the status of unwritten laws evolved based on traditions, religious beliefs, and local statutes based on conventions. Violation of these rules and regulations that were based on traditions, customs, religious beliefs, and moral values were very rare. However, an elaborate system existed to punish those violating the above rules and regulations. For example, the goat of a villager not participating in the rehabilitation of the village's irrigation channel without justification and valid reason would be slaughtered, cooked instantaneously, and distributed among those participating in the above work. More critical and effective was the

system of social boycott. The individuals who violate the Gramkhali rules and regulation refused to accept the penalties imposed under the Gramkhali were subjected to very strict social boycott. This included a boycott of the individual concerned on the occasion of death/ marriage in his/her family and total isolation of those individuals from society.

There are many instances where these institutions failed to address a particular issue due to undermining accountability and transparency. For instance, in *Owir Arkari,* local people placed *SAQ* system to improve the governance of forest but failed due to lack of proper accountability system accordingly. Traditional institutions have trained their members in such a way, that they might extend possible help to their neighbors in terms of cash and kind. They had also created linkages with each other to develop moral values. They felt the financial constraints of their neighbors and helped on the spot. Serious nature problems of the neighbors were discussed in the Mosques, and Jamat Khanas and remedial measures were undertaken. To strengthen affiliation and brotherhood with their neighbors, the people exchanged their daily food and arranged evening gathering conveniently. In these gatherings, significant issues at the household and community level are discussed and solved. On the occasion of marriage, the people extend all possible help to the individual concerned. The material assistance that the villagers extend to male members on the occasion of his marriage was known as “Pandar” and the assistance extended to the female member was called “Cheghache”. Also, the villagers help the family by attending the guests, helping the family in preparation for food and making other logistic arrangements, etc. The objective of the gram system is to fulfill all the requirements and needs of the village relying on the local resources and making effective arrangement for the functioning of the village system.

Similarly violation of *Dane* (protection of forests) the committee has outlined penalties and fines for offenders. The rules/regulation, penalties, and elegant charts were mostly displayed at public places, and special announcements were also made in social gathering about the Dane area, Dane period, and beautiful structure. According to the recommendation of the committee, the offenders will face following fines and penalties if Dane is not followed:

- PKR. 30/goat (if the goat enters and grazes in the *Dan*e area)
- PKR. 200/cow

- PKR. 500/horse: (if the horse enters the *Dane* for more than two times then cash equal to one goat price is charged from its owner)

4.15.1 Mone

"Mone" is a local word for an indigenous system of providing social services by turn. Under this system, every person of the village assembled for collective work such as the cleaning water channels or burying of the dead. Taking turns in helping with farming or other collective tasks is also categorized as the *Mone*. This responsibility is taken relatively seriously by every household, and it is prevalently practiced even in current times. *Mone* is also applied to the mutual arrangement of individuals for particular farming activities**.**

4.15.2 Yardoi

Farmers tilled their land within the village unit with mutual assistance and then implemented a system called "*yardoi"*. Under this system, people helped one another in substantial tasks such as the construction of houses, harvesting of crops, wood cutting, the moving of heavy items from one place to the other, rehabilitation of uninhabited or/barren land, etc. '*Yardev'*, the helper, was not paid but was provided with meals. This system is still intact in most of the areas of Chitral.

4.15.3 Hoyu

The system of '*hoyu'* provides for the lending of domestic animals like donkey and bull to each other on a rotational basis. Accordingly, two households having one bull each will be able to till their croplands turn by turn. A household having one donkey can pool up to five donkeys for heavy loads to be transported on the same day.

4.15.4 Mirzhoi

Mirzhoi is the system of maintaining water channels by collective efforts. For this purpose, the Graam hires the services of one or more than one person who look after the water channel. The Graam manages to pay them in kind of food grain at the harvest time in a certain quantity agreed upon by both the parties.

4.15.5 Serwali

Serwali is another social system, which facilitates the maintenance of a bridge used by the *Graam,* through a hired guard on a certain quantity of food grains to be paid

on the harvest. This system has been given up, due to the involvement of government in the matter. In the past, each household contributed timber and workforce to construct the bridge. *"Serwal"* or watchman was responsible for small repairs while the annual or major repair was done by the *Graam*. Similar arrangements are there for acquiring the services of priest, blacksmith, and potter, making utensils of wood or clay. At present tractor, thresher or school van is acquired for a *Graam*, on the same pattern. *Graam* has a significant role in human resources management in the society of Chitral.

4.16 Women's Organisations

Women in Chitral often work together with their men in farming activities, and they have their organization for this purpose. This system brings them together for various tasks like cultivating and weeding the fields and carding wool. This organization functions at the *graam* level. Women who work in the fields in such groups are called *"nullahsn doveo"* in the local language. However, their contribution is neither recognized nor rewarded either by the traditional institution or society as a whole. Though women still work with their male members; however, this system is inactive at the movement in Chitral.

4.17 Ethnobotany in Chitral

Pakistan is comprised of different ecological zones that inhibit both floral as well as faunal diversity. Geographers have divided it into four phytogeographical regions. These include Sino-Himalayan, Saharo-Sindian, Irano-Turanian, and an Indian element. Pakistan has 6,000 species of wild plants out of which about 10 % are of medicinal value [Hamayun *et al.*, 2003].

During my interaction with a different segment of society, local people have ample knowledge about the use and importance of medicinal plants. In Chitral, traditional healers (Hakeems) still use these plants in curing their patients effectively. Different parts of a plant such as bark, flowers, seed, leaves, and shoots, etc. are used to cure various diseases. For instance, Indigofera's bark is used for abdominal pain; its shoots are consumed by the sheep and goats [Ali *et al*; 1996], while local people also make ropes from its branches. Another

multipurpose tree species is *Birmogh* (Walnut). Furniture made from walnut wood is quite expensive while other parts of the wood are excellent fuelwood for the local inhabitants.

Similarly, the root bark of walnut (Miswak in Khowar & *Dandasa* in Pashtu) is used for cleaning and sparkling teeth. Its fruit is tasty and not only have domestic consumption but also exported to other countries of the region [Shinwari and Khan 1999] and [Ahmad *et al*.2004]. People of Chitral have other miscellaneous uses of plants grown in the areas. They used them as vegetables, spices, dyeing, ornamental and aesthetic and decoration, etc purpose too.

The indigenous people had acquired the knowledge of ethnobotany from trial and error. Traditional communities have a strong belief in traditional treatment and still use different plans or go to Hakeems (traditional healers) for treatment. During data collection, it was revealed that the first preference of the 70-80 % local inhabitants of Chitral for curing their disease is still upon the local plant resources of their area. This has helped in the evolution of traditional folk recipes. Studies indicate that indigenous communities in several countries of the world still use the medicinal plants, for the prevention and control of human as well as livestock diseases. In fact, one of the key reasons to practice indigenous recipes is primarily due to the cost of allopathic medicines [Hoareau and Da silva, 1999]. For instance, 106 plants species are used in India's Andhra Pradesh state only to cure their veterinary diseases [Cousins,1995]. The indigenous people are also quite familiar with the antibacterial, antiviral, and antifungal properties of plants.

4.18 Traditional veterinary practices in Chitral

Chitral is known for his livestock and number of sedentary as swell nomadic livestock owners. Livestock, mostly sheep and goats, is the main source of livelihood in Chitral. Most of the livestock owners are, however, poor, live in remote areas and depend on ethnoveterinary medicine that deals with the folk beliefs, knowledge, skills, methods and practices about the health care of their animals. They rely on locally available skills and materials and often require little or no cash outlay. Mainly plants having certain chemical properties are used in combination with natural and supernatural healing practices. Local

traditional healers are considered good ethnobotanists and are aware of the chemical properties and uses of the plants about the treatment of animals. In addition to the ethnoveterinary practices, the same knowledge is applied for the treatment of rural people, especially in those areas where modern health facilities are still considered a nightmare. [Mopi, N. et al., 2000]. The major reasons for the traditional treatment include; 1) no side effects, 2) low cost, and 3) lack of modern veterinary medical facilities [V. Padmakumar, 1998].

Traditional treatment, either of the human or the animals, has official recognition. Especially in most of the oriental countries, this practice is quite common and a source of their foreign exchange too. For instance, China continued the legacy of traditional medicine by providing health care coverage to its significant portion of the urban and rural population. [Aregbeyen, 1983; Bodeker, 1994]. Consequently, Pakistan could not harness the maximum potential of traditional medication mainly due to non-recognition this traditional discipline by the public sector. However, in this part of the world, especially before colonial rule had an organized traditional health care system, and quite accessible and affordable for the inhabitants. Centuries old traditional institutions were discouraged by the colonial administration and promoted the modern medical care in the subcontinent. [Aregbeyen, 1983; Schram, 1971; Warren and Green, 1998; Okoth-Owiro, 1994].

Conversation with the livestock owners revealed that they have a fear to use modern drugs. According to the local inhabitants of Chitral, these drugs have side effects such as termination of pregnancy, abnormalities in the fetus, skin eruptions, etc. The other reason to use these ethnomedicines is there low cost and availability of the ingredients locally. In villages where the nearest veterinary hospital is 10-15 km away, farmers often consult the traditional healer. A small number of the healers involved in the present research were said to be remarkably professional, enjoying an excellent reputation among the farmers in their locality. These healers have their ready-made drug preparations, such as herbal tablets and ointments. Many of the diseases treated with traditional remedies are husbandry-related ailments such as mastitis, bloat, and diarrhea, etc. The villagers believe that above-said conditions could be adequately treated with local knowledge and that no outside expertise is needed. However, it is acknowledged that the effectiveness of the treatment depends on the

stage and severity of the disease. In modern medicine, fever is not regarded as a disease, but rather as a clinical sign of a disease. However, the indigenous healers accept fever as a disease, and specific drugs are prescribed to cure it. It is noteworthy that almost all the farmers and traditional healers in the survey also considered fever as a ‘disease’ and were quite satisfied with their treatment for fever.

Many conventional veterinarians in the study area did not promote indigenous practices because they did not appreciate the role of traditional medicines for health care. As a result, many livestock owners ceased to use local practices, while those who continued to rely on them did so in secret. This means that the knowledge and use of ethnoveterinary medicine declined. Pastoralists are mainly dependent on indigenous health practices. Nomadic people are aware of the local plants used in the treatment of their livestock and can identify disease-infested areas or toxic plants. They also do the surgery of the animals, too [Ndi, 1990]. The main reason for low-cost medicines is the availability of their raw material in abundance and availability of cheaper manpower.

The testing of ethnoveterinary treatments for their efficacy has been initiated not only on-farms but also on-stations. For example, Nuwanyakpa et al. [1990; 1995a; 1995b] and Marcus [1992] have undertaken several studies on the anthelminthic efficacies of some medicinal plants. As mentioned earlier that during data collection, I was amazed to know the knowledge of the livestock owners. The information is seconded by Mathias-Mundy and McCorkle [1989] by stating that local people who keep the livestock have exceptional knowledge of ethnobotany. They are aware that the primary source of ethnoveterinary medicine is from plants. This knowledge of the livestock owners, especially pastoralists, have successfully laid a foundation for sorting out useful plants as potential sources of medical drugs around the world [Spore, 1992]. This understanding has helped the reasonable number of ethno-pharmaceuticals to be biochemically active in the field of traditional health care as 25% of all medicines are of direct plant origin, while the remaining 75% are from animal, plant and synthetic products [Spore, 1994].

Similarly, livestock owners of Chitral also have a good understanding of the plant parts and quantities needed, and the methods used in harvesting, processing, storing, preserving and utilizing medicinal plants to ensure good drug efficacy and to enhance the survival of plant germplasm. Various parts of the tree such as bark, leaves, roots, and fruit, are utilized in the preparation of medicine for a particular disease or an ailment. Besides, farmers also employ the ingredients available in the house, such as spices, which are found in every household and are also widely used to obtain relief from specific human ailments. This underlines the fact that the availability or non-availability of the ingredients is one of the significant factors determining the popularity of a particular remedy. The traditional healers possess excellent working knowledge of all herbs with Ayurvedic properties. There is a specific combination for the treatment of each disease, and all the healers combine two or more plants in the preparation of each drug. Many healers collect their ingredients locally, but some also buy them from local shops “Pansari”, which sell the roots, bark, fruit, and seeds of medicinal plants in dried form. Most of them treat the animals themselves.

In Chitral, skin diseases are more prone to be contagious from one flock to another. Therefore the indigenous community is more vigilant about this problem and thus follows indigenous treatment. They use old engine oil (preferably due to its sulphur content), and wood ash is used for the treatment in various skin conditions of animal diseases while honey is also used on wounds to promote healing. The mode of action is believed to be partly achieved through an osmotic effect, which draws fluid into the wound. This fluid serves to flush out dirt and other contaminants and thus promotes healing. Goat keepers boil the leaves of the castor oil plant to provide a viscous liquid which they use to control mange in their goats. Another effect of the indigenous medicines has also shown response in systemic ailments.

In recent years, increasing attention has been paid worldwide to traditional and “alternative” medicine. A great deal of work on the traditional use of plants and treatment methods in both human and animal medicine has been carried out and many traditional disease-prevention systems are highly effective. Not only are these strategies cheaper to use than pharmaceutical drugs, but they are locally available and are frequently simple to learn

and relatively easy to apply. Moreover, they do not have negative side effects or build-up resistance associated with pharmaceutical drugs. It has to be borne in mind that some traditional practices may not be effective or may even be harmful so it is important to phase out the less effective or may even while preserving, the more useful ones. However, there is now an increasing number of initiatives that recognize the value of this knowledge and aim to capture and disseminate it. The process of information collection in this context has to be very different from Western scientific research, as information is gathered from traditional healers and livestock-keepers. Only through their active participation can a complete picture of the local know-how obtained and useful materials produced and disseminated in appropriate languages.

4.19 Advantages of traditional organization

In the past, because of being socially organized, the state of Chitral was self-sufficient in natural resources, means of transport and production of meat and dairy products. These organizations played a vital role in promoting peace, harmony, and brotherhood. Collective defense and the buldoi system also emanated from the traditional social systems of the region. Few other advantages of indigenous management systems, values emerged these are as follows.

4.19.1 Combined effort to solve problems

Some issues cannot be resolved individually but need the collective attention of the whole society. The organization is a lesson in collectivism because it solves many problems within limited resources and a confined period, saving both time and resources.

4.19.2 Promoting Democratic values

A fundamental principle of a good organization is to ensure progress without discrimination based on caste, or political affiliation while involving all people equally. The traditional organization also helped to nurture democratic values and provided opportunities to all the members to express their views. Each individual's opinion is equally valued so that equal access to all available resources is guaranteed.

4.19.3 Conservation of Environment

Indigenous organizations helped to create awareness of the environment and related issues through indigenous based initiatives. An effective organization made people aware of how important the environment was in their lives and how it may be degraded and destroyed; how they can minimize the risks and enjoy an environment that is clean, health conductive and rich in biodiversity.

