

**SUSTAINABLE FOREST MANAGEMENT:
A CASE STUDY ON MACHIARA NATIONAL PARK
IN DISTRICT MUZAFFARABAD, STATE OF
AZAD JAMMU AND KASHMIR,
PAKISTAN**

BY

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DECLARATION

I, **Tariq Mahmood Butt** solemnly declare that this thesis is entirely my own effort and all help and materials used from other sources have accordingly been acknowledged. I also affirm that this research has never been presented elsewhere for an academic award.

The primary data for this thesis was collected from Machiara National Park (MNP) during the summer 2005. The devastating earthquake of 8th October 2005 in Azad Jammu and Kashmir State of Pakistan also hit the study area and by destroying houses, small terrace farms and any existing fragile economic basis of the poor local forest communities rendered them more dependent on the threatened forest resources. Therefore, findings of this qualitative research might be valid only for the pre-earthquake period.

The total number of life losses and destroyed dwelling houses within Muzaffarabad District, as reported by the state government, stand at 33,726 persons and 125,277 houses respectively (AJ&K, 2005e). On account of being closer to the epicentre the study area might have faced heavy human and economic loss besides destruction of dwelling houses both in the low altitude villages and the high altitude summer pastures. The worsened post-earthquake livelihood situation in the domain may exacerbate deforestation for the want of fuelwood and timber.

The considerable loss of bread winners and livestock in the area may further worsen the livelihood situation for local forest communities which by aggravating the poverty might accelerate illegal felling in the MNP. The 8th general elections to the Azad Jammu and Kashmir Legislative Assembly are expected at the end of June or beginning of July 2006. In view of the currently deteriorated socioeconomic situation, in four earthquake stricken districts of the state, there is a possibility for abuse of forest resources as a political tool to entice the poor rural electorate in favour of the ruling party's candidates. In such a situation, forests might suffer more than in the pre-earthquake era. Therefore, there is a robust need for a new exhaustive study in the area to uncover the effects of the earthquake of 8th October 2005 on sustainable forest management and livelihood options of local forest communities, especially women folk.

DEDICATION

I, with the utmost humility and gratitude, dedicate this work to the most beneficent and ever merciful God Almighty who is the fountain head of wisdom, inspiration and creativity. This is He who gave me courage to write the truth and guided me through the cumbrous task of differentiating reality from myths.

ABSTRACT

Sustainable forest management and conservation in Azad Jammu and Kashmir, as in other developing states, has often been a source of conflict between the government and dependent communities. The forestry in the state has traditionally focused on maximization of revenue, hence other ecological services of forests have received less attention than wood production. This study focused on examining the degree of sustainability in the contemporary forest management within the Machiara National Park (MNP), besides uncovering existing conflicts among different actors over sustainable forest management. A qualitative research methodology was adopted, using semi-structured key informant interviews, in-depth individual and group interviews, discussions, observation and photographs. The respondent group comprised members of local forest communities, Forest Officers, project management and Ministers of the Forest and Wildlife Departments. Sustainable development and participatory development theories, landscape values approach and geographic concepts formed the basis for this study.

This study reveals that the forest management in the MNP is alarmingly unsustainable and lacks popular participation. The present antiquated forest legislation and top-down command and control system support massive resource abuse. The momentum of the park interventions is much slower than expectations for a number of reasons. Poverty and ignorance coupled with disinformation are the apparent major causes of accelerated deforestation and encroachment. This study reveals that the multiple administrations within the MNP forests are a major cause of sectoral conflict. The contractor mafia and corrupt junior foresters triggered anti-park wrath in the area. Economic policies and egocentric politics, besides inter-sectoral inconsistency, have accelerated the forest diminution and encroachment in the MNP. The study establishes that institutional inertia has undermined conservation efforts in the area and actors, responsible for the forest devastation within the MNP, will not change their attitude if the existing legal hitches and institutional inertia continue to prevail. The situation within the MNP calls for an urgent overhauling of the forest management system besides an efficient multi-sectoral intervention for sustainable livelihood provision and sustained reduction in the population growth and the rampant poverty. The Protected Areas Management Project in the MNP also needs to accelerate the pace of its interventions in the area.

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My earnest gratitude is due to Machiara National Park authorities, Forest Officers, all pro-park and anti-park key informants and insider guides for their sincere cooperation, openness and coming up with more detailed information for this study. Without the constructive criticism and visionary guidance of my most learned supervisor Professor Dr. Michael Jones this work could have not been achieved. He deserves exceptional tribute for his kind and inspiring supervision. A particular mention has also to be made for Professor Ragnhild Lund, Professor Axel Baudouin, Professor Stig Jørgensen, Jorunn Reitan and Markus Steen for their efficient running of the programme. I am gratified to all fellow MPhil students, from three continents, for their affable conduct which made my two year's stay at NTNU a memorable point of time in my life.

Any merit, if found in this study, must be ascribed to my learned supervisor. Whereas, all lapses are entirely mine and are most humbly accepted in anticipation, although I have tried my best to ensure optimum neutrality and transparency in this research. My deepest and illimitable gratitude goes to my angelic mother whose kindest prayers always bring me blessings of God. Finally, I appreciate my most supportive spouse and adorable children whose blessed presence provided me with strength and peace of mind to concentrate on my demanding MPhil studies. It was their patience, serenity and love that enabled me to work almost 12 hours a day over a long period and present the first complete draft thesis well before the deadline.

LIST OF ACRONYMS

AJK	Azad Jammu and Kashmir
AJ&K	Azad Jammu and Kashmir
AK	Azad Kashmir
AKLASC	Azad Kashmir Logging and Sawmills Corporation
AJ&KMC	All Jammu and Kashmir Muslim Conference
DFO	Divisional Forest Officer
DFOs	Divisional Forest Officers
FRA	Forest Resource Accounting
IUCN	International Union for the Conservation of Nature
LAC	Local Advisory Committee
LPG	Liquid Propane Gas
MLA	Member of the Legislative Assembly
MNP	Machiara National Park
MPhil	Master of Philosophy
NTNU	Norwegian University of Science and Technology
PAMP	Protected Areas Management Project
PMC	Project Management Committee
PMT	Project Management Team
PPPAJ&K	Pakistan People's Party Azad Jammu and Kashmir
PSC	Project Steering Committee
RO	Range Officer
SHO	Station House Officer
UNDP	United Nations Development Programme
US	United States
VCCs	Village Conservation Committees
WWF	World Wide Fund for Nature

LIST OF ABBREVIATIONS

° C	Centigrade
cft	Cubic Feet
CO ₂	Carbon Di-Oxide
ft	Foot or Feet
Gov	Government
ha	Hectare
kg	Kilogram
km	Kilometre
m	Metre or Metres
Rs	Rupees
US \$	United States Dollar

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CHAPTER ONE: GENERAL INTRODUCTION

1.1. INTRODUCTION

It can not be denied that forests are a source of life and livelihood. Forests help to combat climatic change, conserve biological diversity and provide wide range of economic opportunities besides water, food, and fodder and fuelwood security. Apart from the obvious uses of forests as a source for timber, fuelwood, watershed protection, wild food and recreation forests, they help maintain the balance of nature and provide a long list of services for mankind and all other living beings on the planet. They are home to endless scores of flora and fauna species and thus are an irreplaceable repository of biodiversity. For a healthy environment, it is essential that each country has a forest cover of about 25% of its total land mass (WWF-Pakistan 1998, 39). There are millions of communities that depend on forests and they are a part of large agro-ecosystems that provide society with many different benefits. Therefore, forestry problems need to be addressed in relation to broader biological and human interactions on the basis of sustainability. Yet the contemporary bureaucratic type of forest management, especially in developing countries, is not usually set up to address problems that way.

In its broadest sense, sustainable forest management encompasses the administrative, legal, technical, economic, social, and environmental aspects of the conservation and careful use of forests resources with increased livelihood options. It implies various degrees of deliberate human intervention, ranging from actions aimed at safeguarding and maintaining the forest ecosystem and its functions, to favouring specific socially or economically valuable species or groups of species for the improved production of goods and services. Sustainable forest management aims to ensure that the goods and services derived from the forests meet current needs while at the same time ensuring their continued availability and contribution to long term development needs. According to Turner (1998) the term 'sustain' means to keep going. He maintains that forest clearance, especially of ancient woods, yields a financial profit but has many adverse side effects: soil erosion, nutrient loss, water pollution, landslides, flooding, reduced wildlife habitat, loss of recreational value, loss of species diversity, increased fire hazards, and increased risks from insects and disease. He further contends that good forestry is

most likely to flourish under special management and planning laws, which enable a balance to be struck between public and private interests as they affect forestry and other land uses operating within or adjoining forest lands. These include agriculture, rough grazing, wilderness, water gathering, transport, housing, mineral extraction, recreation and nature conservation. Sustainable forest management is deemed to help provide increased livelihood options through improved management of all types of forests by forest managers, industries and communities. During the last three decades the approach of forest management has shifted from management for a single objective of wood production to an ecosystem approach that tries incorporating the production of multiple outputs into forest management decisions by recognizing the current and future interests of many stakeholders and beneficiaries. In a nutshell sustainable forest management rests on the conservation of biodiversity and realization of the socio-economic functions of forests.

1.2. BACKGROUND OF THE STUDY

UNDP (1998, 73) mentions that nearly a third of the world's people - almost all of them poor - depend directly on what they can grow, gather or catch. And while everyone on earth ultimately depends on its natural systems, the poor are particularly vulnerable to degradation of those systems. Forests are one of the major natural resources and their degradation directly affects the quality and quantity of other natural resources like soil, water, air, fauna, flora, and other life forms. The world over, there is a strong sense of crisis in forestry. Forest goods and services, once thought to be abundant, are now known to be scarce. United Nations Millennium Development Goal 7 emphasizes ensuring environmental sustainability through maintaining a certain proportion of land covered by forests (World Bank Group, 2004).

Zimmerer & Young (1996, 8) argue that only six percent of the world's land area is designated as 'protected' and out of 131 countries in Asia, Africa and Latin America only 19 have designated substantial areas as protected. They also maintain that when forests are cut or otherwise transformed catastrophically, loss of biological diversity is expected (ibid, 332). Pakistan (Fig. 1) is facing ecological adversity on a phenomenal scale. WWF-Pakistan (2005a) has reported Pakistan's deforestation rate to be the highest in the world. Sandhu (1993, 26) has

mentioned Pakistan's deforestation rate as 7000 hectares per year. UNDP (1998, 181) mentions Pakistan's annual deforestation rate as 2.9% for the years 1990 to 1995; the rate for 1995 was 2.3%. Pakistan is a forest deficient country with an extremely meager natural forest cover. Hasan (2000, 2) maintains that the total forest cover in Pakistan in 1992 measured 4.2 million hectares, amounting to 4.8% of the total 88 million hectares land area of the country. Hasan (2000, 2) further explains that per capita forest cover in Pakistan presents a gloomier picture because Pakistan has only 0.03 hectares of forest per capita, while corresponding figures for the developed and the developing countries are 1.07 and 0.50 respectively. Most of these forests are found in the northern part of the country (40 percent in the North West Frontier Province, 15.7 percent in the Northern Areas, and 6.5 percent in Azad Jammu & Kashmir). The present case study will try to examine these issues in relation to the State of Azad Jammu and Kashmir (AJ&K) and in particular the Machiara National Park (MNP) in District Muzaffarabad. The defining threat of the accelerated depletion of internationally significant floral wealth of the Machiara National Park, which serves as the natural habitat for some of the rare wild life species in the area, on account of unsustainable commercial and domestic felling forms the main reason for the selection of the MNP for this case study.



Fig. 1. Pakistan Political Map. (Source: Maps of World.com, 2005)

Kashmir Region



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Fig. 2. Location Map of Azad Jammu and Kashmir within the divided State of Jammu and Kashmir. (The Indian occupied part is shown to the North West of India in orange shading, whereas, Pakistan- controlled Azad Kashmir is indicated as a light green narrow land strip to the North East of Pakistan. Light green shaded Northern Areas are directly administered by Islamabad. The North Eastern part i.e. Aksai Chin indicated in light orange shading is under Chinese occupation. (Source: University of Texas Libraries, 2005)

1.3. SUSTAINABLE FOREST MANAGEMENT IN THE GLOBAL CONTEXT

‘About a third of the earth’s original forests have disappeared, and about two-thirds of what is left has been fundamentally changed’ (UNDP 1998, 74). ‘Only 1% of Europe’s original forest remains, and such “old-growth” forests are still being cut’ (ibid, 75). Environmental degradation is not exclusively a problem of our century. Mankind, in a bid to fulfill its basic needs from the natural environment, has been exploiting unsustainably, and thus damaging the health of nature, for tens of centuries. The Greek philosopher Plato complained about the landscape change in Attica which had transformed the environment into ‘...bones of waste body...richer and softer parts of the soil having fallen away, and the more skeleton being left’ (Archibugi & Nijkamp 1989, 1).

Globally, forest management attention seems now to have generally been shifted from management for a single objective (often wood production) to a sustainable ecosystem approach that tries to incorporate the principles of equity in resource utilization and participation for sustained production of multiple outputs into forest management by recognizing the hopes and aspirations of different stakeholders interested in the future of the natural forest resources. Environmental destruction in a country or region affects other regions. Conservation of nature at local level strengthens and contributes towards regional and global nature conservation. Air currents (winds) take dangerous gases like Chloro Fluoro Carbons, Carbon Dioxide, Carbon Mono Oxide, Sulfur Dioxide and Methane etc. to other countries or regions and damage their ecosystems and the biosphere. Similarly nature conservation work crosses national borders.

Low & Gleeson (1998, 19) agree that impacts of environmental degradation are always socially and spatially differentiated. They may end up affecting the global environment, but first they damage small parts of it. These local effects frequently transgress national boundaries. Acid rain from England damages Danish and Norwegian forests, water pollution from Switzerland destroys the ecology of the Rhine in Germany and the Netherlands. ‘Only 7% of the polluting Sulphur in Norway originates in that country. In Sweden it is 10%’ (UNDP 1998, 77). ‘The environmental damage from acid rain to forest and agriculture, critical for the livelihoods of poor people, is more fundamental and longer-lasting than first believed’ (ibid). This is why

deforestation or loss of biodiversity in a country is considered as a global issue. Under the provisions of the International Convention on Biodiversity, each signatory state is responsible for reducing its Carbon Dioxide emission into the atmosphere. Afforestation and forest conservation is the best way to control CO₂ emission into the atmosphere to control the hazards of global warming, droughts, imbalances in the hydrological cycle, green house effect, Ozone depletion, acid rain etc.

Pakistan signed the International Convention on Biodiversity in 1992 and ratified it in 1994. In compliance with the convention, besides enforcing national conservation strategy, national environmental policy, national forest policy and setting up of some environmental regulatory institutions, the Govt. of Pakistan has enacted several environmental laws to formalize the state level efforts for nature conservation and biodiversity in the lithosphere, hydrosphere, biosphere and atmosphere, but no new law could yet be promulgated for efficient forest and landscape conservation. However, the old Forest Act of 1927, from the colonial era, is still in force. Due to its several flaws, it does not provide solutions to the issues of lack of accountability, political influence and little community participation in forest conservation in the country (Hasan 2000, 28). Despite efforts the current situation in Pakistan is still far from satisfactory.

Due to the population explosion, rapid urbanization, deforestation and environmental pollution, the hydrological cycle in Pakistan faces severe effects causing recurring droughts in the country. In this quite alarming situation forest conservation becomes more indispensable for Pakistan. It has direct bearing on the regional and international environment, and also has many other socio-economic implications for the global community. Many developed countries have conserved sizeable areas of their rural landscapes or natural forests of agricultural and environmental value by shifting emphasis from production to protection, in the interest of preservation of biodiversity. The Norwegian agricultural policy reform of 1992 can be referred to as an example. This shift of emphasis in the state's agricultural policy has caused a marked change in the common thinking about landscapes conservation in Norway. Setten (2004, 327) describes 'This change in focus has given rise to a debate about whether farmers should be forced to "produce" landscapes and nature rather than food'.

1.4. ISLAMIC PERSPECTIVES ON NATURE CONSERVATION

Islam is the sole religion of the contemporary local forest communities in the Machiara National Park. Islamic environmental injunctions can help give an understanding of the individual and societal behaviour in the study area. Like all other world religions and ethical systems Islam provides valid grounds for the resolution of environmental problems and attaches great worth and respect to nature and all life forms on the globe. All creatures are considered distinct beings that live in families and communities, the same as human beings. Therefore the protection and conservation of the environment and natural resources are a mandatory religious duty towards which every Muslim should be committed. This commitment emanates from the individual's responsibility before God, to protect himself and his community. About 800 verses, within 114 Chapters, of the Holy Qur'an address the ecological issues and provide clear green rules where humans were strictly warned to refrain from corruption, excessive use and abuse of natural resources and damaging the environment (Shergul 2000).

“Do no mischief on the earth, after it has been set in order: that will be best for you, if you have faith” (Q. 7: 85). In Islam humans attain the central position of all God's creations and are ordained to execute effectively God's injunctions and commands. Mankind, as the trustee or steward of God on earth, is constantly reminded that God has subjected the resources of the earth to humans, not to squander and abuse but to use as a trust, and will be tested for the use or abuse of these bounties (Q. 2: 29, 6: 167). The Holy Prophet Muhammad (peace be upon him) was particularly attuned to the proper care of nature. He banned hunting animals or cutting trees within the areas around the cities of Mecca and Madina (Zahid 2000). The prophet (peace be upon him) had verily said “who ever plants a tree and diligently looks after it until it matures and bears fruit is rewarded”, and “if a Muslim plants a tree or sows a field and men and beasts and birds eat from it, all of it is charity on his part” and again “the world is green and beautiful and God has appointed you as his stewards over it” (Naseef 2000).

Since the Qur'an attaches great importance towards respecting the laws of nature, it becomes imperative for Muslims to give their attention to the question of environment. God's laws are designed to prevent the waste, pollution and contamination, thereby giving the assurance of a

clean and healthy environment (Naseef 2000). As God's trustees on the earth, we are committed to the sustainable development of the earth, its resources, elements and phenomena through protection and conservation. Apparently the usual environmental behaviour of most Muslims appears to be contrary to the environmental dictates of Islam. Muslims must imbibe these values into their very being. Despite all religious ecological codes and high level of advocacy for a green and clean milieu, most Islamic societies, inclusive of Pakistan and the State of Azad Jammu & Kashmir (AJ&K), present a dismal state of environmental indicators, distinguished by unhealthy ecological behaviour and an alarming rate of depletion of biodiversity. Muslims need to return to this set of values, the way of understanding themselves and their environment. The *Shariah* (the Islamic jurisprudence) should not be relegated just to issues of crime and punishment. It must also become a vanguard for environmental legislation. Interestingly, my field observations and primary and secondary data depict a radical divergence from the faith and practice regarding the Islamic injunctions on environment within the area. The local forest communities (normally) frequently act contrarily to the ecological wisdom of Islam, especially when it comes to forest resource use and respect for other life forms. Apparent root causes for this transgression seem the rampant poverty and low literacy level.

1.5. RESEARCH PROBLEM

Azad Jammu and Kashmir (AJ&K) State, covering 13,297 sq. km territory (AJ&K 2004b, 1) within Pakistan's total 796,095 sq. km land area (Pakistan Gov, 2005) accounts for 1.67% and 6.5% shares in the land and forested area of Pakistan, respectively. The total notified forested and grazing land area, under the administrative control of the Forest Department of AJ&K State measures 1,400,415 acres or 556740 hectares¹ i.e. 42.62% of the total geographical area of the state (Termizi & Rafique 2001, 7-8). Only 2% of the area of AJ&K is under private forests (IUCN 1996, 31). Forests of the state fall under four main types i.e. Alpine, Sub-Alpine, Temperate, Sub Tropical (Termizi and Rafique 2001, 11). Out of this total notified forested area, currently only 11% consists of commercial forests. 64% of the total natural forest resources of AJ&K lie in the Muzaffarabad District (ibid, IV). Muzaffarabad District has recently been split into two districts by elevating and redesignating the former northern Sub-Division of Athmuqam as Neelum District (AJ&K, 2005b). Forests in AJ&K are a major source of revenue generation

¹ 1 hectare = 2.471 acres.

for the state government and contribute approximately 50% of the total revenue receipts of the government (Termizi and Rafique 2001, p. 43). Timber sales make up 94% of the total revenue generation of the Forest Department, while the rest comes from the sale of resin, mushrooms and medicinal herbs etc. Thus forests play a vital multipurpose role in the socio-economic life of the local population of the state in general and Districts of Muzaffarabad and Neelum in particular. The average population growth rate in District Muzaffarabad during the intercensal period 1981-98 was 2.8% (Pakistan 2000, 19), higher than that of the whole of the state i.e. 2.4% per annum (Pakistan 2001, 45). The population of the state of AJ&K and the District Muzaffarabad was separately reported in the National and District Census Reports 2001 and 2000, respectively, at 2.97 million and 0.62 million. The current projected population of the state and of District Muzaffarabad, by December 2005, measures at 3.5 million and 0.75 million respectively.

The state forests are the source for timber, firewood, fodder, resin, medicinal plants, grazing of livestock and clean water. Since independence in 1948 the total commercial forest cover in the state has shrunk from 42.6% to 11% of the total state territory. About 87.49% of the population of the state lives in rural areas and depends on these forests (Pakistan 2001, 48). Poor rural people, especially women, whose livelihood directly depends on these natural resources, are badly affected by environmental degradation caused by deforestation. The loss of forest cover has also caused a great loss of biodiversity in the state. The per capita share of forests in Azad Jammu and Kashmir State in 2001 stood at 0.46 acres or 0.186 hectares as compared to the world average of one hectare per person (Termizi and Rafique 2001, 7).

According to the Forest Department, the current rate of afforestation is 10,000 hectares per annum; while exploitation is estimated at 8,000 hectares per annum. The unrecorded removals (approximately 3000 hectares per annum), partly due to thefts and partly due to military operations on the borders, disturb the apparently healthy equation to such an extent that there is an estimated loss of forests at the rate of 1,000 hectare per annum. Consequently the forest areas are being further pushed back. For the long term and sustainable maintenance of the forest capital (growing stock), the annual out-turn from a forest has to be equal or less than the net annual increment. During the last decade, there has been a tendency in AJ&K to extract more timber than the mean annual increment of the growing stock (IUCN 1996, 40).

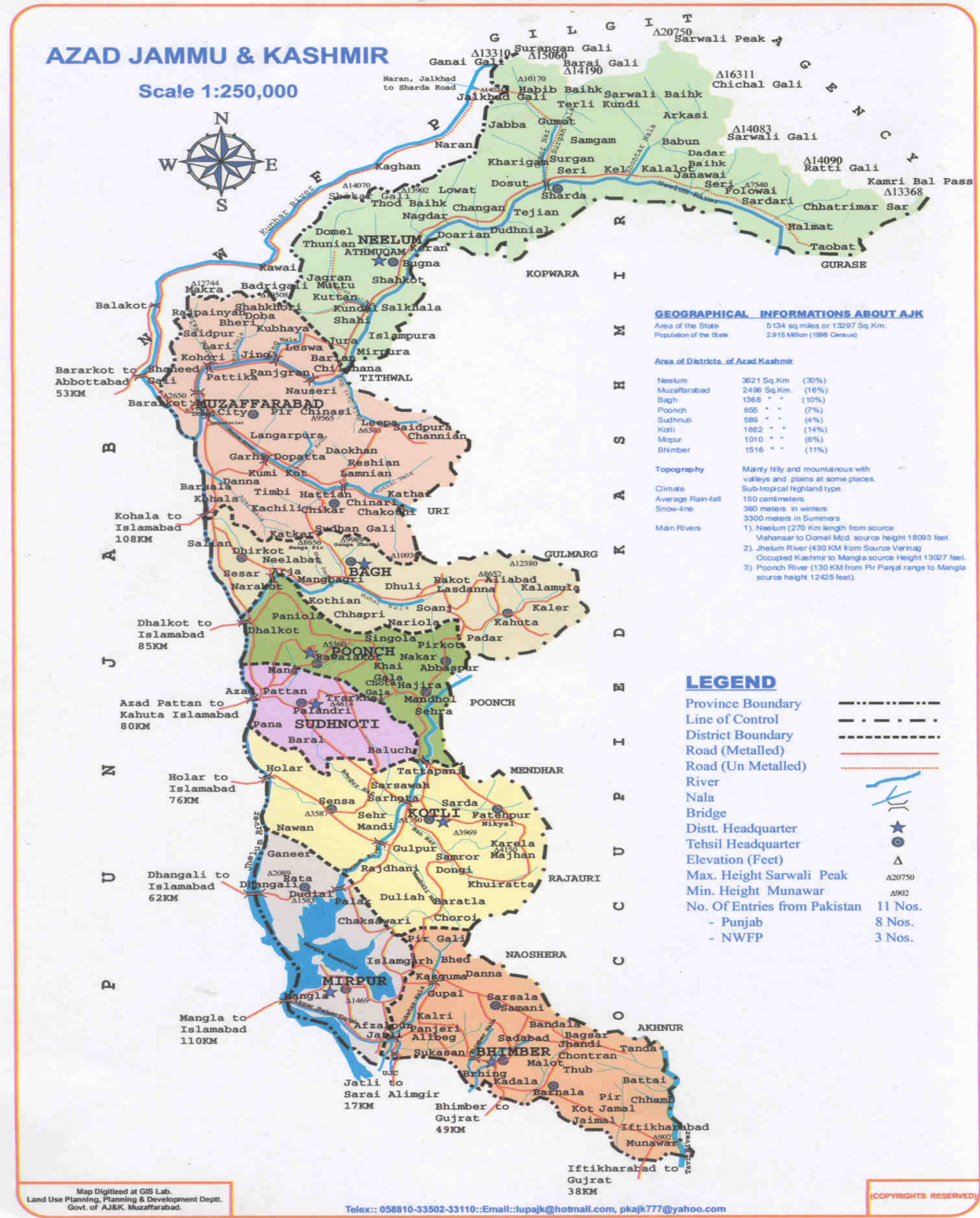


Fig. 3. Political Map of Azad Jammu & Kashmir (2005c).

(Source: - Land Use Planning Wing, Planning & Development Department, Govt. of AJ&K).

Realizing the need for sustainable management and conservation of rapidly depleting natural forests and wild life in District Muzaffarabad, on 14th March 1996 the government notified the Machiara forest area as a 'Protected Area/National Park'. Later, the Wild Life and Fisheries Department of the state government, from 1st March 2003, launched a huge community based umbrella project therein namely "Protected Areas Management Project - Machiara National Park" for a five years period at a total estimated cost of 211.4990 million Pakistani Rupees (3.5 million US Dollars), with the collaboration/assistance of Global Environment Facility through the World Bank (AJ&K 2003a, 2). Following are the objectives of this project:

- a) Reduce park-people conflicts by integrating local communities into park planning and management activities
- b) Improve park planning processes and build capacity to:
 - Prepare and periodically update management plans
 - Improve surveillance and enforcement
 - Enhance park infrastructure
- c) Protect and effectively manage species, habitats and ecosystems within and near the park area in order to:
 - Enhance globally important species and habitats, and better assure a functional ecosystem by integrating the park into local landscapes
 - Control poaching, animal damage and other disruptions
 - Reduce park-people conflicts
 - Manage enterprise opportunities and park visitation without environmental harm.
- d) Strengthen local, regional and national support for the protected areas through focused public environmental awareness and outreach programmes
- e) Train and upgrade the capacity of staff to guide park management (AJ&K 2003a, 12).

Machiara National Park (MNP) represents a temperate Himalayan forests/alpine scrub rangeland ecosystem with a rich ecosystem (AJ&K 2003, 1) and covers 13,532 hectares (IUCN 1996, 50) and 28 villages with an estimated population of 35,497 persons (at the end of 2004). It is situated at 35 kilometers distance to the north of the capital city Muzaffarabad within District Muzaffarabad (AJ&K 2004a). The overall goal is to set up sustainable management and resource utilization models demonstrating effective natural resource conservation. The sustainable

management model of the National Park is based on the conservation of forest use area, biodiversity and grazing grounds with the participation of local communities by offering them ownership and legal benefits from the park area coupled with activities aimed at the social mobilization, environmental awareness campaigns and capacity building of local stakeholders and village conservation committees (ibid). This is the first National Park in Azad Jammu and Kashmir State (IUCN 1996, 50) and one of three globally significant national parks selected for World Bank funding (WWF-Pakistan, 2005).

The role of protected areas in conserving the ecological character of representative samples of various eco-systems is well recognized as a means to conserve the natural heritage. The protected areas approach for nature conservation works well only if there is a system of protected areas connected by corridors for movements of wildlife (IUCN-Pakistan 1996, 49-50). Serious reforestation efforts in the state, despite all favourable climatic conditions, are not proving successful due to anthropogenic factors i.e. excessive grazing by live stock belonging to the adjoining communities and the failure of the Azad Jammu and Kashmir Logging and Sawing Corporation to complete its logging tasks in the stipulated time period (ibid, 40).

1.6. RESEARCH OBJECTIVES

This case study focuses on the forest component of the Machiara National Park (MNP) and tries to find out:

- (i) Whether the objective of Sustainable Forest Management and Conservation is being achieved successfully with the active participation of local communities.
- (ii) What the perceptions of project managers and local communities are on sustainable forest management and conservation.
- (iii) How to enhance the project output by overcoming any administrative constraints and conflicts between the project management and local communities over these forest resources.

1.7. RESEARCH QUESTIONS:

Specific research questions of this case study are:

- (i) Are participatory approaches being followed efficiently for sustainable forest management both at the project management and community levels?
- (ii) Are the existing forest and conservation policies and the enforcement mechanism of the government helpful in achieving the set goals of this project or is any kind of review required therein?
- (iii) How to address administrative constraints and human conflicts (if any) within the MNP?

1.8. ORGANIZATION OF THE THESIS

This thesis comprises nine chapters. The current chapter introduces the background of the study by defining the research problem, objectives and research questions and also provides a local, global and Islamic context for sustainable forest management. Chapter two provides a detailed theoretical and conceptual basis for the research. It attempts to intertwine geographical, environmental, social anthropological and developmental approaches to form the underpinning for the study of community participation, sustainability in the contemporary forest management and the nature of the park-people conflict over natural forest resource use. Chapter three describes the research methodology, field experiences and limitations of the study.

