DEVELOPING CONSERVATION GOVERNANCE STRATEGIES: HOLISTIC MANAGEMENT OF PROTECTED AREAS IN NEPAL

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DECLARATION

I certify that this work has not been accepted in substance for any degree, and is not concurrently being submitted for any degree other than that of Doctor of Philosophy being studied at the University of Greenwich. I also declare that this work is the result of my own investigations except where otherwise identified by references and that I have not plagiarized the work of others.

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ABSTRACT

The Buffer Zone (BZ) concept has been introduced in Nepal as a key component of the national biodiversity conservation strategy to mitigate the impacts of protected areas on local communities, and thereby reduce adverse impacts of local people on protected areas. Unlike traditional Buffer Zone programmes which are mostly limited to creating a protective layer and/or distributing economic benefits to local people, the Buffer Zone management approach in Nepal integrates livelihoods and conservation issues and their linkages in a more holistic and balanced manner. The programme has been successful in establishing a network of community institutions and in mobilising large numbers of local communities in conservation and community development. The research findings clearly indicate that the current Buffer Zone management approach based on park revenue sharing for community development has been successful in developing positive attitudes among local people towards protected areas. There is also evidence of improvement in the condition of forests and biodiversity in the Buffer Zone and a decrease in pressure inside the protected areas for basic forestry resources. The BZ communities also feel empowered by the Buffer Zone management programme. These outputs suggest that if properly designed, the Buffer Zone management programme can achieve both conservation and development objectives ensuring the long-term integrity of the protected areas.

At the same time, however, the research has also revealed that the existing incentives and institutional arrangements adopted in the Buffer Zone management programme were necessary but not sufficient to address present and potential challenges in Chitwan National Park. There is a need to use additional instruments to demonstrate Buffer Zone management as a viable conservation governance strategy to expand conservation into the areas beyond park boundaries ensuring greater stability of the Park. Any park management strategy seeking to make tangible impacts on conservation, livelihood and governance should have five elements, namely; incentive, empowerment, education, enforcement and integration (IEEEI); and appropriate policy and institutional frameworks to implement them in an integrated way. If issues such as inclusion, equity, empowerment and integration are properly incorporated into the policies and programmes of the Buffer Zone management, the Buffer Zone management strategy adopted in Chitwan could be promoted as a viable model for the sustainable management of protected areas situated in a human dominated landscape.

ABBREVIATIONS

ACA	Annapurna Conservation Area
ACAP	Annapurna Conservation Area Project
ADMADE	Administrative Management Design for Game Management Areas
ANOVA	Analysis of Variance
BCC	Biodiversity Conservation Centre
BCF	Biodiversity Conservation Fund
BNP	Bardia National Park
BZ	Buffer Zone
BZCF	Buffer Zone Community Forests
BZDC	Buffer Zone Development Committee
CAMPFIRE	Communal Areas Management Programme for Indigenous Resources
CAS	Constitutional Assembly Secretariat
CBC	Community Based Conservation
CBD	Convention on Biological Diversity
CBD/COP	Convention on Biological Diversity/Conference of Parties
CBNRM	Community Based Natural Resource Management
CBO	Community Based Organisation
CBS	Central Bureau of Statistics
CECI	Centre for International Studies and Cooperation
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMWG	Collaborative Management Working Group
CNP	Chitwan National Park
DDC	District Development Committee
DFID	Department for International Development

DFO	District Forest Officer
DNPWC	Department of National Parks and Wildlife Conservation
DOF	Department of Forests
FAO	Food and Agriculture Organisation
GEF	Global Environment Facility
HDI	Human Development Index
HHs	Households
HMG/N	His Majesty's Government/Nepal
IBAs	Important Bird Areas
ICD	Integrated Conservation and Development
ICDP	Integrated Conservation and Development Programme
ICIMOD	International Centre for Integrated Mountain Development
IIED	International Institute for Environment and Development
IPAs	Important Plant Areas
IUCN	International Union for Conservation of Nature
KCA	Kangchenjunga Conservation Area
KTWR	Koshi Tappu Wildlife Reserve
LIRDP	Luangwa Integrated Rural Development Project
MDGs	Millennium Development Goals
MEA	Millennium Ecosystem Assessment
MOEST	Ministry of Environment, Science and Technology
MOFSC	Ministry of Forests and Soil Conservation
MOPE	Ministry of Population and Environment
MOCTCA	Ministry of Culture, Tourism and Civil Aviation
NBCC	National Biodiversity Coordination Committee
NBS	National Biodiversity Strategy
NGO	Non Governmental Organisation