4.19.4 Conflict resolution

The successful process of becoming organized was also very helpful in resolving conflicts. The local communities got together to solve their problems and work together for social and economic development. Ideally, this whole process was transparent and democratic and was carried out based on equality. Such an approach minimized tensions and confrontation and, with time, conflicts tended to find their solutions.

4.20 Revival of the Old Traditions

There are few instances of the revival of the old system to check environmental degradation. The examples of Ochusht (Chitral) and Sor Laspur (Mastuj) can be well quoted where the community has reached a written agreement to impose specific rules of *Saq* or ban on the use of forest or range resources and pastures. These documents were required to avoid the anticipated chance of violations and litigations. Such agreements have three or four clauses stating that the community has concluded that the situation of free for all has created environmental problems like the extinction of vegetation and growing danger of floods, etc. Then the community's determination is recorded for imposing several bans on the illegal use of forests and pastures. Specific penalties are suggested upon those who resort to violating the agreement. In such documents, the area and duration of the ban are mentioned.

4.21 Modern social organization in Chitral

Contemporary social and conservation organizations are also functional in Chitral for few decades. These institutions are established with a rationale that people should participate in decision-making and to allow them to benefit from its rewards. In this regard, Aga Khan Rural Support Program (AKRSP) is to be considered a pioneer in initiating a system of rural

development on a self-help basis in 1980. The basic aim of this program was to amalgamate human, natural, and financial resources so that they could be used for achieving collective goals. The AKRSP considered the village as the basic unit and initiated different activities at this level that included the training of local people, completing development projects and provision of soft loans. Now, most of the organizations in Pakistan are more or less based on the Rural Support Program [RSPs] model. An amazing phenomenon noticed during the data analysis was that the "Village organization" concept of RSPs is the traditional concept of "*Graam"* because in a single village more than two village organizations (VO's) were formed to avoid the conflict of interests among different *Graams*. Then there is the revival of the office of Baramush in the new concept of cluster organization consisting of more than two village organizations. This is how the AKRSP has translated an indigenous system into modern terms. AKRSP and SRSP are affecting development in land resources of agriculture and livestock in terms of their infrastructure like irrigation channels, hydel power, tracks, roads, bridges, land leveling. The communities are helped with expertise and technology transfer in agriculture, veterinary, and animal farming, where the role of VOs and WOs is quite limited. Other worth mentioning organizations include SRSP, IUCN, WWF, etc. All are promoting and extending the practices of community participation. It is usually referred as the development below the irrigation channel. AKRSP has been lately approaching in the NRM, focusing on pastures and medicinal plants; however, no venture at community level activity could be successfully initiated. Presently, for community participation in the wildlife management, community game reserves are notified under the provisions of the Private Game Reserve, of the KP Wildlife Act, 1975.

4.21.1 Conclusion

The human-nature relationship is traced back to the primordial days, and the concept of conservation is not new for Chitrali Communities. They have been utilizing, worshipping and conserving nature and its various components since centuries. Despite the fact that the strong binding between human and nature conservation remained an intricate part of the indigenous communities. The traditional institutions assembled in the chapter reflect the commitment of indigenous people for the conservation and management of their resources. However, this relationship has either been changed or changing with a rapid pace due to utilitarian influence and replacing the customary laws to statutory laws. Statutory laws often

overlay customary laws that may not be written down but are broadly understood and used by community members. The people of Chitral lived day-to-day according to their customary laws and confronted with statutory laws only when government officials or outsiders became involved in an issue. Data indicates that this has ultimately resulted in the indifference attitudes towards the available natural resources. The study also reveals that indigenous paradigms are the result of centuries-old experiences of the people of the region practiced by many generations and are the engines of action, especially in Chitral. These are time-honored and, in most cases are still acceptable by the people however its sustainability will remain a question mark till the actors involved appreciate the intellectual integrity and respect and continue to learn from such systems in ways that to allow those to better understand and articulate, and their values as conservationist biologist/planner and resource users.

Chapter 5

VALUES, MYTHS AND NATURAL RESOURCE IN GENERAL AND AS PERCEIVED IN CHITRAL

Chitral is blessed with cultural as well as biological diversity, is considered to be the home of several endemic and endangered flora, fauna, habitats and ancient cultures. The area had limited resources, and for their optimum and sustainable use, it was necessary for the people to adopt specific measures that could satisfy and sustain their needs to some extent. Safeguarding communal rights and privileges by every individual was another principle to be followed to make their small world worth living. Thus with time, the communities developed set systems and values for the efficient and sustained use of their natural resources viz., land, forest, pastures, fauna, flora, and water.

The value and the benefits of wildlife can be classified into consumptive and non-consumptive use of wildlife. Consumptive use is one form of the direct use that may either be traditional (hunting for meat, collection of medicinal plants, etc.) or non-traditional (trophy hunting). Non-consumptive use generally refers to non-use values (see Table 1). Non-consumptive benefits may also be of traditional or non-traditional nature. Traditional non-consumptive values embrace the cultural use of wildlife, including the reverence of certain species and use of wildlife imagery in art, folklore, and religion. Non-traditional non-use values include the existence values of wildlife as perceived by the conservationists of the developed countries. In other words, natural resources that provide numerous benefits are related to the various use and non-use values of resources. Use values comprise direct use values, indirect use values, and option values [Barbier, 1992a].

Table 1: Values of wildlife and wild lands

Use Values		Non-use Values	
Direct Use Values (Both traditional and non-traditional)	**Indirect Use Values**	**Option Values**	**Existence Values**
Harvested product for traditional and non-traditional consumptive use	Ecological functions	Future uses for direct and indirect use values	Biodiversity
Recreation and tourism	Protection functions		Cultural heritage
Genetic material	Waste assimilation function		Spiritual
Education	Microclimatic function		
Human habitat	Carbon store functions		

Notes

(a) Direct use values are the resources and services provided by directly harvesting and exploiting wildlife and by natural/areas.

(b) Indirect use values cornpri Seminal the environmental functions of natural areas ecological functions (such as nutrient cycling), protection functions (such as ground cover for key watersheds) waste assimilation functions (such as the retention and detoxification of pollution) and wider functions (such as microclimatic stabilization and carbon storage). These Environmental functions are indirectly supported economic activity and human welfare. However, individual wildlife species may also have important indirect-use value through key ecological roles.

(c) Option values relate to the amount that individuals would be willing to pay to conserve Wildlife and wild lands, or at least some of their direct and indirect applications, for future use.

(d) Existence. values relate to valuation of these resources as unique assets in themselves, with no connection to their, use values. This would include the worth of wildlife species, natural areas and overall biodiversity as objects of intrinsic and stewardship and as unique cultural and heritage assets.

Source: IIED (1994). *Whose Eden?*

In terms of consumptive or non-consumptive use, the inhabitants of Chitral are highly dependent on wild resources. They have strong value systems to protect, conserve, and ensure sustainable use of these resources for centuries. Wildlife has a central place in the life and culture of the people of Chitral because they draw benefits and attach different values to the resources. These values include: naturalistic, ecologists, scientific, utilitarian, dominionistic, theistic, cultural, moral, aesthetic, and negative. These values have been highlighted in the context of indigenous societies of Chitral.

The renowned ethicists Callicott, J.B (1999) categorized the conservation values as instrumental and intrinsic. Instrumental values measure the usefulness of a creature or object

in meeting a need or in providing a service to another creature while the intrinsic values reside within an object. Stephen Kellert (1993), during a research study, identified the following values of wildlife perceived or attitudes exhibited by the citizens of developed countries (Table 2).

Table 2: Typology of Wildlife Values and Attitudes

Wildlife Values and Attitudes	
Type of Value or Attitude	**Definitions**
Naturalistic	Values that relate to enjoyment from direct contact with wildlife
Ecologistic	Values associated with the importance of a species to other flora and fauna and to the maintenance of ecosystem processes
Moral	Values associated with inherent rights or spiritual importance of species
Scientific	Actual or potential value associated with a species contribution to enhancing human knowledge and understanding of the natural world
Aesthetic	Values associated with the species possession of beauty or other perceived qualities admired by human beings
Utilitarian	Values associated with species as sources of material benefit or use
Dominionistic	Values associated with the mastery and control of animals, typically through sport
Negativistic	Attitudes associated with the avoidance of animals because of dislike or fear; also harmful to human life and property
Neutralistic	Attitudes associated with the passive avoidance of wildlife because of lack of interest
Theistic	Values associated with the belief that a supernatural deity or force creates, and values wild species

Source: Stephen Kellert (1993) The Biophilia Hypothesis

Direct use value includes harvested products for consumptive use both traditional and non-traditional [Prescott, 1982] as well as the use of natural resources for recreational and tourist activities. Indirect use values arise from the various environmental and ecological functions provided by species and their habitats. Eillot Sober [1986], further elaborated the values in the following words;

> *"If you are completely ignorant of values, then you are incapable of making a rational decision, either for or against preserving some species. The fact that you don't know the value of a species by itself, cannot counts a reason for wanting one thing rather than another to happen to it" [Elliot Sober, 1986]*

The traditional natural resources management practices, traditional beliefs, taboos, and rituals have played a useful role in the management and conservation of key natural resources in different parts of the world [Mensha and William, 2007]. According to Mensha and William, the indigenous management systems, values, and myths have significant potential in the conservation and protection of the biodiversity at large. However, the sustainability of these models and systems are at stake. It is mainly due to erosion in the values and belief systems of the traditional society. I agree with Mensha and William and further their argument by adding that, values provide us the worth of any species or an ecosystem, merit, usefulness, importance or degree of excellence. It has established as an excellent tool to mobilize the stakeholders involved in the protection and management of these resources for effective decision-making. Following are some critical values attached to the natural resources in Chitral.

5.1 Naturalistic Value

The Dry Temperate Coniferous Forests and Dry Alpine pastures of Chitral not only increase the aesthetic beauty of these areas but also provide refuge to several endemic and threatened floral and faunal species. This small tract of Pakistan contains most of its total bio-diversity. Due to its unique natural resources, thousands of people visit the wild areas of this important tract. Chitral Gol, Broghal and Tushi-Shasha Game Reserve are some worth mentioning protected areas famous for natural resources viewing and providing direct enjoyment to the visitors. People like to visit these areas to spend their vacations for recreation and relaxation. Although the potential of our wilderness areas have not been adequately explored and the culture to visit them is also in the juvenile stage, but if developed and promoted accordingly it has the potential to attract millions of local as well as foreign tourists. Chitral attracts thousands of people annually on culture viewing, hiking, camping, hunting, fishing, and natural resources photography. This direct contact with the culture as well as ecology in the wilderness not only generate a significant income resource but also develop a sense of harmony for the enriched cultures, diverse animals, essential habitats and people become more sensitive and active in protecting and conserving the natural and cultural assets.

5.2 Ecologistic Value

Values associated with the importance of a species to other flora and fauna and the maintenance of ecosystem processes falls under Ecologistic value. The earth's natural resources and biodiversity significantly support human life and provide what we call "Ecosystem Services" An ecosystem contains communities of plants, animals, and microbes along with the non-living features of the environment such as soil and water.

Ecosystem services are priceless since no life, including our own, would exist without them. Natural resources species provide ecosystem services by helping in Pollination, germination, seed dispersal, nutrient recycling, predation, habitat maintenance, waste break down and as pest control, etc. For generations, the local people have developed new species (breeds & varieties) to stabilize and enhance productivity. The genetic diversity found within individual species is also of tremendous value. The ecological value is also essential to human health as most of the medicines come from wild animals. Compounds extracted from the plants, microbes and the animals were involved in developing all of the twenty best-selling drugs in the world. Natural resources also serve recreation and tourism. This indirect use value recognizes the services that natural resources provide for society. The research data indicate that there is a secure link between the natural resources of Chitral and the custodian communities as it contributes in ecology as well as socio-economic development. The disruption in this ecological cycle has changed the entire ecology of the region. The concept of "contributory value" assigns value to environmental resources based on their indirect role in maintaining and accentuating the ecosystem processes that ultimately support all life on the planet.

5.3 Utilitarian Value

It is a universal truth that natural resource has a tremendous utilitarian/economic value. The global, national, and local trade in natural resources derivatives are immense. Natural resources form the life-support system that makes the economic activity possible and is essential in global material cycles. Natural resources provide raw materials, food, medicines, recreational opportunities, spiritual fulfillment for the entire human population. The human's domesticated number of species from the wild fauna thousands of years ago for

their use. Now the market worth of this domesticated produces are in billions of dollars. Animals are the source of many current biomedical products and quite frequently used in pharmaceutical industries. The market values of these wild animals are at a high trend for their tusks, horns, furs, bones, skins, fins, feathers, and leather, especially in developed countries.

The fashion industry has for long been the consumer of millions of skins of a whole range of wild animals, including tigers, leopards, snow leopards, jaguars, cheetahs, ocelots, foxes, etc. to make belts, gloves, footwear, bags, and many other fashion accessories. Even birds have not been spared, with bird feathers being used for ladies' hats and other articles. According to respondents, the illegal trade of, leopard furs and the live birds (pheasants) trade is quite common in Chitral and adjoining areas. Trophy hunting is another legal avenue that has contributed significantly towards the conservation and protection of ungulates and uplifting the socio-economic conditions of the custodian communities.

Trophy hunting of big game is an internationally tested and established conservation approach whereby not only the old animals are economically culled for maintaining healthy natural resources populations, but the local communities are also benefited by way of their share in the form of trophy fee. Markhor and Ibex are the two natural resources species found in Chitral having an international market for trophy hunting. Markhor and Ibex both majestic animals possess good market value due to their spectacular horns. The rules of trophy hunting provide for sharing revenues from natural resources permits. 80% of the revenue goes to the communities while the government retains 20% as a token of proprietorship and management charges (Notes of KP wildlife department). The Federal Government through National Council for the Conservation of Natural resources (NCCW) appropriates the number of hunts under the quota. Based on the success of this program, the Conference of Party of Biodiversity has enhanced the quota of hunting from 6 to 12.

Making of traditional medicines, especially in this part of the country, is another business, which significantly contributes to the local economy. However, many natural

resources values, such as genetic diversity, and pollination, aesthetic value, and habitat maintenance, are not reflected in the market and also challenging to document and measure.

5.4 Dominionistic Value

Before the merger of Chitral in Pakistan, the overall authority of the resources of the State rested with the ruler of the state. As far as hunting areas were concerned, the ruler used to allocate different "Nullahs" or hunting grounds to different influential people residing nearby those areas. Such people were allowed to carry out hunting for themselves to a limited scale and were made entirely responsible for the protection of the natural resources in their areas. In case of any poaching or for some other reasons, the ruler had the power to re-allot those areas to any other suitable person. The local has made a particular code of conducts and original method for preventing indiscriminate hunting/genocides of natural resources and were strictly followed by the hunters and the custodians of the area. These bylaws played a pivotal role in regulating hunting in the potential areas and ultimately resulted in the protection of natural resources. Hunting was not allowed during the mating season while they were also not allowed to hunt the weaker animals.