Chapter four presents a concise geographical, socioeconomic, ethnic and political profile of the study area. Chapter five highlights the types and quantity of forest resources in the MNP. Chapter six looks at the nature of the contemporary forest management in the state and the MNP by evaluating the efficacy of enforced forest laws, regulations and the overall enforcement mechanism. Chapter seven gives a detailed account of modes of forest resource abuse by the local forest communities. Chapter eight presents the empirical findings by examining the nature and level of community participation in forest management besides listing contrasting perceptions of local forest communities, forest managers and park management on sustainable forest management and conservation. It also describes salient administrative constraints, policy flaws, root causes of park-people conflict and threats to the forest reserve.

Finally chapter nine summarizes the empirical findings of the study and gives recommendations for the enhancement of people's participation in the project implementation, effective community mobilization and efficient policy enforcement. It suggests employing the harmony and equilibrium models of social anthropology for understanding the nature of conflict over sustainable forest management in the MNP. The concluding chapter maintains that biodiversity conservation is indispensable for the present and future generations but it must also reflect on the local forest community's livelihood needs on a sustainable basis. It also suggests further in-depth investigations of relationship between deforestation and population dynamics; impact of the Protected Areas Management Project on different gender roles and issues; and lastly the impact of this project on livelihood options within the MNP.

1.9. SIGNIFICANCE OF THE STUDY

This study unfolds a set of crucial environmental issues i.e. conflict over sustainable forest management, unsustainable commercial logging and rampant encroachment within the protected forest reserve and highlights contrasting perceptions over forest conservation and opens a sustainability discourse in the arena. It tries to find out the underlying socioeconomic causes of forest encroachment, illegal felling and conflict in the project area and recommends institutional and policy reforms. This study can be helpful as a reference for future investigations and monitoring in the MNP and would hopefully stimulate further in-depth investigation on sustainable forest management and the livelihood situation within Machiara National Park.

CHAPTER TWO: THEORETICAL FRAMEWORK

2.1. INTRODUCTION

This chapter provides a theoretical basis for this study. Theoretical approaches are important in defining and understanding any research problem. They are instrumental in the selection of appropriate methodology in order to develop analytical tools for addressing research problem. This chapter will suggest that the question of sustainable forest management or forest conservation can be best studied by employing ‘Sustainable Development Theory’ supplemented by ‘Participatory Development Theory’, along with ‘The Landscape Values Approach’ presented by Jones (1993). Finally it will employ the geographical approaches of space, place and time to explain different ways in which geographical location and temporality have played significant roles in conditioning the socioeconomic behaviour and environmental perceptions regarding sustainable use of the forest resources within Machiara National Park.

2.2. SUSTAINABLE DEVELOPMENT

Internationally, the ‘Brundtland Report’ has been the focus of much debate on the meaning of ‘sustainable development’ and the role of environmental issues in development (Bojo et al. 1992, 13). The term ‘Sustainable Development’ is currently being used to describe the environmental and socio-economic concerns for the basic needs of future generations while benefiting from natural resources to fulfil the needs of the current generation. The United Nations (1987, 25) defined the term ‘Sustainable Development’ in the following way: ‘Sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and changes to institutions are made consistent with future as well as present needs’. Sustainable development has steadily risen in status to assume a central position in writings and discussion throughout the 1990s. The publication of the ‘Brundtland Report’ offered an influential definition of sustainable development, whereby it ‘meets the needs of the present without compromising the ability of future generations to meet their own needs’.

Clement (2000) maintains that sustainable development brings with it both problems and opportunities. Governments at federal, central and regional levels have most frequently focused on the problems. The resultant measures have generally comprised new regulations or more recently 'gentle coercion' strategies to remove negative interactions and attempt to shift the basis of development on to a stable ecological foundation. Sustainable development with active state community participation and partnership as its important component is considered to be an alternative to the mainstream development thinking. 'Sustainable development' is now part of any approach to development, which presents the option of 'anthropocentrism with a human face' (Ariansen 1998).

In recent years development has become multidimensional. This has largely affected the role of government or the state as a development executing agency. The state that used to be the sole agency of development in the past now increasingly concedes its role and authority to international and regional institutions, urban and local governments, and civil society organizations. Pieterse (2002, 153) contends that simple alternative development thinking is criticized for being 'strong on critique and weak on alternatives beyond local empowerment and decentralization politics. It does not suggest solutions to development issues at regional or national level'. Local empowerment also does not mean that every member of the local community, especially from minority groups, would be empowered equally.

Similarly, in participatory development initiatives, the question may arise as to whether everybody is participating equally. Pieterse (2002, 153) further maintains that the participatory nature of sustainable development symbolizes interactive decision making, public-private partnership, empowerment and social inclusion. The concept of participation has been subject to lengthy and heated debates, over several decades, concerning its origin, theoretical connotation and practical applicability. According to Rahnama (1992, 121) this concept was introduced in the development discourse in the 1950s and formed one of the key elements in creating an alternative, 'bottom-up' human centered alternative development later in the 1970s. Mikkelsen (2002, 61) postulates that in order to get nearer to sustainable development results, many agree that a participatory approach has to be taken. 'As an end, participation entails empowerment, i.e. everybody's right to have a say in decisions concerning their own lives. It implies a management strategy through which State attempts to mobilize local resources' (ibid, 63).

Maser (1997, 71) theorizes that the power of sustainable development comes from the local people as they move forward through a process of growing self-realization, self-definition, and self-determination. Such personal growth opens the community to its own evolution with the context of the people's sense of place, as opposed to coercive pressures applied from outside. Due to its flexibility and openness, it is perhaps more capable than other forms of development by integrating the requirements of a local community with those of the immediate environment and surrounding landscape, while instilling a relative balance between the local community and the larger world of which it is a part.

Participatory development, by articulating perspectives of states and international institutions for social interests and human development, forms a strategic combination of development perspectives, which together represent social, state and institutional perspectives. As Pieterse (2002, 166) contends, participatory development (being a part of the sustainable development initiatives) is also sometimes criticized for its tendency for disempowerment of states and NGO-ization by evolving sub-politics and technocracy. It seems to be a plausible assumption that sustainable development will not come about unless all environmental sacrifices are fully reflected as costs to be charged to economic development.

'Planning for sustainable development means essentially a management of resources in which the direction and quality of environmental conditions are permanently monitored so as to have available full information for effective policy response'(Archibugi and Nijkamp 1989, 8-9). The participatory development approach emphasizing the involvement of local communities in forest management also seems to be a key to conserving forest resources, both now and for the future. In this approach government and local communities work together to establish their rights and responsibilities over forest resources. 'Genuine participation, initiated and managed by people themselves, is a goal in the democratic process. But few societies rely on voluntary approaches alone to activate people for major development activities' (Mikkelsen 2002, 65).

Ultimately, communities, with government support, become custodians of the forest. Szerszynski et al. (1996, 4) maintain that sustainable development insisted that notions of global equity, justice and basic human rights were intrinsic aspects of the environmental issue. Sustainable development concepts should consider the long term biophysical and ecological processes in

order to measure the socioeconomic benefits of any development practice. Auty and Brown (1997, 12) contend that participation and empowerment are major themes of the current discourse, being the mechanisms by which sustainable development can be achieved at the local level and the means by which development can benefit the poor in developing countries. Pepper (1996, 16) maintains that 'quality of life can also be enhanced through people having control over their own lives in a genuine participatory democracy'. Caldecott (1996) argues that 'conservation-with-development programmes must consider the aspirations, needs and full participation of the people involved'.

2.3. LANDSCAPE VALUES APPROACH

According to Hjort-af-Ornas (1996, 1), land users have a particular relationship to nature. Forest utilization is very much dependent on perceptions of the people as to how these resources can meet their different needs. Local population and state authorities often have opposite or conflicting perceptions regarding forest landscapes and forest resources and this depends very much on the kinds of values they attach to these forest landscapes. For instance state authorities would consider forest landscapes as a means of state revenue generation, ecological balance, recreation or scientific research etc., whereas local people would look at them primarily as an economic means to fulfil their daily needs i.e. fuelwood, timber and fodder etc. In Pakistan, as in other countries, people attach much importance to landscapes, whether natural or cultural, and deem them as a source of protection, prestige, political power, social status, recognition, cultural wealth, economic prosperity and aesthetic satisfaction. Landscapes have also appeared to be a source of several socioeconomic, cultural and political conflicts. 'When people use or modify forests, they are affecting the forest's composition, structure and regeneration dynamics. Obviously deforestation adds large patches of non forested land cover to the landscape and results in the deforestation' (Zimmerer & Young 1996, 331).

Jones (1993, 18) identifies three main groups of values of landscapes i.e. economic values, amenity values and security values. He further subdivides the economic values into subsistence values, market values and utilitarian ecological values. He examines amenity values in relation to four categories: intrinsic ecological value, scientific and educational value, aesthetical and recreational value, and orientational and identity value. He finally identifies two types of security

value i.e. defence value and demarcation value. He also describes (p. 29-33) a pair of social anthropological conceptual models (i.e. harmony model and conflict model) for the outcome of conflicts over landscape resources. These analytical models or approaches can be applied to analyze conflicts arising during sustainable forest management. The harmony model, also known as the equilibrium model, focuses on the coordination and agreement between different interest groups through consensus or a negotiated and accepted majority decision. The conflict model, also known as the direct action model, focuses on incompatibility and disagreement between established institutions (power structures) and conflicting interest groups. In the conflict model opposing interest groups may resort to civil disobedience or violent direct action; similarly the establishment holding power in the state can respond with legal action etc.

Resistance against nature conservation efforts is not specific to the third world. In developed countries, there have also been several cases where people resisted the conservation orders of the state. Jones (1993, 32) refers to two cases from Scandinavia where with an aim to defy conservation orders people demolished their houses and ploughed their wetlands. There is a lot of controversy as to what we should opt for and how to promote the conservation of nature. Jones (1993, 32) suggests a possible solution to this controversy by striking a balance between both models: ‘...planning needs to be flexible. It needs to draw in new interest groups as they arise. It needs to develop mechanisms to promote real dialogue. We need to develop the landscape or environment through negotiation rather than uncritically applied rules and technical solutions... We also need to have safeguards for minority interests and sub-cultures.’

Thus, it sounds convincing that by incorporating the voices of all conflicting and minority interests in the forest management and conservation policy and with its participatory execution we can avert violence or civil disobedience and can efficiently conserve our nature in Pakistan in general and within the MNP in particular. If we are to live in harmony with ‘nature’ then social behaviour and personal morality should observe ecological laws. ‘Indeed, the way the rest of nature is organized should be a model for human social organization...and all development must be sustainable, that is, it must not reduce environmental and economic options to future generations’ (Pepper 1996, 16). Nyborg (2002, 5) argues that under certain circumstances food insecurity, one aspect of poverty, may lead some farmers to manage their resources for short term gains to satisfy acute needs, which may in the longer run damage the natural resource base.

‘...One can not conclude that over exploitation of resources is confined to poor women and men trying to satisfy their subsistence needs. While those with less resources and negotiating power are certainly heavily involved in harvesting both fire wood and timber, it is those with more power and resources that manage to exploit the system such that large amounts of timber and firewood continue to find their way past the various checkpoints’ (Nyborg 2002, 5).

The present case study applies the above discussed ‘development theories’ to gain an understanding of the situation within the Protected Areas Management Project, Machiara National Park, and tries to identify different landscape values with different local interests related to these forests and also attempts to investigate as to whether any one or both of these models help understanding the nature of conflicts over these forest resources. These conflicts could be from within the communities or between communities and the government.

2.4. GEOGRAPHIC CONCEPTS FOR THE STUDY

The role or the pressure of the natural geographical environment in sustainable forest management can also be understood by applying geographic approaches. The following geographic concepts have been employed to investigate the environmental, spatial and temporal dimensions of the sustainable forest management within the MNP.

2.4.1. Environmental determinism

There is a body of geographical theory that shows the interrelationship between society and nature. After Darwin, geographical research was concerned with discovering laws of nature. Geographers sought as objectively as possible to identify the natural processes that governed the formation of valleys, uplands and coastlines. Relationships between nature and humanity were considered to be of prime interest. Humanity’s achievements were explained as consequences of survival of the fittest under the pressure of natural conditions (Holt-Jensen 2003, 42). ‘German geographer Friedrich Ratzel being very much influenced by these ideas stressed the extent to which humanity lives under nature’s law. He regarded cultural forms as having been adapted and determined by natural conditions’ (ibid. 42). Ratzel’s ideas of the organic growth of the political

units (states) influenced Rudolf Kjellen and Karl Haushofer who maintained that states follow the principle of survival of the fittest. American geographer Ellen Churchill Semple (1911, 1) maintained that 'man is a product of the earth's surface. This means not merely that he is a child of the earth, dust of her dust, but that the earth has mothered him, fed him, set him tasks, directed his thoughts, confronted him with difficulties that have strengthened his body and sharpened his wits, given him problems of navigation or irrigation, and at the same time whispered hints for their solution. Semple believed that human temperament, culture and economic life could all be the result of environmental influences' (Holt-Jensen 2003, 44). There is no doubt that forest landscapes cast a robust impact on the lives and livelihoods of their dependent human population by providing them employment, shelter, clean water, fuelwood, wild food, timber, fodder, grazing lands, medicinal herbs and above all favorable climatic conditions and climatic pleasure. All these services of forest landscapes affect the socioeconomic and cultural behaviour of their inhabitants.

Peet & Thrift (1989, 4-5) argue that environmental determinism emerged as a justification for the Euro-American imperialism and dominance in the late nineteenth century. Differences in the human's physical and mental abilities, and in the level of their cultural and economic potential and achievement, were attributed to the regionally differing natural environments. Euro-American hegemony was regarded as the natural, even God-given, consequence of what was considered the superior physical environments of the Western Europe and North America. They further mention that, despite holding a position opposed to the direct natural causation of inherent human characteristics, Wittfogel (1957), a Marxist geographer, remained within the environmentalist tradition by concluding that nature differentially directed the development of regional labour processes in the East and West, specifically in the agricultural sectors by means of climatically determined irrigation needs. Hence, entirely different kinds of civilization developed in the East and West.

Sack (1980) maintains that while we are part of nature we also stand outside nature. We have thoughts and influence the world but not everything depends on us for existence and operation. While the role of natural environment in socioeconomic and cultural activities is important in the daily lives of the billions of the human population who are directly dependent on their natural

resources and environment, one can not deny the role of the natural environment. For all the differences between the environmental determinism of a century ago and contemporary research into 'human impacts on the environment', both share a common assumption that society and nature are related but ultimately distinct. There is, for example, still a good deal of research on hazards like floods and earthquakes that sees them as natural events governed by natural processes (Castree 2001, 6-7).

2.4.2. Environmental possibilism

Environmental possibilism is a critique of crude environmental determinism and was forwarded among others by the German Geographer Alfred Hettner (1859-1941). This approach considers the possibilities of modification or alteration of the natural environment by human efforts. 'Hettner asserted that geographical synthesis is distorted when nature is regarded as dominant and humanity as subsidiary' (Holt-Jensen 2003, 45). Environmental possibilism constitutes an alternative way to explain the interaction of man and his environment. Environmental possibilism is a reaction to environmental determinism emphasizing a harmonious relationship between man and nature (Glacken, 1956). The view that 'there are no necessities, only possibilities' was strongly urged by the French historian Lucien Febvre (1922), who termed this approach 'possibilism' and contrasted it with environmental determinism (Holt-Jensen 2003, 45). 'The possibilists did not deny that there were natural limits to the activities of humanity but emphasized the significance of humanity's choices of activity, rather than the natural limitations to it' (ibid). In simple words environmental possibilism recognizes that human actions can have both positive and negative influences on the natural environment. Thus in this respect a link between environmental possibilism, environmental change and environmental disasters can be ascertained. Man's ability to modify the environment is responsible for environmental decline as man is the most active partner (Olwig, 1980).

It is partly because of the opportunities offered by the environment that pollution has increased and advances in technology have been made. Increased population and advance in technology account for the rapid demise of tropical forests (Mannion, 1995) and the increase of greenhouse gases. Human beings are the primary cause of global environmental change. The global changes

we are confronted with today are largely anthropogenic in origin. In Azad Jammu & Kashmir State the population explosion at the rate of 2.4% per annum and in District Muzaffarabad at an alarming rate of 2.8% per annum coupled with increased consumption, overexploitation of forests, illegal felling, poor governance and defective conservation planning have caused severe environmental hazards and rapid forest depletion. If the current rate of forest depletion in Azad Jammu and Kashmir continues, it is estimated that the forests in Azad Jammu and Kashmir will largely disappear by the middle of the 21st century (IUCN 1996, 38).

2.4.3. Space, place and time

The 'Protected Areas Management Project' of Machiara National Park is envisaged to tackle the existing unsustainable forest utilization and livelihood situation in the given space, place and time. The ideas of space, place and time can be traced back to philosophers like Ptolemy, Varenus, Kant, Humboldt and more recently Alfred Hettner. Werlen (1993) suggests that 'Space is not an empirical but a formal and classificatory concept'. Space is a formal frame of reference because it does not refer to any specific concept of material objects. Sack (1980) gives two alternatives of space, namely "absolute" and "relative" space. Absolute space means that the description of physical space is established independent of the quantity and distribution of mass and energy. The significance of space is that it affects mass and energy but mass and energy do not affect it. Relative space on the other hand means that while space affects the behaviour of things in it, these in turn affect the nature of space. It is a frame of reference for physical components of actions and grammalogue for problems and possibilities related to the performance action in the physical world (Werlen 1993). Sack (1980) also emphasizes the multiple perspectives that have created an explosion of adjectives for space-generic and specific places, awareness spaces, and personal spaces, physical, economic, political and social spaces and so on. He is also concerned about the creation and maintenance of social structures and organizations.

Space is associated with social facts in several ways i.e. individuals and groups are located in a space, they have properties and these groups can act territorially. This means that a group can assert its influence and control over events within a circumscribed area and is willing to enforce

this assertion. Sack (1998) believes that place and space surround us. They help constitute our actions and then they constrain and enable us. It is therefore appealing to find out the extent of influence of the sustainable forest management efforts in the Protected Areas Management Project of Machiara National Park on the environmental perceptions and behaviours of the beneficiary local forest communities. In the twentieth century, we see an ongoing discourse on space, place and region with some scholars giving place more importance. Understanding places is fundamental to understanding the world. In the view of Johnston (1991, 70) a defining characteristic of a place is that its location and extent are known; that is often used as a strategy for organizing society, and in particular exercising power within it. Places are used as containers within which people create their identities. Places stimulate human responses among people regarding their identity and are also a potential source of conflicts between individuals, groups, communities and States. Low and Gleeson (1998, 2) also emphasize the importance of the locality of nature at a specific place. They argue that our experience of nature is necessarily localized and we experience our own small part of nature which we look out on, interact with, breathe, eat, drink, touch, hear and smell.

‘Place has become a focus for understanding the interaction of the human world of experience and the physical world of existence’ (Unwin 1992, 211). Johnston (1991, 50) mentions that places differ culturally, in terms of collective memory. For a variety of reasons, some associated with the local physical environment, people’s responses to the problem of surviving collectively vary from place to place, at a whole range of scales. How they respond becomes part of the local culture, the store of knowledge on which they draw as they face the problem of survival. ‘There may be types of places with similar social structures and, hence, similar political behaviour, but nevertheless it is the local milieu, and its cultural content, that is the crucial influence on how people learn to interpret and react to politically-relevant information’ (ibid, 53).

All political parties, electoral campaigns and social movements (whether local, regional, national or international) have their origins at specific places and regions. ‘Approaches to place have suggested the vital importance of a sense of belonging to human beings...The result is places provide an anchor of shared experiences between people and continuity over time. Spaces become places as they become time-thickened. They have a past and a future that binds people

together round them...This lived connection binds people and places together. It enables people to define themselves and to share experiences with others and form themselves into communities' (Cragg 1998, 102-103). 'People actively structure groups and define each other through creating insiders and outsiders. Peoples from around the world can be found forming groups that control, define and are defined by territory' (ibid, 111). 'An alternative approach to understanding human behaviour was the time geography developed at Lund in Sweden by Torsten Hägerstrand (1975). Initially it grew out of his concern with diffusion processes, and with situating people in both space and time' (Unwin 1992, 144). 'One of its central aims was thus to reincorporate a sense of time into geographical enquiry, and to consider both space and time as constraints on human action' (ibid, 145).

Emphasis on the time dimension puts more reflections on the conceptual aspect of any developmental activity or the nature/forest conservation project. Every project has a starting as well as ending time limits. Time is the most valuable resource within any scientific research and developmental project. Success or failure of projects is also measured by appraising the consumed time resource (by assessing the time value of the spent money or the money value of spent time) which changes the scope of the fruitfulness and cost-effectiveness of any developmental initiative in a given space and place.

'A deeply taken-for-granted aspect of daily life and social science, time is a feature which, like an iceberg, is largely submerged and invisible. To highlight implicit temporalities thus facilitates the reflexive turn and makes visible the backcloth upon which our descriptions are drawn. Moreover, it allows us to bracket disciplinary traditions and see existing problems in a new light: the local-global connection, the colonization of the future, risks and invisible threats, responsibility for the future and life politics-all take on a new hue' (Adam, 1996). Auty & Brown (1997, 1, 3) also emphasize the interrelation between temporality and sustainable development. They maintain '...essentially, sustainability lengthens the temporal dimension of development, concerned as it is in its literal definition with the maintenance of something over time...to conceive of development which is sustainable requires not only the adoption of a longer time horizon but also some notion of the biophysical and ecological processes involved, as well as some philosophical basis for assessing the social and economic outcomes of development'.

All the above discussed theories are related to the basic perspective behind the sustainable forest management and conservation in a protected area (place and space) and a given time. These theories have helped this study by providing the analytical tools for understanding the environmental, socio-economic and cultural interrelationship between the dependent local forest communities of 28 villages (expanding both in the population size and geographical area) within the MNP. These theoretical approaches equally helped understand the level of vulnerability of the natural forest resources currently under severe threat caused by ever increasing human population pressure, unsustainable forest exploitation and human induced ecological disasters in a space, place and time context.

2.5. SUMMARY

This chapter has presented various theories and approaches to describe the contemporary forest management, community participation and the resource use conflict within the Protected Areas Management Project of Machiara National Park. The theoretical centerpiece for this study is 'sustainable development theory' which is supplemented by the bottom-up 'participatory development theory'. These theories are discussed with regard to their relevance for sustainable forest management and conservation and the impact of conservation initiatives on the livelihood opportunities of local forest communities within the MNP. Limitations of these approaches are also outlined. The chapter then describes the landscape values approach with reference to the local natural forest resource use and suggests two social anthropological analytical models for understanding the conservation conflict within the study area. The chapter also discusses the geographical approaches of environmental determinism and possibilism besides the space, place and time concepts to assess the bearing of the contemporary natural and anthropogenic factors besides spatial and temporal dimensions on the sustainable forest resource use and conservation and its affiliated issues i.e. participation and conflict. These multidisciplinary theories and approaches facilitated the study in its attempt to investigate the nature of contemporary forest management by the State authorities, local community's participation and their reservations over sustainable forest management and conservation within the MNP.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. INTRODUCTION

This chapter brings out how the data collection took place in the field. First, it describes the general characteristics of different approaches to data collection and then it explains how and what types of data were collected. Finally it examines the reliability of collected data and highlights some of the problems encountered in the field.

3.2. CHOICE OF METHODOLOGY

According to Denzin (1989) methodology represents the principal ways in which sociologists act on their environment. These principles can be defined as 'methods'. There are two major approaches to data collection in social research, namely the "Qualitative Approach" and the "Quantitative Approach". Both approaches help understanding the socio-economic, scientific and cultural realities of our society. They also help finding out how individuals, groups and institutions act together within the society. The qualitative approach uses soft data (description) whereas the quantitative approach uses hard data (numbers) for its purpose. Depending on the type of theoretical approaches and intended 'modus operandi' for getting the required results, i.e. analyses of perceptions, motives, needs, interests, policies, practices, behaviors and values, my research work has been largely qualitative. However, a few simple statistics have been used for a better understanding of the findings and material referred to in the research.

The rationale behind using the qualitative research methodology and the case study approach is to be able to investigate the complexity of the socio-economic interrelationship between these forest resources and local inhabitants, whose daily lives are directly dependent on these forests, in both place and time. Personal observations and in-depth interviews of key informants and the flexibility (adjustability to the field situation) of the research work are the real strengths of the case study approach. According to Wadel (1991), it is necessary to use a qualitative approach to be able to describe social interactions. In general, it is argued that the research problem should define whether one chooses a quantitative approach or qualitative one (Glesne & Peshkin, 1992). In qualitative research, the researcher begins with defining very general concepts which, as the research progresses, change their definition; whereas, in the quantitative paradigm, the variables

are the vehicles of analysis, they may constitute a product in qualitative research. The qualitative researchers look through a wider lens, searching for patterns of interrelationships between previously unspecified concepts leading to a much less precise vision of a much broader strip. It is holistic as the researcher strives to understand the phenomena and situations as a whole. The holistic approach assumes that the whole is greater than the sum of its parts. Quinn (1980) argues that the holistic approach to research design is open to gathering data on a number of aspects of the setting under study in order to put together a complete picture of a particular situation.

According to Denzin (1989) qualitative method is useful when one looks into a problem deeply and a quantitative method is useful when one looks into the problem widely. Patton (1990) maintains that qualitative methods consist of three kinds of data collection. First, in-depth, open ended interviews; second, direct observation; and, third, written documents. Document analysis in qualitative enquiry yields excerpts, quotations or entire passages and open ended written responses to questionnaires and surveys (ibid.). When using qualitative methods the researcher tries to put him/herself into the situation of the research subject. He or she tries to understand the situation better and create a deeper and more complete understanding of the phenomenon that is being studied. The approaches portray a world in which reality is socially constructed, complex and ever changing (Glesne et al. 1992). The researcher's task in a qualitative study is to come to understand and interpret how the various participants in a social setting construct the world around them, their opinions, motives, perceptions and social processes. It is an inner perspective of reality. It is characterized by flexibility.

During fieldwork the questions asked can be changed to adjust to new experiences. One of the advantages of this kind of research is that inconsistencies in the answers can be cleared by asking more probing questions. However, one of the disadvantages of the approach is that the presence of the researcher might unconsciously influence the answers to the questions asked. In qualitative methods 'holistic views are seen mainly from the respondent's point of interpretation' (Mikkelsen 2002, 225). People might give answers that they think the researcher would like to hear rather than what they actually think. Thus, in both qualitative and quantitative methodologies, respondents due to any socio-economic, religious, political or personal bias may skew the nature of data required in the survey by providing wrong answers to the asked questions. The social or official status of the researcher (if revealed to the respondents) may also

cause distortion of answers. Respondents may hide or exaggerate their actual responses due to fears regarding the anonymity of answers pertaining to other influential people of the area who could harm them in some way. Another disadvantage is that the researcher's interpretation of the actual incident might be incorrect. Strengths of the qualitative research approach are words, pictures, figures, sounds, personal observation and normally small sample size. It is humanistic, subjective and idealistic.

In the qualitative approach the interaction between the researcher and the respondent is important and the phraseology is tailored according to the academic and socio-economic background of each respondent. In the case of the use of an interview guide, it has to be simple, easy to understand and should not give the impression of being loaded or leading. In qualitative research work, questions can be handled in any sequence and research design can also be changed as per contemporary situation in the field to facilitate the research and to tackle and motivate the respondents in a better way.

'The debate about qualitative methods in development studies has coincided with people's participation and participatory methods' (Mikkelsen 2002, 225). The present study intended to investigate the nature and level of supplementary community participation in sustainable forest management and conservation within the MNP. It was important for the study to have a clear link between its theoretical framework and the empirical strategies or the methods of data collection. Therefore, adopting qualitative methodology was thought to be suitable for exploring the level of participation in sustainable forest management within the MNP and the complex interaction between the forest landscapes and the dependent forest communities.

In qualitative methods concepts can be defined from the outset or at convenient times during the analysis. Qualitative methods were preferred for this study also on account of their focus and attention on the lived experiences of the local forest communities and the meanings they attach to their social surroundings. Because of the highly hilly terrain with very few narrow and meandering (mostly unmetalled) roads and vast geographical area of 13,532 hectares (28 villages and approximately 32,000 inhabitants) in the Machiara National Park, it was quite impossible to conduct a self administered quantitative survey in a short period of just two months without financial resources.

3.3. CASE STUDY APPROACH

A case study looks in depth at a 'typical case'. Though a case-study will not give generalized statistical data, it can provide valuable insights (Nichols 2002, 13). Case studies, as the name indicates, concentrate on special cases. Generalizations from case stories must be handled with care (Mikkelsen 2002, 80). The case study approach is an exploration of one or more cases over time through detailed, in-depth data collection involving multiple and reliable sources of information. This allows a particular issue to be studied in depth and from a variety of perspectives (Kitchin & Tate, 2000). This particular approach involves a thorough study of a relatively small number of persons or items, which is not usually chosen by a formal sampling process. The case study is a mixture of methods and while this provides research flexibility, it is very demanding for the researcher. The researcher has to be able to handle all the methods used; semi structured interview, individual in-depth interview, group interview, observation, focused group discussion, informal discussion, transect walk, secondary data review, note making and more. The researcher must also be able to sift the relevant information from the vast data that is collected and constantly review the knowledge obtained.

The strength of this approach is that it provides an in-depth and detailed analysis and can be used to get linkages between causes and effects. A disadvantage of this approach is that the dependence on a single case renders it incapable of providing a generalizing conclusion (Tellis, 1997a). The results of a case study may not be widely applicable (ibid, 1997b); it can be very time consuming and the results are subjective as they depend on the experience and knowledge of the evaluator. Nonetheless, this approach enabled me to evolve an in-depth understanding of how people in the communities in and around the MNP think and act while living a life dependent on the park's natural resources besides how they interact with the park management and the forest authorities.

3.4. SELECTION OF THE STUDY AREA

Selection of Machiara National Park for this case study was purposive and was based on four reasons. First, this national park was notified as a protected area after a long deliberation with a

realization of the need for sustainable management and conservation of rapidly depleting natural forests and wild life in district Muzaffarabad.

Second, this is the first National Park in Azad Jammu and Kashmir State (IUCN, 1996, 50) and one of three globally significant national parks selected for a huge World Bank funding (WWF-Pakistan, 2005).