NHRC	National Human Rights Commission
NPC	National Planning commission
NPWC	National Parks and Wildlife Conservation
NTNC	National Trust for Nature Conservation
Pas	Protected Areas
PCP	Participatory Conservation Programme
PPP	Park-people Programme
RBAs	Right Based Approaches
RCNP	Royal Chitwan National Park
RNA	Royal Nepal Academy
RRN	Rural Reconstruction Nepal
RRS	Regmi Research Series
SHLP	Sacred Himalayan Landscape Programme
SNP	Sagarmatha National Park
SPSS	Statistical Package for Social Studies
TAL	Tarai Arc Landscape Programme
TAR	Tibet Autonomous Region
TILCEPA	Theme on Indigenous and Local Communities, Equity and Protected Areas
UC	Users Committee
UG	Users Group
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USAID	United States Agency for International Development
VDC	Village Development Committee
WCC	Wildlife Conservation Committee

WCMC	World Conservation Monitoring Centre
WDPA	World Database on Protected Areas
WHC	World Heritage Centre
WRI	World Resources Institute
WTLCP	Western Terai Landscape Complex Project
WWF	World Wildlife Fund
WWG	Wildlife Watch Group

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CHAPTER I INTRODUCTION

"We should keep critical eye on our traditional conservation responses … we should envisage a basic shifting of the gears. Our efforts need to be not just 'more of the same, only more so and better so'. They must reach beyond that, to become better adapted to the paradigm dictates" (Myers, 2002: 50).

I. Introduction:

This chapter critically reviws the evolution of conservation paradigms and the emergence of community-based conservation approaches from global to local contexts and sets the background to the study. Similarly, this chapter also offers rationale of the study and its aim and key research questions.

1.1 Nature conservation as part of human civilization:

Throughout the history of human civilization, people have been making important decisions with respect to the use and protection of natural resources (Ghimire and Pimbert, 1997). It has been observed that both governments and communities give special protection to certain geographic areas having high historical, cultural, spiritual, recreational and material or ecosystem values (Miller, 1999; Graham *et al.,* 2003). The establishment of sacred groves in different parts of the world could be the oldest method of habitat protection and conservation of biodiversity (MacDonald, 2003; Lockwood *et al.,* 2006; Mallarach and Papayannis, 2006).

Besides sacred sites, evidence also suggests that ancient people used to protect certain areas for hunting and other social purposes. The existence of hunting reserves can be traced in ancient Babylonia and Sumer from 1000-2500 BC (Shafe, 1999) to ancient Assyria in 700 BC (Dixon and Sherman, 1990). Similarly, in China and India, some forms of protected areas and species conservation have been in practice for 3000 years (MacKinnon *et al*., 1986; Furze *et al.,* 1997). According to Sri Lanka Conservation Society (http://www.naturesstrongholds.com/ASIA/Sri-Lanka.htm, 2008), the world's first wildlife sanctuary for the purpose of wildlife protection was created in Sri Lanka by the King Devanampiya Tissa in the third century BC. In ancient times, throughout the Indian

subcontinent, protection of forests for elephants or the establishment of 'elephant forests' – known as *abharanyas* – was one of the priority activities of the state (Rangarajan, 1992). In those times, due to the importance of elephants in state affairs, 'elephant forests' were strictly protected and had priority over 'production forests'. The protection measures were so stringent that the killing of wild elephant in ancient India was a capital offence. Similarly in ancient China, the death sentence had been in practice to protect the tea trees (*Camellia Sinensis*) (Furze *et al.,* 1997). This historical evidence suggests that setting aside certain areas and the imposition of strict rules for conservation has been in practice since ancient times.

1.2 Protected areas – an important instrument for nature conservation:

In the modern world, the establishment of protected areas (PAs) has been a main strategy to protect wild habitats and important biological resources. The modern practice of protecting certain natural areas began in earnest in the 19th century with the establishment of Yellowstone National Park in 1872 in the United States. One hundred years later, in 1972, the Stockholm Declaration of the United Nations Conference on the Human Environment endorsed the protection of representative examples of all major ecosystem types as a fundamental requirement of national conservation programs. Since then, the protection of representative ecosystems has become a core principle of *in-situ* conservation, supported by key United Nations resolutions - including the World Charter for Nature 1982, the Rio Declaration 1992, the Millennium Declaration 2000, and the Johannesburg Declaration 2002. As one of the global land use practices, protected areas have now become a key indicator of international commitments to environmental protection such as the UN Convention on Biological Diversity (CBD) and to chapter IV of the Millennium Declaration.