However, after the merger of these areas in Pakistan management of these areas rests with the forest and wildlife departments. Now departments regulate possession, hunting, trade and import and export of natural resources species in the Province. Sport hunting is managed by looking into the status of game species and by prescribing hunting season, a number of game animals, method of hunting, place of hunting, bag limit, etc. Partridge shooting is the most common sport hunting in KP. Four species of partridges found in the Province include Black partridge, Grey partridge, See-see Partridge, and Chukar. A valid shooting license issued for a fee of Rs. 1000/- per annum entitles a person to shoot partridges subject to fulfillment of other provisions of KP Natural resources Act (KP wildlife department). Shooting under the license is permitted only outside the game reserves during the season. A special permit is issued for hunting in a game reserve prescribing time, kind of birds to be hunted and bag limit [KP wildlife dept. notes].

5.5 Cultural Value

As has been already stated the indigenous methods for preventing indiscriminate hunting and genocides of natural resources are also an age-old code of conduct, which were strictly followed by the hunters. The laws were framed to save natural resources as much as possible. Seasonal hunting, restriction of hunting of females, site of supernatural beings (fairies), and honor of the life of the predators were some necessary code of conducts for the hunters quite commonly practiced in Chitral. The durable cultural bindings and beliefs were also an integral part of these societies that played a significant role in nature conservation.

In modern times, man's continued fascination with animals has manifested itself in many ways, from cave paintings to the granting of powerful attributes to different species, as is evident from the inclusion of these in common language usage. These attributes are both positive and negative. They refer to the strength of a lion or the memory of an elephant. Grace is associated with gazelles, and foxes are supposed to be cunning. One can easily find different names of the animals such as Pardoom Khan (leopard), Shahpir (Wolf) given to human beings as a symbol of bravery. People of the area also keep the live animals such as Wolf, Ibex, Markhors and Chakurs, horns of the ungulates and furs of the cat species as a status symbol (field notes kalasha community). The person who keeps maximum animals, horns, or furs is considered to be the most prestigious person in the area. Cave and stone paintings of the animals are frequently seen in Chitral valleys. Kalash people attach unique value with natural resources, especially the ungulates as their painting and wooden statues are an integral part of their religious rituals. They still worship them and sacrifice their animals in front of their statues of wild ungulates. The women also like animal paintings and jewelry made from the animal hides, and they wear it on special occasions.

Due to a deep affection with the natural resources, traditional codes of conduct are made that impose restrictions on shooting female goats during pregnancy and rearing. Poets and writers are considered to be a sensitive segment of society. They have also written tales, poems, and proverbs on the wild animals by highlighting their importance and discouraging indiscriminate hunting in the area. The song given below is an appeal of a yearling to his mother to indicate her about the danger [Hasrat, 1996].

O mother, O mother, here is a man coming down
O sweet my darling, is it not the shepherd of the hills.
O mother O mother, a rifle started to flash.
O sweet my darling is it not the rays of the sun?
O mother, O mother, blood is streaming down your breast.
O sweet my darling is it not the sweat of summer heat.
O mother, O mother, who will bring up the orphans?
O sweet my darling the lord will bring them up

One popular traditional custom, especially in Chitral, is known as Sumas. This custom is related to a big game that is ibex, or deer. After the hunt, the meat is cooked and sent to neighbors, relatives, and friends. This tradition is called the Sumas. While distributing the meat to the relatives, the hunter sings few songs and praises his hunt. This is called Yoru korik.

5.6 Moral Value

It is quite evident that Human beings are a very small part of the total species inhabits in the mother earth. Rational of every species to exit is quite logical as each species has unique characteristics and emerged as a result of evolutionary processes. They have a specific role to play in our ecological nomenclature and therefore have a natural right to exist.

Conservation of natural resources in particular and natural resources, in general, derives its effectiveness from policy and prevailing laws which mostly are rooted from values, however, if the ethical values of any society are socially and culturally strong the need of sophisticated laws and policies are seldom felt. Historical evidence reveals that laws and policies are made where the ethical values and norms of any societies are eroded. In the past, the ethical values and indigenous management systems in the mountainous societies especially in Chitral played an active role in conserving and protecting flora and fauna in general and the species of special concern in particular but unfortunately could not be

recognized accordingly. The discussion of values and ethics in the context of conservation biology further undermined the role of these systems and values, since the enlightenment, science and viewed by scientists and non-scientists alike, as “value-free”. They also argue that for conservation, laws, and policies are quite imperative and cannot be replaced or substituted for values and ethics. Mostly all the major world religions have reasonable contributions to ethical and practical significance in addressing the conservation issues. Islam perceives the natural world, as the creation of **Almighty Allah** and man is only its trusteeship. In Islam, there is no distinction between religious and secular law; thus, laws on conservation are very well grounded in Islamic laws and teachings. It sees nature as teleological, orderly, harmonious, and dependent, while Islamic beliefs bind the man as a trustee to maintain these characteristics in nature. Like land, water, air, fire forests, sunlight, natural resources, and other resources are considered a communal property of all the humans; thus, it emphasizes its followers to protect them as well. There are several **Quranic verses** and **Sahee Hadith** that teach its followers to live with the nature in harmony and do not disturb the balance of the mother earth [Per. Communication, Israr ud Din]. During the comparative study of conservation ethics of different religions, Islam is the only religion that forbids its followers not to destroy nature even during wars.

5.7 Aesthetic value

Game animals have much more worth than their meat and hides. It is the added aesthetic value that makes the natural resources so competitive with other financial resource uses. It is due to the aesthetic value that we spend our resources to explore the wilderness around us, and we all felt better for having done so.

The tracks of a Snow Leopard, the Markhors, and the pheasants of Chitral are worth seeing only because of their aesthetic value. The honking and singing birds, howling of jackals, growling of wolfs, roaring of carnivores, tearing of green turtles while lay eggs make our world a worth living place to live. Sometimes flying of the cranes in a formation and discipline of the ants not only provide us aesthetic contentment but also help us in leading a disciplined life. It is the aesthetic value of nature that also reflect in ex-situ efforts. People are attracted to Chitral from the country by the aesthetics of large mammals and other species

like birds etc. in fact, most people and most cultures have a strong empathy with the animals, but as the custodians of natural heritage the people of Chitral are more sensitive to the animals that are not in conflict with them [field notes]. History reveals that the locals were supposed to keep the wild animals around them. Pheasants and Partridges are kept in their houses as a symbol of beauty. The feathers of the pheasants are still used by the people of Chitral in their Pakols (traditional caps) for prettiness. Northern Mountains in general and Chital in particular people still decorate their house with the paintings, photographs, furs, and trophies of the animals. One can witness the paintings and statues of the Markhor and Ibex in the houses and worship places of the Kalash community. The poets and writers have written several poems and articles on the natural resources with special reference to their beauty and importance for mankind. A few verses of a poem on a deer is below that is commonly sung by the Khowar people in their festivals [Hasrat,1996].

O, deer, your foot chooses the steps of mountains!
O, your lip chooses the flowers!
O, your horns are your enemies!
O, dear you are my sweet heart!

It is a dilemma that very insignificant efforts have been made to highlight the aesthetic importance of charismatic species in Chitral by the concerned departments and the media. As most of these animals are left only in the wilderness areas, so excess to them is a difficult task for the natural resources' viewers.

5.8 Traces of Resource Management in the Old Mythology of Chitral

The age-old myths and beliefs in supernatural beings in Chitral refer to several fairies working for the conservation of nature under the command of a grand fairy. Mythologies and superstitions have been essential parts of the ancient cultures of this region. It is believed that myths have been integrated elements of the religious doctrines of a particular culture and are considered sacred and factual. Thus in Chitral, many myths and superstitions have come down as heritage of some ancient religions practiced in these regions before Islam. Despite the coming of Islam, many of such myths remained in vogue in most parts of the

area until recent times. One of such myths is of “Shawan” [Jean-Yves Loude 1996]. The people believed that deity ruling the hunting “Nullahs” is “Shawan” and in carrying out hunting all possible precautions should be adopted not to displease her; otherwise one would invite her wrath and would be destroyed. Thus certain measures were adopted to please the “Shawan” which were helpful in the proper management of the natural resources of the area. However, lately, with universal education in all the valleys myth of “Shawan” is no more in practice. However, in the societies of Chitral, the concept of pre-Islamic deities have partially been Islamized, using Islamic terms instead of old ones. People of the Chitral strongly believe that mountains are the abode of fairies and Ibex, Deer, and are their animals [Hassrat, 1996]. Similarly, there are three other metaphysical characters supposed to be vigilant about resource management at the household level. According to another myth, khangi is a fairy who lives in the house-store. Khangi becomes furious when the stock is finished, so a wise man or woman always manages to keep the stock in order. A female character “Shiri” is believed to live in the cattle shed of every house to protect the cattle. She becomes angry when something is mismanaged in this portion of the house. So there is a code of conduct to please the fairy.

5.9 Sight of Supernatural Beings

Sometimes a hunter would point his rifle towards an ibex, and suddenly a fairy would come in sight. At such occasions, the hunter was advised not to press the trigger. This was another excuse to spare a life. The fairies are believed to be the custodians of the mountains and the natural resources. Their areas are thought to be “Osiru” (pure places), and one should enter such areas after purifying themselves. The fairies allow the hunters to hunt only those animals that are allowed to be hunted by them. No one can hunt without pleasing the particular fairies and her consent. [Baig, 1994, 97; Faizi, 1996; Bashir, 1996]. It is also strongly believed that the fairies take strict action if one tries to pollute the particular mountains or streams in the high mountains [Hussain, 2002]. While discussing the facts of traditional beliefs and values in natural resource conservation, Wilson [1993] mentioned that strong beliefs and customs had successfully protected and revered the sacred grooves of forests in Kenya.

Data collected from the target communities revealed that 68% male kalasha and 62% female kalasha still believe on superstitions and myth's role in natural resource conservation while 22% male and 42% females of the Ismaili community consider myths as an essential tool in conservation. However, only 22% male and 12% female of Sunni community favored the notion and did not see any role of myths in natural resource conservation. Following are few other myths exist in Chitral.

- It is considered in Chitral that that howling of Fox (*Vulpus vulpus*) is an indication of the death of someone in the nearby area, and killing of this fox can save one's life; due to this killing of foxes is a quite common phenomenon.
- In kalasha mythology, honey bees bring prosperity, and due to this affiliation, everyone in Kalash community kept honey bees hives in their houses, and honey bees are considered to be a very important sign for good luck. Due to this strong belief, the Kalashas protect honey bees in their valley.
- Cricket (Boshiki in Chitral) is considered to be significant insect for human, to kill this insect inside the home can bring bad fortune and reduction in stored food grains.
- Indian magpie locally known as Khisipi is considered to be very sacred birds in Chitral, so either killing or disturbing its habitat is prohibited.
- Spiders and ants are considered to be holy insects and to kill these insects are considered to be very transgression, and Allah will never forgive this act. Due to this, one can find a spider in Chitral in good number. People believe that ants' voice can be heard in the seven skies, and Allah never pardons this act.
- Red Sand Boa (*Eryx johnii*) snake are considered to be" Khangi" or family friend and are not killed inside the houses, and it is believed that this snake will guard their family against evils. To kill this snake can bring bad luck and troubles to the family.
- *Saruz (Juniperous macropoda)* Juniper forest is considered to be a very holy forest by the Khowar and kalasha community, and the local people much care for this species from cutting, making fire, etc. The leaves of this species are burnt to make smoke in order to repel the devils and evils from houses and crops etc.
- The killing of Rock Lizard is considered a religious obligation in the district because according to a myth when Hazrat Ibrahim (PBUH) was thrown into the

fire by the tyrant king, this lizard tried to further ignite by blowing wind into the fire.

- Deforestation can cause generations to perish.
- Natural objects including stones etc. should not be displaced from their natural surroundings like a forest or a stream. It brings ill health.
- Woman's entrance in pastures will portend famine and therefore should be prevented.
- Separate gods and goddesses have been nominated for forests, grain, pastures, and natural resources.

5.10 Honour of the Life of Predators

The code of conduct for hunters, shepherds, and woodcutters roaming about in mountains and highlands has a clause for the honor and respect of the life of wild beasts and predators. Desirable attitude towards wild beasts is well defined in a sentence, "do not disturb, if you want not to be disturbed'. Hunters were advised to make friendship with wild beasts. In case a man comes across a wolf, tiger, or a bear in a narrow mountain trail, he is advised to talk to the beast in his language saying "you are my foster brother, please give me the way". Then he has to cross or overtake the beast peacefully and it always so happens. If a group of people sees a beast, none of them will say, "There is a wolf or tiger". One has, instead, to say there is a "sheer brar" (foster brother). Similar advice is there about wild rats and mice. A wild rat is not to be killed or attacked. Instead, it should be called "Mir moshang Khonza" or "queen Mir moshang", to show a sort of respect to the wild creature.

This comprehensive code of conduct depicts the awareness of people in Chitral regarding the relationship of man with nature. It also shows the societies behavior towards his environment and his earliest ideas about himself and his sphere of influence.

5.11 Glacier grafting from a myth to reality

Till recent past glacier grafting has changed its status from a myth to reality due to many pieces of evidence from different parts of Chitral. Folklores of Chitral talk about the creation of a glacier by using male and female glaciers mainly to fulfill the water as well as defense needs of a particular society. One such story told by the villagers during data

collection that in the past invaders from central Asian states through the Wakhan corridor were the main threats to the local communities resided at the peripheries of such valleys. Terich valley, located at the extreme northwest of Chitral, was also considered one of the affected valleys due to its unique geographical location. The invaders from central Asian states frequently used low altitude passes to intrude into the valley and looted its resources for several times. To prevent such attacks, the local community consulted an old lady, famous for her intellect and indigenous knowledge, to do something to save the community from the invaders. She conceptualized the idea of grafting a glacier in the past to avoid such attacks from the invaders. After detailed deliberations on the issue, she successfully grafted a glacier in the past, mostly used by the invader to enter into the valley. With time, the glacier grew in size and thus successfully saved the inhabitants of the valley from the invaders.

Glacier grafting through employing artificial techniques remained quite common in district Chitral. For instance, one such example of this traditional knowledge is from Bindo Gol. In Bindo Gol valley the then Hakim (governor) of Rastan presently located in upper Chitral of Tehsil Mulkhow used compost made up of horses and other livestock, salt and fine residue of wheat as a primary precursor for grafting glaciers. Recently in the year 2000 traditional experts from Gilgit also grafted a glacier in Garam Chasma valley of Chitral. According to the respondents, this implanted glacier is still active in the valley. Now, this traditional knowledge and myth have emerged as a reality that signifies its importance in solving the local issues effectively.