Third, since its inception in December 1995 the forest vegetation and its associated biodiversity in the MNP are under severe anthropogenic threat from unwise public and private uses i.e. commercial logging (which caused much damage to the MNP in the past) and timber, fodder and fuelwood collection by the local forest communities at an unsustainable rate, mainly owing to the high human and livestock population in an area with limited livelihood options. Accelerated illegal felling coupled with widespread encroachment has been reported in the area after the inception of the MNP and manifests an alarming state of conflict between the project management and the local forest communities.

Fourth, a huge number of the anti-national park statements and articles of the local opinion leaders carried by the local and national news papers, for the last five years, bring out the severe nature of conflict in the MNP and reveal that local people are neither comfortable with this project nor convinced by the justification for the conservation of the threatened biodiversity in the area. All studied villages are located within the MNP and most of the encroachers and illegal fellers come from within the local forest communities.

3.5. SELECTION OF THE SAMPLE

This study deals with the sustainable resource use conflict in the MNP. In order to gain a wider understanding of the nature of the conflict, it was imperative to look at the local people's perceptions, attitudes, values and knowledge about Machiara National Park. Although aimed at achieving a higher objective, namely sustainability, it was a rather sensitive topic, particularly because of the ongoing triangular conflict between the project management, forest department and the local forest communities. A self-administered qualitative survey with the help of non-random judgmental sampling using a snowball sampling technique was thought to be the best modus operandi to approach informative and specialized respondents, especially for the in-depth

investigation by interviewing the opinion leaders, high level government officers and project managers. This helped gain required data in a compressed period of just two months but with more clarity, reliability and insight of the contemporary situation.

The judgmental sample (also known as purposive sample) is the most subjective sampling method. Here, sample elements are selected based on judgment derived from prior experience. In an interview situation, individuals may be selected on the basis of the sort of response that they are likely to give, and the responses the interviewer is looking for. According to Kitchin & Tate (2000, 54), snowball sampling is based on a number of initial contacts who are asked for the names and addresses of any other people who might satisfy sampling requirements. However, owing to the subjective nature of this methodology there are possibilities that the interviewer's personal biases during the selection of initial informants and biases of the informants could affect the neutrality and reliability of the collected qualitative data. The sample was selected non-randomly and purposively from different villages according to their respective location within the MNP. Seventeen villages out of total twenty eight villages within the MNP were covered. In total I conducted 36 semi-structured interviews and two group interviews within the study area.

The principal respondents for these interviews, to unfold the factors leading towards use or misuse of these forest resources, were local inhabitants of different age groups who earn their livelihood or meet their fuelwood, timber and cattle grazing needs mostly from these forest landscapes and confront with the project management for their reservations on the MNP. Key informants from the community belonged to different socioeconomic, political, educational and institutional (public or private) backgrounds. Some were supporters of the National Park as the active members or office bearer of Village Conservation Committees (VCCs); whereas, many others opposed the project for several socioeconomic, political and administrative reasons.

3.6. TECHNIQUES FOR DATA COLLECTION

Patton (1990) describes many kinds of interviews ranging from informal to formal; informal, conversational interviews, general interview guide approach, standardized open-ended interviews and the closed-fixed response interviews. These can be grouped into two broad kinds;

semi-structured, which encompass the informal, conversational and interview guide approach, and structured which encompass the standardized and fix response interviews. ‘An interview is not just an interview. There are questions on experience and behavior, on opinions and values, on feelings, on needs, knowledge and background data, there are presupposition questions and neutral questions, simulation questions, etc., and questions may address the past, present or future’ (Mikkelsen 2002, 102). For this case study semi-structured interview and individual in-depth interview approaches were employed for data collection.

3.6.1. Semi-structured key informant interviews.

‘It is often possible to collect valuable information from a few members of the community who are particularly knowledgeable about certain matters. Examples include community leaders, health workers, school teachers and extension officers. Key informants are most reliable on factual matters, such as the services and facilities available to the community’ (Nichols 2002, 13). ‘Key informant interviews aim to obtain special knowledge. Key informants have special knowledge on a given topic. They are not necessarily the leaders’ (Mikkelsen 2002, 104). The interviews were conducted at the residences and work places of interviewees with the help of an open ended self-administered semi-structured questionnaire (Appendix-I). The intention was to employ the most effective communication tools of face-to-face communication, body language, and eye contact to gather more genuine data from respondents.

Two Game Watchers and two Wildlife Guards of the Wildlife Department besides two Community Motivators were among those interviewed. Before embarking on primary data collection, I was able to arrange for three local volunteer guides (within all three Union Councils) for the transect walks around some villages within the MNP. They also helped my introduction to local forest communities and arranged meetings with local tribe/clan heads, political and religious opinion leaders besides ordinary people. These respondents also provided a good deal of additional information on several aspects which were not covered in the semi-structured questionnaire. It was not a problem for me to assure all respondents regarding confidentiality and anonymity of the information sought from them for a purely academic purpose. However, most of them were outspoken and wanted their responses to be quoted in the study and also urged their voices to be communicated to the park authorities.

Community members were asked simple questions that allowed respondents the flexibility to express their views comfortably. The interviews were probing and intensive and tried to explore the following areas of their lived experiences in the MNP: personal information; livelihood options; employment and income status; perceptions on the MNP and sustainable forest management; their participation in the Village Conservation Committees (VCCs); their perceptions about the socioeconomic and environmental values of forests; encroachment situation in the MNP; women participation in the MNP and its impacts on their livelihood; their perception about and relationship with forest managers and park management. Almost all of these individual interviews with inhabitants of the local forest communities lasted for more than an hour whereas the group interviews lasted for more than two hours. Only five women were interviewed (through semi-structured questionnaires) with the help of a woman motivator in the Bheri village. The cultural barrier of the veil among women did not provide an opportunity to interview directly more women in such conservative, rather aggressive communities in the MNP.

3.6.2. Group interviews

‘Group interviews provide access to a larger body of knowledge of general community information. The members may be invited thus sampled or those who happen to be around at the event of the interview’ (Mikkelsen 2002, 104). Two group interviews also took place among local forest community members on the topics laid down in the semi-structured questionnaire (Appendix-I) and lasted more than two hours. One took place in Bheri village of the Bheri Union Council and the other was held in the Serli Sacha village of the Union Council Serli Sacha. The first interview was conducted for five interviewees whereas the second one had 26 participants.



Fig. 4. A group interview in the Village of Bheri.

(Source: Fieldwork 2005)

These interviewees represented different clans and professional backgrounds and produced an impression of anti-park feeling led by a former Chairman of the Bheri Union Council in Bheri village (see Fig. 4) and the law graduate son of the former Chairman and the local influential forest and road contractor of the Serli Sacha Union Council in Serli Sacha village (see Fig. 5). The latter dropped in at the concluding stage of the group interview and assumed the leadership of the whole group in registering their grievances against the park management. Both leaders cleverly tried to exploit the anti-park fury of the group in turning this interview/discussion into a petition against the MNP and the Forest and Wildlife authorities. Both group interviews aimed at finding out their views on conservation, their level of participation in the MNP activities and impact of the MNP on their livelihoods. More details from these interviews can be found in chapter eight.



Fig. 5. A group interview in the Village of Serli Sacha.

(Source: Fieldwork 2005)

3.6.3. Individual in-depth interviews

Nichols (2002, 13) argues that individual in-depth interviews differ from those with key informants in that their scope is usually far wider and they are more open-ended. Mikkelsen (2002, 104) states that individual interviews are undertaken with an opportunity sample of purposely selected respondents to obtain representative information and that interviewing a number of different people on the same topic will quickly reveal a range of opinions, attitudes and strategies. Different genders and socioeconomic groups represent different experiences, opinions and biases. In an unstructured interview, the person interviewed is free to voice his or her own concerns, and to share in directing the flow of the conversation.

The interviewer relies on open questions to introduce topics of interest. The aim is, literally, ‘an interview’: a mutual exploration of the issues, without the researcher imposing his or her ideas. Totally nine individual in-depth interviews were administered with the help of three different interview guides (Appendices-II, III & IV). Among interviewees were Ministers In-Charge for Forest and Wildlife Departments besides other senior and mid level professional managers of these departments. Both Ministers were interviewed by using ‘Appendix-IV’. Four interviewees from the Wildlife and Fisheries Department included the Project Director MNP, Park Planner MNP, Project Manager MNP and Social Scientist MNP who were interviewed with the help of ‘Appendix-II’. Two Divisional Forest Officers of Muzaffarabad and Demarcation Divisions were interviewed using interview guide in ‘Appendix-III’.

An individual in-depth-interview was also conducted with a learned ethnobotanist and former Conservation Officer of the World Wide Fund for Nature-Pakistan currently performing as the Programme Manager in an NGO, namely the Himalayan Rural Support Programme. All learned officers of specialized experience provided valuable information regarding historical socio-economic uses/misuses of these forests, people’s livelihood needs, forest management and conservation strategies and the contemporary situation in the MNP, besides root causes of the conflict over forest conservation. These interviews lasted more than two hours each and information gathered was cross-checked with that obtained from local forest communities to verify the accuracy of data and agreement or disagreement, as the case may be, of perceptions and viewpoints. Both ministers of the state government responded in a typical third world political way, holding their personal political interests as superior to the threatened floral wealth and overall biodiversity in the MNP on account of unabated commercial and illegal felling.

3.6.4. Transect walks & observation

Nichols (2002, 34) maintains that some of the more descriptive factual information (often called ‘hard data’) can be collected by direct observation. Transect walks & observation is the highly effective supportive technique in the in-depth qualitative research methodology. These often involve a regular visit to the surroundings of the community under study. Due to the unevenness, high altitude and lack of proper road transportation in the area, the data collection was

cumbersome, especially amidst unprecedented current hot summers in Pakistan. I along with my guides had to walk tens of hours, up hills, on foot to approach my respondents in different distant villages. Several villages had no road links and I had to walk on zigzag tracks; many villages did not have mule or donkey tracks. This experience itself provided me more than sufficient opportunity, in a short time, to observe the rigors of daily life routine of the villagers and the nature of encroachment and illegal forest felling in the far flung areas. I came across several forest patches that had been illegally cleared and encroached during past five decades for the want of timber, fuelwood, cultivation and grazing pastures (see Fig. 11 in chapter 6). My volunteer guides also showed me several naked hill tops and slopes that used to have thick vegetative cover just three decades back and had been cleared by local communities.

As ‘qualitative data consists of words, pictures and sounds’ (Kitchin & Tate 2000, 211), the information gathered through transect visits in and around the villages in the MNP coupled with observations and digital photographs of important phenomena form an important part of the primary data that helped weigh the reliability of the claims of all respondents. Digital photographs of the rapidly depleting forests provided me a tool to adjudge the statements of local forest communities, MNP project management, Forest Officers and the policy maker Ministers In-Charge of the Forest and the Wildlife Departments.

3.6.5. Informal discussions

Informal discussions with a senior Conservator of the Forest Department and the Chief Technical Advisor of the World Wide Fund for Nature-Pakistan (WWF-P) also provided professional and specialized views on sustainable forest management, challenges and threats to sustainable forest management, local community’s perceptions on participation in forest conservation etc.

3.6.6. Secondary data review

Since Machiara National Park is a newly established protected area, there has not been a good deal of scientific research on this forest reserve in the past, especially on sustainable forest management/conservation, its impact on the livelihood of local forest communities and conflicts

within protected areas. Therefore, this study depends very much on primary data. To supplement this primary data available secondary data for this case study was collected from both public and private sources that included the MNP project office / Directorate of Wildlife & Fisheries; Forest Department; Planning & Development Department; Azad Jammu & Kashmir Logging & Saw Mills Corporation; Azad Jammu & Kashmir Election Commission; Agriculture & Food Department; Livestock Department; Khursheed National Library Muzaffarabad; World Wide Fund for Nature-Pakistan; International Union for the Conservation of Nature-Pakistan; World Food Programme-Pakistan and several public and private sector websites.

Secondary data included project documents, policy orders, forest and environment related statutes, legal framework for the forest and wildlife sectors, the status of protected areas, project reports, park management plans, and statistical data on forests, wildlife and agriculture, population census. News reports of the last five years and baseline socio-economic data for Machiara National Park augmented the findings of the study. Reliability of both the primary and secondary data was cross-checked against each other.

Literature of the Forests and Wildlife and Fisheries Departments besides the IUCN-Pakistan provide major secondary data for the empirical chapters of this study. Forest management in Azad Jammu and Kashmir depends on Divisional Forest Management Plans, usually revised after each ten years. A Divisional Forest Officer is, for the purpose, appointed Working Plan Officer for a Forest Division, who after conducting a detailed resource survey of the given Forest Division prepares a Forest Management Plan. The Planning Section at the Head Office of the Forest Department then compiles and analyzes the data of all Forest Divisions. The references, namely IUCN-Pakistan 1996 and Qazi 2005 are the natural resource and the socioeconomic baseline survey reports, respectively. Whereas, AJ&K 2005a is the revised Management Plan for Machiara National Park, for the remaining project period until 2007.

3.7. DATA ANALYSIS & PRESENTATION

Based on the qualitative nature of the research all interviews and discussions were recorded in detailed descriptive form. As the study was an in-depth one aimed at exploring the root causes of ongoing unsustainable forest resource use, it was necessary to let the lived experiences of the

community be brought out to understand the linkages between rapid deforestation and encroachment besides conflicting perceptions of the communities on their participation in conservation efforts.

3.8. FIELD EXPERIENCE AND PROBLEMS

Conducting a qualitative research on a highly contested issue of sustainable forest management and conservation with community participation implies the study of lived experiences of the community members and is a demanding kind of research. Such a sensitive study in a highly mountainous and a backward area within a set of complex communities in just two months was itself an uphill task. The unprecedented hot summers at such a high altitude, certainly due to the climatic change in the deforested area, was another problem that hampered on foot movement along steep slopes within the MNP.

My initial research questions proved ambitious ones especially when weighed in the context of the available time, scope of the research and the prescribed size of this MPhil thesis. It was also too early to investigate the real environmental and socioeconomic impacts of a five years conservation project just after a couple of years of its inception. Therefore, based on the field experience the last two research questions of the study were re-contemplated. The third research question aimed at probing into the socioeconomic impacts of the MNP project was cut out whereas the fourth one was rephrased and linked to the administrative constraints and human conflict.

Due to the closing of the financial year 2004-2005 by June 30th all offices were overwhelmingly busy in settling their accounts and materializing their targets in order to avoid the lapse of funds. It made it difficult to approach all concerned authorities, as per initial plan, and seek appointments for individual in-depth interviews. They were again busy in July 2005 in preparing new budget plans and annual plans of operation etc. Thus, seeking appointments happened to be a problem. This disturbed the planned sequence of the whole field work. Making appointments with both Ministers was equally not easy because of their busy political schedule.

Some insider contacts had advised me to disclose my official position to the local forest communities, at the very outset of my field work within the MNP, to assure them that I had no official linkage with the park management, in order to avoid any unpleasant response by respondents, on account of the strained relationship among the local forest communities, Forest Department and the MNP management. I was told, by my insider guides, that in the recent past there have been two criminal assaults on the World Bank's supervision missions and the MNP managers.

Owing to my public service background, in a respected special constitutional institution i.e. Azad Jammu and Kashmir Election Commission, it was not a problem to maintain equal power relations with my official respondents (holding senior positions) as an insider but I initially identified myself as an outsider among the aggressive local forest communities despite sharing the same administrative subdivision within district Muzaffarabad, culture, language and ethnicity, unfortunately due to the existing bad blood between local forest communities and the MNP managers. Had I been unsuccessful in building a rapport with the anti-park local key-informants, it could have largely skewed their responses to my questions because many of them, in the beginning, speculated as if I had any connection with the MNP authorities. Nevertheless, there were also generous and convivial respondents who despite their discontentment with the MNP extended full respect and cooperation to me as a guest within their domain. It would be an academic dishonesty if I do not mention and thank their amiable response.

Some of my kind friends in the public service of the state augmented my insider's status in the capital city whereas volunteer insider guides facilitated the field work. My previous postgraduate education in Geography and Development Studies equipped me with an understanding of the complicated nature-human interaction. My former and current employers, i.e. the Social Welfare and Women Development Department and the Election Commission respectively, reinforced my management and negotiation skills by affording me numerous in-service short training opportunities in 'participatory community development', 'social mobilization' 'conflict resolution', 'human resource management and development' etc. No doubt my down to earth and soft spoken disposition also helped me manage this cumbrous task in a short time, especially in a set of complex and aggressive local forest communities within the MNP.

3.9. VALIDITY & RELIABILITY OF DATA

Validity measures to what degree the method investigates what it is meant to investigate. Validity shows if there is a relationship between the problem formulation of the study and the collected data and if that describes reality. It concerns the soundness, legitimacy, the relevancy of a research theory and its investigation (Russ & Schenkman, 1980). In qualitative research, validity and reliability are based on authenticity and trustworthiness. According to Mikkelsen (2002, 208) reliability is the degree to which the finding is independent of accidental circumstances of the research, and validity is the degree to which the finding is interpreted in a correct way. It is possible to achieve triangulation within a qualitative enquiry strategy by combining different kinds of qualitative methods, mixing purposeful samples, and including multiple perspectives (ibid, 209). Patton (1990, 372) maintains that there are no absolute rules except to do the very best with your full intellect to represent fairly the data and communicate what the data reveal given the purpose of the study.

Using a comparatively large group of respondents of different genders, age groups, socio-economic back grounds and power structures is the best way for cross-checking and ensuring the originality and genuineness of the gained data. Validity of research can also be secured by using previous research and available secondary data. 'In-depth and open-ended interviews attempt to reduce the non-sampling errors by paying close attention to putting the person at ease, asking questions in a number of different ways to reduce the chance that the question was misunderstood, eliciting longer answers from the person to ensure the researcher understands what is being said and a host of other such techniques' (Mikkelsen 2002, 205).

There were many factors like contemporary strained relations between the community and the MNP managers, setting of the interview, wording of the questions, recording of responses, respondent's mood and nature of interaction which could have affected the validity of data. Therefore, triangulation was used to ensure the validity and credibility of produced data by avoiding any possible distortion.

The data obtained in the field was particularly strong because of the multiplicity of the socioeconomic and geographic background of respondents. Due to the intricate nature and far-reaching socioeconomic and political effects of the issues raised, special care was taken while asking questions, recording and interpreting answers on the causes and effects of deforestation, encroachment, participation and park people conflict, to get a balanced position on these issues. Speaking the same language minimized the translation and misinterpretation errors for both the researcher and the respondents. Therefore, I believe that reliability and validity of data and interpretations presented in this study is quite high. Though all possible efforts have been made to make this study a genuine, transparent and credible one, nonetheless, chances of errors and omissions can not be denied and are accepted in anticipation.

3.10. SUMMARY

This chapter has described the strengths and weaknesses of the employed qualitative research methodology to examine the values, experiences, perceptions, biases, beliefs and reservations of the beneficiary local forest communities in the MNP and the managers from the MNP / Wildlife Department and the Forest Department on the issue of sustainable forest management in the MNP. It also discussed the data collection techniques applied in the field. Finally, it highlighted the experiences and problems encountered by the researcher in the field.

CHAPTER FOUR: DESCRIPTION OF THE STUDY AREA

4.1. INTRODUCTION

This chapter gives a brief historical and geographic description of the State of Azad Jammu and Kashmir. It then focuses on the study area and provides the relevant geographical and socioeconomic information about Machiara National Park.

4.2. BRIEF DESCRIPTION OF THE STATE OF AZAD JAMMU AND KASHMIR

The State of Azad Jammu and Kashmir, abbreviated as AJ&K, AJK or AK, came into being on the 24th October, 1948, comprising a small part of the former princely State of Jammu and Kashmir, liberated from the Hindu ruler and the Indian occupation during the Indo-Pakistan war, in 1948. Since then, it has operated as an internally autonomous, de facto state under the control of government of Pakistan and has a parliamentary form of government. Muzaffarabad is the capital city of the state and is situated in the Muzaffarabad District at the confluence of two perennial rivers, namely Neelum and Jhelum. It has a total of eight administrative Districts. AJ&K lies between 73° - 75° East Longitude and 33° – 36° North Latitude in the foothills of the Western Himalayas (AJ&K 2004b,1) and comprises an area of 5,134 Square Miles (13,297 Square Kilometres).

The physiography of AJ&K is mainly hilly and mountainous, characterised by deep ravines, rugged and undulating ridges and furrows. The mountain ecosystems are rich but relatively unstable and have low inherent productivity. AJ&K has a wide range of climatic conditions depending upon the altitude, which ranges from 275 metres in the south to 6,325 metres in the north. The dry sub-tropical climate in the south changes to moist temperate in the north. There is a considerable variation in precipitation both in the amount and distribution. The soil is generally leached and infertile. The average annual rainfall ranges from 1000 mm to 2000 mm. The mean maximum temperature is 20° C to 32° C while the mean minimum temperature is between 4° C to 7° C. At the elevations above 1500 metres, continuous winter snowfalls and frost occur. The State of AJ&K forms a part of the catchment area of the large rivers Jhelum, Neelum and

Poonch, which join to flow into the Mangla reservoir in District Mirpur in AJ&K. The catchment area of the three rivers mentioned above is generally covered with forests and rangelands of varying production and potential (AJ&K 2005a, 9). The three major land uses are forestry (about 43%), agro-pastoral systems (31%), and agriculture (13%), with the remaining area under rivers, reservoirs and buildings etc. (IUCN 1996, ix). The average farm size is 1.4 hectares of which 50% is cultivable and 50% is used for grazing and grass cutting.

The farming system in the hilly districts is predominantly agro-pastoral with co-production limited mainly to valley bottoms and plain areas of Mirpur and Bhimber districts (IUCN 1996, ix). The estimated human population, by the end of 2004, was 3.431 millions (projected from the 1998 census, issued in 2001), growing at a rate of 2.41% per annum with an average family size of 7.2 and 258 persons per square kilometres population density (AJ&K 2004b, 7). The urban: rural population ratio is recorded at 12:88. The literacy rate is 60%. Average per capita income has been estimated between 500 and 600 US Dollars (ibid, 1). All eight districts of AJ&K are highly deficient in all kinds of food (WFP-Pakistan 2003, 20). Marginal cultivators with land holdings of less than 2.5 acres in the capital District Muzaffarabad amount to between 60 to 70% (ibid, 73). AJ&K has marginal lands and thus weak agriculture in terms of productivity. Moreover, there has not been much development on the industrial front. Similarly, effective plans for tapping available water resources, rivers, springs and streams running through the valley have not been put in place (ibid, 130-131).

4.3. GEOGRAPHIC PROFILE OF MACHIARA NATIONAL PARK

4.3.1. Location and physiography

The Machiara National Park (MNP) (Fig. 6) lies at 34°-31' N Latitude and 73°-37' E Longitude between 2000 and 4700 metres elevation above mean sea level. The park is located on the right bank of the River Neelum at a distance of about 35 km from the capital city Muzaffarabad. On its western side lies the Kaghan Valley in the North Western Frontier Province of Pakistan, while on its eastern side lies the scenic Neelum Valley. The national park comprises 13 compartments (7, 8a, 8b, 9, 10, 11, 12, 13a, 13b, 13c, 14, 15a & 15b) within the Kutla Forest

Range of Muzaffarabad Forest Division. The park is encircled by the three Union Councils of Bheri, Machiara and Serli Sacha, and covers 13,532 hectares or 33,437 acres area (AJ&K 2005a, 31). Two main villages located inside the park area, namely Bheri and Jheeng, are connected to the main Neelum Valley Road. About 50% of the villages around Machiara National Park are linked to these points by narrow and winding earthen roads for the use of mechanical transport. The rest of the villages are approachable from these points by foot and bridle paths, in different directions. The road conditions within the park are not satisfactory due to the sub-standard civil works and frequent landslides. These roads are traffickable only by 4-wheel driven vehicles. The terrain is made very difficult by a snowy and rainy climate, fragile geology and very steep and broken topography. The area is divided into deep valleys and 11 high ridges. Due to loose rocks, steep slopes, defective land use, poor vegetation and high rainfalls, landslides are frequent.

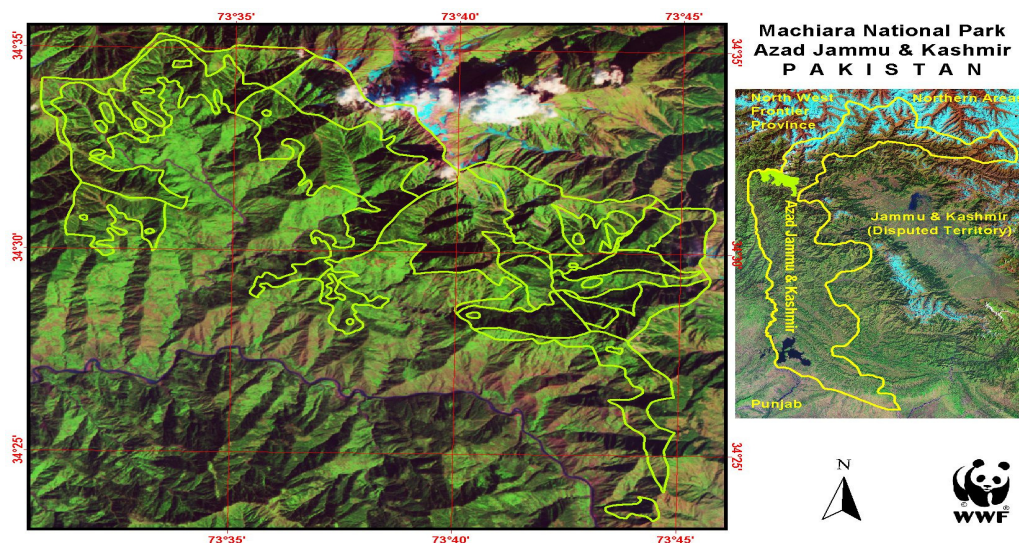


Fig. 6. Map of the Machiara National Park (MNP) showing demarcation of forest compartments to the left. The location of the MNP in Azad Jammu and Kashmir is indicated in light green shading in the map to the right. (Source: WWF-Pakistan 2005b)

4.3.2. Climate and hydrology

The climate of the area varies with altitude, but generally the forest areas of Machiara National Park fall in the moist temperate zone. Winters are extremely cold with heavy snowfalls. High peaks remain ice clad till June or even longer, giving a splendid background to the lush green

forest vegetation of Machiara and the villages around. Summers are pleasant and cool. The nearest meteorological station to Machiara National Park is in the capital city Muzaffarabad, which is at an elevation of 650 metres above the mean sea level and at a distance of 35 km from the MNP. Therefore, the meteorological data available does not give a true picture of the climatic conditions in the MNP, because of the higher elevation of the park i.e. 2000 metres to 4700 metres above the mean sea level.

The mean of monthly daily minimum temperatures ranges from 3.2° C in January to 22.8° C in July, whereas the mean of monthly daily maximum temperatures ranges from 15.9° C in January to 37.6° C in June (AJ&K 2005, 33-34). The mean annual rainfall is 1526.7 millimetres, with a total of 84.5 rainy days per year. The rainiest month is July with a mean rainfall of 327.6 millimetres, while the driest month is November receiving a mean rainfall of only 35.4 millimetres. The spring (February to April) and monsoon (July to August) are the rainiest seasons of the year. Occasional thunder showers may also be encountered in spring and autumn months. At the higher elevations of Machiara national Park most of the winter and early spring precipitation is received as deep snow. The mean monthly rainfall ranges from 35.4 millimetres (with 2.3 rainy days) in November to 327.6 millimetres (with 13.1 rainy days) in July as recorded in Muzaffarabad (ibid).

4.3.3. Geology and mineral potential

The area lies at the north-western end of the Himalayan Range, south of the Indus River in northern Pakistan. The rock types of the area comprise the Salkhala formation, the Panjal sequence consisting of Clastic rocks and Murree formation. Locally, the rocks in the MNP are predominantly sedimentary (sandstone, limestone and shale) with signs of metamorphosis and folding and faulting. There are signs of glaciations and slopes comprising scree deposits. The soil is very shallow due to high water erosion and steepness, with almost complete absence on steep slopes. However, in valley bottoms and top flats, the soil is fairly deep, supporting agriculture, forest and alpine and sub-alpine range vegetation. Texturally, it could generally be classified as sandy clay with a good mix of gravel. Preliminary geological surveys reported the deposits of quality marble, soapstone and graphite (AJ&K 2005a, 31).

4.4. HISTORY AND LEGAL STATUS OF MACHIARA NATIONAL PARK

Machiara forest was originally a hunting and biological reserve, locally called 'Rakh', for the royal family of the former State of Jammu and Kashmir (Fatmie 2002). Local communities had limited access for timber, fuelwood and grazing of their livestock. In 1948, it came under the newly established Forest Department of Azad Jammu and Kashmir State and was exploited commercially for the production of timber. Later, in 1982, the Machiara Forest was declared as a Game Reserve, and then a Wildlife Sanctuary in 1984. Realizing the importance of the biodiversity of Azad Jammu and Kashmir in general and of Machiara Wildlife Sanctuary in particular, the higher management of WWF-Pakistan held a series of meetings with the respective government officers and convinced them about the importance of biodiversity and resource conservation. As a result of these meetings, the status of Machiara Wildlife Sanctuary was elevated to a National Park in 1996, by notification of the Government of Azad Jammu & Kashmir (AJ&K 2005a, 30).

4.5. IMPORTANCE OF MACHIARA NATIONAL PARK

The forest vegetation of the MNP and associated biodiversity is characteristic of temperate Himalayan mixed-forest/alpine-scrub-rangeland ecosystem. The MNP is very rich in biodiversity and is a habitat for the rare and globally significant wildlife species of Snow Leopard, Musk Deer, Western Horned Tragopan, Cheer Pheasant, Lammergeyer and the Himalayan Griffon Vulture (AJ&K 2005a, 30). The biodiversity and habitat in the MNP are under severe threat from unsustainable public and private uses.

4.6. COMMUNITIES WITHIN MACHIARA NATIONAL PARK

4.6.1. Human population

There are 35,497 persons living in 4,654 extended family households in 28 villages within three Union Councils, namely, Bheri, Machiara and Serli Sacha, within Machiara National Park (Table. 1). The domain has very few nuclear family households because of the preference for

joint family system under a certain religious and cultural ethos. The male and female ratio is 49% and 51% respectively. Current average household size for the whole of the MNP area is calculated at 7.6 persons. The largest household size among the purposive non-random sample was 25 persons in the Bheri village whereas half of the surveyed households had more than ten persons. Six surveyed households had twenty or more members. Serli Sacha is the most densely populated Union Council with an average household size of 8.2 persons. The entire population is Muslim without any religious minority, but divided among many ethnic groups and different political affinities.

Table 1. Demographic data of communities within Machiara National Park

Name of the Union Council	No. of Villages	No. of households as per census 1998	Population as per census 1998	Average household Size in 1998	Population projected @ 2.8 per year (for district M, abad) by Dec. 2004	Projected average household size by Dec. 2004
Bheri	12	1,786	10,574	5.9	12646	7.08
Machiara	10	1,104	6,967	6.3	8332	7.54
Serli Sacha	6	1,764	12,139	6.9	14518	8.23
Total	28	4,654	29,680	6.4	35497	7.62

(Source: District Census Report 2001 for the census carried out in 1998 & Qazi 2005)

4.6.2. Socio-economic conditions

Based upon the MNP resource use, primarily determined by the distance from the forest, the 28 main village communities within Machiara National Park are grouped under three strata of high dependence, medium dependence and low dependence. In addition to the main two languages of Pahari and Gujari, Kohistani and Kashmiri are also spoken in the area. The communities within the MNP are multi-ethnic and multi-sectoral. Following are the main ethnic groups of the Project area. About 17 ethnic groups have been identified in the area: Mir, Syed, Khawaja, Abbasi, Malik, Chaudhry, Tanoli, Sheikh, Kiani, Pathan, Rana, Mughal, Bhati, Turk, Rajput, Qureshi and Kohistani. Mirs are dominant, financially and politically. Occupational classes are mostly carpenters, blacksmiths and barbers. A listing of villages under each stratum is given in Table 2.

Table 2. Level of dependency on forest resources of villages within the MNP

Dependency level	Names of villages	No. of villages
1. High Dependence	Panjur Gali, Minha, Serli Sacha (East), Serli Sacha (West), Jheeng Bala/Tarangar, Jheeng Zarin, Konkaan, Garan Kutli, Paharan/Khetar, Seri (East & West), Doliar/Danna, Machiara (East), Machiara (West).	13
2. Medium Dependence	Besri, Ghattian, Gali Khetar, Bheri/Dana Bheri, Nala Kalas/Sadiqa, Chattian/Mohri/Panjnad, Chhakarian.	7
3. Low Dependence	Panjur, Mindgran/Smoth, Magri/Palla Zarin, Chareel-Dabbrial, Doba, Koli, Chimian Khetar/Kubbaya, Batdara/Sairnia.	8
Total		28

(Source: AJ&K 2005a)

4.6.3. Transhumance, nomadic herding and migration

Seasonal transhumance, in which a majority of the local forest communities move with their livestock between winter villages and summer pastures, is a common phenomenon of the area. The selection of the location depends on the number of livestock and the seasonal migration cycle enabling them to breed maximum number of livestock. Seasonal migrations follow a traditional seasonal calendar. A large number of nomadic herders along with their livestock and pack animals also pass through high altitude forest compartments of the park (AJ&K 2005a, 62). Over the last two decades, a large number of local people migrated to seek better employment and other basic facilities. People have mainly migrated to Muzaffarabad, Karachi, Lahore and Rawalpindi. Some males, from Bheri Union Council, also migrated abroad.

4.6.4. Livestock population

Because of poverty, lack of alternate subsistence means and dependence on land resources, the people keep large numbers of livestock of different kinds for agriculture, domestic and commercial purposes. Therefore, the livestock forms an integral part of the village economy within the MNP area. Surplus animal products and heads are sold for the generation of income. The livestock survey revealed that the total number of livestock, of different kinds, is 37,233 i.e. in average 8 heads per household (AJ&K 2005a, Field Data 2005). Buffaloes, cows and goats are

raised for milk production, while sheep to provide meat and wool. Bulls provide draught power for agriculture and donkeys/mules/horses are kept as beasts of burden.

4.6.5. Literacy and livelihood

Despite being at just 35 km from the capital city, the literacy rate in the area is alarmingly low. Local school teachers and the village elders maintained that the literacy rate for male and female population in the area is approximately 25% and 10% respectively with 17.5% overall literacy, against the average 60% literacy rate in the state (AJ&K 2004b, 5). However, actual male and female literacy rates, especially in the Serli Sacha and Machiara Union Councils, seem to be much lower than the reported ones. The study area has one Intermediate College at Bheri, three High Schools, eight Middle Schools and 23 Primary Schools for boys. The number of girl's schools in the study area is almost half of the boy's schools with a heavy dropout rate.

Most of these institutions are dysfunctional due to many socioeconomic issues and mismanagement. The apparent school dropout situation is more upsetting in the Serli Sacha Union Council whereby a single room Girl's Middle School reportedly caters for a population of approximately 5000 persons but has only 48 admissions. The above described concern-raising situation could be attributed to seasonal migration, lack of political interest, presence of non-local teachers, ignorance among elderly people, poverty, and rugged terrain.

The people practise subsistence agriculture on infertile steep slopes and mainly grow a single crop of maize and some vegetables. Because of small landholdings, crude practices and climate, the agricultural production is very low for sustaining the large human population. This is the main reason for the huge male out-migration to Muzaffarabad and the larger towns of Pakistan as a skilled and unskilled labour force. Some residents from Bheri and Machiara Union Councils have also migrated abroad to find a living. Among a variety of fruits grown in the area, only walnuts are of commercial value. Agriculture and livestock hardly make up 20% of household income. Approximately 50% of the local skilled and unskilled male labour force is working in the capital city. The share of government service within the overall livelihood opportunities in the area was reported to be less than five percent (AJ&K 2005a, Field Data).

4.6.6. Health services

The area under study seems to be among the most deprived areas of the state and has only three, ill-equipped Basic Health Units, existing at the centres of the three Union Councils and providing occasional health facilities through dispensers. I was informed that there was a male doctor for the Bheri Basic Health Unit but he normally remains absent and sick people have to seek medical advice from an unqualified dispenser, which, sometimes, poses a serious threat to their health. No female staff or trained birth attendants are available in these units. There are no child health-care facilities throughout the MNP. The people of the area usually proceed to Muzaffarabad for medical treatment that costs them heavily.

4.6.7. Communications

There are very few metalled and unmetalled, winding and narrow roads of poor civil works quality and bad gradient in the entire valley. That makes the mobility of the local populace more precarious under given harsh environmental and geographic conditions. Carriage of food and other household items to the most backward villages of the MNP is managed on donkeys. The inter-village and intra-village footpaths including walking tracks leading to the high altitude pastures within the MNP are dug out and maintained by the local forest communities. I passed through several partially eroded and totally collapsed parts of the old roads and those under construction. These collapses appeared to be the fallout of the substandard construction of retaining walls. These roads also threaten to open up parts of the previously inaccessible forests to unsustainable commercial logging and illegal felling by the local populace (see Fig. 7).



Fig. 7. Traditional carriage of goods in the Village of Serli Sacha.

(Source: Field Work 2005)

4.6.8. Safe water, sanitation and irrigation

Most of the villages lack safe and potable drinking water. Some government-funded schemes for safe water supplies reportedly failed due to corrupt implementation of those schemes by the authorities concerned. Women of the area have to fetch water for their households and that costs both their time and health. Some villages have natural springs and uncovered perennial water channels and streams whose water is not hygienic due to being polluted by animals and human beings equally. Due to the widespread poverty, non-availability of water and unawareness regarding hygienic conditions, safe sanitation facilities are rare, except for a very few houses, in the area. People use open grounds and fields around for defecation and urination, which is totally unhygienic and hazardous in consideration of the physical features of the area. Agriculture is wholly dependent on rainfall and narrow water channels diverted from natural springs and streams. Maintenance of the channels is carried out collectively and since channels are not durable, they easily erode and need frequent repair.

4.7. LAND USE AND LANDOWNERSHIP

Out of total 33,437 acres land area about 96% is not under any agricultural use. Only 3.5% of the land is under cultivation, while the rest of the area is either covered by forest or pastures. The majority of the community members possess approximately 2 acres land holding (Qazi 2005, 29). Due to the small size of the land holdings, low fertility and steep slopes, the land resource is mainly used for subsistence farming and grazing lands. Very few members of the local forest communities possess sizable agricultural terrace farms. The per annum yield was reported as not sufficient for more than 60 days need against 365 days of the year. People working on the land can be divided into three categories: owner operators, owner cum tenants (who cultivate leased lands besides their own lands), and tenants, working 97.3%, 1.7% and 1% of the land respectively (AJ&K 2005a, 49). Forested lands are mainly owned by the government but local forest communities also possess some forested land holdings and high altitude pastures throughout the MNP. These private forests and pastures surrounded by the State owned forests and pastures provide the opportunity for encroachment by the local forest communities in these State owned forests.

4.8. GENDER ISSUES

The women, as in other parts of the country, make up half of the local population within Machiara National Park. Under certain socio-economic and cultural constraints, besides religious obligations, women within the MNP do not seem to be living a comfortable life. They remain mostly confined to the houses and carry out household activities, like cooking, childcare, washing and livestock keeping etc., within large extended families. Their household activities (both income generating and income saving), like women of other rural areas of the state, normally remain unrecorded and underestimated, and last 16.7 hours a day (IUCN 1996, 10) i.e. from early dawn till deep in the night.

Men dominate the outdoor activities of social interaction, income generation and natural resource management. The local opinion leaders and common community members claimed that the situation regarding women's education has started changing, though at a slow pace, and the number of school girls is improving gradually. Nonetheless, 90% of the female population, deprived of even the basic education (Qazi 2005, 38) on account of the poverty, cultural/gender preferences and geographical hardships, is a concern-raising issue in the area. Women's participation in the Village Conservation Committees within the MNP has also been a matter of apprehension for the project management. Out of in total 28 villages within the MNP only five women's VCCs have been formed. They are not allowed to participate directly in the males' VCCs.

The overall performance of the women's VCCs has also not been conspicuous due to lack of awareness, illiteracy and their heavy workload in the households. Formal women's groups do not exist and both the veil and the high workload make it difficult for women to meet. However, women are often brought together by daily chores. In general it can be said that religious and cultural norms restrict the mobility of the women within and outside the village. However, in activities pertaining to agriculture, fodder collection, fuel wood collection, livestock management etc., women play a pivotal role. The migration of men has affected the role of women and women are becoming more active outside the houses and have to bear maximum working stress.

4.9. HOUSEHOLD INCOME

WFP - Pakistan (2004, 74) has reported the poverty index in District Muzaffarabad at 33.7% (of the total population) as ‘very low’ per capita income. The rural population of District Muzaffarabad has extremely low access to all kinds of food (ibid. 20, 78). According to Qazi (2005, 23) poverty is widespread in the project area, although the local forest communities rank poverty according to their own standards and designs. The study revealed that many people did not like to disclose their real monthly household income and their responses did not correspond to their apparent living standard. Nevertheless, according to the available responses and observations of the researcher, poverty seemed rampant in the study area and monthly household income varied from less than 4,000 Pakistani Rupees (i.e. 66.6 US \$) to above 12,000 Pakistani Rupees (i.e. 200 US \$).

The current monthly per household income in the study area is considerably lower than the average estimated monthly per household income for the whole of the state (as per population census data 1998) i.e. 330 US \$. The people of the MNP area have been rearing livestock for decades, which in turn has provided some security against the uncertainty in crop production. Butter, ghee and cheese are produced as by-products of milk from livestock and the animals are also utilized for ploughing the fields. Rehman (2004) records that about 50% of the local population within the MNP live below the poverty line. Qazi (2005, 23) claims that 48% of the people are poor, while about 29% are very poor and rest are medium poor or rich. According to the field data collected with the help of semi-structured interviews and observation, approximately 60% of people fall under the universal poverty line of one US \$ per person per day (i.e. 60 Pakistani Rupees).

The income classification is summarized in Table 3, which shows the high dependency of the communities within Machiara National Park on firewood. Although these products are not traded, they contribute to household income under the consideration of “money saved is money earned”. As illustrated in Table 3, timber and non-timber forest products provide Rs.76,263 per annum per family on average. In this income the share of firewood stands at the top followed by

timber, vegetables, fodder and mushrooms. High firewood needs are because of the extended families, climatic conditions, wasteful methods of energy use and the building design.

**Table 3. Average annual household income from forest products within the MNP
(60 Pakistani Rupees = 1 US \$)**

Products	Income in rupees
Firewood	46,980
Timber for House Construction	5,650
Vegetables	3,000
Fodder for animals	20,400
Mushrooms	233
Total	76,263

(Source: AJ&K 2005a)

4.10. SOCIAL STRATIFICATION AND CONFLICTS

Generally the study area is characterized by a complex political and social divide. Land holding, clan, economic status and gender determine the political power. The Mir clan, being affluent, comparatively more educated and larger in number, enjoys socio-political superiority among local forest communities. Raja, Mughal, Chaudhry and Khawaja clans also have their political say in some pockets. People are politically divided into two groups and support two major political parties of the State, namely “All Jammu and Kashmir Muslim Conference” and “Pakistan Peoples Party”. Violent clashes and use of firearms are common during the general and local government elections. Mir, Chaudhry and Mughal clans possess the major part of land holdings, private forests and high altitude pastures in the Bheri Union Council. The Rajput clan is predominant in the most backward Union Council Serli Sacha, whereas Khawaja and Chaudhry clans form the peak of the social pyramid in the Machiara Union Council, having control and property rights over natural resources. Occupational classes mostly belong to carpenters, blacksmiths and barbers.

To a great extent, the structure of the local forest communities resembles a tribal culture. People generally prefer to resolve their socio-economic, cultural, and political conflicts in participatory community consultation meetings called ‘Jirgas’. Each ‘Jirga’ normally consists of the elders/opinion leaders of all local social strata and clans and is headed by the most respected,

influential and elderly man of wisdom from within the local community. Since people of all age groups and status obey the popular decisions reached upon by a 'Jirga', as an informal customary law, it plays a remarkable role in resolving socio-economic, political and cultural conflicts among the individuals as well groups. These conflicts normally include matters of marriages, fuelwood and grass cutting issues and construction of water channels and tracks etc. Due to these popular 'Jirgas' very few conflicts are taken to the courts of law for seeking a judgment.

4.11. TOURISM POTENTIAL

The climate, landscape, vegetation, wildlife and culture of the MNP provide a full potential for tourism and ecotourism in the area. This potential of the park remained unexplored in the past due to poor communication and lack of infrastructural facilities. Currently no proper infrastructure exists in the area to support tourism. People are peaceful and friendly to visitors and foreigners; this therefore offers an ideal opportunity for the development of national and international tourism, especially ecotourism in the area. Owing to the long and harsh winters the area is accessible only for five months i.e. between May and September. Ecotourism can be considered as a powerful tool for environmental preservation and protection, as well as, a means for income generation and socioeconomic uplift of the local communities. Involvement of experienced and reputed national and international tour operators and provision of necessary touristic facilities besides security would be required to start tourism or ecotourism in the area.

4.12. SUMMARY

This chapter provided a brief description of the State of Azad Jammu and Kashmir and Machiara National Park. It discussed the legal, geographic and environmental characteristics of the study area i.e. historical and legal background, location, climate, hydrology, and physiology, nature of land use, gender issues and deep rooted socio-political and cultural conflicts. Besides highlighting the socio-economic profile of the local forest communities within the MNP it described the household income and social stratification. In brief it stated the contemporary situation under which this field work was carried out and illustrated the anthropogenic pressures on resources and biodiversity of the MNP.

CHAPTER FIVE: FOREST RESOURCES IN THE MNP

5.1. INTRODUCTION

This chapter gives an abridged account of the forest resources within Machiara National Park i.e. important tree species, shrubs, herbs and grasses. It also brings in up-to-date statistics on the annual forest yield. This chapter is generally aimed at introducing the available floral wealth in the MNP as an underpinning for examining the sustainability of the contemporary forest management and resource use situation in the park.

5.2. FOREST VEGETATION

Machiara National Park is famous for its floral wealth and some of the notable and rare wild life species. The forest vegetation of the MNP and associated biodiversity is characteristic of temperate Himalayan mixed-forest/alpine-scrub-rangeland ecosystem. The main forest canopy comprises conifers with a good number of broad leaf associates, shrubs and a rich undergrowth of herbs and grasses. There grow eight types of conifers and about 457 species of flowering plants. Out of the total 457 flowering plant species more than a hundred are of medicinal and economic value for local and commercial use (AJ&K 2005a, 51). Khan (1996) contends that more than 200 plant species are recorded from the area on which the local forest communities depend for their day to day requirements whereas about 80 different plant species are extensively used in the area.

5.2.1. Important tree species

The coniferous plants found in the MNP form the major part of the total volume of tree species. They are evergreen and have important ecological and production roles in the area. They afford protection to the soil by their crowns and root system. Conifers are important for producing soft woods for local and commercial use, as well as providing a source of fuelwood for the local forest communities. Local and botanical names (in brackets) of all the conifers found in the area are: Chir Pine (*Pinus Roxburghii*), Blue Pine or Kail (*Pinus Wallichiana*), Deodar (*Cedrus*

Deodara), Spruce (*Picea Smithiana*), Fir (*Abies Pindrow*), Barmi (*Taxus Wallichiana*), and Junipers (*Juniperus Communis* & *J. Viminalis*). Junipers grow as bushes above the tree line. Barmi is an endangered conifer of global significance and is very important ecologically and economically because of its recently discovered anti-cancer properties (AJ&K, 2005a). Various broad leaved trees are an integral part of the forest ecosystem playing their important ecological, production and aesthetic role. They also afford protection to the site by their spreading crowns and deep root system and produce timber, fuelwood and fodder for local population and their livestock. They are mostly deciduous, adding humus to the soil and accelerate the process of litter decomposition thereby increasing soil fertility.

Broadleaf species avoid exposed situations, and grow in shady places, preferring nullah (deep ravine stream) beds, because of their high moisture requirement (AJ&K 2005a, 52). Some important broadleaf species with their local and botanical names (in brackets) are: Tarkana (*Acer Caesium*), Bankhor (*Aesculus Indica*), Sum (*Fraxinus Excelsior*), Kangar (*Pistacia Integerrima*), Kala Kat (*Prunus Padus*), Batangi (*Pyrus Pashia*) and Oak (*Quercus incana*) and Akhrot/Walnut (*Juglans Regia*).



Fig. 8. Coniferous Forest in the Bheri Union Council.

(Source: The Park Planner MNP)

5.2.2. Important shrubs, herbs and grasses

Shrubs are short, multi-stemmed woody plants that form the second layer of vegetation under the dominant canopy of trees (conifers and broad leaves). They play an important economic and ecological role by providing many goods and services for human and wildlife needs as well as

protection to the site and providing habitat. Some important shrubs with their local and botanical names (in brackets) found in the forest of the MNP are: Sumbul (*Berberis Lycium*), Kainthi (*Indigofera Gerardiana*), Phut (*Lonicera Quinquilocularis*), Pashair (*Parrotia Jacquemontiana*), Peomar (*Plectranthes Rugosis*), Guchh (*Viburnum Nervosum*), and Timbar (*Zanthoxylum Armatum*).

Herbs and grasses can be numbered in hundreds and provide undergrowth to the forest vegetation of shrubs and trees (AJ&K 2005a, 53). They are important for their protective and production role. They bind and provide cover to the soil and control erosion, as well as adding humus to improve soil fertility. They form an important food for the thousands of local people, their livestock and wildlife. In addition, they provide an array of economic and medicinal plants of local and commercial use. A good quantity of medicinal herbs is collected from the forest areas of the MNP, which are used as home remedies for various human and livestock ailments or traded through formal and informal channels. Many of these medicinal herbs are of national and international importance (ibid).

Important medicinal herbs with their local and botanical names (in brackets) found in the area are: Aconite (*Aconitum Spp.*), Jhalla Lubbar (*Atropa Acuminata*), Jhaoo Safaid (*Artemesia Spp.*), Soranjan Talkah (*Colchicum Leutum*), Kanees (*Dioscorea Deltoidea*), Ratan Jot (*Geranium Wallichianum*), Ajwain Khorasani (*Hyoscyamusniger*), Ban Kakri (*Podophyllum Emodi*), Rewand Cheeni (*Rheum Emodi*), Kuth (*Saussurea Lappa*), Behman Surkh (*Saxifraga Ligulata*), Neer Pattar (*Skimmia Laureola*), Mushk Bala (*Valeriana Jatamansi*), Banafsha (*Viola Spp.*).

5.3. GROWING STOCK

The forests of the study area within the Kutla Forest Range form a more or less continuous belt above the cultivated fields and denuded hill slopes, used as grazing areas. These forests occupy a higher altitude belt and Fir dominates this range (Qadir 1994, 22). The growing stock is the sum total number and volume of all standing and living trees. The total number of conifers (Chir Pine, Blue Pine (Kail), Fir and Deodar), making up the dominant forest canopy, is estimated at 0.972 million with a standing volume of 1.280 million m³ or 45 million ft³ (AJ&K 2005a, 56).

Fir forms the bulk of the standing volume, mainly occurring in compartments 11, 13b and 14. Kail (Blue Pine) dominates in compartments 7, 12, 13c and 15a. Other compartments comprise a mixture of Blue Pine (Kail) and Fir, including a sprinkle of deodar in some cases. Blue Pine (Kail) tends to occur in pure patches in the lower reaches while almost pure Fir is found in the upper limits. Deodar occurs sporadically in compartments 11, 12, 13a, 14 and 15a. Broad-leaved trees, mainly Horsechestnut, Walnut, Populus and Maple, occupy the depressions and nullahs (deep ravine streams) in all the compartments within the MNP. Broad-leaved trees also occur as a mixture in compartments 7, 8a, 13a, 14, 15a (AJ&K 2005a, 56).

Both in tree number and volume, the Blue Pine (Kail) and Fir are the main species, forming 50 and 42% of trees and 41 and 53% of standing volume, respectively. Next are the Deodar and Chir Pine. Deodar makes 5% each of trees and standing volume, while Chir Pine makes 2.5% of tree number and 1% of standing volume (see Table 4).

Table 4. Total and species-wise growing stock within the MNP

Species	No. of Trees	Standing Volume		Crop Composition		Av. Tree Volume	
		ft ³	m ³	Tree No. (%)	Tree Vol. (%)	ft ³	m ³
Deodar	51,751	2,307,295	65,344	5	5	44.6	1.26
Blue Pine	490,192	18,514,960	524,354	50	41	37.8	1.07
Fir	406,009	23,739,637	672,320	42	53	58.5	1.66
Chir pine	24,103	433,843	12,287	3	1	18.0	0.51
Total	972,055 0.972 M	44,995,735 44.995 M	1,274,305 1.274 M	100	100	46.3	1.31

(Source: AJ&K 2005a & Qazi 2005)

The above table shows that the average tree volume, for all species, is 1.31 m³ (46.3 ft³). Trees of Fir are much larger than the rest with an average tree volume of 1.66 m³ (58.5 ft³), followed by Deodar, Blue Pine (Kail) and Chir Pine, with an average tree volume of 1.26 m³ (44.6 ft³), 1.07 m³ (37.8 ft³) and 0.51 m³ (18.0 ft³), respectively.

5.4. ANNUAL YIELD

Divisional Forest Officer Muzaffarabad, in an in-depth individual interview, maintained that the Forest Department has stopped the commercial felling within the MNP area since December 2001. However, the contemporary situation seems quite contrary to this claim and the principles of conservation. In contravention of the bilateral agreement with the donor agency (Global Environment Facility), the government has had carried out unabated commercial felling within the project area since the inception of National Park in March 1996. Commercial timber extraction continued till June 2005, in the area, under the auspices of the government, through a semi-government profitable organization, namely Azad Kashmir Logging and Sawmills Corporation (AKLASC).

The Kutla Forest Range forms a sizeable part of the total commercial felling and hence the state's revenue generation in the District Muzaffarabad. Forest compartments 8a, 8b, 11, 12, 13 and 14, within the MNP, are assigned to the Azad Kashmir Logging and Sawmills Corporation (AKLASC) for the extraction of mature trees marked by the Forest Department for the purpose, whereas forest lessees carry out commercial felling within other compartments of the park. Table 5 shows that total volume of timber extraction from the above mentioned forest compartments measures 2.406 million cubic feet over the last ten financial years i.e. July 1995 to June 2005.

**Table 5. Timber extraction by AKLASC from the MNP
(from July 1995 to June 2005)**

Compartment No.	Tree Species with Local and Botanical Names	Total No. of Sleepers	Quantity in ft³
Kutla 8a	Chir Pine, Blue Pine, Deodar & Fir	6,793	3,18,906.21
Kutla 8b	-do-	7,818	3,77,783
Kutla 11,12,13,14	-do-	69,551	17,09,714
Grand Total		84,162	24,06,403.21 (240,640 ft³ per annum in average)

(Source: AJ&K, 2005d)

The data on current annual yield is given in Table 6. As shown in this table, the prescribed annual yield of forests of Machiara National Park measures 4,921 m³ (1, 73,792 ft³). However, total volume of the annual yield varies for different species. It is 1% per annum for Deodar, followed by Chir Pine and Blue Pine as 0.62% and for Fir, it is least as 0.14% (see Table 6).

Table 6. Total and species-wise annual forest yield within the MNP

Species	Standing Volume		Annual Yield		
	ft ³	m ³	%	ft ³	m ³
Deodar	2,307,295	65,363	1.00	23,073	653.44
Blue & Chir Pine	18,948,804	536,793	0.62	117,483	3,327.18
Fir	23,739,637	672,511	0.14	33,236	941.26
Total	44,995,735	1,274,666	0.39	173,792	4,922

(Source: AJ&K 2005a & Qazi 2005)

5.5. RANGE LANDS

Owing to the huge livestock population in the area, pastures, forest blanks and denuded hill tops have an important socioeconomic role in the daily life of the local forest communities. The forests, alpine and sub-alpine pastures and blanks in the forests of Machiara National Park, of the size of 13,500 hectare, are also used for grazing livestock. About an equal size of private forest and grasslands in the buffer zone is used for raising grass, which is cut in the month of October for storage and stall feeding during winter season (Ahmad, 1998). These grass lands, after being harvested of grass, are also used for grazing, during winters. More than 4000 persons from about 28 villages around Machiara National Park move to the forest and pastures along with their livestock and live in 81 hamlets during summers, with an average of 5 summer houses per hamlet, almost in all compartments of forests (ibid).

There are 42 alpine and sub-alpine pastures totalling 430 hectares in Machiara National Park, distributed in the form of blanks or top flats surrounded by forests. The number of all kinds of livestock at these spots is estimated at 11,710 heads (AJ&K 2005a, 58). There is no particular system of grazing, except that the unproductive animals are driven into the surrounding forest to

graze where they stay day and night, while productive animals are grazed on these open pastures. Forage and fodder production are not sufficient to meet the requirement of the livestock even in high growth period of summers, while in winter there is severe shortage of fodder to meet the needs of stall-feeding. Some fodder tree species are also grown on farmlands, which make up only a very small fraction of total forage requirements. Evergreen Oaks and Barmi are also lopped to feed the livestock during winters. Generally, the grazing lands are degraded due to free, continuous and rotational grazing. Soil erosion and loss of biomass on account of continuous forest fires are other causes of degradation. Frequent biomass removal has led to soil nutrient depletion in the rangelands of Machiara National Park, due to overgrazing. Excessive removals from the vegetative cover hinder the natural nutrient rebuilding processes through litter decay and microbiological action in the grazing lands and pastures.

Seasonal movement of nomads and herders from neighboring Kaghan valley and Chilas District of the North Frontier Province and the Potohar Plateau in the Punjab Province of Pakistan, besides local transhumance to alpine and sub-alpine pastures and grazing lands (above 7,000 feet altitude), is said to cause a huge damage to all forms of vegetation and wild life in the area. Chapter seven provides more details on this phenomenon.

5.6. SUMMARY

This chapter provided a brief account of the forest vegetation within the MNP. It described the temperate Himalayan mixed-forest/alpine-scrub-rangeland ecosystem characteristic of the local forest cover and eight types of coniferous trees. It mentioned important broad-leave associates, shrubs, herbs and grasses and mentioned that there are more than 200 plant species in the area on which local communities depend for their day to day requirements. This chapter highlighted the number of forest compartments in the park and share of the MNP in the total forest growing stock and annual forest yield in the state. Finally it discussed the growing infertility problem within the pastures, forest blanks, grazing lands and denuded hill tops in the MNP.

CHAPTER SIX: FOREST MANAGEMENT IN THE STATE AND THE MNP

6.1. INTRODUCTION

This chapter provides research findings pertaining to research question No. 2 of this study.² The chapter analyses the contemporary legal framework regarding forest management and conservation in the State of Azad Jammu and Kashmir and the MNP besides presenting the current reforestation and deforestation equation in the state and the MNP. Following the description of the forest management mechanism, its flaws and its implications for natural forest resources, the chapter highlights the threatening deforestation due to heavy commercial and illegal felling within the state. It starts by tracing the history of forest management in the former princely State of Jammu and Kashmir and its successor liberated part i.e. Azad Jammu and Kashmir, after 1948. The chapter concludes with a presentation of the contemporary forest management in the park and related anthropogenic threats to rapidly depleting forest resources.

6.2. FOREST LEGISLATION IN AZAD JAMMU AND KASHMIR

Despite heavy dependence of the state's economy on natural resources, there have been few attempts to enact and update the laws governing natural resource management and conservation. The forest legislation in the state has a long history, dating back to the reign of the former colonial princely rulers of the Dogra Rajput dynasty, locally called the *Maharajas*. In total, there are 22 statutes, government notifications and orders wholly or partly providing legislative underpinning for the management and protection of forest resources in the state (AJ&K 1985, ix-xi). Some of the most important statutes that have guided the forest management in AJ&K are: (i) The Jammu & Kashmir Forest Regulation No. 2 of 1930; (ii) The Forest (Sale of Timber) Act, 1930; (iii) The Azad Kashmir Logging and Saw Mills Corporation Ordinance, 1968; (iv) The Azad Jammu and Kashmir Plantation and Maintenance of Trees Act, 1973; (v) The Azad Jammu and Kashmir Protection of Forests and Distribution of Timber-Ordinance, 1980; and (vi) The Azad Jammu and Kashmir Wildlife Act, 1975.

² See 1.7. in chapter one.