5.12 Veterinary based mythologies in Chitral

Another method of human or veterinary care in Chitral is through set believes in the respective areas/communities. Certain persons in the community use spiritual healing practices to cure the people or their livestock, especially in rural areas. The Muslim healers use the verses of the **Holy Quran** and the ***Hadiths*** (i.e., the sayings of the Holy Prophet Mohammad PBUH) while Kalasha community apply their rituals for such treatment. The healers use oral prayers (phunkana) and written material (tawezat) for supernatural treatment. Women are also involved in this way of healing; however, limited to women's issues. These rituals are mainly performed in private. In most of the cases, supernatural

healers charge a fixed amount in cash or kind for their services. This type of treatment still practiced in Chitral, however eroding with a rapid pace, especially in the Muslim communities. Erosion of mystical healing practices are mainly due to education, availability of modern treatment facilities, and most importantly declaring this type of treatment un-Islamic by few sects (Wahabis & Deobandi) of Islam. However, it is quite intact in Ismaili and Kalasha communities. Anthropologists categorize these practices as 'religio-magico or 'religio-medico' healing. These practices are quite common in other parts of the world, especially in the areas inhabited by the indigenous communities. Mathias [1994], has thoroughly reviewed supernatural cures for different diseases, such as dog and snake bites, evil eye and spirits, etc. However, consider this type of treat mysterious and least understood mainly due to the secrecy. Mostly these types of treatments is transmitted for one generation to other on inheritance basis.

5.13 Conclusion

The values and myths in Chitral possess strong roots and considered quite vast and varied. This vibrant traditional knowledge has been passed down from generation to generation mainly through oral means. They are richly populated with superstitious characters participating in metaphysical events and have a significant contribution to the conservation and protection of the natural resources of Chitral. Though critiques consider traditional knowledge as subjective, however, I disagree with this notion by arguing that traditional wisdom is also a result of time tested processes. They are holistic in the sense that knowledge and value are inseparable, woven together by spiritual and religious ideas that codify human behavior. They are still intact in areas where the cultural values are strong while perishing with a rapid pace where the culture is eroding accordingly. My data reveals that the reactivation and utilization of the values and myths in the region require its sustained transfer to the coming generations either through the oral or documented form. In my point of view, the need for the documentation of these systems and values as 'primordial environmentalists" is quite evident because it has reached a stage where all these systems and values that have contributed significantly will ultimately be in confrontation with the demands of present-day 'development' and might accelerate the pace their erosion.

Chapter 6

TOWARDS INDIGENOUS NATURAL RESOURCE MANAGEMENT PARADIGMS

In Chitral, the history of indigenous natural resource paradigms is inextricably linked to the evolution of culture and professions in society. Main responsible factors are meager and marginal resources of cultivable land, forests, and pastures. The society in the past has been vigilant about the shortage and constraints of supplies as compared to demands. Local people used to graze their animals in the pastures, had/have the right of fuelwood and timber collection for their use. Each profession and culture in Chitral encouraged the people to explore new ways of cooperation and concord. Initially, herding was the primary source of income, whereas later the society turned to agriculture and other sources of subsistence. The local communities of Chitral have been managing their natural resources through unwritten but mutually agreed on customary laws for centuries.

Khowar society, therefore, became adept at collectively managing the pastures, herding, sowing, tilling, reaping and the manufacture of agricultural implements. The essential factor underlying the need for successfully managing their resources was the level of interdependence, mutual trust, ownership, and equity that existed among the people. Khowar society did not, therefore, need any law or law enforcing agency. Everyone was morally bound to follow the unwritten or oral custom's law. Although most of the rules governing this form of protection were unwritten, the local population had great respect for them, and every individual was bound to abide by them.

Even during the subsequent reign of the kings, complaints regarding the management of socio-ecological affairs or the evidence of legal action hardly occurred. As the people used and managed the natural resources, most of them considered it to be their duty to protect these resources. Thus, natural resources not only catered to the needs of the society but were also conserved. From time to time, it was forbidden to fell trees in the forest for either timber or fuel and, likewise, pastures were periodically declared as protected and closed to grazing.

Even today, in remote areas of Chitral, especially in Kalasha culture, these laws are still intact and enforced while in some areas, they have been adapted and applied as current control measures. As mentioned in chapter 4, *Nagha, hujjati,* and *pehteek* are different variations of *Saq* that currently are playing a significant role in the conservation of natural resources in Chitral. Role of indigenous management systems, knowledge in sustainable natural resource management is also recognized by Murdoch and Clark, [1994]. His recognition is mainly based on the growing realization that scientific knowledge has not contributed to the development of communities and societies, but instead has led to the depletion of their social and natural resources. While on the other hand, the literature also suggests that indigenous knowledge is still not always recognized as the product of holistic systems of perceptions, relationships, and organizational arrangements. For instance the nomads particularly Afghans come to Pakistan during the winter season and travel across the province up to low lands in search of forage for their livestock. These nomad groups adopt a migratory lifestyle, the fact that they have the only option to feed their large number of livestock for their survival. Since they adopted this nomadic culture since centuries, and have a great experience in livestock, they are thus reluctant to adopt any other field. In addition to this, the primary reason for their current lifestyle is their confined culture and living pattern, which hampers their exposure to the rest of the societies [Jasra, et al. 2000]**.**

6.1 The change process a paradigm shift in natural resource management

A general, global trend over the last two to three decades reveals a shift from public sector control to varying degrees of private and community rights to natural resources. The main reason for this paradigm shift was that in many cases, the transaction cost was too high, and the use rights were too weak for the communities involved to derive any meaningful benefits. In others, the rights and benefits that communities received under conventional natural resource management were not proportional to the responsibilities they assume.

The dichotomy was that initially, the top-down conservation was the agenda of an international conservation organization. They promoted it with the national governments by devising and implementing centralized models. Now the same organizations are criticizing

those models by declaring it centralized and highly bureaucratic resource management paradigms. They argue that these models have failed to cater to the needs of the indigenous communities and even lead to ecological collapse. [Agrawal 1995, 2003, Holling and Maffe 1996, Scott 1998]. Failure of the government-owned model has many reasons such as corruption, inadequate budgetary provision, poor project conceptualization, and institutional mediocrity, etc. Generally, successful projects share several common traits - including a clear distinction between who is managing and who is leading the project. "Where the same group of people or team attempts to undertake all three functions – leadership, project management, and governance – the functions can become blurred and not correctly executed, and same is true for the mass failure of public projects over the years in Pakistan. One can witness indeed evidence of large scale, widespread institutional mediocrity, deficiency of vision, and a lack of direction in project management, which result in poor conceptualization, poor design, and faulty execution. Needless to add that this has resulted in avoidable loses of billions of Pak Rupees to the national coffers. While in community-driven projects, communities with local knowledge of resources and environment are better positioned to figure out the best way to protect and conserve their resources quite efficiently.

Consequently, attention has started to focus on the reactivation of indigenous models and collaborative processes. Now, these models are considered the best recipe to promote the ecological agenda and have the tendency to address the local specifics [Berkes 1998, Pálsson 1998]. Similarly to improve the implementation efficacy by involving the right stakeholders in the monitoring processes [Hanna 1998]; and to address the equity issue that centralized models failed to cater accordingly mainly due to authoritarian policies [McCay 1996, Persoon and van Est 2003].

Another reason was that the government managed Protected-Area[15] sites are selected for their high existence value and often without consultation with the communities settled

[15]Co- managed Protected Areas are the areas mainly designed to share management authority and responsibility with the stakeholders

for thousands of years. Wildlife and resource tenure are invested legally in the state, resulting in the deterioration of customary – often communal – tenure systems. Access to traditional subsistence resource was impossible without breaking the law [Marks, 1976]. Communities bear the costs of wildlife management and receive few tangible benefits. Groups of outsiders determine the objectives and modes of implementation of natural resource management without consulting indigenous communities. Often the management groups consist of representatives of donor organizations, government and project staff, in some instances assisted by consultants. From Revenue from Protected Areas (PAs) and tourist activities is usually directed to the government treasury and external entrepreneurs and very little tends to be reinvested in these areas or surrounding buffer zones.

6.2 Indigenous vs. Conventional Approach to Conservation

As discussed earlier, that indigenous conservation paradigms and systems in Chitral have been based on customary laws. The rulers of the region used these laws to effectively protect and conserve their natural resources such as forests, wildlife, pastures, and water resources on the equitable way. The Customary laws were devised to establish and manage the available forests, collection of forest products from the wild, the transit of forest produce, and to levy penalties in case of any breach. Customary law successfully cultivated a sense of accountability and transparency among the communities. The unwritten law was quite elaborated, owned, and respected by the communities for centuries and passed down to other generations through oral traditions. The customary laws were replaced with statutory laws in the 1970s with a rationale that replaced one is outdated and unable to play a useful role in the conservation of natural resources. Statutory laws were framed with an objective that it will promote and enhance the contribution of the forest and wildlife to the sustainable development of forests, pastures, wildlife and other forest resources for the benefit of people. It also helps to ensure the sustainable supply of forest and wildlife goods and services by maintaining sufficient forest and vegetation cover under efficient, effective, and economic management. The conventional approach of the then government remained focused on establishing PAs such as National Parks, Wildlife Sanctuaries, and Game Reserves by isolating the indigenous communities from its management and use. These laws were further

refined through the promulgation of the KP Wildlife Protection, Preservation, Conservation, and Management Act [1975].

However, communities reacted to this change by declaring this decision unfriendly and authoritarian. The tug of war between the government institutions and the communities resulted in the indiscriminate cutting and hunting of the available resources. Due to lack of ownership government institutions failed to peruse the conservation agenda efficiently.

These PAs are run through a conventional conservation approach and based on a top-down approach with a rationale that the ownership of the natural resources (wildlife and forests) rests with the state. Furthermore, during neither notifying these areas as Protected, neither the community consulted, nor the ground realities were kept under consideration. The focus of the conservation approach was the enforcement of rules and regulations through government departments at the local and federal level. Nevertheless, unsustainable use and depletion of biodiversity continued in this conventional conservation regime mainly due to lack of ownership, involvement and disrespecting the needs and resource use practices of the indigenous communities that ultimately created a social conflict and jeopardized the conservation efforts. On the other hand, the indigenous management systems enjoyed the trust mainly due to their sensitivity with unique social, economic, ecological, and institutional conditions of their respective areas.

The main reason of the success of indigenous systems is that it devolves responsibility for conservation to the communities and make them accountable for their resource stewardship whereas the conventional approach excludes communities at the cost of their non-cooperation and indifference towards the conservation efforts and unsustainable use of natural resources. Whereas they work upwards from the needs and perceptions of the communities through policing regime, which turned the community's hostile towards conservation measures and created an environment in which communities' do not support the conservation efforts.

In mid-seventies, the advent of government institutions and modern notions of conservation in various forms and erosion of time tested local resource management institutions, badly wobbled the long-standing affection of indigenous communities for

nature. In Chitral, once the custodian of their environment the local communities retaliated in a very harsh manner to government's increasing role in resource management activities and modern alien notions and the result was irreversible damage to the fragile resource base of Chitral. The international conservation institutions and obligations have also put their intentional or unintentional share in the disintegration of indigenous management systems. For instance, CBD convention is criticized by indigenous communities and their representative bodies that it stressed on state sovereignty at the expense of community rights [Colchester, 1994]. Moreover, the Global Environmental Facility (GEF), who is the financial agency of the convention, only supports such projects that have a global significance. By definition, indigenous peoples' initiatives can only be financed by the GEF if they are considered not to be national interests, placing indigenous peoples in an invidious position in their negotiations with governments and developers.

New theoretical analyses and empirical assessments of indigenous land tenure regimes suggest that nationalization may be failing purpose [Lane and Moorhead, 1994]. Newly independent states are finding it challenging to provide adequate management at the local level and, as any particular group or community no longer own wildlife resources, no one feels any responsibility to protect them from free activities. (i.e., poaching, unauthorized settlement, timber extraction, charcoal burning, cultivation, etc.)

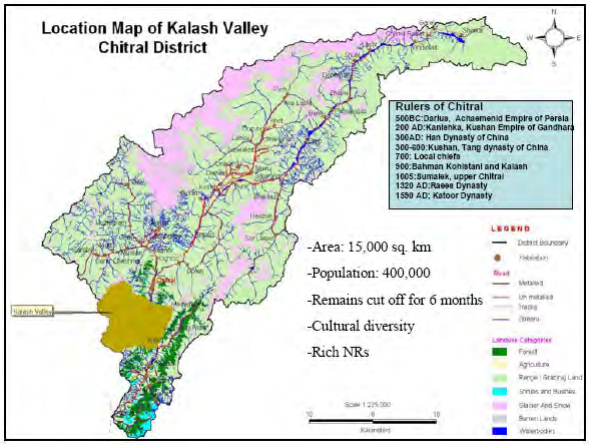
At the same time, not only are natural resources being over-exploited, but the traditional means by which communities might protect them are also being lost.

In the wake of deteriorating natural resources, especially flora and fauna in district Chitral, the government of KP decided to make custodian communities master of their resources. In this connection, the government decided to declare certain biologically significant areas in the district as community managed wildlife reserves or Community Game Reserves (CGRs). Subsequently, three potential areas, namely Tushi-Shasha Community, Gaherate Goleen and Arkari valley, were declared as CGRs in the early nineties. The primary purpose of the creation of such areas was to support local development initiatives through sustainable harvesting of resources and as such inculcating a sense of ownership and care among the custodian communities regarding the conservation of

available resources. Each year through Trophy Hunting hundreds of thousands of dollars is earned a bulk of which goes to community trust funds dedicated to design and implement communal community development conservation schemes. The following two case studies discuss in detailed the dynamics of Community Conserved Areas (CCAs)[16] and natural resources management through reactivation of indigenous conservation models in pure form while other discuss the possibilities of re-launching them after blending with contemporary models and how they impacted the governance of the natural resources in Chitral.

6.3 Case Study 1: Reactivation of Indigenous Conservation Systems in Ramboor

Kalash, the most unique ethnic and religious minority of Chitral, is considered one of the indigenous communities of Pakistan. They migrated from Afghanistan and settled in Chitral in the 2nd century B.C. The Kalasha is considered to be a unique tribe among the Indo Aryan stock with a blend of Indo-European culture and traditions. They ruled most of the present-day Chitral in 10th century A.D. However now they are limited to only three valleys, i.e., Bamborate, Rumboor, and Birir. Over the past seven hundred years, they have been reduced from 6000 sq. Km to an area of 300 sq. km. Mostly they have been converted to Islam either forcefully by the invaders from Afghanistan or by their own will, and as a result, their population is only limited to 3000 individuals.



The man-nature relation was maintained mainly by indigenous tools or practices of resource utilization and conservation developed and adopted by the early ancestors of the Kalash community. These tools, some of them still in practice, were used to meet the present

[16]Community Conserved Areas are governed by indigenous, mobile and local communities.

needs of the communities without compromising on the needs of the future. The tools used explicitly for natural resource management include *Dane, Shalmosh, Sot Seri, Paxali,* etc.

However, with time due to a rapid increase in population, overexposure of local communities to alien practices of conservation in resource management, urbanization trends and lack of documentation, this indigenous knowledge slowly and gradually abandoned. The disinterests towards indigenous communal practices of natural resource use and management have had multifaceted negative implication over the available natural resource base.