The Jammu & Kashmir Forest Regulation No. 2 of 1930 (amended from time to time) was the first comprehensive and fundamental legal framework for forest management and conservation in the state, enforced initially by the former colonial Hindu Dogra Rajput rulers. It was devised with a centralized regulatory management approach in mind. All other Acts, Orders and Regulations regarding the management and conservation of forest resources in the state were promulgated following the spirit of the Forest Regulation No. 2 of 1930 and either provide for operational procedures or partly assert the habitat (forest) and biodiversity conservation in the state. In total there are 4 Regulations, 2 Acts, 1 Ordinance, 2 Notices, 18 Rules, and 10 Orders/ Procedures regulating forest management in the state.

Unfortunately the state government has not yet been able to formulate an express forest policy. The pre-1948 forest regulations and orders inherited from the former colonial rulers have been followed for purposes which for many reasons seem out-dated amidst contemporary growing needs for a sustainable and participatory forest management. All statutes, orders and rules enforced post-1930 were promulgated to assist in carrying out the provisions of the Jammu & Kashmir Forest Regulation No. 2 of 1930. All these statutes, rules and orders broadly focus on timber supplies, forest concessions, and forest protection by enforcing penalties, licensing and sale of forest produce to maximize the revenue generation.

Providing a strong but non-participatory legal support to the public service for managing and protecting the public and private forest resources from human and animal damages has been the key objective of all forest legislation in the state. None of the statutes have recognized community participation, sustainable livelihoods, gender issues and private sector involvement in sustainable forest management. This legislation seems to be regulatory and punitive in nature and does not go beyond punishing the abuse of public forests. Forest laws could have been instrumental in promoting rational behaviour of people for sustainable use of the state-owned forests but total dependence on the force of law has been the exclusive strategy for the management and conservation of these forest resources in the state. At present the Chief Conservator of Forests and the Divisional Forest Officer (entrusted with magisterial and discretionary managerial powers) are the persons responsible for protecting, or rather policing, the forests in Azad Jammu and Kashmir. These powers are vested in them under sections 4, 6, 7,

8, 14, 26, 35, 36, 37, 38, and 42 of the Jammu & Kashmir Forest Regulation No. 2 of 1930. Under section 36 of the said law 'any Forest Officer or Police Officer may without orders of a magistrate and without any warrant, arrest any person against whom a reasonable suspicion exists of having been concerned in any forest offence punishable with imprisonment'. Section 38 of the same statute lays down that 'the government may from time to time by notification in the Jammu and Kashmir Government Gazette, empower a Forest Officer by name, or as holding an office'. On the payment of the compensation money for the allegedly committed forest offence the Forest Officer may discharge the suspected person, and the property, if any, seized shall be released, and no further proceedings shall be taken against such a person or the property.

Section 41 of the 1930 Forest Regulation empowers the Chief Conservator of Forests and the concerned Divisional Forest Officer with the authority of a civil court to compel the attendance of witnesses and the production of documents in cases relating to forest offences and to hold on inquiry into forest offences. Section 6 empowers the Forest Officer to eject any person found in unlawful possession of or to have encroached upon the forest land. Sections 42 and 28 stipulate that notwithstanding anything contained in these regulations or any other law for the time being in force, no order passed by the Divisional Forest Officer under these regulations, in good faith, or no order passed by the government in revision shall be called in question in any court. Such boundless powers to issue orders which are unchallengeable before any court of law, as generally seen in all developing countries, lead to the abuse of power and corrupt practices by the Forest Officers. They can vex or play havoc with the social reputation and private life of any person or can abet or overlook any illegal activity within the forests for an illicit monetary gain.

The majority of the community key informants firmly complained about the abuse of powers by the Forest Officers and their subordinate staff leading to monetary corruption. These officials were reported making a luxurious living, apparently beyond their legal financial resources. Even the Minister for Tourism and Wildlife Department and two Divisional Forest Officers did not fully dismiss the possibility of corrupt practices by the junior field staff of the Forest Department, but the Forest Minister, interestingly, denied these charges. Section 48 of the 1930 Forest Regulation makes every person, who enjoys any concession or right in a demarcated or un-demarcated forest or lives within three miles of such forest, bound to provide the Divisional

Forest Officer or the Police Officer with required assistance in protecting the forest from any damage, failing which shall render him or her liable to fine or imprisonment. Sub-section (ii-a) of section 28 and section 43 of the 1930 Forest regulation also provide a penalty of imprisonment or a meager fine or both for any Forest Officer or Police Officer found guilty of vexing any person unlawfully or abetting any forest offence. Despite these express provisions of law as a check on the conduct of Forest and Police Officers in an around any forest area, there has been no evidence of the enforcement of such legal provisions. On the other hand, all pro-park and anti-park respondents in the study area unanimously complained about the corruption and occasional high-handedness of Forest Guards and Foresters for illicit monetary gains, and also named some forest personnel.

Section 6 of the Azad Jammu and Kashmir Goats (Restriction) Act, 1962 prohibits the grazing of goats within the restricted forest areas. Contravention of this law is punishable under the Criminal Procedure Code 1898. The law sets a maximum six months imprisonment or five hundred Pakistani Rupees (8.3 US \$) fine or both as a penalty for the offenders, besides forfeiture of the goat concerned in the offence. This statute also does not seem to be enforced anywhere in the state, and certainly not within Machiara National Park. People assertively admitted that they graze their cattle throughout the protected area. More than 20,000 nomad grazers are also reported annually to move freely, along with more than 600,000 sheep, cattle and pack animals, in the Alpine and Sub-Alpine forests, including the MNP, hence causing huge damage to the forest regeneration and wildlife breeding in the area.

The Azad Jammu and Kashmir Logging and Sawmills Corporation (AKLASC) Ordinance, 1968 was promulgated to establish the Azad Jammu and Kashmir Logging and Sawmills Corporation (AKLASC). The corporation is a statutory corporate body, responsible for commercial felling in the state on the forest compartments marked by the Forest Department and has no role in the conservation of forests. The Corporation has reportedly aggravated the rapid depletion rate of forest cover in the state due to messy and non-environment-friendly operations. After the inception of the Protected Areas Management Project (PAMP) in the MNP, the AKLASC was permitted to complete the remaining felling operations on the previously demarcated forest up to 30th June 2005, but failed to deliver within the stipulated deadline, leaving a huge quantity of

un-transported logs and sleepers in the forest. The Azad Jammu and Kashmir Plantation and Maintenance of Trees Act, 1977, promulgated for the mandatory plantation of at least three trees per acre and maintenance thereof by the occupier of the land, also sets a penalty of a meager fine of one Pakistani Rupee (i.e. 0.016 US \$) recoverable as a land revenue arrear. This statute, depending on a penalty approach, also failed to ensure full compliance by people. The Azad Jammu and Kashmir Wildlife Act, 1975, under section 37(i), also treats damaging or removing any vegetation within a protected area as punishable with imprisonment, which may extend to one year, or with a fine up to 1,000 Pakistani Rupees (i.e. 16.66 US \$), or both.

Forest Notice No. 6327/H-61/12 of 28th November 1912 guarantees forest produce (as concessions) to farmers and artisans whose village boundary lies within three miles of the demarcated forests in the provinces of the State. These concessions include: grazing and grass cutting; rights of way; sale of standing trees at concessionary rates; timber for housing at the ordinary rate; free grants of timber; free removal of standing and fallen dead and damaged trees and timber other than Deodar, Kairu trees and logs over 6ft in girth; free agricultural implements; free timber for public use; free firewood and torchwood; lopping and brushwood etc. The Divisional Forest Officer is empowered to dispense these concessions. IUCN (1996, 43) has disputed these multiple forest concessions and emphatically declared them to be a major cause of rapid forest depletion in the state and liable to be revoked. The customary forest concessions and poor forest legislation have a direct bearing on forest depletion within developing countries. Bruce & Fortmann (1988, 149) state that ‘deforestation has been promoted by laws or customs that confer land rights on the person who first “clears” the land, and this is still the legal situation in many developing countries today’.

Over a period of time these concessions have multiplied. Hence local forest communities consider them less than their requirement. Fatmie (2002) estimates the quantity of concessionary timber at 1.3 million cft (0.0368 million cubic metres) per annum. Forest legislation both in Azad Jammu and Kashmir and Pakistan have a legacy dating back to the pre-independence era.³ Hence, both encounter identical enforcement and accountability problems owing to the similar

³ The federal and provincial governments have adopted the Forest Act, 1927, of the colonial era for forest management in Pakistan (Hasan 2000, 28). This contains almost the same legal provisions as set out in the Jammu and Kashmir Forest regulation, 1930.

socioeconomic and political states of affairs. Writing on the enforcement of forestry legislation in Pakistan, Ashraf (1992, 72) concludes, 'Forest cases are given low priority and kept pending and undecided for long. Huge files of pending cases have accumulated in each province giving the impression to the offenders that nothing was going to happen to them...Some forest personnel invested with authority to book arrest and compound the forest cases misuse these powers. It invites public contempt of the law and instigates them to violate the law in protest, often without punishment.' The penalties provided for different kinds of forest offences have remained unchanged over decades, while the profitability of illicit trade in timber and other forest produce has increased manifold. In the Government of Pakistan's Forestry Sector Master Plan (1992, section 4.3.3), it is observed that 'many forestry laws have lost their purpose and usefulness. Some others clash with non-forestry legislation, like laws on mines and minerals; and corporate laws on regional development. This causes local and inter-departmental conflicts.'

Khattak (1994, 21) brings out an important point that the legislation says nothing about the obligations of the government, and provides no mechanism for remedial action when forest depletion is the result of its own action. According to Cernea (1988, 140) the number of forest cases pending in the courts of Azad Jammu and Kashmir State, in the year 1981, was 50,000, almost one family in every six being involved. The current number of forest cases under trial in AJ&K is 375,000 with an average of 14,693 new cases per annum⁴ showing a sharp rise of 750% in the frequency of forest offences in the state over the last 25 years. Whereas, the annual average number of registered forest cases within 10 forest compartments (out of 13) of the MNP and Muzaffarabad Forest Division are 1074 and 2566 respectively. This does not take account of unreported forest crimes.⁵

In reality legislation has lost much of its power and people are not willing to accept harsh legal restrictions (Hasan 2000, 23). The DFOs Muzaffarabad Division and the Demarcation Division of the Head Office of the Forest Department and the Project Manager MNP maintained that there were thousands of forest cases under trial for many years in the criminal courts of the district.

⁴ Unpublished official statistics of the Forest Department for the fiscal year July 2002-June 2003.

⁵ Unpublished official statistics of the Forest Department for the fiscal year July 2002-June 2003.

They also conceded that political influence, lengthy legal procedure, overburdened courts and above all meager cash penalties encourage people to violate forest laws.

In a nutshell, the contemporary confrontational forest management, inherited from the former colonial minority government of the state (and adopted without any ideological modification), relies on penalties for forest offences as the centerpiece of its management approach, and gives an impression of *forest crimes management* instead of *forest resource management*. This approach has alienated popular aspirations and failed to show any respect for community participation in sustainable forest management in the post-liberation era, especially when people enjoy more political freedom and access to political power brokers. Hence it has caused a confrontational situation where the Forest Department and communities hold antagonistic positions to each other, while harm is being suffered by the vulnerable forests in the state. Nonetheless, the contemporary forest laws are also reported lacking efficient implementation owing to several managerial and political reasons.

All forest laws are marred by the impression of being a legacy of the former cruel colonial regime and need revolutionary revision to allow for ardent community participation in the forest management and conflict resolution over these resources by developing landscapes of negotiation.⁶ Unless due consideration is paid to the temporal dimensions of popular trends within forest legislation and management in the given space and place of AJ&K, state-community participation for sustainable forest management will remain difficult to attain. Awan (2002) endorses the viewpoint that lack of earnest political will and failure of higher establishment in realizing the gravity of the situation forms the keystone of the existing forest management crisis in the state.

6.3. FOREST MANAGEMENT IN THE STATE & MUZAFFARABAD FOREST DIVISION

The history of forest management in the state shows that maximization of revenue has been an overt and single-point agenda of the Forest Department with a meager investment and half-hearted efforts for reforestation and conservation. Termizi and Rafique (2001, 43) point out that the minimum contribution of the forestry sector to the state's revenue has been 50% during

⁶ See 2.3. chapter two.

the fiscal year 2000-2001 whereas maximum forest expenditure as a percentage of the government's total expenditure measured 6% for the corresponding year. During the war of liberation in 1947, most of the records of the Forest Department were destroyed. Consequently large-scale encroachment and tampering with forest boundary lines by the local populace occurred. Vast forest areas were cleared and brought under cultivation (Qadir 1994, 13). Therefore, collection of reliable data regarding the history of forest management in the areas of the former State of Jammu and Kashmir, now called Azad Jammu and Kashmir, since 1891 (when the first Forest Officer was appointed in the state) was an uphill task.

Legally, forests are the property of the government and under the management of the Forest Department, vide section 4 of the Jammu and Kashmir Forest Regulation. The first administrative set-up for managing the forests of the State of Jammu and Kashmir dates back to 1875 when a Forest Department was formed under the control of each province of the State of Jammu and Kashmir; prior to that the Station House Officers (SHOs) of Police were responsible for looking after the state forests, in addition to their normal duties. Exploitation works were assigned initially to the state army and then to forest contractors, for revenue generation. A British Forest Officer, Mr. MacDonell, the first Conservator of the Forest Department in Jammu and Kashmir State, introduced the forest conservancy and forest demarcation besides a centralized management setup in 1891. Sir Peter Clutterbuck was the first in charge of the state forests who prepared working plans for a number of forest areas (Qadir 1994, 37-38). Currently the state forests are divided into nine territorial forest divisions.

Awan (2002) notes that, at present, only two indicators are used by the Forest Department to assess how well a certain area is being managed: (i) Re-estimation of growing stock; and based on that (ii) Revision of the management plan. Three forest working plans were devised for the Muzaffarabad Forest division during the period of 1906 to 1947, prior to the liberation war in the areas of the present State of Azad Jammu and Kashmir. These forest plans laid down the mechanism of selection-cum-improvement of forests for commercial felling and regeneration. Regeneration did not keep pace with felling (Qadir 1994, 39-41).

After the setting up of AJ&K Forest Department in 1948, the commercial felling continued in accordance with the pre-partition Forest Management Plans. The accessible forests of Azad Kashmir, especially those falling within Muzaffarabad District, were subject to heavy damage by the army and local population after 1947. To carry out the felling operations, the Forest Department created a timber extraction division. To further reforestation, several temporary and permanent forest nurseries were also established. Felling operations, regeneration efforts and heavy damage by human agency went side by side in Lachrat and Kutla forest ranges (Qadir 1994, 43-46).

There have been several delays in the revision and fresh preparation of ten year Forest Management Plans for the Muzaffarabad Forest Division since the inception of Azad Jammu and Kashmir Forest Department in 1948. This indicates the lack of interest of the department towards such an elementary planning tool for sustainable forest management and conservation. The latest Forest Management Plan for Muzaffarabad Division was devised in 1994. Moreover, these Forest Management Plans were never executed in full spirit and felling remained the prime objective of the authorities and forest lessees. Qadir (1994, 54) argues that several social, financial and organizational constraints inhibit the practice of many prescriptions laid down in the Forest Management Plans. He also notes that understaffing of the department hampered the efficient overseeing of forestry operations over vast administrative units.

The Forest Management Plan 1994-2003 is still in force, hence after its expiry in an *ad hoc* fashion. Like all previous Forest Management Plans, the current one is also an entrenched kind of policy document and has never been reviewed over the past decade. Neither is there any mechanism available for the periodical revision of such plans. The plan theoretically emphasizes bringing less-stocked commercially workable forests to full productivity by artificial and natural regeneration; exploiting the forests fit for working in accordance with the principles of sustained yield; providing the bona fide requirements to the local population for grazing and forest produce; and maximizing the production without causing permanent damage to the crop. The Forest Management Plan advocates intensification of harvesting and regeneration at the same time (Qadir 1994, 75-78).

Forest plans are a policy document of strategic significance envisaged to afford a detailed modus operandi for a more than a decade long forest management. Neither local communities nor sustainable development and biodiversity specialists were involved in the preparation of the said plans, and particularly there was no debate on the conservation and rural livelihoods nexus. All Forest Management Plans in AJ&K, devised by Divisional Forest Officers, implicitly relied on the *command and control* system. This is an exacerbated bureaucratic system, with a lack of incentives and reconciliation, aimed at revenue maximization. It always seemed out of tune with changing socioeconomic scenarios. Thus, despite official rhetoric of improvement, every new Plan, without any revolutionary approach, proved a reproduction of the old ones, like pouring old wine into a new bottle.

In such an ambiance crammed with mistrust and envy among Forest Department, AKLASC and local forest communities, without bringing in drastic changes in the legal framework and democratization of forest management model, one cannot hope for any future collaboration between the people, Forest Department and AKLASC for sustainable forest management and conservation. The Forest Officers interviewed revealed that the department has inadequate human resources. The field staff has to cover a vast area. Sometimes one Forest Guard has to oversee thousands of acres or an area of 10 square km or more within such a tough area, which allows forest crimes to be driven underground by enabling any forest offender to escape safely after inflicting damage to high altitude forests. 'Large territorial sizes make it impossible for the official responsible to ensure sustainable management' (Khattak 1994, 12).

In reality, a regular confrontation has been going on between the officials of the Forest Department and the village communities over unauthorized cutting of trees, grazing by livestock, and cultivation on highly vulnerable slopes. The relationship between the two has been far from ideal. Consequently ecological damage has continued to take place unabated (IUCN 1996, 39). Keeping in view the growth rate of the population, the estimated wood consumption is expected to increase from 1.3 million cubic metres in 1993 to 2.3 million cubic metres in 2018. These figures show that the forests are under great threat (ibid).

6.4. DEFORESTATION AND REFORESTATION EQUATION

UNEP (1995, 1) argues that current and future generations' survival depends on the long-term sustainability of the Earth's biological capital. Contrary to this, the sustainability situation of biological capital in AJ&K depicts a disappointing scenario. The wavering political will of the elected governments has contributed to the accelerated deforestation and environmental degradation in the state. For the ecological improvement in the state, commercial and private felling of all green and dead trees was proscribed in 1997 for a period of three years (AJ&K, 1997). The said proscription was further extended up to October 2007 vide two subsequent government notifications (AJ&K 2001 and AJ&K 2003d). However, the commercial felling continued till June 2005 under special relaxation in the said restriction on the previously demarcated forests. Tables 6 (in Chapter 5) and 7 verify the sustained commercial felling in the state and the MNP. Such capricious political verdicts have overshadowed whatever conservation attempts were made in the state. Table 7 shows the yearly paid royalty (for the felled state forest) by Azad Kashmir Logging and Sawmills Corporation (AKLASC) to the government of Azad Jammu and Kashmir during the last five years.

Table 7. Yearly paid royalty by Azad Kashmir Logging and Sawmills Corporation (AKLASC) to the state government (from July 2000 to June 2005)

Year of Payment	Royalty Paid in Pakistani Rupees (60 Pakistani Rupees = 1 US \$)
2000-2001	100.06 million
2001-2002	179.97 million
2002-2003	150.00 million
2003-2004	180.00 million
2004-2005	160.00 million
Total	770.03 million (12.833 million US \$)

(Source: Office of the Managing Director AKLASC)

There have also been several official campaigns for reforestation in the state. The Forest Department has a separate Reforestation Circle with a few Forest Divisions and a joint state and foreign-funded Integrated Land Management Project mandated for reforestation. The department has executed several government and foreign-funded reforestation and afforestation projects

since 1967, when the first five-year public sector reforestation project was launched throughout the state. The average success rate of plantation is estimated at below 50%. These official tree plantation campaigns also failed to encourage people to plant trees on their private lands and did not succeed in enhancing forest cover in the state or even equal the annual deforestation rate. Liberal concessions act as a disincentive for the local people to plant trees on their private lands (IUCN 1996, 31). Total timber extraction in the state for the year 2002-2003 was recorded at 2.991 million cubic feet (0.0846 cubic metres). Fig. 9 shows a truck load of commercial timber being transported from Muzaffarabad to the Timber Depot of AKLASC in Islamabad.



Fig. 9. Commercial timber being transported from Muzaffarabad to Islamabad.

(Source: Fieldwork 2005)

The Planning Officer of the Forest Department informed this researcher that reforestation was carried out on 125,076 acres (50,617.5 hectares) in AJ&K from July 2000 to June 2005 with an average of 10,123.5 hectares per year. Owing to the continued forest loss caused by commercial and illegal felling, besides customary forest concessions in the state forests, the current reforestation rate (with less than 50% success) reportedly lags much behind the required pace. The Divisional Forest Officer Muzaffarabad articulated that to undo the effects of forest depletion of the last 56 years a sustained reforestation at a rate double to the current one is required over the next 56 years. IUCN (1996, 31) contends that stocking of state forests is quite low, the reason being lack of natural regeneration due to excessive grazing by livestock. The average stocking is 95 cubic metres or 3,354.45 cft per hectare (excluding rangelands).

There was a general agreement between both pro-park and anti-park key-informants within the MNP, as well as the Project Management and the Forest Department, that the performance of AKLASC has not been satisfactory, but rather encouraged illegal felling and damage to

regeneration in high altitude forests. 'One of the problems is that the private sub-contractors rarely, if ever, fulfil the complete logging contract. In fact other than one or two cases, no contract has ever been completed by AKLASC, since its inception' (IUCN 1996, 34).

The total standing volume in the state forests, in 2001, measured 1215.907 million cft (34.43 million cubic metres) with 6.687 million cft (0.189 million cubic metres) annual forest yield. Out of this total yield, annual commercial yield and annual timber concessions were reported to be 5.326 million cft (0.150 million cubic metres) and 1.361 million cft (0.038 million cubic metres) respectively (Termizi and Rafique 2001, 18-23). IUCN (1996, 39) mentions that the Forest Department claims a current rate of tree plantation, in the year 1996, measuring 10,000 hectares per annum; while recorded exploitation is estimated at 8000 hectares per annum. The unrecorded removals, approximately 3000 hectares (0.285 million cubic metres or 10 million cft)⁷ per annum, partly due to thefts and partly due to military operations on the borders, disturb the apparently healthy equation to such an extent that there is an estimated loss of 1,000 hectares (95,000 cubic metres or 3.35 million cft) per annum (ibid, 40). Consequently the forest areas are further reduced. The total commercial forest area in AJ&K (reported by Termizi and Rafique 2001, 10) measures 360,426 acres (1,45,862 hectares).

IUCN (1996,39), while quoting the afforestation rate of 10,000 hectares per annum in the state, does not mention the rate of success for such afforestation. The department, unfortunately, has no reliable data on the survival of the planted trees. All interviewed Forest Officers hypothesized that it could be around 50%. Believing in the accuracy of the said rate, the net successful afforestation (out of 10,000 hectares as claimed by the department) in the state hardly covers c. 5,000 hectares per annum. This inflates the estimated size of net forest loss from the proclaimed 1,000 hectares per annum to 6,000 hectares per annum. The current alarming annual forest loss needs to be overturned with a sustained twofold successful afforestation over many decades. IUCN (1996, 38) estimates that if the current rate of forest depletion in AJ&K continues the forests in AJ&K will largely disappear by the middle of the 21st century.

⁷ IUCN (1996, 31) estimates the average stocking of the state forests, excluding rangelands, at 95 cubic metres or 3354.45 cft per hectare.

Apparently official figures on the annual forest depletion rate seem underestimated and suppress the apprehension of the grave state of affairs in the forestry sector. An addition of 81,000 persons per annum in the state's population, at the 2.4 % yearly growth rate (Pakistan 2000, 43), and a 6000 hectares annual estimated forest loss, are together inflicting an irreversibly high damage upon the forest reserve by further reducing the per capita commercial forest share. The alarming rate of commercial forest felling together with anthropogenic and livestock related damages are analogous to burning a candle at both ends.

With a commercial forest loss of 6,000 hectares per annum and an annual growth of the state's population by 81,000 persons, the current per capita share of standing volume in the state forests must have shrunk from 400 cft (11.32 cubic metres) in 2001 (Termizi and Rafique, 2001, 6) to 324.4 cft (9.18 cubic metres) in December 2005. This shows approximately 18.9 cft (0.535 cubic metres) annual decline in the per capita standing volume over the last four years. Fig. 10 shows a Timber Depot run by AKLASC in the vicinity of Muzaffarabad city with a soil mass wastage in background caused by deforestation. Land slides, triggered by heavy deforestation, have become a frequent phenomenon in the state.



Fig. 10. Timber Depot in Muzaffarabad & soil mass wastage in background.
(Source: The Park Planner MNP)

More than 15 major projects aimed at natural resource management and reforestation implemented in the state since 1978 mainly emphasized tree planting and biomass production through community forestry. The main objective was to grow fuelwood, fodder and small timber on the degraded private and state-owned lands to minimize the increasing pressure on the state forests on the one hand and enhance the income on the other. Official progress reports presented to donor agencies tell that all of these projects have been successful in creating mass awareness

about natural resource conservation besides increasing the total land area covered with coniferous and broad leaved fruit trees. Some reforestation schemes are still on the move. Despite the reported successful reforestation on tens of thousands of hectares (IUCN 1996, 73-76), widespread forest depletion⁸ and declining per capita forest standing volume afford sufficient substantiation to believe that reforestation operations in AJ&K are doomed to fail because of an inefficient protection strategy. This researcher came across innumerable denuded hill slopes and mountains en-route from Muzaffarabad to the study area. Even so, there were also some newly grown coniferous forest patches verifying the official reforestation efforts. Fig. 11 shows two large denuded mountains, divided by a deep ravine stream, in the lower part of Serli Sacha Union Council within the MNP.



Fig.11. Large denuded mountains in the lower part of Seri Sacha Union Council.

(Source: Field Work 2005)

6.5. FOREST MANAGEMENT IN MACHIARA NATIONAL PARK

As already outlined in chapter four, the Machiara forest was originally a hunting and biological reserve, locally called ‘Rakh’, for the family of the former colonial Hindu rulers and other nobles of the state. Local communities had limited access to timber, fuelwood and grazing lands. Due to strict watch and ward and severe punishment of law-breakers, Rakhs were rich in biological resources and the allied diversity (Fatmie 2002). The floral and faunal wealth in the MNP is reported to be facing a severe threat from unsustainable public and private uses (AJ&K 2005a, 59). Immediately after liberation of the territory, people devastated the Rakhs, vengefully considering these areas as signs of the cruelty of the past rulers (ibid).

⁸ As estimated in the preceding paragraph.

Data on forest resources to help policy makers and researchers are insufficient and quite non-existent in some research areas within the MNP. The system of forest planning is antiquated and needs to be revamped to create a modern scientific Forest Resource Accounting (FRA) system to improve the policy, planning and monitoring systems. There is an inverse correlation between the natural forest growth and the population explosion in the state as well as the study area. The human population of the state rose from 0.886 million in 1951 (Pakistan 2001, 45) to the current estimated size of 3.5 million by December 2005, a rise of 295% in 55 years, whereas the commercially harvestable forest cover dwindled from 42% to 11% of the state area, marking a decline by 73.8% in the same period. Four percent increase in the state population accounts for one percent decrease in forest cover.

If not reversed immediately the current alarming equation of rise in human population and the corresponding decline of forest cover in the state and the MNP may further aggravate in future, rendering a huge population of the area in particular and downstream in general as eco-migrants by causing flash floods, sedimentation of water bodies, loss of industrial, agricultural and domestic water, loss of top soil etc. Suhrke (1997) quotes several cases from India, Central America, Amazon basin and South East Asia whereby forest degradation destroyed the community structure of huge tribal and rural populations by causing flash floods. These floods, apart from inflicting numerous deaths, produced large scale distress, environmental migrations or at least temporary displacements.

Although there is no specific data available on the standing volume within the MNP area corresponding to the census data of 1951, nevertheless comparison of the prevailing socioeconomic circumstances throughout the state and within the MNP amply testifies the comparatively higher rate of forest loss due to 0.40% higher population growth rate in District Muzaffarabad as compared to the whole of the state. Over many decades the forest reserve within the MNP area has kept on shrinking due to the rapidly growing human and livestock population. The forests, taken as nature's gift to the land, are under great pressure from the public for concessions granted to rural people, the pressure to earn revenue for the state and land encroachments by the growing population. Another major cause of forest reduction is lack of regeneration due to heavy grazing in the park area, and policing actions have failed to bring it

under control. Termizi and Rafique (2001, 9) state that out of a total of 360,426 acres (145,862 hectares) commercial forests (11% of the state land area), divided into 9 territorial forest divisions within 8 districts of AJ&K, 224,147 acres or 90,711 hectares (62%) fall within four territorial forest divisions of District Muzaffarabad.⁹

The project management and key informants from local forest communities unanimously pointed out that the forest compartments falling within the MNP (Kutla Forest Range) have been targeted for intense commercial and illegal felling besides land encroachment. Large denuded mountains, especially in the lower part of the MNP, were sufficient proof of these claims (see Fig. 11). Only six out of 13 forest compartments of the Kutla Forest Range within the MNP, i.e. 8a, 8b, 11, 12, 13, and 14, were assigned to the AKLASC for commercial timber extraction. The average annual commercial timber extraction carried out by the AKLASC in these compartments measured 240,640 cft or 6,815 cubic metres (see Table 5 in chapter 5), whereas the average annual yield of all four coniferous tree species within all 13 forest compartments of the MNP is recorded at 173,792 cft or 4,922 cubic metres, that is 1893 cubic metres (28%) less than the commercial exploitation.

The Project Director MNP and many community respondents noted that new demarcation and felling on the state-owned forests within the MNP area is currently restricted but it is carried out on private forests under the political pressure favouring influential timber contractors. 'By deliberately embarking on such faltering dispensation in the area the Forest Department is responsible for sparking controversy within the MNP' stated the Project Director. The average annual share of timber consumed as forest concessions by the local population within the MNP out of total 162,000 cft (4,588 cubic metres) forest concessions granted within the Muzaffarabad Forest Division (Termizi and Rafique 2001, 21) is estimated at 27,662 cft or 783 cubic metres¹⁰.

⁹ The district has been split in 2005 into two districts i.e. Muzaffarabad and Neelum.

¹⁰ This estimate was worked out by dividing the total volume of annual forest concessions in Muzaffarabad Forest Division on its land area in hectares as reported by Termizi and Rafique (2001, 9 & 21). The average per hectare concession per annum in the division was then multiplied by total land area of the MNP as mentioned in AJ&K (2005a, 31) to get the average annual volume of concessions in the MNP.

Figures of total forest felling carried out on private and state forests by the Forest Department and the community members in the other seven compartments are not available. There are no separate estimates for the MNP's share of the officially reported forest loss, due to thefts and partly due to military operations, of the 3000 hectares area per annum in AJ&K as a whole, as reported by IUCN (1996, 40). However, against the annual yield of 173,792 cft (4,922 cubic metres) in the standing volume within the MNP, the total volume of forest concessions and commercial felling as mentioned in Table 5 in chapter 5 and the preceding paragraph, accounts for 268,302 cft (7,598 cubic metres) with a net forest loss of 94,510 cft (2,676.57 cubic metres) per annum i.e. 154% of the total annual increment.

6.6. SUMMARY

This chapter demonstrated critical flaws in the forest legislation in AJ&K, besides constraints in forest management system in the state and the MNP. It has suggested a radical revision therein to allow community participation in sustainable forest management. The obsolete policing approach of forest management restricts people from damaging forest resources but has failed to control the increasing size of degraded forests. The Forest Department suffers from understaffing and politicization lacks efficient surveillance and accountability of field staff and has made no effort to improve its bad impression in the eyes of the masses. This chapter, by presenting statistical substantiation, tried to demonstrate the heavy unsustainable use of forest resources inflicting rapid forest depletion in the state and within the MNP.

CHAPTER SEVEN: RESOURCE ABUSE IN THE MNP

7.1. INTRODUCTION

This chapter gives a brief description of various contemporary threats to the forest resources within the MNP due to unsustainable use leading to resource abuse by the local forest communities. It begins by describing different modes of excessive household use of forest produce, i.e. timber for construction and maintenance of houses, fuelwood and non-timber forest products. It then outlines other abuses of these forest resources.

7.2. EXCESSIVE USE OF TIMBER FOR HOUSING

Qazi (2005, 18) mentions that out of a total of 4,654 houses in the area, 95% are built with timber and mud; 5% of houses, mostly in Bheri village, are roofed with galvanized iron sheets. However, there were also a few stone and cement concrete built buildings in the centre of Bheri village. Dwelling houses are constructed primarily from timber, which is common throughout the area. In the upper parts of the MNP, houses including walls and ceiling are entirely built of timber. Dwelling houses within the MNP are normally of two types by construction. The permanent houses within the villages comprise two to three rooms. The other houses, built in the high altitude summer pastures amidst thick forests, mostly consist of a single large room due to their temporary residential nature. These houses get damaged in the heavy winter snowfalls and monsoon rainfalls, and therefore need to be renovated annually by using a large quantity of timber (see Fig. 12).



Fig.12. A high altitude wood and mud-built settlement in the Village of Bheri.

(Source: The Park Planner MNP)

Extensive use of timber for construction of wooden and mud houses, cattle sheds and communal buildings puts an enormous and unsustainable burden on the threatened forests within the MNP. People usually own two houses, one for winter in the village and the other near alpine pastures, of which the latter is usually destroyed by avalanches and re-constructed each year. Timber required for a large two-room house may exceed forty poles. Population pressure in the Project area is relatively high, and local use of forest resources is also a big threat to wildlife. Deodar and Blue Pine Forests adjacent to major summer pasture areas have been damaged by cutting for timber and fuelwood.

Qazi (2005, 51) mentions that in total approximately 1,870 cubic metres (66,038 cubic feet)¹¹ or 1,496 mature Deodar and Blue Pine trees are consumed per annum for housing within the MNP. The unsustainable pattern of timber consumption for housing is one of the serious threats to the local floral wealth in the MNP. 'Changes in both patterns and volumes of consumption are needed, together with change in distribution of consumption' (Stub, 1997).

7.3. HIGH FUELWOOD CONSUMPTION

'A prime cause of large scale deforestation which has taken place over the last 20 years is the local shortage of fuelwood. But deforestation is not merely an environmental, economic or a technical problem. It is a sociological and behavioral phenomenon' (Cernea 1988, 139). There are about 6,700 households (in 4,654 houses) in the villages within the Park. Climatic conditions in winters in the area are very harsh and fuelwood needs for domestic energy are very high. This, on one hand, is due to the cold climate, and on the other, wasteful methods of energy use.

The average firewood requirements of the project areas have been estimated at 50 kg per household per day. Therefore, the calculated firewood requirements of the household come to about 18,250 kg per year (AJ&K 2005a, 46). Households fulfill 90% of their firewood requirements from local forests. However people also use kerosene oil, gas and electricity in small quantities per household, as detailed in Table 8. The Protected Areas Management Project in the MNP has recently introduced Liquid Propane Gas (LPG) Cylinders and Fuel Efficient

¹¹ One Cubic Metre=35.314443 Cubic Feet.

Stoves (FES) in the area at half (subsidized) price to reduce the consumption of firewood. The Project Manager maintained that use of 35 kg LPG would help save a mature Blue Pine tree. Total firewood consumption in the area in summer and winter seasons is estimated at 93,080 kg and 325,780 kg respectively (AJ&K 2005a, 46). The overall rate of dependency on fuelwood as a source of heating and cooking in the rural areas of AJ&K is 94.12% whereas the share of kerosene oil, LPG and other sources is measured as 5.88% (Pakistan 2001, 82).

The primary source of energy for heating and cooking purposes within the MNP, like other rural areas of the state, is fuelwood mainly extracted from the nearby forests. Secondary sources of energy are electricity, LPG and kerosene oil, having a very meager share in the total energy consumption of the area, because of being unaffordable for most people, and are mostly used for lighting purposes. Energy requirements seem to be the centerpiece of the park-people conflict. Provision of alternate and cost-effective energy sources could help resolve the conflict and improve the socio-economic condition of the village communities, as well as conservation of the surrounding forest resources in the MNP area.

Electricity is the major source of energy after forests (see Table 8). The electricity is provided by the Electricity Department of the state to approximately 75% of houses in the project area. In many villages electricity is still not available. Sources of lighting in these villages are kerosene oil, gas and torchwood. In the high altitude pastures/summer residences all people use torchwood for lighting and wood for heating and cooking purposes.

Table 8. Average annual household consumption and energy source other than forest in the communities within Machiara National Park

Energy Source	Annual Consumption		
	Quantity	Source	Value (Rupees)
LPG	20 Kg	Market	1,100
Kerosene Oil	8 Kg	Market	256
Electricity	900 Units	Electricity Department	2,250
Total			3,606 (60 US \$)

(Source: Qazi 2005)

7.4. EXCESSIVE LOPPING OF TREES

The local forest communities in the MNP lop almost all broad leaves excessively to stall-feed their livestock in winter or at times of fodder scarcity, and this lopping seems beyond the admissible concessionary limit. The excessive lopping is very detrimental to these trees, seriously affecting their growth and making them prone to other damage by parasites (AJ&K 2005a, 62). The intensive lopping for fuelwood was also noticed in the densely populated low altitude villages and on the tracks leading to high altitude summer houses (see Fig. 13).



Fig.13. A woman carrying a bundle of lopped twigs in the Village of Bheri.

(Source: The Park Planner MNP)

There are 14 species of parasitic and saprophytic fungi, belonging to 12 genera (i.e. *Polystictis*, *Daedalea*, *Fomes*, *Fomitopsis*, *Ganoderam*, *Lenzites*, *Gloeophyllum*, *Oxyporus*, *Polyporus*, *Trametes*, *Lentinus* and *Morchella*). These grow as parasites on living trees of *Pinus wallichiana*, *Juglans regia*, *Cedrus deodara*, *Abies pindrow*, *Picea smithiana* and *Aesculus indica* or grow as saprophytes on the dead and fallen wood of *Aesculus indica*, *Cedrus deodara* and *Pinus wallichiana*. These pathogens enter into the plant body through the wounds caused by cutting or lopping (AJ&K 2005a, 62) and may cause death of living trees or degradation of timber.

7.5. OVER-GRAZING AND NOMADIC HERDING

About 50% of residents within the MNP are essentially agro-pastoral. They keep various kinds of livestock to meet their domestic needs. All the fodder requirements of domestic livestock are met from the park area either by direct grazing or by grass cutting. The park area is used from May to early November, to meet the fodder requirements of livestock (AJ&K 2005a, 62).

All interviewed Forest Officers and the project management maintained that over-grazing is the main reason for poor regeneration in most of the park area. Qazi (2005, 50) notes that uncontrolled and unscientific grazing causes damage to young seedlings by browsing and trampling in the MNP area. IUCN (1996, 27 & 40) contends that the major reason for the lack of natural regeneration in the AJ&K State is excessive grazing by livestock belonging to the adjoining communities and nomad herders. Nomad herders enter the MNP area in May from neighboring Kaghan valley and Chilas District of the North Frontier Province (AJ&K 2005, 60). They also enter the District Muzaffarabad, in the month of April, from Potohar Plateau in the Punjab Province of Pakistan via Murree Sub-Division. They start their descent in October when most of the existing forage in the highlands has already been consumed (IUCN 1996, 27).

Grass cutting affects wildlife by destroying the habitat, eggs and nesting of ground-nesting birds. Nomad herders not only destroy the ground vegetation but also chop the broad-leaved trees in the places of night stay. They burn a lot of fuelwood to keep themselves and their livestock warm. In the morning, they generally leave the fire un-extinguished, which sometimes causes forest fires. Cernia (1988, 140) also points out the adverse ecological effects of grazing (generally without adequate control) by the livestock of local forest communities and nomadic herding on the alpine rangelands and other forest resources of the state during summer.

7.6. ILLEGAL TIMBER EXTRACTION

As outlined in chapters four and six, since the inception of the AJ&K State, there has been a large increase in the human populace. The population of the MNP area has grown more rapidly than that of the whole state. Because the volume of trees cut on concessional grants is insufficient, increased timber needs result in the illicit cutting of trees. All key informants from the Forest and Wildlife and Fisheries Departments, besides the local forest communities, agreed that the extent of illegal felling has increased since the setting up of the park. The park management, insider guides and an overwhelming majority of the local key informants pointed out that many people have stored a huge quantity of illegally felled timber and firewood in their cattle sheds and basements. The stated reason was spread of rumours that the local forest was being closed for a hundred years following the annulment of all customary forest concessions.

They also blamed forest officials and forest lessees for the spread of such baseless rumours to provoke the communities against the park. Deodar suffers most at the hands of villagers because it is considered essential for the construction of houses. Fig. 14 shows illegally felled timber, covered with green twigs, in the village of Bheri that was seized by the forest authorities.



Fig. 14. A stack of illegally felled timber, covered with green twigs, in the Village of Bheri.

(Source: The Park Planner MNP)

7.7. OVER-EXPLOITATION OF NON-TIMBER FOREST PRODUCTS

Surveys have so far listed over two hundred plant species of economic value in the MNP forests (Khan, 1996). Of these, almost 45 are said to have medicinal properties, the remainder are valued for a wide range of uses including food, tea, animal fodder, firewood, chewing gum, cosmetics, crude paper (for packing butter) and dye (Qazi 2005, 54). In many places people collect Black Mushrooms, wild vegetables and other medicinal herbs of economic value at unripe stages, which greatly affects their regeneration. Non-Timber Forest Products are mostly damaged by the grazing livestock of local communities and nomads from different areas of Pakistan. Multiple forest concessions, enjoyed by local forest communities since 1912 (as outlined in chapter six), were originally sustainable, in view of the then reasonable population size of the state and extent of forest resources. Due to a sharp rise in human population by 295% since 1951, and corresponding increase in livestock, these uses have multiplied manifold, crossing the limits of sustainability, resulting in a rapid decline in the size and carrying capacity of these resources. Cernia (1988, 140) maintains that ‘the abuse of customary rights and of the concessionary agreements granted for timber effectively limit the role of the Forest Department (FD) as the agency of government in the exercise of management of the forest. The resultant situation is one in which the Department is in open conflict with a high proportion of the population’.

Black Mushroom comes up on the forest floor, in spring season, with the receding of snow, followed by spring rains. Black mushroom is an expensive herb; therefore in spring people, mostly women and adolescent boys visit each and every corner of the forest and search for this product. Mushroom collection causes no direct harm to the biodiversity of the park. Since the mushroom collection coincides with the nesting and egg-laying time of the ground-nesting birds like pheasants, however, the collectors positively disturb the nests or take away the eggs and chicks. The mushroom collectors may carry firearms with them and indulge in the poaching of large mammals and birds. No exact record of yearly collection of Black Mushroom from this forest is available. According to information from a local elderly key informant, the local price of dried Black Mushroom is approximately 6,000 Pakistani Rupees (100US \$) per kg.

7.8. FREQUENT HUMAN-INDUCED FOREST FIRES

The main physical injury to the MNP forests is caused by frequent forest fires, occurring mostly in dry and hot summer and autumn months. Forest fires cause damage to the ground cover, young regeneration, standing trees and the wildlife. Presence of combustibles and human activity are the causes of forest fires (AJ&K 2005a, 60). However, the main cause of forest fires is deliberate burning by the local villagers setting fire to the ground vegetation in order to have a rich growth of grasses and herbs next year, to provide grazing for livestock. Another cause of forest fires could be accidental due to smoking, camping in the forests or gun fire. Forest fires are also caused maliciously by the contractors to hide the illicit damage (Qazi 2005, 49). There is no organized fire control system in the Forest Department and within the MNP.

7.9. FOREST LAND ENCROACHMENT

The housing, grazing and farming land uses increase with the increasing human population. People encroach upon the adjacent forest for the want of additional agricultural and grass land. IUCN (2006) argues that the agricultural expansion is the major compelling factor behind the forest and encroachment and deforestation. 'Over the years, researchers have identified agricultural expansion as a major factor in almost all studies on deforestation. In the 1990s, according to the United Nation's Environment Programme (UNEP), 70% of total deforested

areas were converted to permanent agriculture systems' IUCN (2006). The encroachment practice within the MNP is unproblematic and undetectable for the offenders due to the already missing boundary pillars or their deliberate removal.

Therefore, it is difficult to differentiate between private and park areas. The process of encroachment is completed in successive stages, in most of the cases with the bribed blessings of the Forest Guards and the Foresters, who are responsible for reporting such offences. As a first step, trees are killed by girdling and further damaged by torch wood extraction and fire. By clearing the land of trees, cultivation is expanded in a creeping manner. The encroachment proceeds, slowly but steadily, and as a result the forest is shrinking, almost everywhere in the MNP. The insider guides showed this researcher numerous encroached lands in the Bheri and Machiara Union Councils, where no encroacher was ejected by force of law under section 6 of the 1930 Forest Regulation. Forest compartments 9 and 11 were said to have faced large-scale forest thefts and encroachments.

7.10. INCESSANT COMMERCIAL TIMBER EXTRACTION

Following the working plan prescriptions devised in the Forest Management Plan for Muzaffarabad Forest Division, the Forest Department had leased timber extraction to AKLASC from compartments 8a, 8b, 11, 12, 13, 14 and 15 of the park area in 1983. The said lease continued even after the inception of the National Park and the Protected Areas Management Project. Though AKLASC was bound to complete its felling operations by 30th June, 2005, the Corporation failed to comply with the instructions of the government within the MNP. It has left a huge lot of felled and undisposed of trees in the area. The leasing and huge commercial felling practice that kept going on in the protected area was contrary to the very nature of National Parks. It has not only caused removal of trees but also disturbs the habitat of important wildlife.

7.11. HUNTING AND POACHING

Local newspapers in Muzaffarabad occasionally carry news reports regarding trespassing in the MNP by hunting parties from neighboring District Chilas of the North Western Frontier Province

of Pakistan. They shoot anything they come across, and are eagerly looking for musk deer. They leave the area at will or after having achieved their poaching targets. The MNP staff, being unarmed and small in number, are unable to intercept these miscreant groups in such a large area. All official and community key informants espoused these reports and added that there were also some local hunters and poachers involved in damaging the rare wildlife in the park. One local respondent also narrated his hunting stories as a phenomenon of pride and upheld that it was a status symbol in the domain to go for a hunt. The increased availability of automatic weapons and the high economic returns of the pet trade may be the main reasons for hunting and poaching and a decrease in the population of key wildlife species like Monal Pheasant, Western Horned Tragopan, Black Bear, Himalayan Ibex, Musk Deer and Goral in the MNP (AJ&K 2005a, 63).

7.12. SUMMARY

This chapter expanded on major resource abuses and human-induced threats to the forest resources within the MNP. These include excessive exploitation of forests for house building, heating and cooking. Lopping of trees, deliberate forest fires and forest land encroachment are other important abuses of the local forest resources. The chapter also highlighted the overexploitation of non-timber forest products by local forest communities and nomad herders. The chapter argued that the extent of illegal felling has increased since the setting up of Machiara National Park. The forest officials posted in the MNP forests and forest lessees are reportedly involved in inciting the anti-park fury by spreading baseless rumors against the Protected Areas Management Project in the MNP. Poaching, hunting and mismanaged commercial felling by AKLASC within the park area have also contributed towards irreparable loss of forest cover and the rare wildlife. The chapter concluded that on account of various abuses and human induced threats forest resources are shrinking almost everywhere in Machiara National Park.

CHAPTER EIGHT: DIFFERENT ACTORS — DIVERGENT PERCEPTIONS

8.1. INTRODUCTION

This chapter provides summarized findings on research questions one and three as outlined in chapter one. The present chapter, besides elucidating contemporary unsustainable resource use and the participation situation within the MNP, analyzes divergent perceptions of the project management, foresters and local forest communities regarding efficient community participation in sustainable forest management and conservation. It briefly describes various instrumental incentives from the Protected Areas Management Project for local forest communities to promote the community participation within project operations. The chapter also examines the administrative constraints and conflicts among different actors and assesses the degree of conflict within the MNP.

8.2. UNSUSTAINABLE FOREST EXPLOITATION IN THE MNP

Chapters 5 to 7 amply establish that the habitat and natural environment of Machiara National Park are under severe threat from public and private uses. Draft Management Plan 2005 for the Protected Areas Management Project in the MNP (AJ&K 2005a, 4) points out that the major use in the public sector is commercial logging, which caused much damage to the MNP in the past, but is stopped since the Machiara was given the status of a National Park. Moreover, timber is a valuable commodity in the country and the people around the park are very poor, therefore they indulge in illicit cutting and trade of timber, taking advantage of loose control of the Forest Department.

As outlined in chapter 6, against the annual yield of 173,792 cft (4,921 cubic metres) in the standing volume within the MNP, the total documented annual forest felling accounts for 268,302 cft (7,598 cubic metres) with a net forest loss of 94,510 cft (2,676.57 cubic metres) per annum i.e. felling amounts to 154% of the total annual increment. The reliable statistics regarding the share of the MNP in the overall illegal forest felling of 3000 hectares per annum within the state are not available. The MNP managers and local forest community respondents

speculated that the total volume of illegal felling within the MNP may be more than the commercial felling. In the absence of accurate Forest Resource Accounting and efficient monitoring of the state of the forest in the area exact volume of forest thefts can not be estimated. However, the apparent equation between the recorded commercial exploitation and the growing stock is distressingly unsustainable and needs immediate redress. Adding the speculated volume of illegal felling (whatever quantity it would be) makes it more upsetting and unsustainable.

Cernia (1988, 139) notes that 'given the high rate of population growth (around 3 percent per annum), fuelwood usage in Azad Kashmir represents by far the largest need to be met by reforestation. Population pressure has accelerated the deforestation process considerably'. There have been annual plantation campaigns in the Kutla Forest range by the Reforestation Circle of the Forest Department, besides a tree planting campaign by the MNP project office. A total of 3.03 million saplings and seedlings are reported having been planted in the whole of Kutla Forest Range during the last 10 years (at an average of 303,000 per year).¹² The Forest Conservator of Muzaffarabad Forest Circle¹³ and the Manager of the Forest Seed Centre of the Forest Department conceded that due to poor protection, unrestricted grazing and frequent community-induced forest fires hardly 40% to 50% of the plants survive.

With a prescribed rate of 435 saplings per acre (1,074.8 saplings per hectare), the total reforested or restocked area during the last ten years measures approximately 2,819 hectares. However, this researcher did not see any manifestation of such enormous reclaimed or reforested timber extraction sites in the visited villages of the park area, although sparsely planted broad-leaved walnut and apple trees could be seen on small farms. The unsuccessful or slow reclamation of forest resource extraction sites has worsened the natural resource depletion situation in the AJ&K State. Brock (1997) mentions that phenomenon for developing countries in Asia and Latin America that new deserts are being created through environmentally unadapted forms of production and the futile or slow efforts to reclaim extraction sites.

¹² Unpublished official statistics of the Forest Department.

¹³ A senior officer next to the Chief Conservator of Forests.

The Project Manager mentioned that the project has recently provided the Village Conservation Committees (VCCs) with 140,000 saplings of fast growing fuelwood species (*Robinia Pseudo acacia*) in order to grow fuelwood on their private and communal lands. The project, as an incentive for forest conservation, has also started providing subsidized liquid propane gas (LPG) cylinders and fuel efficient stoves (FES) at half the market price within the MNP area. Besides this, galvanized iron sheets worth 15000 Pakistani Rupees (250 US \$) are being provided as a grant to each household for the replacement of timber-made roofs on their houses. Timber and mud roofs usually get damaged during heavy rains and snowfalls and hence need a replacement each decade, which puts a large burden on the local forest. The cultivation of steep slopes, illicit grazing of pastures and damage to natural forests continues unabated in the area. The reasons for these practices, as outlined in chapter four, are poverty, illiteracy and political patronage of forest offenders.

There is thus an earnest need for robust alternatives, incentives and effectual awareness campaigns regarding the importance of resource conservation on the one hand and to augment income generation opportunities through integrated multi-sectoral interventions on the other hand. The insider guides showed me numerous locations within Bheri, Machiara and Serli Sacha Union Councils where the local population had encroached sizeable areas in the adjoining forests, cleared them and used the denuded patches of land for forage and agriculture. Few of them faced forest cases. The majority of encroachers circumvented any trial because of the blessings of reportedly corrupt Block Officers, Forest Guards and Forest Watchers.

The tenure over trees seems instrumental in forming the attitude of the dependent populace residing in and around any open or protected forest. Fortmann and Bruce (1988, 337) argued that resource tenure is an important and evolving component of all resource management planning, influencing the daily lives of resource users throughout the world. Tenure rules affect land and tree use in general, and the distribution of benefits in particular. 'Since people have no tenure over forests, they do not care whether forests survive or not. In fact, forage production increases in direct proportion to the loss of forest cover. Since people have tenure over livestock, and not forests, it is in their advantage to see that forests give way to grasslands' (IUCN 1996, 42).

The state assumed the tenure over trees, and imposed restrictions on people for sale of trees even from their own land, hence they do not plant trees since they cannot cut and sell trees freely. 'Further, because they could get trees on concessional rates from the state forests, there was no incentive left for them to plant trees on their own lands' (ibid, 19). The convenience of illegal wood and timber extraction from the nearby forest is also a major compelling factor for local forest communities, although in contravention of the wisdom of their faith which categorically emphasizes a sustainable green and clean milieu. Granting liberal concessions for existential needs besides unsustainable commercial felling have adversely affected the health and regeneration of forests in the area. 'Thus, there is a dire need to look into possibilities for striking a new balance between the commercial and the existential use of natural resources and to distinguish between depletion caused by commercial interests and by poverty' (Brock 1997, 28).

It has been amply explained in chapter six that the present top-down *command and control* system suffers from many flaws that leave the door wide open for massive resource abuse. The system is *ad hoc*, and relies a great deal on the discretion of the Range Officer (RO), and the Divisional Forest Officer (DFO). For example, to acquire timber, the entitled person has to pay several visits to the offices of the relevant DFO and RO, who approve the application and issue timber subject to availability. Very often this practice takes many months and there are also possibilities of rejection of the application after a long process. This delay and the necessity of having to please the relevant officials frustrates people and forces them to resort to illegal cutting of the most nearest suitable trees (IUCN 1996, 43-44). 'While there is a chance that they may be caught, the fine for such an offence is so nominal that it is preferable to pay it rather than go through the hassle of getting a permit. Some others prefer to be prosecuted for illegal removal of timber and take advantage of the lenient and sluggish judicial system' (ibid, 44).

The majority of the public and community informants agreed that since the inception of the Protected Areas Management Project in Machiara National Park, illegal felling by local communities has at least doubled. This phenomenon was ascribed to already prevailing mistrust between the forest authorities and local forest communities besides fear of expected forest closure caused by corrupt junior forest officials, antagonist contractors and anti-park political brokers in the area. The overall management of forest resources within the MNP seems

distressingly unsustainable and beyond the carrying capacity of threatened floral and faunal species. The situation needs to be arrested immediately by overhauling the contemporary political egocentrism and institutional inertia.

8.3. PERCEPTIONS OF FOREST OFFICERS AND PARK MANAGERS REGARDING SUSTAINABLE FOREST MANAGEMENT

The information gathered through literature review, interviews and discussions with the officials from the Forest and Wildlife Departments and local forest communities revealed that there is a great divergence in the perceptions regarding sustainable forest management and community participation among the triangle of actors within the MNP. There is a sweeping disparity between the myth and reality of community participation. The forest and the wildlife authorities, being well oriented professionals, were clear on the theoretical aspects of sustainability and community participation in forest management. They believed that sustainable forest management ensures that tangible goods and non-tangible ecological services derived from the forest meet the present-day needs while at the same time securing their continued availability and contribution for future generations. However, despite the rhetoric of sustainable forest management, none of the Forest Officers could justify the disproportionate commercial felling (i.e. 54% above the yearly increment) in the MNP forest compartments, and attributed the mismatch of the theory and practice of sustainable forest management to the political reasons.

All Forest Officers and the park management agreed that, owing to economic and political reasons, forestry in the State of Azad Jammu and Kashmir has traditionally focused on growing crops of wood in plantations or in managed natural stands. 'In this *agricultural mode* other benefits of forests such as watershed protection, wildlife habitat, climate moderation, and outdoor recreation, have received less attention than wood production' (IUCN 2006). The Draft Revised Management Plan 2005 for the Protected Areas Management Project of the MNP (AJ&K 2005a, 67) emphasizes the sustainable use of the park resources through community participation. The project, by starting to provide alternatives to the fuelwood and timber for housing, is contributing towards sustainability of the threatened forest resources within the MNP.

However, the momentum of the project interventions is much slower than expectations for a number of reasons. More detail on the project interventions comes in the following sections.

8.4. PERCEPTIONS OF LOCAL FOREST COMMUNITIES REGARDING SUSTAINABLE FOREST MANAGEMENT

According to Maser (1997, 99) the community as a whole, in the context of sustainability, interacts with the local environment, moulding the landscape within which it rests and is in turn molded by it. The Chief Technical Advisor WWF-Pakistan, in an informal discussion, postulated that ‘local community perceptions within the MNP normally depend on their education, awareness and economic status’. Local forest community respondents agreed that forests, by playing an important role in rainfall formation and provide drinking and irrigation water, control soil erosion and degradation, provide natural habitats for wildlife and purify the air besides being a source of timber fuelwood, wild fruits, herbs and vegetables etc.¹⁴ They firmly maintained that their livelihood for centuries has been totally dependent on local forest resources. ‘We live on what we grow on our small farms and gather from surrounding forests. We extract timber and fuelwood, graze our livestock, collect wild fruits and vegetable and fetch water from these forests. We identify ourselves with the local place as sons of the soil and have the right to keep on exploiting the available resources around in the MNP without any obstruction’, was one statement which can be said to form almost the common standpoint articulated by all anti-park individual and group respondents.

The study also revealed that local forest communities consider their space and place as a container within which they have created their identities. These places and spaces have also stimulated conflicts among them. The local space and place have provided them with an anchor of shared experience of dependence on the available forest resources for their livelihoods and a sense of belonging over time. Resultantly the lived connection between places and the local forest communities have bound them within a temporal dimension i.e. a shared past and a future. But unfortunately, local people’s perception of such a binding with their local space and place

¹⁴ As outlined in chapter three, the questions were asked in self administered semi-structured interviews.

(milieu) is mainly bent by their motive to keep exploiting their forest resources without bothering about their sustainability and regeneration.

Only interviewed members of the Village Conservation Committees (VCCs) showed concern over rapidly dwindling forest resources in the area. 'My community fellows should have been grateful to the MNP for bringing them such generous and far-reaching incentives for the conservation of their threatened floral and faunal wealth. Alas, they stood against their benefactor and show no consideration for the ecological needs of their generations. They do not realize that clearing these forests tantamount to cutting of a branch of a tree, by one, which he sits on,' espoused a young College Laboratory Assistant and an active VCC president in the Bheri Union Council. 'I firmly believe that forest clearing is synonymous to killing a hen that lays golden eggs or slaughtering a healthy and productive cow instead of milking it. We VCC members are faced with a challenge of making our people realize that they should milk the cow instead of killing it,' illustrated a 55 years old VCC Patron in the Serli Sacha village. This was the positive upshot of orientation programmes conducted by the park management in the area on the sustainability of forest resources. None of the anti-park respondents (educated contractors and literate or illiterate farmers) came up with a realization of the scale of threat to their natural forest resources on account of their unwise use.

Among a group of 26 anti-park interviewees in the Serli Sacha Union Council, there were also five respondents who were above seventy years old, who were furious about the forest conservation in the MNP while advocating the unrestricted and unconditional use of these forest resources as they had been used during the former colonial regime. These community elders, commanding respect due to their age, were very blunt in their expressions and even twisted the recorded historical facts regarding forest concessions, which they referred to the former colonial regime. To them sustainable forest management simply meant the maximization of benefits from natural forest without bothering about its regeneration.

The educated anti-park leaders also demonstrated perceptions on the forest conservation that revealed their vested interest in the uncontrolled exploitation of these resources. 'The Forest and the Wildlife Departments need not worry about the MNP forests, because these are in abundance

and it is the responsibility of the divine being to keep these forest resources growing for the human kind,' noted the anti-park forest and public works contractor and a law graduate son of the former Chairman of the Serli Sacha Union Council.¹⁵ 'A few days ago, one of the protected Snow Leopards killed two villagers, in the Ayubia National Park in the neighbouring Punjab Province,' he informed the group by showing them a photo copy of news report (see Fig. 5). 'The MNP authorities also intend to let protected Snow Leopards and other wild beasts move freely and thrive within the area. This might incessantly threaten the local populace and their livestock by frequent depredation whereas the people would not be allowed to use fire arms for their protection from these predators,' he added and his statement was unanimously endorsed by the group.