The Kalash has got certain customary rights which are traditionally respected by the local inhabitants. The most significant of these is *Dane* meaning strictly prohibited. The practice is used to ensure prudent use of natural resources through imposition intermittent bans and restrictions on natural resource use. In *Dane* prominent figures of the society are bestowed special authorities to monitor that any of the community members would not violate the *Dane*. Deviation from *Dane* often results in fines and social containment of the violators. The same institution is also used to ensure the appropriate use of agriculture produces, fruits, and vegetable. No one is allowed to touch the *Dane* agricultural produces, fruits and vegetables before these items are ripe. Similarly, collections of unripe Non-Timber Forest Products (NTFPs) are prohibited. The violation again results in fines and social exclusion of the ill-behaved.

Sensing the looming danger of resource depletion and subsequent threats to local culture and religious values the local Kalash community members of Rumboor in collaboration with their Muslim counterparts of the valley decided to impose *Dane* through a committee. The committee was entrusted to resurrect the *Dane* in letter and spirit. In order to reactivate the *Dane* a meeting of community members from different hamlets was called on June 2001. Local leaders and representatives of local government from the valley were also invited to attend the meeting. The meeting continued for three days. In the end, all the participants agreed that in order to protect the precious natural resources of the valley and ensure prudent use of available resources the vanished "*Dane* system" should be reactivated

and implemented in its actual shape. The meeting decided to form the *"Aouray"* (committee) to implement and monitor the *Dane* in Rumboor valley (Table 3).

Table 3: Composition of *Dane* /*Aoury* Committee

S#	Name of the member	Designation	Village/hamlet
1	Bachara Khan	Chairman	Kalash Gram Rumboor
2	Abdual Majeed	Co-Chair	Bamborate
3	Saifullah	General Secretary	Paralgah
4	Betan Khan	Member	Bamborate
5	Inayatullah	Member	Sheikhandeh
6	Muhammad Naseem	Member	Gangalwat
7	Abdual Raof	Member	Sheikhandeh
8	Muhammad Nasir	Member	Kalash Gram Rumboor
9	Munir Ahmad	Member	Main Rumboor
10	Wazir Zada	Member	Dobaaxz
11	Taleem Khan	Member	Main Rumboor

After thorough deliberations, 11 elderly community members having good knowledge of local indigenous resource use and management practices were selected to ensure implementation of *Dane* rules and regulation throughout the valley of Rumboor. The selected members later on through mutual discussion, appointed Mr. Bachara Khan as Chairman of the committee. After assessing the ground realities and threats to natural resources, the committee, decided to impose a ban on Oak forests in the peripheries of Rumboor valley for 11 years, starting from July 2001. As per norms and rules of the *Dane*, no one was allowed to collect fuel wood, fodder, and timber from the *Dane* area. Grazing was also declared strictly prohibited in the *Dane* area.

The committee also outlined penalties and fines for offenders. According to the recommendation of the committee, the offenders would have to face following fines and penalties if *Dane* is not followed:

- Rs:10/goat (if the goat enters and grazes in the *Dane* area)
- Rs:100/cow

- Rs:500/horse: [if the horse enters the *Dane*, more than two times then cash equal to one goat price is charged from its owner]

The rules/regulation, penalties, and fine charts were displayed at public places, and special announcements were also made from mosques and temples about the conserved area, period, and beautiful structure.

Till now, the villagers are successfully implementing the *Dane*. During ten years, the committee has fined 58 villagers for violating the rules. Before the implementation of *Dane*, the Oak forests in the area were rapidly declining due to the cutting of trees for fuelwood and fodder purposes. Everyone was free to collect fuel wood and fodder and graze domestic livestock in the area. This free utilization of the Oak trees not only resulted in the thinning of the forested area but also led to seasonal flash floods that resulted in soil erosion and heavy losses to property and landscape. Community elders started their efforts to convince the indigenous community to protect the pastures and control illegal hunting through weighting the importance with their culture and religious taboos. In the beginning, the people were adamant about listening to their elder's ad refused to consider it a common problem. They considered hunting and poaching as their right and blamed outsiders (especially timber and wildlife mafia) for the deterioration of their natural resources.

In Ramboor, community participation has emerged from the indigenous population full involvement in their traditional style and dynamics. This initiative of involving the local style of decision-making and conflict resolution in addressing the issues lead to viable results.

Now it is quite satisfactory that due to other immense efforts we have still a few hotspots been conserved where man and wildlife are living in harmony. Now *Dane has* emerged as a successful model with the extensive efforts of the indigenous communities to manage their resources on a sustainable basis. The tireless efforts of Mr. Matazil, Mr. Bahadur, Mr. Marshal, Betan (Qazi) of Ramboor along with the Muslim community (sheikhs) in mobilizing the communities using indigenous knowledge *(Dane)* as a conservation tool is now being replicated in different parts of Chitral.

They have declared two pastures Rodigall and Dobistall as protected through *Dane* for ten years in 2001. Now they are seriously thinking to extend the Dane for one more decade further and include certain other areas too under this traditional regime. Today the people trust their notables and entirely convinced that the applied conservation tool has benefited their area. Their pastures, oak forest, and associated biodiversity are protected, and they are allowed to collect the sustained yield from these resources accordingly.

Mr. Bachara Khan, social activist and representative of the Kalasha community in the district government, during an interaction, concluded;

> *"It was unfortunate that we were losing our precious gods gifted natural resources due to our own misdeeds. If we would not have undertaken timely measures through the reactivation of our own practices of resource use and management as our ancestors did successfully we would definitely fall to a pit of darkness in which we are already half in"*

6.3.1 Impacts and outputs of the *Dane*

The *Dane* in the area is still working successfully. Initially, critics strongly resisted the imposition of Dane by arguing that it is an old and outdated practice and it will deprive off the already overburdened poor household from their sources of livelihood. Today even the severe critics of the system acknowledge the effectiveness of Dane. When Shahzada Khan, one of the most vigorous opponents of *Dane*, was asked about the role of this indigenous paradigm? He replied;

> *"Initially, I opposed the Dane for my poor community who were dependent on natural resource base for every bit of basic amenities. Now after ten years viewing this indigenous conservation system working very effectively I am pretty convinced and feel regretful for my past attitude. The Dane has done a marvelous job. Now we seldom see flash floods invading our property and lives. The forest is rich with wood and fodder. At present, there are enough fallen wood in the Oak forest that will be sufficient to meet our requirements*

of fuel wood for the coming ten years apart from generating cash income through sale of NTFPs while associated biodiversity such as birds, mammals and reptiles are the additional added benefits. Our domestic animals have enough to graze in the pastures. Despite of the cultural value and importance of Kalash community another aspect shouldn't be undermined is the aesthetic value of our valley that attracts thousands of tourists annually to the area due to these lush green forests and wildlife mainly due to Dane."

While one of the religious leader of the Kalash community shared his feelings about *Model*;

"*Thanks to Dane we are again having pigeons, doves, chakoors and markhors back in our forest. I was dying to listen to their merry songs. Prior to the implementation of Dane hunting of birds and other wildlife was free to all. As a result some of the bird species especially the rock pigeons declined to a great extent. Today the oak forests in the valley are quite stable and flash floods are reduced significantly. The soil of the area is stable and land sliding and erosion is seldom seen.* [*Baten, religious leader of Kalash community]."*

Reactivation of traditional natural resource management system in Ramboor is quite successful as it mainly based on the principle that custodian communities have a centuries-old stake in the area and they are fully empowered through traditional knowledge, systems and values to protect and conserve their resources for their subsistence on a sustainable basis.

Having seen the success of *Dane* in Rumboor valley the adjacent Kalash valley is also considering implementing *Dane* in Bamburate valley. Initially, arrangements are underway to protect the natural resources in Bamburate valley through imposing the same system.

6.3.2 Lessons Learnt

The first lesson drawn from this initiative is the tendency of indigenous management systems, traditional knowledge to play an active role in the conservation arena. Following this basic premise, the initiative is based on the reactivation of traditional rules, regulations, and values for equitable resources sharing and ownership, protection, and conservation of natural resources. Issues were prioritized and addressed through customary institutions. The program ensured that before any initiatives, the confidence of the communities would be a prerequisite. This created a sense of ownership, responsibility, and accountability among the stakeholders. Another lesson from Ramboor initiative demonstrates that trust is quite evident to rebuild the relationship between the custodian community and the executants for any conservation efforts to be successful in the long run.

6.4 Case Study 2: Tushi-Shasha a grafted model of indigenous management

After the failure of the conventional model, the regulatory bodies decided to shift from traditional "top-down" approach to "bottom-up" approach by involving the stakeholders in planning, implementation, and monitoring process to ensure their full participation and create a sense of stewardship for the conservation efforts. The main thrust of this policy shift was to link biodiversity conservation of the PAs with the local socio-economic development by reducing their dependency on the natural resources and providing them with viable alternatives through innovative approaches including Trophy Hunting and economic valuation of other natural resources that often are taken for granted. Tushi- Shasha is one such example where the status shifted from Game Reserve (conventional) to Community game Reserve (participatory or co-management) to test the sustainable use model through community involvement.

Tushi-Shasha, a range of Sandstone Mountains near Chitral, is famous for its wildlife conservation around the world. They have successfully moved from wildlife conservation to an integrated approach of development. The valley is located at 15 km towards north-east of

Chitral in the Hindukush mountains. It stretches from Khora Lasht Shali in the south to Parsan in the North. Tushi-Shasha Community Game Reserve covers more than 12 villages. In total, 12 village conservation committees share its resources, including capital generated from Trophy Hunting. The exclusive topography of Tushi-Shasha Community Game Reserve [TCGR] makes it home to a unique type of floral and faunal diversity. The Game Reserve is the potential habitat of Snow Leopard where it is sighted since 2001 from December to the end of February and its prey-base, i.e. The total population of in the area is estimated around 7,000. The area was declared as a game reserve in 1979 and encompassed an area of 1,045 ha. On December 16, 1998, the area was re-notified as community game reserve, and its area was extended to 20,000 ha with the addition of buffer areas in the east, north, and south (see Table 4).

Table-4: Geographic features of Tushi-Shasha Community Game Reserve

Locality	**District**	**Area in ha**	**Number of villages**	**Boundaries**				**Date of notification**
				North	**West**	**East**	**South**	
Tushi-Shasha	Chitral	20000	12	Shoghur Bridge	Boundary of Chitral GoI National Park	Watershed line between Lotkoh river and Mastuj River	Tehsil boundary between Lotkoh and Chitral (old [illegible])	16/12/1998
Source: Official Notification of KP government								

The local inhabitants, along with the outsiders, were involved in the indiscriminate hunting and poaching of the wild ungulates for decades. However, they were also the locals who conceived and initiated the Tushi-Shasha Conservation Program by blending their traditional management systems with the modern paradigm. The program's immediate focus

was to ban all hunting activities in the area with the help of traditional systems (grafted) such as *Sot Siri, Salmosh,* and *Pehtek*. Hunting was allowed after a few years' protection. The program's immediate focus was to ban all hunting activities in the area with the help of traditional systems (grafted) such as *Sot Siri, Salmosh,* and *Pehtek*. Hunting was allowed after a few years' protection.

6.4.1 Dependency on natural resource base in Tushi-Shasha

Dependency on the natural resource base was mainly for in-house fuel requirements fodder collection and livestock grazing. Pastures and rangelands were used as summer grazing lands and collection fodder for stall feeding during the winter spell. Fuel wood extracted from the forested areas, scattered in Tushi, were the primary sources of domestic fuel. Due to increasing population and lack of access to alternate sources of livelihood the forested areas in the community, protected areas were fast depleting. All the village conservation committees are responsible for the management of the natural resources of the area in collaboration of the wildlife department mainly through conventional management approach. For these purposes, the individual committees have hired community game watchers (one from each village, see table 5).

Table-5: VCCs of Tushi-Shasha Community Game Reserve

S#	Name of VCCs	%age share
1.	Alburhan	50% of the revenue generated through TH
2.	Seen	
3.	Boriough	
4.	Buhktuli	50% of the revenue generated through TH
5.	Parsan	
6.	Kaset	
7.	Kuju Payeen	
8.	Shoghur	
9.	Siwakht	
10.	Shashaangarghoun	
11.	Herthkarimabad	

12.	Khora Lasht Shali	
Source: Wildlife Department, Chitral, KP		

The watchers through their village conservation committees report to the KP Wildlife Department. The villages located in close proximity to the Tushi-Shasha Game Reserve i.e. Dolomuch, Shahre Sham, Kanisghir represented by Alburhan village Conservation Committee (decedents of Royal family of Chitral), Seen, Seenlasht, Bilpuhk, represented by Seen Village Conservation Committee and Boriough Village Conservation Committee have been categorized as primary beneficiary claiming almost 50% of the income generated through trophy hunting.

In return, the people of Tushi through the respective village conservation committees ensured their full support for the implementation of the conservation agenda in the area. They agreed to curtail their animals to allocated areas for grazing, promised neither hunt nor facilitate any illegal initiative and will socially isolate the persons seemed guilty in breaching the agreement. After the commitment from the communities, certain areas were closed for regeneration and propagation of the wild ungulates. Regular consultations were conducted with the community members and other stakeholders to infuse the conservation objectives and create awareness about the importance of this initiative. Linking the conservation with economic benefits was a new idea, so people were least informed and had many concerns regarding this new approach. However, after intense dialogues and regular backstopping the apprehensions of the communities were addressed, and they started their cooperation with the program.

At the start, the program approach was focused on specific benefits of the community; however, after a few years, this was replaced with the mutual benefits through a holistic approach. Instead of implementing certain cooked recipes (conventional approaches of conservation) program remained open to any practical idea that that suits the community best. Program discouraged any authoritarian setup that could create any mistrust or hurdle in the future.

The thrust of the program remained in the recognition and reactivation of their already available traditional conservation models, values, norms responsible for the conservation of natural resources in the area. Positive aspects of all these institutions were tapped in the best interest of the program by the management. Management agreed that the program would be based on the principles of sustainable and significant use.

6.4.2 Major Challenges

The Tushi-Shasha program also faced specific issues that are quite obvious with any community-driven program. The very first challenge was the smooth shift from the individual benefit approach to communal approach. Though jobs created under the project had contributed significantly to economic prosperity; however, to adopt a strategy against the ever-increasing demands was the other challenge for the management. Both the issues were discussed and deliberated on the right forums of the program, and certain strategies were adopted with consensus.

Another challenge for the management was to creating an enabling environment with the government institutions as wildlife comes under the preview KP wildlife department. The government policies and regulations concerning participatory conservation initiatives were also not very conducive. Even such initiatives had no legal protection under any of the conservation-based legal frameworks. For that series of dialogue were conducted with the state institution and as a result, the Wildlife department agreed to provide legal cover to community initiatives in the revised wildlife act of KP.

6.4.3 Traditional Knowledge and Tushi

Traditional knowledge of the local people remained quite useful in devising the implementation plans. Local people were quite aware of the geographical features, animal behavior, migration patterns, and ecology of the area, and their information was used in establishing the benchmarks. During initial days management relied on the information of the local inhabitants; however, later on, the

information was gathered from other sources too. The gathered information was then shared with the old timers of the areas for their input.