This young man dropped in at the concluding stage of the group interview and assumed the leadership of the group in registering their disapproval for the park. He cleverly exploited the anti-park fury of the group in turning this discussion into a petition against the Forest and Wildlife authorities and vowed to halt this 'pointless' conservation intervention in the Serli Sacha Union Council by force. This rigid attitude seems responsible for very slow social mobilization and the VCC formation in this Union Council. The Project management conceded that they are facing the sturdiest resistance in the Serli Sacha Union Council.

The fifty-year old former Chairman of the Bheri Union Council voiced the opinion that 'environmental needs can not be addressed in isolation from human needs and that enhanced concessions and trade-offs are inevitable to ensure more community participation in the project'. 'We demanded some guaranties from the MNP authorities, for the existing forest concessions not to be annulled, as an agreement signed before the court of law but bureaucrats avoided,' he added. 'Project managers are interested in conserving trees and beasts in the area at the cost of the human populace, thus neglecting their livelihood needs,' argued a 74 years old Village Head in the Serli Sacha village. Another old retailer in the Serli Sacha village showed this researcher some dried wild vegetables collected from the nearby forest and placed in the shop for sale. 'Sir, look at this wild stuff, you would never like this kind of food, but we poor people live on it and have been eating it for the centuries. The cruel MNP managers, by closing the surrounding

¹⁵ As mentioned in 3.6.2 in chapter three.

forest for more than a hundred years, intend to deprive us of this minimum source of livelihood, which we have from these forests’, he pointed out with a gloomy face.

However, the fieldwork experience in the MNP shows that anti-park sections (educated political leaders, contractors and illiterate or literate farmers and daily wage laborers) also have an indigenous understanding of the tangible and non-tangible short and long term benefits of the MNP forest resources but do not put it into fair practice, mainly due to vested interests and economic compulsion. The local forest communities can be divided perception-wise into two groups. The first group is smaller in number and weaker in political power and socioeconomic status but comparatively educated and environment friendly. This group understands the gravity of the situation and believes in sustainable use of these resources with a successful reforestation at least at a rate double to the exploitation rate. The second is a larger group comprising poor and illiterate farmer households, artisans and daily wage laborers and is misled by the rich and politically strong anti-conservation elites of the area. This group advocates the unrestricted and unlimited access to the local forest.

Leaders of the anti-park group, especially in the Bheri and Serli Sacha Union Councils, are either themselves veteran forest lessees or have close associations with the forest contractors and political brokers in the area. The anti-park faction in their interviews claimed that they, as sons of this soil, had rights to exploit its resources and no responsibility rests on them towards their sustainability. Nobody was worried for the needs of coming generations, who would be more in number but would inherit badly dwindled forest resources. Almost all veteran anti-park respondents interpolated that forests were neither under threat nor were shrinking due to their abuse. ‘It is the project managers who are falsifying forest statistics in the area, aiming at depriving people of their customary rights and concessions from these forests,’ stated a 55 year old farmer in the village of Machiara. Perceptions of local communities on conservation seem divided, biased and for most opponents driven by their vested interests. Brock (1997, 32) also notes that ‘environmental protection in rural areas, no matter how severely they may be affected by environmental degradation, may meet with opposition or negligence on the part of those who contribute to degradation in order to feed themselves.’

In a nutshell the project management, amidst such predominant egocentric motives besides economically moulded anti-park misinformation, seems faced with an uphill task of convincing a set of aggressive, segregated and de-motivated local forest communities to realize that conservation and the sustainable development are two sides of the same coin and offer a longer lasting solution to their poverty and livelihood issues. Conservation, contrary to common belief, is not preservation but sustainable use of natural resources (IUCN 1996, 63). Chapters four and seven establish that poverty and illiteracy have triggered the forest resource abuse in the MNP. Damage to the natural biological resources of the MNP is deep rooted in the socioeconomic setup of the communities within the MNP (AJ&K 2003b, 5). All other threats to the forest resources are secondary and stem from poverty and illiteracy. Illiteracy in the area itself emanates from poverty and accentuates it, thus forming a vicious circle. IUCN (2006) argues that poverty is popularly cited as a principal driver of forest loss and degradation. Local forest communities need to be persuaded that ‘by developing forests and using them properly, it would be possible to fight rural poverty and reverse the process of environmental degradation at the same time’ (IUCN 1996, 33).

8.5. INCENTIVES FOR LOCAL FOREST COMMUNITIES IN THE MNP

‘The basic tool in the management and conservation of biological resources of Machiara National Park is the community participation’ (AJ&K 2003c, i). As a motivation strategy for equal participation of local residents in the forest resource conservation within the MNP, the project offers them a wide range of incentives and side benefits. These incentives include subsidized alternative means of fuel and roofing material besides a seed money endowment of 50,000 Pakistani Rupees (833 US \$) for each Village Conservation Committee (VCC). The endowment is aimed at confidence building within the communities and enabling VCCs to launch their need-assessed small scale development schemes, i.e. water supply, sanitation and plantation schemes at the village level, by contributing their own share. All VCCs, depending on the number of their member households, would also be provided with a handsome amount of money as a micro-credit revolving fund to promote small scale entrepreneurial activities in the area. VCCs are empowered to dispense this micro-credit revolving fund among their member households at a minimal interest rate of 6% per annum. The Social Scientist of the project noted

that 14 VCCs after having opened their joint bank accounts and prepared the community micro-plans have already received a sum of 3.2 million Pakistani Rupees (53,333 US \$). The micro-credit revolving fund is a remarkable project provision aimed at helping local forest communities strengthen their on-farm and off-farm economic ventures to reduce the economic pressure on the threatened forest resources. A wide range of capacity building and income generating training courses is also identified in the Draft Revised Management Plan 2005. These training areas include community management, micro-credit entrepreneurship, agro-pastoral activities, forest nurseries raising, improved livestock breeding, horticulture, poultry farming, dairy farming, fish farming, sericulture, medicinal plants cultivation, handicrafts making, and many other poly-technical trades (AJ&K 2005a, 82). Awareness raising workshops, study tours for the community members and representatives to other National Parks in the country are also clearly spelled out in the project documents. Participatory rehabilitation of depleted forest sites through massive plantation of native plants is suggested for increasing the forest cover in the area (AJ&K 2005a, 79).

Machiara National Park fulfills all the requirements of tourism and ecotourism. Environment friendly infrastructural development and training for local community members as guides for the promotion of general tourism and ecotourism in the area is also another provision of the park under process. Promotion of tourism and ecotourism activities is expected to bring far-reaching positive socioeconomic and behavioural changes in the area (AJ&K 2005a, 83-84). Some of the envisaged activities have already been launched in the area whereas others are in the pipeline.

Conservation training of the community members, local school teachers, clergymen and media personnel, besides formation of Nature Clubs in the schools of the area, is an achievement of the park contributing towards enhanced awareness and participation. The project also has a huge allocation of 45 million Pakistani Rupees (7,50,000 US \$) as an endowment fund envisaged to be invested in profitable business. The profit of the fund would be transferred to the joint accounts of VCCs to sustain their operations under their approved micro-plans. The aim of setting up of the endowment fund is to empower VCCs so that they can locally takeover and uphold the conservation and development activities after the year 2007.

The project has a great deal of long and short term tangible and non-tangible benefits and irretrievable incentives for the local forest communities in return for their sincere cooperation and equal participation in conserving their own forest resources. It is disappointing to see that despite such generous incentives and long term benefits being offered by the project, the majority of people are still reluctant to participate in conservation of their forest resources and tend to forget about their amenity values which results into resource use conflicts. The poverty and ignorance coupled with disinformation are the apparent major causes of this apathy.

Because of general poverty and low literacy and awareness, communities within the MNP look at the forest and other natural resources of the park as a natural bounty and are inclined to make maximum use of them, with no care for sustainability and resource potential (AJ&K 2005a, 69). The project as noted by the Project Manager emphasizes making people realize that conserving and using wisely a forest is much easier and cheaper than growing a new forest on denuded lands. He mentioned that growing a Pine tree to its full productive stage costs at least 15 years and 20,000 Pakistani Rupees (333 US \$) whereas the corrupt junior forest officials in the MNP are selling a mature tree for 500 Pakistani Rupees (8.3 US \$).

8.6. PARTICIPATION SITUATION IN THE MNP

Conservation projects have in many cases dislocated people from their areas and restricted their access to protected natural resources which leads to the rancorous illegal exploitation of these resources by such people. Barnes (1996, 240) mentions a case from Malawi where dislocated indigenous populace developed negative attitudes against the protected natural resources and indulged in their illegal exploitation.

The Protected Areas Management Project of Machiara National Park aims at sustainable use and conservation of threatened natural forest resources with the equal participation of local forest communities without restricting their access to these resources for legal benefits. The Protected Areas Management Project of the MNP is entirely based on community participation through all its phases of implementation and bringing in of various social development and conservation interventions (AJ&K 2005a, 73). Despite all incentives and liberal concessions the overall

participation situation in the MNP, though improved in the second year of the project, still presents a gloomy picture in many villages. In principal, this is a conservation project, depending on equal community participation and empowerment by employing tools of motivation and awareness with a number of incentives. 'Local people, those responsible for development initiatives and their effect on the immediate environment and the surrounding landscape, must participate equally and fully in all debates and discussions' (Maser 1997, 70). However, contrary to its conservation nature local forest communities expect the project to deliver as an infrastructural developmental project.

The local forest community respondents reiterated their demands for construction of metalled roads, water supply schemes, dispensaries, schools and conversion of partial subsidies on alternate fuel sources into full grants etc. which besides being out of its scope are against the principles of participatory conservation. The review of the current and the draft revised project management plan, quarterly progress reports and in-depth interviews with the project management and the key informants from communities show that out of total 28 villages within the MNP VCCs have been formed in 25 villages besides 5 women VCCs. Most of these VCCs are still at the preparatory stage whereas they should have attained the consolidation stage by now.

However, keeping in view the severity of antagonism against the project, especially when we see that the project management and the World Bank Supervision Missions were assaulted in the area, the formation of 25 male VCCs and 5 female VCCs by the end of July 2005 is a landmark achievement. The level of participation and motivation varies among different VCCs depending on the level of education, income status of the members and the contemporary opposition to the VCC in the village. The slow progress in VCC formation and their consolidation is mainly because of the unyielding rather violent opposition of the community during the first year of the project period.

The Project Director noted that social mobilization in the MNP proved an uphill task and it took a whole year to develop linkages with and convince the constructive sections of local forest communities to find an entry point in the domain. The first open meeting in the MNP could

hardly be convened after one year in a strained environment where majority of influential people and local landlords was deadly against the park operations. Although contented with the performance, so far, of the project and forthcoming support for VCCs, the project management complained, however, that many office bearers and members of VCCs still lack the real participatory spirit and keep on putting forward their demands for incentives. Nonetheless, they were hopeful that with the continuous social mobilization and after starting receiving tangible benefits, more people would realize the significance of the project and would participate in their VCC plans. Office bearers of some active VCCs also told of some cases where local people stood against the illegal felling and poaching in the area.

Review of a variety of news reports on the MNP and the PAMP in the local print media for the last five years period revealed that the local political leadership from two major contesting political outfits misinformed the largely ignorant and poor masses of the area and translated personal interests into the anti-park fury. They in fact headed off an equitable dialogue between the project management and local forest communities. There were also a number of pro-park pieces of public statements whereby some local youth vowed to support the MNP operations. Newspapers carried several statements partly from the government/project management and partly from pro-park community members, in which incentives and expected socioeconomic outcomes of the park were highly praised. This raised hopes in the poor communities and among wishful contractors, which later transformed into a conflict between the local forest communities and the park management.

The pace of women's VCC formation has also been slow, while women's participation in the male VCCs, as discussed in chapters three and four, is not possible amidst prevailing male dominated cultural settings. However, women are the major and direct beneficiaries of alternate fuel resources and water and sanitation facilities sponsored by the project. They have to fetch water, collect fuelwood and prepare food for the whole family. Use of LPG burners and fuel efficient stoves would save their time, protect them from multiple diseases caused by smoke and physical fatigue and would afford them cleanliness and leisure hours, which can be utilized in other healthy activities.

The majority of pro-park community respondents endorsed the claims of the project management that the whole process of VCC formation and dispensation of various benefits has been democratic and all clans and communal sections of a village were represented in the VCC. However, there were also some annoyed young supporters of the project who expressed their reservations about the pattern of election in VCCs, where senior positions were held by larger groups disregarding the voices of minority clans. ‘The monopolized management of the VCC by the larger clans has left no room for the equal participation of the smaller groups’, grumbled a young private school teacher and an inactive member of the VCC Serli Sacha.

Interviewed former chairmen and other influential local anti-park respondents in all three Union Councils strongly contended that the project was promoting the weaker sections of the community who were not in a position to deliver due to their subsidiary position in the area. They complained of being ignored in the initial consultative process and VCC formation. The influential adversary group alluded their concern over empowerment of the middle and lower middle class within the MNP and was not ready for power-sharing by sitting in the same VCCs.

In-depth interviews with the park management, anti-park leaders and the led revealed that there was a deep rooted mistrust on the both sides. A sweeping communication gap still exists between the park and local forest communities. They were not amply convinced by the assurance that the project has no intention of depriving them of their genuine concessions from the park resources but provide them with more easily available alternatives to their needs and indirectly to relieve the burden of such uses on park resources.

Anti-park leaders reiterated multiple demands for their support to the project, i.e. all customary concessions and free access to forests and pastures etc. should be guaranteed through an undertaking by the government before a court of law. Their demands also included employment for the local people in the project, construction of metalled roads, and tenure over private forests to enable them sell their timber, subsidies, permission for marble extraction in the MNP area etc. The project management held that these anti-park local leaders were consulted in the initial stage but they sustained their obstinate behavior and irrational demands. ‘Since these demands were out of the mandate and scope of the project, management preferred to finish off waiting for the

support from local political figures and come into direct contact and dialogue with the masses to evolve required support and participation for the project,' noted the Park Planner.

'This methodology delivered and the situation has changed to such an extent that out of 28 villages 25 villages have formed their VCCs. However some VCCs are not fully functional and would need more time and mobilization for their consolidation,' said a VCC president in the village of Bheri. He also acknowledged that opponents were losing their mass support, day by day, and masses have now started listening to the project and local VCCs. There are also a few motivated VCCs that have been effective in the control of damage to the natural resources of the park and brought to the surface many forest and wildlife offences and helped the management in getting to these offenders (AJ&K 2005a, 73). The researcher himself witnessed a case where a VCC president informed the Project Director of massive illegal felling by some locals with the backing of three Forest Watchers in his village and asked for an immediate action against the culprit group and Forest Watchers.

The project has a poorly staffed social mobilization team at the project office in the capital city consisting of three non local members i.e. a female Social Scientist, and a male and a female Social Mobilizer. The project could not appoint the prearranged Community Liaison Officer in the area, due to formal procedural snags, even after lapse of half of the project period. The social mobilization team has not been able to rise to the occasion and was occasionally criticized by the communities for their reportedly non-professional methodology. The Social Mobilizers were responsible for motivating local populace and neutralize opposition to the park by leading open and effective conservation dialogue and reconciliation in the area, but their performance has not been up to the mark for a number of reasons. Almost all pro-park and anti-park community respondents complained that 'Social Mobilizers often prefer to sit in the project office and do the desk work whereas they should spend more time within the communities to develop a rapport with the people'.

The sixty-three year old former Chairman of the Machiara Union Council was among the annoyed local leaders; nonetheless his displeasure was mainly a reaction over slow provision of the promised benefits for the community and the bureaucratic hitches in the project

implementation. He supported, however, conservation and showed a deep concern over the rapid illegal forest felling in the area. He had helped the formation of the first VCC in his village. 'Project management did not keep their word regarding timely provision of incentives for the people. They do not face common masses in the project area, occasionally call office bearers of the VCCs and pass on instructions for the community in a bureaucratic manner,' he complained.

The majority of the office bearers of VCCs and Community Motivators (one in each Union Council) did not seem capable of communication with the hostile community. Even Social Mobilizers, as stated by the community respondents, had a tendency to avoid opponents and holding meetings (not more than thrice a month) in the whole of the MNP within the drawing rooms of the VCC office bearers, thus enlarging the communication gap between local forest communities and the project management. The project was mandated to institute Forest Committees and Wildlife Committees within Village Conservation Committees (VCCs) but, however, it has not yet completed VCC formation.

8.7. ADMINISTRATIVE CONSTRAINTS AND CONFLICTS IN THE MNP

8.7.1. Conflicting sectoral policies

As discussed in chapter six, the MNP comprises 13 demarcated forest compartments of the Kutla Forest Range of Muzaffarabad Forest Division. In accordance with section 4 of the Jammu and Kashmir Forest Regulation No. 2 of 1930, the state forest is the property of the Forest Department, whereas the Wildlife Act, 1975, brings all kinds of wildlife in the state under the purview of the Wildlife and Fisheries Department. The Wildlife Act, 1975 also provides penalties for removal or damage to the vegetation (habitat) and wildlife in the state, but does not, however, possess control over such vegetation. The commercial extraction of timber in prescribed forest compartments has been leased out to AKLASC. Thus, the MNP area suffers a tripartite administration leading to severe conflicts among contrasting sectoral policies that undercut the performance of the conservation project in the area.

The sectoral conflict and non-coordination have caused a great loss to both the Protected Areas Management Project and the forest resources in the MNP. The project management criticized the Forest Department and AKLASC for undermining the project through forest contractors and subordinate field staff, of bad reputation, who were deeply involved in provocation of the anti-park fury in the MNP by spreading baseless rumours as discussed in chapters six and seven.

The park management maintained that conservation of the MNP forest was viewed by the Forest Department and AKLASC against their departmental (or some corrupt official's) interest, and therefore they were covertly involved in intrigues against the park. On the other hand Forest Officers, by dismissing all charges, disputed the proficiency and management system of the Wildlife Department. They held the reportedly undemocratic and non-participatory approach of the Wildlife authorities responsible for the failure of the MNP in convincing the local forest communities regarding objectives and benefits of the project. One Forest Officer argued that since the habitat (forest) was in the possession of the Forest Department a conservation project of such a strategic importance should have been executed by it. He believed that the Forest Department was amply equipped with the required skills and experience of tackling such a huge project in a complex set of communities.

The bilateral working relationship between the Forest and Wildlife Departments has proved to be marred by bureaucratic distrust and political allegations. The Forest Officers stated that many forest offenders joined Village Conservation Committees of the MNP to seek protective cover of the project, whereas the Project Director refuted this statement and maintained that it was the democratic and consultative process at the community level which elected office bearers and the committees were autonomous to register any new member who was eligible under bylaws set for the purpose. He further mentioned that the project management and VCCs try their best to bring in only those people who carry an image of *Mr. Clean* within the community. However, the Forest Department can proceed with legal action against forest offenders within or outside VCCs. 'The Wildlife Department and the PAMP do not protect any forest offender; rather the department has registered several offences and also helped the Forest Department arresting many forest offenders by providing prompt information on forest crimes', he added.

The Industries and Mineral Development Department is a fourth public sector actor in the MNP area whose activities partially impinge upon conservation efforts in the area. The department had granted a 30-year marble extraction lease within the MNP area on 25th February, 1996 to a foreign firm. This lease should have been revoked after the inception of the Machiara National Park on 14th March, 1996 or after the launching of the PAMP on 9th December, 2002 but as mentioned by some public sector key informants, its operations continued with the blessings of the top level bureaucracy until last year and are currently suspended for an unknown reason. Another firm, namely Kashmir-Neelum Marble Factory, also extracts marble from two sites from the forest compartment 11 in the MNP area (AJ&K 2005a, 64). Marble extraction necessarily involves blasting and use of heavy machinery and equipment. This disturbs the wildlife besides initiating landslides and erosion along hill slopes (ibid, 80).

It transpired from views of the project management endorsed by many community key informants that multiple administrations within the MNP forests are a major cause of sectoral conflict in the area. All public and private actors in the MNP are striving to gain effective control over these resources to implement their plans. The PAMP endeavors to protect these resources while others intend to exploit them. Hill (1997) states that a dispute over contested control, access, or use of environmental goods (resource dispute) can be transformed into an environmental conflict only if at least one of the parties to the conflict recognizes an obligation to protect an environmental value and perceives some quantity or quality of environmental good worth protecting.

The Wildlife Department, after the inception of the project, had sought a government approval for placing the forestry field staff under its administrative control within the MNP (AJ&K 2004c, 35). The aim of such arrangement was to dampen the furtive anti-park activities of such staff and ensure they are appropriately trained and involved fully in the implementation of the project. Since the forestry officials posted in the MNP were successful in getting the said government notification suspended by the High Court, till the final judgment on their writ petition, the multiple administrations continue in the area. Many VCC members suggested that 'the overall resource management within the MNP should be dealt by the Wildlife and Fisheries Department,

at least for the project period, to avoid the sectoral conflict and ensure harmony in the project implementation stages’.

8.7.2. Egocentric political intentions

Political factors are said to have affected the working of the Forest Department, and have interfered with the management practices. Cernia (1986 & 1989) talks about the use of political power by big land owners in the Azad Jammu and Kashmir Hill Farming Project, namely to have their lands reforested at the expense of the government, whereas the project was supposed to benefit the small land owners. He also mentions how this power has been used to encroach the crown and communal lands and incorporate them in private property.

To be able to assess the commitment of the political government to such an important conservation project it was expedient to interview both Ministers In-Charge of the Forest and the Wildlife and Fisheries Departments. The Minister of the Forest Department also represents the electorate of the MNP in the Azad Jammu and Kashmir Legislative Assembly whereas the sitting Minister of the Wildlife and Fisheries Department used to be the Minister in charge of the Forest Department until two years ago when the state’s cabinet was reshuffled. The Forest Minister doggedly maintained that the Forest Department had a forest policy whereas all Forest Officers and the Wildlife Minister (former Forest Minister) conceded that the state government had not been able to notify a new forest policy over the last 57 years. The Minister of Wildlife also maintained that it was under formulation and it was not too late to have a forest policy after more than a half century of the inception of the Forest Department. He further argued that since it was a policy document of strategic importance it therefore needed many deliberations.

The Forest Minister, who as the Member of the AJ&K Legislative Assembly (MLA) from the MNP area also holds the position of the Chairman of the Local Advisory Committee, steadfastly criticized the mismanagement and failure of the Wildlife Department in reconciliation and conflict management in the MNP. ‘The Protected Areas Management Project is a total failure and annoyed local forest communities by not addressing their genuine concerns on concessions,’ maintained the Forest Minister. He went on reproving the Wildlife Department and stated that he

never chaired any meeting of the Wildlife Department/PAMP because as an elected representative of the area which includes the MNP he considers this project explicitly against the interest of the local populace.

The fieldwork revealed that the Forest Minister (a landlord in the Bheri Union Council and a retired Public Servant) has family ties with numerous contractors in the area whose interest is not being served by the ban on the commercial felling in the MNP forests. He evaluated the project performance as a failure and said that 'it has caused enmities and fraction among local communities in the name of side benefits and incentives'. He further noted that the MNP management has been avoiding him and had afforded representation in VCCs and study tours to those who were not influential in the area. Thus he spoke on behalf of the influential anti-park people of the MNP who complained that they were being ignored by the project. However, he conceded that this project could go a long way in providing multi-sectoral socioeconomic benefits to local forest communities provided it is executed in a democratic way.

The Project Director and the Park Planner, when asked for the remarks of the Forest Minister, alluded that appointment of field staff of the project is made on the sole recommendation of the concerned VCC. After failing to get some of his political workers inducted in the project, out of merit, the Minister changed his attitude, to please his voters. Before this, he used to support the park operations in the area. In general, the MNP management assessed the role of political leaders, including the MLA/Forest Minister, as distressingly egocentric. The Project Manager PAMP stated with a heavy heart that 'had trees been able to cast votes, their conservation would have been a high priority in the political agenda of our politicians. They have closed their eyes on distressing forest diminution just to please their dishonest political supporters.'

The Minister of the Wildlife and Fisheries Department expressed his satisfaction over the overall performance of the project and said it was making a remarkable progress and the project has full cooperation of the MLA/Forest Minister in community mobilization. He also claimed that the park faced severe resistance but now a majority of the local forest communities are neutral and support the project. He also maintained that the Forest Department officials of bad reputation were involved in infuriating the anti-park groups in the MNP.

In-depth interviews with two Cabinet Ministers (the present and the former Forest Ministers) revealed the ongoing strained working relationship between the two concerned departments in the MNP. These interviews provided a gloomy picture of the political commitment for such a significant cause. Both Ministers exhibited indifference towards the Forest Policy which is universally considered a document of prime importance. The preference for vested political interests and deep seated bad blood between both Ministries and their attached departments emerges from the contrasting views of their Ministers who despite belonging to the same cabinet were not able to speak with one voice. This has fuelled the ongoing confusion and the conflict within the MNP.

8.7.3. Local political divisions and conflicting personal interests

As mentioned in chapter four, all 28 villages of the MNP are politically divided between the two major political parties of the State i.e. All Jammu and Kashmir Muslim Conference (AJ&KMC) and the Pakistan People's Party Azad Jammu and Kashmir (PPPAJ&K). AJ&KMC enjoys comparatively more public support and has won the local constituency to the AJ&K Legislative Assembly thrice out of the last four general elections since 1990. Official statistics of the AJ&K Election Commission show that, out of a total of 102,190 validly polled votes during the last four Legislative Assembly Elections in the constituency, AJ&KMC gained 44% and PPPAJ&K polled 38% of the votes whereas all other parties and independent candidates, in all, gained 18% of the votes. The political divergence in the area has affected the execution of the project. The MNP was designated on 14th March 1996 by the government of AJ&KMC, when the local MLA held the position of the Speaker of the Legislative Assembly. The project proposal for the PAMP in the MNP was devised and approved by the PPPAJ&K's regime in 1998 and 2000 respectively (AJ&K 2003, 2). At that time the local MLA from the ruling party was a member of the cabinet. Hence the project suffered minimal public opposition in the initial approval stage. By the time it was launched after a lapse of two years, AJ&KMC was again in power.

The contractor mafia supporting both the leading political parties had initially not understood the aims and objectives of the project and had hoped for substantial benefits from it. However, they started opposing it after getting to know that the project meant the conservation of the forest and

was against the commercial felling in the MNP. These contractors, who usually finance the political parties, launched an offensive media campaign against the project and spread rumours against the park, especially that the park management was going to revoke the customary forest concessions, close the forest for a hundred years, seize the private lands reforested by the projects etc. This disinformation campaign was successful to such a degree that people of the area rose to rioting against the park. Besides launching two criminal assaults on the Social Mobilizers, anti-park miscreants blocked two World Bank supervision missions from entering the area. The anti-park wrath was further heightened by the corrupt Foresters, Forest Guards and Forest Watchers who did not want this conservation project to run in the area.

The Minister of the Wildlife Department also admitted in his in-depth individual interview that local political rivalry, vested interests and unreputable junior forest officials manipulated the rage against the Protected Areas Management Project in the MNP. The present researcher also saw some joint applications, from the anti-park groups, in the official record of the Forest Secretariat, addressed to the Prime Minister of AJ&K government soliciting him to abrogate this project. The opposition to the MNP seems in part to be more a political stunt of the local political brokers than an issue of socioeconomic or environmental implication.

8.7.4. Internal constraints at the project level

A number of internal administrative constraints also undermine the project's performance. The project is understaffed and according to the Park Planner currently operates at half capacity. The social mobilization team especially suffers severe understaffing where three social mobilizers have to cover 28 scattered villages in a rugged area. Resultantly the pace of social mobilization, formation of VCCs, microplanning and implementation remained slower than required. Despite the lapse of half the project period, the AJ&K government has not approved prescribed administrative staff positions. Even the currently sanctioned positions were created only 14 months after the inception of the project. The detrimental effects of the prevailing red-tape are also responsible for holding the project back.

Environmental determinants such as torrential monsoon rains besides long spell of heavy snowfall in winters and difficult physiography hamper the progress of field activities in the area by frequently disrupting communication links. These environmental conditions coupled with poor economy have a role in the heavy and unsustainable exploitation of forest resources to satisfy the local human needs of timber, fuelwood, grazing, and other non-timber forest produce. This study also confirms that the environmental possibilistic ability of humans, as the most active partner, to modify the environment, is responsible for rapid deforestation in the area.

The Park Planner noted that the possible impact on social mobilization of vested partisan interests, negative forces and short working season in the area were totally ignored at the project identification and planning stages. Local stakeholders and opinion leaders were not taken into confidence. As voiced by both the Park Planner and the Project Director the delayed creation of administrative vacancies for the project besides unanticipated and sadistic opposition by the anti-park forces cost more than a year in starting the project activities regarding social mobilization and VCCs formation in the MNP. The Park Planner and other officers of the project strongly pleaded for the extension of the project up to December 2008 to achieve the physical and financial targets.

8.8. SUMMARY

This chapter has shown that contemporary resource use in the MNP area is unsustainable and local forest communities, the MNP managers and forest managers have contrasting perceptions regarding sustainable forest resource use and community participation. The chapter analyzed the contemporary shortfalls in the social mobilization technique and underlying socioeconomic and political reasons for the ongoing conflict on the resource conservation in the area. The egocentric partisan approach, besides negative propaganda by antagonist contractors and apathy of the elected representatives, has also been highlighted as a major factor undercutting the park operations. The chapter also underlined the adverse effects of conflicting sectoral policies in the area. The distrust and anti-park fury fuelled by vested interests in the area are responsible for holding the project back in many villages and depriving poor people of long and short term incentives from this conservation project.

CHAPTER NINE: UNDERSTANDING CONFLICTS AND CONCLUSION

9.1. INTRODUCTION

This concluding chapter summarizes findings from this study with respect to the employed theories and the degree to which these findings answer the research questions that were developed before the embarkation of field work. The set of theories that have been applied in this study are examined in the light of empirical substantiation gathered from the study area. Based on the findings, recommendations for the government and researchers have been made. This chapter begins by discussing the suitability of two analytical tools for understanding the conflict within the MNP.

The main objective of the study was to identify the level of sustainability of the forest management, the degree of participation, administrative constraints and conflicts (if any) within the conservation of forest resources in the MNP. This study further aimed at providing sound policy recommendations to the authorities for sustainable participatory forest management and conservation in the MNP by safeguarding local forest communities daily life needs from the forest resource through institutional reforms. Perceptions of foresters, project managers and local forest communities on participation in sustainable forest management and conservation, besides underlying causes of deforestation and encroachment in the MNP forests, also needed to be uncovered. The institutional and legal framework for the forestry sector also required assessment to ensure its effectiveness. The current chapter discusses how the participatory sustainable forest management and conservation can be ensured by addressing existing park-people conflict besides sectoral inconsistency within Machiara National Park.