6.4.4 An integrated approach to conservation

The only protection of wildlife could not match the needs and expectation of the community entirely. Besides the extinction of wildlife, they have other problems such as unemployment, lack of health care facilities especially among women and children, poor yield of crops, poor animal health and degradation of soil and water shortage. These issues were resolved successfully and resulted that conserving biodiversity is not a single issue but related like a web to the farming system in the area. So the conservation of all birds, plants, trees, bushes, shrubs, grasses, medicinal plants, mushrooms, fuelwood, etc., were also included in the biodiversity conservation plan. Cutting of live trees was banned, and fines were fixed in case of violation. One thing that emerged from this program is “The conservation work has not been seen as an end itself rather a mean to holistic approach”.

6.4.5 Acceptance

The Tushi-Shasha program has encountered an almost constant stream of problems and obstacles since its inception, mostly relating to questions about the legitimacy of the program as a conservation program and the issuance of hunting and export permits. These problems have been encountered at the local, provincial, and federal levels. Due to the continuous efforts, the prevailing acts have been reviewed that provide an enabling environment to the Community Conserved Areas [CCAs]. On the other hand, initially, the community also expressed suspicion that the program was simply a way the government was going to take control of the Tushi-Shasha.

6.4.6 Tushi-Shasha and natural resource management

Tushi-Shasha program has quite significant and visible impacts on international conservation arena. The census results indicate that the population of Astor Markhor and Snow leopard has increased manifold while associated floral and faunal species are also conserved and protected. New species have been recorded in the protected area that might be a good indicator for the successful implementation of the program.

The substantial nexus of culture and biodiversity conservation has created a sense of responsibility and increased the sensitivity of the local community towards natural resource management issues by positively impacted the attitudinal issues at large. Tushi-Shasha has successfully tempted the local inhabitants a culture that leads towards respect for their natural resources. It has blended the traditional models with the latest conservation paradigms and can be replicated as one of the successful examples of co-management. The perceptions of the people have been changed, and they seemed more enthusiastic towards conservation efforts. Conversation with the community revealed that now even locals are not allowed to hunt since the program is a significant source of income. According to one of the community representative:

> *We are the custodians of these resources, we have fought battles for their protection, scarified our rights for its management, suffered because of their presence and absence now why should we allow anyone else to control the resources. The government is not the custodians of these areas that's why they are exploiting them for individual benefits and due to their continued indifference our resources have suffered a lot. The establishment of this program through the active involvement of the community is the best way to fight the resource depletion process [Sehzada Gul, a representative of Tushi-Shasha].*

Another direct economic benefit to the local communities is the provision of job opportunities. This incentive is one of the motivating factors for the communities

to further the conservation efforts with full conviction. Now they are clear that the program has a visible impact on their livelihood and helped in coping with their hardships.

Although the program has many successes in its credit, especially in a challenging environment, however an area that could not be integrated effectively is the role of gender in the program. They seem invisible and have no say in the decision-making process. Though the management, as well as community representative, blamed cultural barriers for this neglect; however, unable to support their arguments with logic. Women are involved in water, livestock, and agricultural activities besides their involvement in domestic chores. Their involvement right from conceptualization to monitoring of the program can strengthen the process and objectives efficiently. Local inhabitants are quite convinced regarding the impact of the program by sharing;

> *"Involving local communities through traditional approaches in the management of natural resources has served dual purpose of enhancing the population of key wildlife species through better watch and ward system and community development through making available the much needed cash capital [Ali Yard Khan of Shasha VCC]."*

Following the footprints of the programme, conservation-based national, as well as international organizations such as the World Wide Fund for Nature-Pakistan and World Conservation Union, is replicating this initiative to other parts of the country. Tooshi management is also struggling to convince the concerned governmental institutions and relevant stakeholders to develop a detailed and practical policy document on trophy hunting that could describe a process for quota allocations. Toshi Management, in collaboration with the conservation-based organizations, is also advocating that allocation of quotas should be on merit by considering animal population base, conservation, and benefits to the communities.

6.4.7 Major Lessons of the program

From among the lessons learned early on in the program, one of the most fundamental and foremost lessons was that program must be flexible to accommodate such demands from the community based on real justification and their practical relation with conservation issues. Another lesson was that all inter and intracommunity conflicts primarily related to land tenure and holding must be resolved before engaging the community for any conservation initiative.

6.5 Indigenous Institutions, Governance and Conflict Management

Indigenous systems were/are mainly steered by a group of notables and respectable individuals of the areas from different backgrounds. The important functionaries were/are fully capable of addressing issues about institutional collaboration, conflict resolution, performance, and efficiency, etc. They are also instrumental in fulfilling several tasks on a timely basis. Day-to-day management was entrusted to selected individuals mainly by the youth and the shepherds. Selected individuals by the committee are mainly focusing on the natural resources of the area keeping in view the complexity of the land tenure in Chitral. A designated group of people (committee) is responsible for punishing the offenders as per rules and the nature of the offense. They are also supposed to safeguard the interests of the respective communities by representing communities in case of intracommunity conflict. In the event of any defilement of sacred space, there is no organized mechanism to charge a penalty or issue a punishment. It is mostly believed that the local deities (of the respective lake, forest, spring or field) will issue the retribution. Locals cite numerous examples of people falling sick because they polluted a lake or damaged a sacred tree etc.

The process of collectively drawing a set of rules and regulations to protect the sacred sites has not taken place presumably because the faith in supernatural retribution is so strong, especially in the Kalasha community. They are symbols of a more in-depth fabric of relationships that this ancient tribe shares with nature. This, of course, is fast changing and protection and reverence in time may be severed from this fabric and restrict itself to a few areas.

Despite the other reasons mentioned in earlier chapters abolishment of a princely state in Chitral also contributed in the disintegration of time tested management systems, values and myths that were playing their pivotal role in natural resource management. Natural resources of Chitral degraded sharply soon after the abolishment of the state. Though the state had established regulatory bodies for the management of the resources, however, they failed to build trust and win the confidence of communities. Mistrust between the regulatory bodies and the communities raised the questions of accountability, transparency, equity, and good governance. Mainly the primary cause of distrust was lack of ownership and tenure issues over the natural resources. The state took the responsibility of conservation while communities in retaliation started using the natural resources indiscriminately.

Data also concludes that natural resources, under complete government control, are the most degraded resources while the pastures, conserved community areas, and other resources owned and managed by indigenous communities through their century's old management systems are relatively in good condition. Machlis and Taichnell [1985] also support the findings by arguing that the 'preservationist approach… requires an essentially militaristic strategy and will almost always heighten conflict' national park and forestry agencies have become armed and paramilitary uniformed organizations, whose main investment is in law enforcement and public relations [Anderson and Grove, 1987b].

The shift in resource management paradigms from indigenous natural resource management to state-controlled management shook the sense of ownership once strong enough among the communities to take care of their natural environment and as such the management efforts were severely jeopardized. As a result, a nosedive decline in the status of biodiversity of the region has been observed. Furthermore declaration of certain areas such as Chitral Gol National Park as state property resulted in reprisal attitude among the custodian communities that have ultimately raised the issues of governance and conflict management in the area.

The following case study unfolds the truth of how disintegration and weakening of traditional institutions and negating their role in management have furthered the conflicts in one of the state-owned PAs of Chitral.

6.6 Case Study 3: Stigma of Conflicts in State-owned areas

This is a brief case study, however, done with more involvement as compared to other case studies given in the thesis. The reason for this passion or keenness was nothing but to know about a typical approach used by the local communities for claiming their right from the KP Wildlife Department. The background of this case has little to do with the communities in question. In general, the people of the Chitral are very peaceful; due to their unique socio-cultural and ecological traits, any major conflict seldom occurs in the region except on the user rights. Established moral ecology by the indigenous communities ensured that the land areas governed under the customary laws have fewer conflicts over the resource use than the statuary ones.

The ownership claim of Chitral Gol National Park cannot be traced before 1895. During the monarch era Population of the area was less congested and was closely adjacent to the forest. The communities were less dependent on the Chitral Gol. Every individual village used to bring fuelwood and timber from the forest nearer to their villages. In 1895 the area of Chitral Gol was declared as the private hunting ground of the Mehter the than ruler of Chitral. Due to restriction on public hunting, the population of ungulates mainly associated flora and fauna of the private hunting ground was conserved.

The state government was established after the invasion of the British in the area. With the establishment of other state offices, two forest officers were appointed in Chitral and Drosh in 1914. A nominal tax was levied for the timber used which was affordable for the people. Chitral Gol was declared as Mehtari Shikargah. The potential habitat of in all over the district was distributed among the princes, Hakims and other officials in order to protect the natural resources especially the ungulates from the unsustainable use by the general masses. Although by such practice the general masses were derived of the hunting, that helped protect the resource accordingly. In 1969 with the declaration of the state into the settled district, the restriction on hunting was abolished, and everybody was allowed to go to the Chitral Gol and use its resources. This practice destroyed the resources, specially

the hunting of the Markhor that was earlier considered safe from illicit poaching and hunting under Mehtari Shikargah.

Meanwhile, a dispute arose between the Ex Mehtar Chitral and wildlife department on the ownership of the area. The wildlife department accepted only 73 *Chakuram* lands inside the Park as Mehter's personal property while the rest of the property was declared as state property.

On the other hand, the Mehtar claimed over the whole area of Chitral Gol as his property. He dismissed the declaration of the area as a National Park and filed a petition to the court for the ownership of the area. The conflict further augmented and as a result, affected the governance system of the protected area. On the other hand, custodian communities also lodged a claim of ownership in the court by claiming traditional user rights. They argued that the Mehtar could only lay his claim to 73 *chokorum* of land inside the Park and the rest has always been communal property accessible under traditional rights to all stakeholder villages.

The case was registered with the civil court. Later on, 1n 1993-94 people from the 11 villages living in the periphery of the Park became a party in the case. Mehter filed a writ petition against them in the High Court. High Court, later on, sent back the case to the Session Court Chitral to review. The case is still under proceeding in the court of law. Delay in the court's decision has adversely affected the Park. Until and unless the dispute is not resolved, the park could not be adequately managed.

Since the conflict continues, so consequently the conservation, as well as development activities within the park, have ultimately been hampered. A state of chaos and mistrust also exist among the staff as well as the adjoining communities that encourage the culprits to do illegal activities in the park.

6.7 Weakening of the IMS/Values and Myths

Governance systems are under threat in most of the traditional systems due to inherent weakening. The social system, however, is experienced as an alternative as centralized governance systems have failed to arrest the irretrievable loss of biodiversity in many parts of the Chitral. Indigenous Management systems values and myths have experimented in many settings as an alternative to bureaucratic governance of natural resources in the region.

From the governance perspective, complexities in natural resource management arise from several factors that are intrinsically embedded in the very nature of the natural resource, the nature of rights, access among different interest groups targeting different values, and the nature of benefits and costs sharing mechanism. The interaction of these factors generates conditions that make natural resources governance a highly contested and interest-laden socio-political process

Needless to mention here that despite the erosion of centuries-old traditional institutions, values, and myths, a vast majority of the respondents wanted to reactivate them accordingly. The data confirms that the significant reasons for the disintegration of these institutions, values, and myths are mainly due to the weakening of socio-cultural institutions, population explosion, scarcity of livelihood means and above all everlasting individualism and undue trailing by various donor-driven organizations to conserve the natural resource base through alien auditions while neglecting the traditional means of resource management. It has resulted in irreversible damage to the available natural resource base, especially in rural areas of Chitral. There is enough evidence of the significant impact of traditional management, values, and myths on local behavior and natural resource conservation.

The data reveals that indigenous systems, values, and myths are weakening both in Sunni and Ismaili communities however still intact within the collective memories, practices, daily activities, beliefs, artifact and ecoscapes of Kalasha people. The globalization, media, diversification of other livelihood opportunities for a few decades have diminished and destroyed much of the Chitral's cultural diversity that ultimately affected the biological

diversity too. Except for the Kalashas, the other two groups could be named as neotraditional groups as modern systems have either dominated the traditional systems or influenced it significantly.

Land use planning for the available natural resources remained an integral part of traditional society's livelihood strategies. It has been based on the indigenous knowledge, values, and modern approaches available in individual socio-ecological and economic settings. Unfortunately, we have failed to provide an alternative of eroding traditional knowledge.

Following the case study narrates how these institutions have lost their credibility among the youth by failing to address their needs accordingly.

At one end, the indigenous management system is considered one of the panaceas of addressing natural as well as social issues while on the other hand, it seems silent to address absolute social menace in Chitral. For instance, during data collection and interaction with the community, I met with Umer Rafique one the community activists who indicated a social issue in Broghal valley, they are suffering most for the last few decades. According to Rafique strong cultural bindings and isolation, the act of a notable is nothing but to adhere. Any such act is considered as obligatory to abide and replicated quickly among the inhabitants and outsiders showcase us and our traditions as unique and consider any development initiative lethal for our culture and traditions. That is how our subsistence rights, such as nourishment, health, housing, and livelihoods, etc., are compromised. Rafique took me to a visit to his village and said look even now we do not have the basic amenities available in this part of the region. Necessary health facilities such as sanitation, health, and education are still a nightmare for us. Women and children are quite vulnerable to different diseases such as malaria, stomach cramps, aches, and arthritis, etc. Opium was prescribed by the elders as a traditional remedy to diseases such as sedation, analgesic, anti-cough.

He further added that due to this, most of the families in the valley had become opium addicts. This stigma seems to have spread due to harsh climatic conditions, ignorance of the harmful effects of opium, detachment of the valley from the surrounding areas and

sticking on the act of the notable as a social binding. It is now a significant social as well as a health issue in the valley. Children start to grow, already having it in their blood, due to its use as a medication in infancy. They get addicted when they start grazing animals after ten years of age.

According to Rafique, opium is traditionally smoked in the area, in a mixed group of both male and female. They sit in a circle inside the house to take opium in turn one by one to engulf the smoke. It takes at least two hours to complete one sitting. This joint smoking also affects the other family members, especially the children indirectly as smoke inhalers. About 90% of families in the Boroghil area are now indulged in opium smoking. The addicts included both males and females; however, this menace is more in men than women. The number of addicts may be high when the word addiction is broadly defined, because almost all the Wakhi people use opium in one way or the other. Some addicts were observed with seriously damaged health and suffer severely in case of any deficiency. I met several individuals, including young women and children, smoking opium during data collection. When I discussed the problem, they burst into tears and requested to provide them medicines and proper medical treatment instead of showing sympathy. I still feel sorry for not been able to help them. The people, besides health, have also been socially and economically dented. Ten grams opium in normal conditions costs Rs. 300, enough only for five days of smoking. In short days it rises to Rs. 700-800. One addict spends Rs. 1500 per month and Rs. Fifty per day on opium, which is many times greater than their income. Opium is also exchanged for animals. Locals as well as outsiders transport opium into the area from Chitral, Gilgit Baltistan and mostly from Wakhan area of Afghanistan. The situation is further aggravated when numbers of outsiders have started exploiting the native inhabitants by grabbing their lands and livestock in exchange for opium. This menace if not controlled, would hurt the environment as well as the cultural heritage of the inhabitants. By responding to the question, Rafique added that now despite elder's efforts, people are not ready to leave smoking opium. It is mainly due to addiction and weakening of our social values.

6.8 Women and Indigenous management systems, values and myths

Traditionally, women have enjoyed a high status in Chitrali society. Old proverbs like “Khoistan aurat abad” (“the land of Khow is prosperous owing to the ability and skills of its women”) and “har chamoto tan hunar” (“each finger has a skill”) are a clear reflection of this fact. Financial and resource utilization discipline, known as madiri, is considered to be the exclusive domain of women. Historically, women have inherited property and managed large estates. During the reign of Chitral’s former rulers, the Mehtars, the women of the ruling family played a vibrant role in statecraft. Chitrali society is comprised of two distinct social and cultural groups, the Kalash and the Kho, each with its norms and traditions governing gender roles[17]. However, still in 21st-century women living a miserable life in Chitral and considered inferior to men.

The degradation of resources has a significant impact on women’s lives. The findings show that women as a group enjoy fewer advantages and work for longer hours than men in Chitral. Women are overburdened with household chores, and even their contribution is not recognized. The findings indicate that women are absent from natural resource planning and decision-making process both within and at the community level. Similarly, women have limited access to and control over resources and benefits. The findings indicate that women have limited mobility in the village due to religious customs and cultural norms in the Sunni community while Ismailies and Kalasha women face fewer restrictions. Economic mobility includes all productive work in the village or out of the village such as cropping in the field, fetching water from springs, providing labor, collecting wood and grass from pastures, etc. As revealed from data, economic perspective women mobility includes fetching water from streams, water channels, and rivers, etc.

Similarly, women play an essential role in agriculture fields; they perform harvesting, threshing, weeding, collecting vegetables, cutting grass, collecting wood from pastures. They are also mobile and perform livestock rearing in the pastures. Despite the general neglect, there was a consensus among the communities to address conservation issues both in state-

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owned as well as traditional areas women needs to be involved right from planning to implementation as an important stakeholder. Though *Dane* or other conservations well management committees were formed and run through the consultation of local stakeholders and seem quite successful in providing meaningful participation opportunities at the community level. However, it is also true that women were neither consulted during the formulation of such committees nor involved in the implementation mainly because of cultural taboos and myths associated with that critical segment of society. Women were considered impure, and even still in Kalasha culture, this tradition continues and are not allowed to enter into the pastures and religious sites during menstruation periods. This is accepted by most of the Kalashas as their culture. According to Saifullah Jan [1996]

> *"So finally, from the early times of Rajwai and Bulasing, it has been our ancient customs that have preserved the Kalasha through all difficulties: our Idea of 'purity' and 'impurity'; our customs where elders gathers and sort out their problems together. This is our custom; this is our religion; this is our life [Saifullah Jan 1996:242]."*

Viviane Lievere [1996] in his article published in the Second International Hindukush Conference linked the concept of purity and impurity to a system of prohibition that has set up through repeated revelations. According to him, this discrimination has not necessarily always been so strict. However, my interaction reveals that even Kalasha women seem not comfortable with this discrimination. The concepts of purity and impurity play an essential role in Kalash culture. To the Kalash, the world is divided into two states, onjesta (pure, sacred) and pragata (impure, profane). In Kalasha culture, the female members of the society are usually not allowed to stay in the pasture for more than a day because according to their believe females spread grunge in the pastures which may bring bad fortune to the pasture and livestock and ultimately lead to the anger of fairies and gods. Pollution is also considered fatal to the existence of biodiversity. For instance, in Kalasha mythology, mountain peaks are the abode fairies and gods and considered pure. Impure persons are not allowed to be stepped upon. As women are also considered impure, so they are not allowed in places like Mahandeo (four horses). They usually carry with them female members and

children only on the opening day of the pastures, and after celebrating the event, they are sent back immediately. However, herders belonging to Muslim community have no such restrictions, but due to rough and challenging tracks, they also avoid carrying women and underage children to pastures.

Similarly, goats, goat stables, goats, goat meat, and homemade honey are considered tabooed for women due to their impure status. Even they are not allowed to use the freshly harvested agriculture produces until the men get a taste of the crop. Tagging of men with purity and women with impurity is mainly due to the ideology that pure is superior to impure. Women have to compromise the religious impurity attached to the women and cannot enter in some religious regions for prayer.

During the consultation few of the women said that;

> *"What to talk about the awareness about the natural resources and women in our society where our basic human rights are compromised daily. We are still considered impure in 21st century while the outsiders, historians, researchers and even the human right activists are trying to hide the issues under the patronage of religion and culture."*

On other conservatism and fanaticism especially in Sunni Community is considered to be a significant obstacle to the women in natural resource management accordingly and people still seem hesitant to touch this sensitive nerve mainly due to religion-cultural hegemony.

6.9 Indigenous Knowledge Management

Knowledge is the capacity of individuals or an institute on to act appropriately and judiciously based on information to solve any issue or problem. It contains the rules of daily life and principles of action in any society and represents their expectations concerning cause and effect relationships. Traditional knowledge is considered as "Tacit / implicit knowledge" that exists only in relationship with people or at the level of an organization and need to be properly processed so that it could be transferred to next generation. Gandhi, [1982] endorses

the importance of the IMS and of the opinion that contemporary science, local technologies, and traditional knowledge systems can play a crucial role in sustainable biodiversity conservation while Cox [2000] consider tribal's bag and ancient texts quite helpful in developing new herbal medicines for the treatment of different diseases. Similarly, indigenous and local communities have a wealth of knowledge about their resources and can be used for the better management of these resources.

The traditional wisdom has got attention from the anthropologists and other stakeholders within the past few decades. It can be divided into different fields, such as botanical, ecological, and taxonomical, etc. [Tavana, 2005]. Another reason for weakening these systems and values is that it has never been documented accordingly. Its transfer from one generation to another was mainly through word of mouth; however, this has also been weakened due to several reasons. As a result, traditional roles begin to break down, and knowledge systems are no longer effectively developed or shared. Elders may no longer be consulted for advice and may lose their standing in a community when their knowledge is increasingly thought to be antiquated and irrelevant by younger members of the group.

Today there is a recognition that few characteristics of IMS are accustomed to the framework of sustainable agriculture, fisheries, forestry, etc. However, while some research indicates that many indigenous resource management systems emphasize production stability and risk minimization, other systems do not. Most of the indigenous agricultural systems are adaptable, environment-friendly, and entirely compatible with the yield of modern or conventional agriculture. While these farming systems require intensive labor, they require less fertilizer and pesticide. Data also indicate that traditional and neotraditional groups and their knowledge systems are closely tied to the lands they inhabit. Since knowledge and traditional resource use patterns are central to the maintenance of identity of indigenous groups, cultural identity begins to change when ties between land, resources, people and their knowledge bases are disrupted.

Within indigenous cultures, the transmission of knowledge is oral. It is mainly through observing the behaviour of elders, the use of symbols and signs, signals, and some

time through writing scriptures. Knowledge and values are mainly transmitted through cultural and religious rituals. The Khowar culture in general and Kalashas, in particular, have a diverse type of poetry, stories, proverbs, song, etc. that illustrate the environment or natural resources of the area. The people still sing these songs and tell the stories to each other or their families during different social, cultural, and religious gatherings. My research indicates that indigenous and neotraditional children, because of their different interactions with the environment, develop knowledge that is different from adults. Young people, however, usually rely on the knowledge of more experienced and wiser elders. These individuals frequently are consulted before imperative actions are taken or decisions made.

Generally, traditional systems and knowledge are considered to be subjective systems/knowledge based on observation, while western scientific knowledge is considered objective, based on replicable experimentation however I disagree with the statement and argue that at least traditional knowledge is the result of experimentation and outcome of a centuries-old dynamic process. These systems and knowledge are holistic in the sense that knowledge and value are inseparable, woven together by spiritual and religious ideas that codify human behaviour. Western knowledge is fragmented, and scientific knowledge and spiritual/religious knowledge are seen as incompatible. Indigenous societies generally regard themselves as part of nature, not separate from it as Westerners see themselves.

6.10 Impact of indigenous management systems, values, and myths

Data revealed that indigenous systems had produced satisfactory global, regional and local biodiversity benefits by the environment where it has been working since benefits have accrued to species and ecosystems which are endemic or in some other way unique to the mountains of Chitral as well. These systems also have a clear community-level impact. It has raised awareness of the value of natural resources such that perceptions among the communities have changed radically. Village communities are now thinking about the sustainability of the resource rather than merely their immediate needs. They are also more amenable to balancing their needs with those of the ecosystem to ensure the latter's survival. The case study 2 indicates a positive impact on the mountain environment of the area and, if the traditional systems are continued and reactivated, this is likely to improve. Pastures are

being rested, stock numbers are being reduced, forests are not being cut down for firewood, habitat is being protected, and the environment is being protected.

On the other hand, extensive rules and regulations have been devised by the indigenous population of Chitral for the harvesting of natural resources. Each member of the community is well aware of the harvesting and marketing procedures of their produce. Their forefathers devised these rules and transferred to them accordingly. Allotments, allocation, distribution are defined according to the time, opportunity, and rotation and were ensured to respect by all.

6.11 Possibilities of Reactivation of indigenous management systems, values, and myths

Different research studies indicate that one of the prerequisites of any Successful conservation initiatives requires the respect and recognition of the indigenous values, norms, and their tenure rights. The indigenous representative institutions need to be recognized, and decisions must be respected and owned accordingly [Craven and Craven, 1990; Morrison, 1993; Davey. 1993; Kemf, 1993; Colchester, 1994]. Though a realization from one segment of the conservation community to revisit relationships with the indigenous/traditional communities is a welcome development and highlighted at the right time, however, there is still a significant number of conservationists that support the idea of increasing profitability of biological diversity through marketing the resources. [Gray,1991 and Corry,1993; Wells, 1993; Poore, 1989; Plotkin and Famolare, 1992; Counsel and Rice, 1992; Panayotou and Ashton, 1992; Scoones, Melnyk and Pretty, 1992: WWF, 1993]. The second idea is inevitable for the conservation of natural resources; however, that should not be on the cost of denying and compromising the tenure rights and control of indigenous communities over their resources. Another challenge confronts to keep a balance between individual use of collective resources with the “public goods”. For instance, if we decide to market any products such as forests or wildlife, we should consider the nonconsumptive value of the resource we compromised in the form of fresh air, water purification, soil retention, aesthetic value, etc. [Nabhan,1997]. The good thing is that the anthropologists concerned with

conservation have conducted different research studies on the values, norms on which to premise ecologically sustainable relationships between people and the natural world.

Several clear lessons have begun to emerge from the collected data and case studies and other experiences of the custodian communities. The data indicate that the sustainability of these institutions, values, and myths are at stake due to a number of reasons such as erosion of cultural values, dying wisdom, lack of interest of the future generation, the capacity of the communities in reactivation and running these institutions on customary laws. Overshadow of customary laws by government laws has weakened our institutions. With regards to the knowledge generated by these systems, values and myths are quite significant and useful for the conservation efforts; however, they are never documented and will not be sustained accordingly.

Local people still consider these systems a cost-effective solution in managing their natural resources as these models have successfully ensured the ownership and involvement of the people in the management of wild resources. In part, traditional management systems have also sensitized local inhabitants to the non-monetary values of natural resources and benefits from the flow of ecological services. As well as productive uses of wild resources on a sustainable basis to increase their relative values and to provide a direct conservation incentive to provide an economic incentive for communities to conserve biological diversity, including natural resources habitats. A community-based trophy hunting program, involving and Asiatic ibex, was developed and successfully implemented under the traditional regimes in different parts of the country.

In response to using these tools in NRM, both genders of all three communities considered these tools cost-effective and easy to use in their respective areas. The reason for such unanimity among different religious/sects as well as ethnic groups was the possession of such systems in the area. Natural resource management is commonly described as a means of achieving environmental conservation. Integrated management is a process, which extends across recourses disciplines and sectors, within and between government and private organizations, and with aims set for social and economic change.

Analyzed data indicates that the majority of the respondents still value the indigenous resource management institutions, values, and myths as a viable tool to manage the natural resources on a sustainable basis. They were seen to hold the key to ecologically sustainable development. They had direct long-term interests in the protection of natural treasures and their reinforcement. Due to durable cultural bindings in Chitral (especially Kalasha community), communities have been practicing "*Saq, Hujjati, Perhteik, Pechheik, Qalangi* etc quite successfully. Most of the respondents thought that these institutions are self-sustained and have the tendency to be sustained in the future too. The primary reason for its sustainability is cost-effectiveness, ownership easy to operate. These institutions ensure the benefits significantly to the whole community and not just a few privileged individuals. However, the majority of the female respondents consider these institutions male-biased as they have very little say in the planning, implementation, and decision-making the process of the indigenous institutions. According to my conclusion, reactivations of the indigenous management systems is not a matter of having or not. In other words, it is not indigenous versus modern paradigms; rather, it should be indigenous and modern. The important thing is that this century-old heritage should be respected owned and applied where applicable.

6.12 Conclusion

This chapter explores the importance of indigenous management paradigms, the possibility of their reactivation, the role of women in these institutions, and their sustainability as well as practicability in the contemporary era. Various case studies support the arguments in the chapter. For instance, the *Dane* and Tushi-Shasha case studies can be taken as examples of a limited scale program that have used the traditional conservation models in the implementation of an integrated conservation project. Both models seem sensitive towards traditional values, local environment, and norms and reflect that these systems tend to reactivate and play a significant role in managing the natural resource especially in areas where either the cultural values are still intact or traditional paradigms are blended with the modern system. Moreover, the other case studies underpin the role of women by indicating that though these institutions have significantly contributed in the conservation and management of the natural resources, however, women's role remained very limited in these institutions due to certain cultural taboos. The discussion indicates that these paradigms also failed in arresting social challenges, especially conflict management

adequately. Discussion also reveals that the traditional paradigms are based on the inherent belief in nature and its 'living presence' in all its aspects like trees, rivers, mountains, birds, animals, etc; all of these hold a sacred significance in the indigenous community's life and is manifested in their folklore, legends, religious beliefs and practices, healing methods, etc. Traditional knowledge is also diminishing mainly due to non-transferring to next generation. However, in a nutshell, it, therefore, provides a hypothesis that traditional management systems, values, and myths tend to still play a useful role in a society where cultural values are still intact.

Chapter 7

CONCLUSION

I made different claims in my dissertation. My primary argument is that indigenous management systems, myths, and values have still a tendency to play an effective role in the conservation arena of Chitral provided they are somehow blended with modern paradigms. This is mainly due to the erosion of cultures, values, and ethics that is directly proportional to these institutions. Grafting of indigenous management systems with modern techniques can bring working compromise and chances of valid results in managing the natural resources and can play a significant role in fixing responsibility, transparency, and accountability at large. Another argument is that the indigenous systems and knowledge is generally thought to be subjective systems/knowledge based on observation, while western scientific knowledge is considered objective, based on replicable experimentation however my discussion negates this notion and conclude that indigenous institutions and knowledge are also the results of experimentation and outcome of a century's old dynamic process. It can be rated as holistic in the sense that knowledge and values are inseparable and women together through spiritual and religious ideas. However, indigenous knowledge can only be sustained provided it is documented, owned, and respected accordingly.