9.2. ANALYTICAL TOOLS FOR UNDERSTANDING THE CONFLICT'S RESOLUTION

'Forest reserves often are the subject of serious conflict between the state and people living near and within forest reserves. A forest reserve may contain land that is essential to the economy of the surrounding areas. The state may allow limited use of forest reserve' (Fortmann 1988, 16). The resource use and conservation conflict in the MNP is a result of a number of contributing

factors, some of which are internal, and others are external. Internal factors are those originating from within the MNP and the surrounding communities whereas the external ones are those originating from outside the project area. They all interact to give rise to the existing resource use conflict. Chapters four to eight elucidate that the contemporary resource use conflict within the MNP stems from the abuse of these resources mainly for economic reasons. Mohammad (1997, 139-140) points out that environmental stress or overuse of common resources exacerbates conflicts that have other root causes. Communities in the environmentally-degraded areas have lower incomes, and consequently degrade the environment further.

The analysis and discussion presented in chapters six to eight substantiate that environmental conflict in the MNP is a conflict of interests and vision between those who intend to conserve the forest resources and those who use or abuse these resources to meet their subsistence and economic needs. It transpires from previous chapters that the Forest Department and local forest communities look at the natural forest resources of the MNP for their economic values (mostly market and subsistence values). The MNP managers consider these forest resources worth conserving for both their economic and amenity values.

The contemporary resource use conflict within the MNP stems from divergent perceptions of state authorities and local forest communities regarding forest utilization and conservation and this depends very much on the kinds of values they attach to these forest landscapes. For instance the Forest and the Wildlife Departments of the state government consider forest landscapes as a means of state revenue generation, ecological balance, recreation and scientific research etc., whereas local people look at them primarily as an economic means to fulfil their daily needs i.e. fuelwood, timber, fodder, wild fruits and vegetables etc.

As outlined in chapter two, Jones (1993, 18) presents a pair of social anthropological conceptual models for analyzing conflicts, namely the harmony model and the conflict model. These models can be used to understand or examine the resource use conflict in the MNP. The harmony model is in line with the MNP and the Forest Department's approach to management whereas the conflict model reflects the practices and reaction of the local forest communities.

9.2.1. Harmony or equilibrium model

Jones (1993, 29-33) notes that the harmony model, also known as the equilibrium model, focuses on the coordination and agreement between different interest groups through consensus or a negotiated and accepted majority decision. The harmony or equilibrium model in the MNP assumes that it is possible to find a balance between different established interests and those differences can be solved by broad based consultation, participation, open dialogue and institutional means. Emphasis is put on co-ordination and agreement among different interest groups. Following this approach the opposing views within the MNP have been tried to be resolved through open dialogue with the communities and opponents. The formation of VCCs through equal participation, provision of far-reaching incentives i.e. endowment development funds, micro-credit facility, income generating training, alternative fuel resources and roofing material to local households is thought to work as an instrument of confidence-building to help resolve conflict between the Protected Areas Management Project and local forest communities.

Technical problems are taken to different levels of fora, to find out an equitable solution, involving the wide range of members i.e. elected representatives, community representatives, district heads of other line departments including Magistracy and Police. These fora include: Village Conservation Committees VCCs, Park Management Committee (PMC), Local Advisory Committee (LAC), Project Management Team (PMT), and finally the highly empowered Project Steering Committee (PSC). This model, however, assumes that technical problems can be solved by using inventories such as demarcation of conservation areas and the formulation of rules of management and eviction of encroachers. The results of such a policy, however, need not be harmonious. The success of this model, as discussed in previous chapters, is questionable for a number of reasons including ineffective legal enforcement measures, understaffing, institutional inertia and political egocentrism.

The assumption of the model that the rules and regulations will be adhered to by the conflicting interest groups did not come true in the MNP. The existence of underlying social and power structures that gave rise to values conflict was overlooked at the project identification stage and it was assumed that established power and social structures would welcome the project interventions in the area. Thus application of a technical solution to the local forest resource

depletion by demarcating the forest as a reserve and launching a conservation project, without assessing the expected resistance arising mainly on account of false fears, disinformation and conflicting economic interests of the local elites, did not bear the desired result. Despite posing no real challenge to the forces in the MNP which lead to the destruction of valuable forest resources, the applied model, mainly based on awareness and incentives, was not welcomed by the local forest communities. Another modus operandi, i.e. use of the force of law and punishment for the forest and wildlife crimes, has also failed to protect these forest resources from abuse at the hands of local forest communities and corrupt junior forest officials. As mentioned in chapter six, the annual number of registered forest cases, by 30th June 2003, within 10 forest compartments (out of 13) of the MNP was 1074.¹⁶ This did not take account of unreported forest crimes at that time. It has also been discussed in previous chapters that there was a general consensus among all pro-park and anti-park respondents that the illegal felling has increased after the inception of the Protected Areas Management Project in the MNP. Therefore, there is a possibility for a larger number of forest cases for the years 2004 and 2005 than 2003.

The empirical findings of the study show that local forest communities in the MNP have failed to respect the rules and regulations governing forest management and conservation for a number of reasons highlighted in chapters six to eight. The amenity values that are perceived by the MNP managers and the Forest Department can not be compared with the economic values that local forest communities are looking for. Consequently there is a conflict in values between the interested parties/actors within the MNP. The harmony model in this case does not seem sufficiently successful to address the fundamental reasons for conflict over forest resource use.

9.2.2. Conflict or direct action model

According to Jones (1993, 30) the conflict or direct action model focuses on incompatibility between different values. This incompatibility leads to conflicts between established institutions and informal interests, which may find expression in action groups, which are not the part of the established organizational structure. This also seems the case of the MNP, where the local forest communities adopted various strategies, which included direct action to further their interests. Strategies involved varied from negotiation and litigation to civil disobedience and even

¹⁶ Unpublished official statistics of the Forest Department for the fiscal year July 2002-June 2003.

violence. Contrary to the presumption of this model the antagonist interest groups, here in the MNP, are not minority groups but rather in the majority. They are generally poor, illiterate and largely dependent on the surrounding forest resources and are misled by the rich and politically powerful local elites against the park. The direct action and violence approach did not help the antagonist group halt the implementation of the Protected Areas Management Project in Machiara National Park.

The project has also been attacked by famous politicians and some lawyers with a political background for violating or threatening the basic needs of local forest communities in the name of conservation. Amongst many anti-park political statements, the most noteworthy statement was by a reputable former President of the state, currently President of a relatively small Political Party, in a leading Urdu Daily Newspaper, whereby he expressed his compassion for the anti-park group and urged the state government not to deprive them of their customary forest concessions in the name of conservation. He was talking to a group of his anti-park party comrades who called him to seek his political support against this project.

The project by employing the tools of incentives, open dialogue with the opinion leaders, clerics, school teachers and ordinary community members, participatory VCC formation and mass awareness campaigns found the entry point in the local forest communities and thus kept on expanding social mobilization in the area. The pace of such expansion, however, remained less than the expectation of the park planner and managers. Since almost all VCCs are represented by the middle and lower middle classes of local forest communities they have not been able to tackle the powerful encroachers and forest offenders in the area.

The severity of the conflict, to some extent, has minimized in the Bheri and Machiara Union Councils. However, Serli Sacha Union Council, despite having VCCs formed in many villages, still expresses stern disagreement with the project. Though no further criminal assault, on the MNP managers, was reported during the second year of the project, antagonism still exists there under the patronage of local power brokers and the contractor mafia. Nonetheless, the conflict model reveals the weaknesses in the project identification, planning and implementation within the Protected Areas Management Project. It exposes the real distribution of power among local

forest communities and the ideological component of planning. It brings to the surface underlying contradictions and mismatch between theory and practice of sustainable forest management in the MNP.

Jones (1993, 32) suggests a possible solution to this controversy by striking a balance between both models: ‘...planning needs to be flexible. It needs to draw in new interest groups as they arise. It needs to develop mechanisms to promote real dialogue. We need to develop the landscape or environment through negotiation rather than uncritically applied rules and technical solutions... We also need to have safeguards for minority interests and subcultures.’ In the case of the MNP the underprivileged minority supports the project whereas the majority group led by the advantaged is putting up firm resistance and demanding its interests be safeguarded. It sounds compelling that by incorporating the voices of all conflicting groups (whether minorities or majority) and safeguarding their genuine interests in the forest legislation, forest management and conservation with its participatory execution conflicts can be averted in the MNP.

9.3. CONCLUSION

The main objective of this study was to examine the degree of sustainability and participation in the contemporary forest management within the MNP besides perceptions of the Forest Officers, the MNP managers and local forest communities regarding sustainable forest management in the MNP. Uncovering any existing conflict among different actors over sustainable forest management in the MNP was the last research objective for this study. The empirical findings of this study reveal that the overall forest management in the MNP is alarmingly unsustainable and relatively non-participatory especially on the part of the Forest Department and local forest communities. The community’s participation can also be characterized as meaningless and weak. The population growth trend in the area also implies that it may keep growing rapidly thus exerting sustained and unyielding pressure on threatened forest resources in the area.

The Forest Department, AKLASC and local forest communities are equally responsible for the rapid deforestation in the MNP by exploiting these forest resources beyond sustainability and the carrying capacity of the local milieu. Resources have been abused without bearing in mind the

needs of future generations and the scale of ecological catastrophe inflicted on the local ecosystem and the adjoining regional, national and international environment. The resource abuse situation in the MNP illustrates within a poor economy a situation of heavy and unsustainable exploitation of forest resources to satisfy the human needs for timber, fuelwood, grazing, and other non-timber forest produce.

It has been recognized that the MNP managers' perceptions of the forest resources combine economic, amenity and security values. They firmly believe that tangible and non-tangible services and products of the local forest landscapes have a vital contribution in the livelihoods of existing and future generations. These forest landscapes play a significant role in regulating climatic conditions and provide experience of esthetical pleasure. The managers are agreed that local forest communities find their cultural and political identity and sense of place with these forests and that demarcated forest compartments act as geographical boundaries between different villages. Therefore, forest conservation is the best way to ensure sustained economic, amenity and security services of these forest resources in the area. However, the Forest Officers' and local forest communities' perceptions of sustainable forest management in the MNP are largely based on economic value. This has led to the resource use conflict that exists in the MNP. A balance is needed between the harmony and the conflict models of conflict analysis in order to find out equitable, democratic and negotiated solutions to resource use conflicts.

The major underlying causes of the encroachment and deforestation within the MNP that were brought out in this study can be divided into governance, institutional and livelihood levels. The Forest Department and the Protected Areas Management Project of the MNP are not only understaffed but their management approach needs to be revamped. The Forest Department's antiquated *command and control* and *policing* approach makes the department quite ineffective and prone to corrupt practices. The Wildlife and Fisheries Department/Protected Areas Management Project, though practising a participatory community development approach to promote sustainable forest management and conservation in the project area, depends on an understaffed and ineffective social mobilization unit. The pace of the provision of alternative fuel and roofing material and other incentives to local forest communities is slower than expected. The study revealed that overall project performance is somewhat hindered by red tape.

The present forest legislation and the *top-down command and control system*, inherited from the former colonial rulers, suffer from pitfalls that prop up massive resource abuse. The system is *ad hoc*, and relies a great deal on the discretion of the Forest Officers. The restriction on people for cutting and selling trees from their own lands demotivated them from planting trees. The convenience of illegal wood and timber extraction from the nearby forest is also a major compelling factor for local forest communities, although in contravention of the wisdom of their faith, which categorically emphasizes a sustainable green and clean milieu. Since the inception of the Protected Areas Management Project in Machiara National Park, illegal felling by local communities has accelerated. This phenomenon is ascribed to the already prevailing mistrust between the forest authorities and local forest communities besides fear of expected forest closure caused by corrupt junior forest officials, antagonist contractors and anti-park political brokers in the area.

The overall management of forest resources within the MNP seems distressingly unsustainable and beyond the carrying capacity of threatened floral and faunal species. The situation needs to be arrested immediately by counteracting the contemporary political egocentrism and institutional inertia. Forestry in AJ&K has traditionally focused on maximization of revenue. Hence other ecological services of forests have received less attention than wood production. The realization of the scale of threat to the natural forest resources in the MNP on account of their unwise use is rare in the area. Although the anti-park sections have an understanding of the tangible and non-tangible short and long term benefits of the MNP forest resources, they do not put it into fair practice, mainly due to vested interests and economic compulsion.

The linkage and dialogue among the triangle of actors, i.e. the MNP authorities, the Forest Officers and local forest communities, is very poor, which broadens the sweeping communication gap and exacerbates the existing distrust among communities. The project has not been successful in convincing the majority of local forest communities that it has no intention of depriving them of their genuine concessions from the park resources but provide them with more easily available alternatives to their fuelwood, timber and other needs and indirectly to relieve the burden of such uses on park resources.

Damage to the natural biological resources of the MNP is deep rooted in the socioeconomic setup of local forest communities. All other threats to the forest resources are secondary and stem from poverty and illiteracy. The project, by starting to provide alternatives to fuelwood and timber for housing, is contributing towards sustainability of the threatened forest resources within the MNP. However, the momentum of the project interventions is much slower than expectations for a number of reasons. It is disappointing to see that the majority of people are still reluctant to participate in conservation of their forest resources and tend to forget about their long term economic and amenity values which results into resource use conflicts. The poverty and ignorance coupled with disinformation are the apparent major causes of this apathy. Because of general poverty, low literacy and awareness, communities around the MNP look at the forest resources of the park as a natural bounty and are inclined to make maximum use of them, with no care for sustainability and resource potential.

Despite all generous incentives and continued liberal concessions the overall participation situation in the MNP, though improved in the second year of the project, still presents a gloomy picture in many villages. The pace of women's VCC formation has also been disappointingly slow. The process of VCC formation and dispensation of various benefits despite being claimed to be democratic was, however, criticized by some annoyed young supporters for their monopolized management.

The main reason for the popular disagreement or weaker community participation in the project is that their perceptions and involvement were overlooked at the project identification and planning stage. The rich political power brokers in the MNP, on the other hand, are the ones who are most skeptical of the form of participation in the VCC operations spearheaded by democratic management approach. These power brokers find it inconvenient to sit with a poor or subsidiary community member within a VCC. They in fact fear that empowering the local poor may tantamount to disempowerment of these power brokers besides upsetting their economic interests in the area. That is why they agitated ignorant poor masses, engineered anti-park uproar and even led violent direct action against the park management. Nevertheless, the participation, at least by some of them, seems indispensable for the success of this project because it is they who promote

deforestation in the area. Thus the MNP managers and VCCs are faced with an uphill task of convincing and roping in these antagonists into the park operations.

The multiple administrations within the MNP forests are a major cause of sectoral conflict and have inflicted a great loss to the both Project and the forest resources in the area. All public and private actors in the MNP are striving to gain effective control over these resources to implement their plans. The PAMP endeavors to protect these resources while others intend to exploit them. The political apathy towards the Forest Policy, neglect of the threats to forest resources, and vested political interests have fuelled the ongoing confusion and the conflict within the MNP. The contractor mafia supporting the both leading political parties in the area by launching disinformation campaign incited the illiterate and poor local people against the project. The anti-park wrath was further heightened by corrupt junior foresters. Harsh climatic conditions coupled with difficult physiography also hamper the progress of social mobilization and other field activities in the area by frequently disrupting communication links.

The livelihood needs of local forest communities came out notably in the study as the fundamental factor that needs to be taken into account to ensure the equal participation of local people in the sustainable forest management and conservation in the MNP. The local forest communities understandably put their livelihood needs ahead of conservation and unless these are safeguarded, it will be difficult to ensure the threatened forest resources are conserved. Sustainable forest management and sustainable livelihoods surfaced in this study as two sides of the same coin.

The study also revealed that local forest communities identify themselves with the local place (forest landscapes) as sons of the soil. The local environment has provided them with an anchor of shared experience of dependence on the available forest resources for their livelihoods and a sense of belonging over time. Resultantly the lived connection between places and the local forest communities have bound them within a temporal dimension i.e. a shared past and a future. But unfortunately, local people's perception of such a binding with their local places (milieu) is mainly bent by their motive to keep exploiting available forest resources without bothering about their sustainability and regeneration.

While the local people understand the ecological and religious importance of forest conservation, their practices are quite contrary to their indigenous ecological knowledge and religious values. The value that they attach to the forest is mostly in relation to their subsistence. They referred to the forest's importance in terms of environmental stability, and several tangible and intangible services and goods they derive from it. So for the local forest communities, the motivation for conservation is to ensure the continuity of those goods and services from the forests. It has nothing to do with reference to any national and international significance or religious obligation. This study demonstrates that the wavering and economically moulded macro-level policies and egocentric politics at the both macro and micro levels besides inter-sectoral inconsistency are entwined and have accelerated the forest destruction in the MNP.

The sweeping mismatch between the theory and practice of sustainable forest management in the MNP has further fuelled rapid deforestation and encroachment. The Forest Department, unfortunately, has no reliable data on the survival of the planted trees. Apparently, official figures on the annual forest depletion in the MNP seem underestimated and suppress the apprehension of the grave state of affairs. Unfortunately, the institutional set up, which should have promoted conservation of forests, worked conversely. Currently, there is no omen to believe that political and bureaucratic actors, responsible for the forest devastation within Machiara National Park, will change their approach if the existing legal snags and institutional inertia continue to prevail.

The situation within Machiara National Park calls for an instant re-thinking of forest management techniques. There is a need for a shift of ideological paradigm by incorporating human behavioural sciences i.e. human geography and political ecology into scientific forestry. I have no doubt in saying that the natural science mode of traditional forestry, where environment is managed in isolation from human behaviour, has failed in the MNP while knowledge of human behaviour and practices needs to attain the central position for understanding ecological management in the given space, place and time frame.

9.4. RECOMMENDATIONS

Forests only will not solve the problems of the MNP's poor, but they have a vital contribution to make, and this requires a range of actions by authorities. Aligned with the empirical findings of this study summarized in this chapter, the following policy recommendations are made to ensure sustainable forest management, functional participation of all actors and efficient conflict resolution by safeguarding genuine livelihoods of the local forest communities in the MNP:

- All forest laws need comprehensive and revolutionary reform to allow for ardent community participation and stewardship in the forest management and conflict resolution over these resources by developing landscapes of negotiation. Legal amendments are also necessary to decentralize granting of timber for household and communal uses and award people tenure on trees grown on their private lands.
- An all-embracing forest policy must be promulgated without further delay. The antiquated forest planning system needs to be revamped by adopting modern Forest Resource Accounting (FRA) methods. This would help by collecting reliable statistics on growing stock, felling, availed forest concessions and forest offences on a periodical basis.
- Commercial felling on the state-owned forests and mineral extraction should be permanently restricted within the MNP to allow the rapid regeneration of the forest resource in the area.
- Since the damage to the natural biological resources of the MNP is deeply rooted in the social and economic set-up of local forest communities, livelihood and landscape approaches should therefore be blended within the integrated poverty reduction, forest conservation, rehabilitation, and development efforts in the MNP.
- The VCC formation should be made more democratic and representative of all groups, classes and interests. Leading anti-park people need to be persuaded to join and lead these VCCs democratically. Avoiding them may not help sustainable forest management and resolution of conflicts over resource use and conservation. VCC members need intense capacity building training in Community Development so that they can take the charge of the project after 2007.

- Regular environmental education and awareness campaigns in the area may help converting attitudes into positive behavioral practices. The project has already provided a basic start by forming nature clubs and training school teachers and clergymen in the MNP.
- To make this project a success, incentives and concessions for forest-related land-use activities need to be re-orientated and reformed to enhance, rather than undermine, the ecological functionality of forest landscapes, and in doing so, to improve the livelihoods of the poor.
- Promotion of stall feeding and more productive livestock breeds would help minimize the number of livestock and conserve the forest regeneration sites in the MNP by reduced grazing.
- A complete ban on the entry of nomads into the regeneration sites of the park should also be imposed to arrest the loss of forest regeneration sites by their livestock. They, however, can be allowed to use non-forested pastures. Imposition of a tax on the use of these pastures by the nomadic herders may be considered to generate revenues for the management and development of these pastures.
- The Joint Forest Management approach needs to be adopted by the Forest Department in the MNP to allow participatory forest management. The villagers, if made forest stewards, can be the effective *public eyes* that cover most of the territory, seeing more than the official guards could ever see.
- The multiple administrations have caused the bitter sectoral conflict in the area. Therefore, the Forest and the Wildlife administrations need to be unified in the MNP by placing the field forestry staff under the administrative control of the Wildlife Department to ensure the efficient resource management in the area at least for the remaining project period.
- Rapid population growth has aggravated the poverty and forest abuse in the MNP. It must be checked and reduced to a sustainable level through motivational methods.

- Landscape and land-use plans should be devised for the villages within the MNP to check the forest land encroachment which thrives in the absence of clear delimitation between the state, communal and private lands.
- Promotion of tree plantation on the farmlands should be integrated into the holistic forest management strategy in the MNP rather than a stand alone activity.
- The social mobilization unit of the project needs to be refurbished by inducting more specialized staff with striking communication skills. The Social Mobilizers must be posted within the communities instead of the project office so that they can develop a sound rapport and initiate a persuasive discourse with the anti-park people to enlist them for VCCs in the MNP.
- To cover the time lag caused by the violent opposition during the first year of the project implementation and to meet the physical and financial targets the Protected Areas Management Project in the MNP needs to be extended till December 2008.
- There is an earnest need for commissioning an in-depth investigation of: relationship between deforestation and population dynamics; impact of the Protected Areas Management Project of Machiara National Park on different gender roles and issues; and lastly the impact of Protected Areas Management Project on livelihood options within Machiara National Park.

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APPENDICES

(APPENDIX-I)

**NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY (NTNU)
FACULTY OF SOCIAL SCIENCES AND TECHNOLOGY MANAGEMENT
DEPARTMENT OF GEOGRAPHY, TRONDHEIM, NORWAY**

SELF ADMINISTERED QUESTIONNAIRE ON SUSTAINABLE FOREST MANAGEMENT: A CASE STUDY ON MACHIARA NATIONAL PARK IN DISTRICT MUZAFFARABAD, STATE OF AZAD JAMMU AND KASHMIR, PAKISTAN
--

Information collected here will be used only for the academic purpose and this questionnaire is to be answered by the local household heads or any elderly family member within Machiara National Park.

Name of the Village & Union Council

Date..... Serial Number

1. Please provide the following personal information

No. of Household Members	Type of Family	Age	Education	Occupation	Sex	Marital Status

Code for Type of Family: Extended-E, Nuclear-N, Sibling-S, Single Parent-SP

Code for Education: Primary-1, Secondary-2, Tertiary-3

Code for Occupation: Peasant- Farmer-4, Self- Employed-5, Government- Servant-6, Wood Cutter-7, Private Employment-8, Overseas Employment-9, Others-10, Unemployed-11

Code for Sex: Male-M, Female-F

Code for Marital Status: Bachelor-B, Married-M, Separated-S, Divorced-D, Widowed-W

2. What is your average monthly family income? *(Please put tick mark in the appropriate box)*

- Less than 4000 PKR
 - Between 4000 and 8000 PKR
 - Between 8000 and 12,000 PKR
 - Above 12,000 PKR
- (NB. PKR for Pakistani Rupees)*

3 a. Do you know about Machiara National Park Project in your area?

Yes..... No

b. If you answered yes, please specify what is the project about?

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

4. In your view, is this project beneficial to the community? Please specify.

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

5. a. Are you in anyway involved in this conservation project?

Yes..... No.....

b. If yes, how? *(Please put tick mark in the appropriate box or boxes)*

Through Village Conservation Committee
Through Village Advisory Committee
Through any other 'group' or 'activity' (please specify)

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

6. How frequently does the Village Conservation Committee or Village Advisory Committee etc. meet? *(Please put tick mark in the appropriate box)*

Weekly or more often
Bi-Weekly
Monthly
Bi-Monthly
Less often than quarterly
Quarterly
Don't know

7. What do you consider to be the socioeconomic and environmental values of forest reserve? *(Please put tick mark in the appropriate box or boxes)*

Plays an important role in rainfall formation and temperature moderation
Controls soil erosion and landslides
A source of fresh drinking water

- A catchment area for large water bodies and irrigation system
- A source of timber, fuel wood and fodder
- A natural habitat for wildlife
- A source of wild fruits and medicinal herbs
- A sink for Carbon Di-Oxide
- A source for research, recreation and aesthetic pleasure
- Other (please specify)

8. a. Is there any incidence of encroachment into the forest reserve in your area?

Yes..... No No idea

b. If your answer to 8a above is yes, what could be the reason? *(Please put tick mark in the appropriate box or boxes)*

- For money making
- For livelihood
- For fuel wood
- For animal fodder
- For housing
- For agriculture
- Other (please specify)

.....

9. How has this project affected women in regards to the following basic household activities?

Activity	Made Easier	Made More Difficult	No Change
Water Fetching			
Fodder Collection			
Fuel Wood Collection			
Any Other (please specify)			

10. How do women of the project area participate in this project?

.....

11. Are you and other inhabitants of Machiara National Park area satisfied with the project managers and the Forest Department?
Yes..... No No idea

(Please specify your answer)

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12. Does this project provide equal participation and benefits to all ethnic groups and both genders?
Yes..... No..... No Idea.....

(Please specify your answer)

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13. What do you suggest to improve the performance of the project while providing more sustainable benefits to the community?

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INTERVIEW GUIDE FOR PROJECT MANAGERS

- 1- What are objectives, mission and vision of Protected Areas Management Project-Machiara National Park?
- 2- What are your perceptions about sustainable forest management / conservation?
- 3- Are all project activities / plans working as they were envisaged to?
- 4- What kind of approach are you applying to achieve the set targets?
- 5- How do you integrate local communities into park planning and management activities?
- 6- What administrative constraints do you face in carrying out the project plans?
- 7- Is there any encroachment or conflict posed by the local forest communities?
- 8- If so, what could be the reasons for encroachment or park-people conflict?
- 9- How do you cope with administrative constraints, conflicts & encroachment etc.?
- 10- What do you suggest to enhance the project output in order to overcome administrative constraints and conflicts between the project management and local forest communities over these forest resources?
- 11- How do you constitute village conservation committees?
- 12- How do they work and contribute towards the success of the project?
- 13- How much have they been helpful for efficient project management?
- 14- How do you improve park planning processes and update management plans?
- 15- How do you ensure surveillance / enforcement and improve park infrastructure?
- 16- What mechanism and methodology have you adopted to conserve the plant species and ecosystems within and near the park area in order to assure a functional ecosystem?
- 17- How do you manage enterprise opportunities and park visitation without environmental harm?
- 18- Do you have any focused public environmental awareness and outreach social mobilization programmes? (If yes, please specify)
- 19- What kind of socio-economic and environmental impacts has this project made or is likely to make in future, on the livelihood of the beneficiary communities?
- 20- How are the project benefits for local forest communities engendered and how do they

- bring any improvement for the living conditions of women?
- 21- How does this project facilitate local communities in regards to the provision of fuelwood, fodder and timber for their household use?
 - 22- What capacity building programmes or mechanism do you have for the field staff and village conservation committees / local community members?
 - 23- Are the existing forest / conservation policies and the enforcement mechanism of the government helpful in achieving the set goals of this project or is any kind of review required therein?
 - 24- How did politicians and other power structures try to influence the designing, implementation and results of this project?
 - 25- How would you ensure the sustainability of outcomes of this World Bank funded project in the National Park, in future, after its completion in the year 2007?
 - 26- How do you see the future park-people relationship after the year 2007?

INTERVIEW GUIDE FOR FOREST OFFICERS

- 1- What is the Protected Areas Management Project-Machiara National Park about?
- 2- What are your perceptions about sustainable forest management and conservation?
- 3- How does the project integrate local forest communities into park management?
- 4- What administrative constraints hamper the project implementation?
- 5- Is there any encroachment or conflict posed by the local forest communities?
- 6- If so, what could be the reasons for encroachment or park-people conflict?
- 7- How do the Protected Areas Management Project-Machiara National Park and the Forest Department cope with administrative constraints, conflicts & encroachment etc.?
- 8- What do you suggest to enhance the project output in order to overcome administrative constraints and conflicts between the project, the Forest Department and communities?
- 9- How much have Village Conservation Committees been helpful for the sustainable forest management and conservation in the MNP?
- 10- How does the Forest Department ensure surveillance within the MNP forests?
- 11- How does the Forest Department conserve the plant species and ecosystems within Machiara National Park in order to assure a functional ecosystem in the area?
- 12- How are the project benefits for local communities engendered and how do they bring any improvement for the living conditions of women?
- 13- How does this project facilitate local communities in regards to the provision of fodder, fuelwood and timber for their household use?
- 14- Are the existing forest laws and the enforcement mechanism of the Forest Department helpful in sustainable forest management and conservation in the MNP or is any kind of review required therein?
- 15- How do politicians and other power structures try to influence the forest management and implementation of the Protected Areas Management Project in the MNP area?
- 16- How do you assess the so far performance of this project and how do you see the future park-people relationship after the year 2007?

**INTERVIEW GUIDE FOR MINISTERS OF THE FOREST AND WILDLIFE
DEPARTMENTS OF AZAD JAMMU AND KASHMIR GOVERNMENT**

(These interviews were conducted at the concluding stage of the fieldwork)

- 1- What is Protected Areas Management Project about?
- 2- Are you satisfied with the progress of this project?
- 3- Is this project progressing and delivering according to the Project Management Plan and expectations?
- 4- What administrative constraints hampered or are still hampering the efficient project implementation?
- 5- There is a robust opposition to this project within local forest communities, how is this project resolving it?
- 6- In your opinion, have the cases of illegal felling and encroachment raised or declined in the MNP after the inception of this project? Please specify the reason(s) to your answer.
- 7- Many people from local forest communities grumbled before this researcher for the negative propaganda of junior forest officials in the MNP against the park plans and also complained about their corrupt practices. Are you mindful of this situation and how are you tackling it?
- 8- What socioeconomic and ecological benefits can this project bring or has brought for local forest communities, especially to the women folk in the area?
- 9- For what reasons, the Forest Department has not been able to formulate a comprehensive forest policy since its inception in 1948?
- 10- How has the local member of the Azad Jammu and Kashmir Legislative Assembly contributed towards the successful implementation of this project?
- 11- How do you see the future park-people relationship after the completion of this project in the year 2007?