I looked at the ways ecological knowledge in Chitral is eroding at a rapid pace. This process is not dissimilar to what is found in other parts of the country. In my discussion, I also argue that collectivism is emphasized over individualism; that people still have trust over institutions rather than individuals and notables in the Chitral region. Study indicates that this trait is specific to the locale and mainly due to specific cultural values and found that these institutions provided yet another example of balanced exchange relationship within a given society. Though my locale was Chitral, however, this thesis is also a demonstration for those areas that share similar cultural patterns. In other words, the findings of my thesis indicate that indigenous models, values, and myths can be replicated in other parts of the country where a nexus between culture and ecology still exists.

Besides, I think that a common denominator that emerged during my study is the ever-decreasing role of women folk in traditional institutions due to different cultural taboos. Despite their direct dependency on natural resources and desire to play a role in the conservation and protection of the natural resources, they are considered impure, especially in Kalasha society. I want to reproduce a few lines from one of the case studies that reflect the aspirations of Kalasha women. This seems self-explanatory and needs no further arguments;

> *"What to talk about the awareness about natural resources and women in our society where our basic human rights are compromised daily. We are still considered impure in the 21st century while the outsiders, historians, researchers, and even the human right activists are trying to hide the issues under the patronage of religion and culture."*

In one sense, my thesis is incomplete. I have not attempted to include other areas of similar cultural patterns and the nomadic communities of Pakistan. This was mainly due to lack of time and resources. For instance, a secure cultural, ecological link also exists in the nomads of Balochistan and even in sedentary communities that still are living with their resources in harmony. However, Literature also indicates that fundamental cultural shifts are quite evident in Chitral and other parts of the country. This thesis is an attempt, therefore, to view Chitral region as a particular instantiation of a pan-Pakistani culture which draws on a set of values, believes and views shared across all of Pakistan's provincial "culture" groups. This type of analysis is necessarily comparative and as such, requires either collaboration between multiple researchers or a great deal of time.

Weakness highlighted above in the thesis does not mean that I have not presented complete arguments. My investigations regarding the role of indigenous management systems, values, and myths in natural resource conservation in one region (Chitral) are complete. However, there is a possibility to review the commonalities through a more detailed analysis of particular social and ecological institutions and relationships. In order to extend this to other areas of Pakistan, other anthropologists should come forward and work on the hypothesis "that the integration of the anthropology of Pakistan is desirable and useful".

In the event of increasing pressure on natural resources followed by the 'development' practices of the globalized era, the everyday practices of the communities which were otherwise fairly in harmony with the natural systems of degradation and regeneration, have become polarized into either 'conservationist' in nature or 'degrading'. Therefore practices which were otherwise only a part of a 'whole' culture that was relatively congruent to sustainable lifestyle have segregated from the 'whole' and studied or analyzed in its exclusivity, typical of western methods of analyses. As a result, the concepts of wildlife, sacred groves, forests, rivers, etc. are increasingly being seen as fascinating 'tools' towards conservation being 'offered' by traditional cultures. Due to the western paradigm and euro-centric development agenda, the indigenous communities have no choice but to be victims of circumstance and lent themselves to a slow process of denying and disconnecting from their own beliefs and practices.

I agree with Arora and Vibha [Conservation and Society, 2006] that

> *"Our perceptions towards indigenous communities are mostly colored and determined by our own view points of reality[18]. Where our romantic view of the communities as conservers of the natural resources was mostly to do with our romanticizing the 'simple', 'close to nature' life when we became more and more conscious and guilty of our consumeristic lifestyles and what it was doing to Mother Earth, movements, the Chipko Andolan widened this view to also include the material livelihood aspect to the incentives behind community conservation. In lauding these efforts by the community, we also attempt to create for them a permanent identity, turning a blind eye to the fact that communities are dynamic and so is their reality, their perceptions towards natural resources and their motives for conservation or even exploitation."*

[18] Arora, Vibha, 'Conservation and Society', 2006

Despite some criticism about the involvement of indigenous communities in conservation efforts, the most of the wildlife biologist and conservation pundits think that this initiative has successfully cultivated a sense of ownership in protecting of resources and need of conservation among the local custodians. However, the indigenous communities have neither fully taken on board as an essential partner in conservation nor been ensured their full support in conservation efforts. If managed and implemented correctly, these models may tend to play an operative role in the conservation and protection of the natural resources by sharing the responsibilities accordingly.

I draw this thesis to a close with a quote from the [Gadgil, 1987]

> *"the different human societies have elaborated a striking diversity of ways of working with nature. Many of these are ecologically adaptive, but this is not to say that all of them make ecological sense. Some certainly do not, and some may have become ecologically maladaptive. The point, however, is that the diversity of traditional resource use practices represents a pool of human experience spanning many millennia and many cultures. The conservation of this rapidly diminishing pool of experience, a kind of cultural diversity, is as pressing as the conservation of the biological diversity".*

While it may be arguable to accept this statement as a universal fact without more exhaustive investigation of all possible cases, I have attempted in this thesis to explore the mechanisms by which anthropology of indigenous cultures and management systems may shed light on the issue of natural resource management in Pakistan. This has been exacerbated weak states, but still, these indigenous institutions, myths, and values tend to play its due role in the management of Chitral's natural environment in days to come same as they remained foremost factors in the conservation in the past.

Annex 1 Abstract of Field Notes

{Doc T. Socio Kalasha July 09, 2003: [In Bamborate attended a village meeting and conducting few informal interviews from the old timers of the area regarding their social nomenclature, village hierarchy, and social institutions in a village and about the role of women in natural resource management. In Kalasha culture, the female members of the society are seldom involved in natural resource affairs. They are usually not allowed to stay in the pasture because according to their belief, the females spread grunge in the pastures, which may bring bad fortune to the pasture and livestock. They usually carry with them females members and children only on the opening day of the pastures, and after celebrating the event, they are sent back immediately.]

{Doc T. Ecological Wakhan July 28, 2005: [Since centuries the inhabitants of the valley have remained dependent on the natural resources of the pastures not only for subsistence but also to make a hefty sum of additional income via the sale of timber, fuelwood and NTFPs to the outer world. The pastures are extensively used for grazing, fuelwood collection, NTFPs collection, and timber logging. Majority of the pastures belongs solely to the *Wakhi* community.]

{Doc T. Ecological Tushi October 14, 2004: [No nomadic family migrate to the area for grazing their livestock; however local herdsmen use the areas for grazing from April to October and significantly effects the vegetation of the area. At present, the livestock is within the carrying capacity of the area, and no significant threat is observed to the natural resources, however, if the same trend continues, the overstocking may compete for grazing with the wildlife. The local social institutions of the pastoralist seemed weakened. Those were mainly responsible for a regulated and wise use of natural resources of the area.

{Doc T. Eco. Tushi February……. 2006:

I created the code, for instance, Doc [Doctoral] T [Tahir] Eco. [Ecological] and then used moth & year.

ANNEX II: LIST OF ACRONYMS AND ABBREVIATIONS

AKRSP.....Aga Khan Rural Support Programme

CAMAT .....Chitral Association for Mountain Area Tourism

CBD .....Convention on Biological Diversity

CCBs.....Community Citizen Boards

CCS.....Chitral Conservation Strategy

CITES..... Convention on International Trade on Endangered Species of Flora and Fauna

DFO..... Divisional Forest Officer

GoKP..... Government of Khyber Pakhtoonkhawa Province

IUCN..... The World Conservation Union

Km2.....Square Kilometer

NCCW.....National Council for Conservation of Wildlife

NCS..... National Conservation Strategy

NGOs .....Non-Governmental Organisations

NRM..... Natural Resource Management

NTFPs .....Non Timber Forest Products

PAs..... Protected Areas

PLA..... Participatory Learning and Action

PRA.....Participatory Rural Appraisal

Sp. .....Species

SPCS ..... Sarhad Provincial Conservation Strategy

VCCs.....Village Conservation Committees

WCPA .....World Commission on Protected Areas

WWF-Pakistan..... World Wide Fund for Nature – Pakistan

ANNEX-III: LIST OF VERNACULAR TERMS

Aala Hazrat ..... Highly Respected, Ruler, Spiritual Leader, Elder

Chakorum.....Kho word meaning ¼th of an acre

Charvelu……..mid-ranking state official; assists hakim in collecting revenue, and maintaining law and order

Chowkidars .... Peon who takes care of the office, commercial and residential buildings

Gol ..... Nallah or stream mostly perennial

Graam Saq..... Traditional ways of protecting forests and wildlife

Gujjar..... Traditional livestock herder basically nomadic herder

Hakim……..subordinate to the x- mehtar

Hujjat .....Another traditional method of conserving forests and wildlife

Hukama.....Vice Governors of the Chitral State

In-situ.....Conserving a species in its natural zone

Kafir..... infidel; non-believer

Khowar .....Most spoken language of Chitral

Kalashwar .....Local language of Kalasha Community

Mehtar..... Former ruler of Chitral State before its merger with Pakistan

Moon.....Collective work by the villagers for a common cause

Salang …….. grazing tax levied on nomadic herdsmen; paid in the form of goats and butter

Shahzada…… prince

Sheer Brar .....Sweet Brother in Chitral language

Shikargah .....Previous hunting place of the Royal Family of Chitral

Syed……..direct descendant of the Prophet Muhammad (peace be upon him)

Tehsil ..... An administrative division within the District for effective management

Urdu.....National and official language of Pakistan

Ushr…….. land revenue; tithe on agricultural produce, amounting to 10 per cent of the yield; formally introduced in Chitral by Shujaul Mulk in 1910

Ustad…… literally, ‘teacher’ or ‘expert’

ANNEX IV: GLOSSARY OF TERMS

Agricultural areas: Lands intended primarily for crop production, pastures, and other similar uses, including the closely associated facilities of on-farm roads, fences, etc.

Baseline data: Fundamental units of basic inventory information that is crucial for biodiversity conservation planning and management. These are both biotic and abiotic and usually include: (1) the presence and/or abundance of species and other units; (2) other dependent biotic data; (3) the appropriate influential abiotic variables, and (4) human variables.

Biodiversity: The variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Biogeography: The scientific study of the geographic distribution of organisms

Biological control: Control of pests by using predators to eat them. Pest control strategy making use of living natural enemies, antagonists or competitors and other self-replicating biotic entities.

Biological resources: Includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with direct, indirect or potential use or value for humanity.

Biomass: All organic matter that derives from the photosynthetic conversion of solar energy.

Biota: All of the organisms, including animals, plants, fungi, and microorganisms, found in a given area

Carrying capacity: The maximum population of a given species that can be supported by a given habitat or the maximum number of people, or individuals of a particular species, that a given part of the environment can maintain indefinitely.

Co-management: The sharing of authority, responsibility, and benefits between government and local communities in the management of natural resources.

Community: An integrated group of species inhabiting a given area; the organisms within a community influence one another's distribution, abundance, and evolution. A Human Community is a social group of any size whose members reside in a specific locality.

Conservation: The management of human use of the biosphere so that it may yield the greatest sustainable benefit to current generations while maintaining its potential to meet the needs and aspirations of future generations: Thus conservation is positive, embracing preservation, maintenance, sustainable utilization, restoration, and enhancement of the natural environment.

Conservation of biodiversity: The management of human interactions with genes, species, and ecosystems so as to provide the maximum benefit to the present generation while maintaining their potential to meet the needs and aspirations of future generations; encompasses elements of saving, studying, and using biodiversity.

Cultural diversity: Variety of human social structures, belief systems, and strategies for adapting to situations in different parts of the world.

Deforestation: Removal of trees from a forested area without adequate replanting or natural regeneration.

Demography: The rate of growth and the age structure of populations, and the processes that determine these properties.

Eco-region: An area over which the climate is sufficiently uniform to permit development of similar ecosystems on sites that have similar properties. Ecoregions contain many landscapes with different spatial patterns of ecosystems.

Ecosystem: The organisms of a particular habitat, such as a pond or forest, together with the physical environment in which they live; a dynamic complex of plant, animal, fungal, and microorganism communities and their associated non-living environment interacting as an ecological unit. Ecosystems have no fixed boundaries; instead, their parameters are set according to the scientific, management, or policy question being examined. Depending upon the purpose of analysis, a single lake, a watershed, or an entire region could be an ecosystem.

Ecotourism: Travel is undertaken to witness sites or regions of unique natural or ecologic quality, or the provision of services to facilitate such travel.

Environment: Physical and biological surroundings of an organism, including the plants and animals with which it interacts.

Erosion: The wearing away of the land surface by wind or water.

Exotic species: A species that did not originally occur in the areas in which it is now found, but that arrived as a direct or indirect result of human activity.

Extinction: The death of a species–when all populations of a species have disappeared. The evolutionary termination of a species caused by the failure to reproduce and the death of all remaining members of the species; the natural failure to adapt to environmental change.

Fauna: All of the animals found in a given area.

Flora: All of the plants found in a given area.

Fuelwood: Wood cut into short lengths for burning.

Habitat: The environment in which an organism lives. Habitat can also refer to the organisms and physical environment in a particular place

Population: A group of individuals with common ancestry those are much more likely to mate with one another than with individuals from another such group.

Precipitation: Is any or all form of liquid or solid water particles that fall from the atmosphere and reach the earth's surface. It includes drizzle, rain, snow and hail.

Protected Area: An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

Public involvement: The use of appropriate procedures to inform the public, obtain early and continuing public participation, and consider the views of interested parties in planning and decision making.

Range: Land on which the principle natural plant cover is composed of native grasses, forbs, and shrubs that are valuable as forage for livestock and big game.

Range management: The art and science of planning and directing range use intended to yield the sustained maximum animal production and perpetuation of the natural resources.

Species: A group of organisms capable of interbreeding freely with each other but not with members of other species.

Stakeholder: Although the normal legal definition relates to the holder of the "stake", the word is used quite differently in the context of public consultation processes, especially relative to government decision-making. In this context, "stakeholder" refers to a party with a "stake" or legitimate interest in the outcome of a decision to be made. The word,

stakeholder, generally includes non-government entities, usually the ones that have a desire to influence the decision. Thus, stakeholders in a planning process would include the land-users, property owners, non-governmental associations, interest groups, potential developers and individuals. The parties that are governments or decision-makers are not considered stakeholders.

Sustainability: The ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time.

Sustainable: The yield of a natural resource that can be produced continually at a given intensity of management is said to be sustainable.

Sustainable development: Development that meets the needs and aspirations of the current generation without compromising the ability to meet those of future generations.

Tenure: Tenure refers to socially defined agreements held by individuals or groups, recognized by legal statutes or customary practice, regarding the "bundle of rights and duties" of ownership, holding, access and/or usage of a particular land unit or the associated resources there within (such as individual trees, plant species, water, minerals, etc.).

Watershed: The entire region drained by a waterway (or into a lake or reservoir). More specifically, a watershed is an area of land above a given point on a stream that contributes water to the streamflow at that point.

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