The World Database on Protected Areas (WDPA) suggests that to date there are more than 112,000 protected areas[1] of various IUCN categories. Protected areas cover almost 12% of the earth's surface and are to be found in all continents and in almost all countries of the world (Barber *et al.,* 2004). In addition, there are thousands of 'unofficial' protected areas

[1] The term 'protected area' is used in many countries as a general term that refers to any area or site officially designated to protect certain species, habitats, natural or cultural heritage, etc.

across the globe, managed and sustained by indigenous and local communities, which are yet to be officially incorporated into systems of national protected areas (Pathak *et al.*, 2006). A qualified estimate suggests that forested areas under community conservation regimes could increase the extent of the world's protected area coverage by 25%. Especially in developing countries, the scale and extent of community conservation would be probably two to three times the area under public protection systems (Molnar *et al.*, 2004).

Until the 1970s, the growth in number and the extent of protected area was slow but steady. However, considerable progress has been made in the establishment of new protected areas over the last three decades. The WDPA reveals that more than 90% of the protected areas of various IUCN categories in the world have been established since 1970, most of which have been established in developing countries, especially in the tropics. For example, 76% of the parks in Central America were declared in the 1980s (Redford *et al.*, 1998). Now, 20 out of the top 25 countries having the highest percentage of national territories under protected area networks are from the developing world.

Historically, the driving forces behind establishing protected areas have not been the same in all regions (Phillips, 2004). The objectives of the early US park system were to protect wilderness and beautiful landscapes for outdoor recreation and educational activities (Furze *et al.*, 1997; Ghimire, 1991; Phillips, 2003). In Africa, national parks were primarily established to protect large mammals for safari viewing and hunting (Phillips, 2003; Ghimire, 1991; Crow and Shryer, 1995) whereas in Europe, the common objective was landscape protection for the enjoyment of the public (Phillips, 2004).

During the 19th century, the moral principle behind the conservation movement's thinking was protection from present and private exploitation of public goods (such as minerals, forests and water) for the benefit of the wider public and future generations (Lockwood and Kothari, 2006). Commercialism and immediate local interests were said to cause environmental destruction and governments time and again secured land and resources in the name of the wider interest of the society (Western and Wright, 1994). All human activities other than research and tourism have been legally excluded from most protected areas (Zube and Busch, 1990). Dudley *et al.*, (1999) further suggest that early conservationists tended to view people as a problem for wildlife. Such conservation philosophies based on strict protection helped shape a no people and vast and vacant

approach in the establishment and management of protected areas. Data suggests that approximately 72% of the total number of protected areas, covering more than 58% of the area under protected area networks in the world adopt restrictive and exclusionary management regimes (Chape *et al.,* 2008). Massive efforts to establish strict protected areas over the last few decades have contributed substantially to the conservation of global biodiversity.

1.3 Gaps in protected area management systems:

The seemingly impressive achievement of protected area coverage has not been free from controversy and conflict. The debates generally revolve around ecological adequacy and socio-economic compatibility of the protected area networks.

1.3.1. Ecological inadequacy:

It has been argued that despite the increased coverage over the last 40 years, the current global network of protected areas is not yet sufficient to protect the full range of ecosystems and species on earth (Myers, 1999, Rodrigues *et al.,* 2003; MEA, 2005a). A study by Brooks *et al.* (2004) suggest that less than 2% of some bioregions (tropical dry forests of Mexico, the Mediterranean habitats of Chile, and the temperate grasslands of Southern Africa) are currently protected. Furthermore, a global gap analysis suggests that at least 1,300 species, including more than 700 threatened species, do not receive any protection within existing protected area systems (Rodrigues *et al.,* 2003). Marine and freshwater biomes are even more poorly represented, accounting to just about 0.5% of the total area (Chappa *et al.,* 2008). Recent work by Wood *et al.* (2008) suggests that, given current designation rates for Marine Protected Areas, it may take decades, rather than years, for marine protection to reach the 10% target set by the CBD. The rapid loss of biodiversity is still continuing (MEA, 2005a; Butchart *et al.,* 2010) and the threat of extinction hangs over 10% of known bird species, 20% of known mammal species, 5% of known fish species and 5% of all recorded plant species (Chapin *et al.,* 2000).

Experts argue that the gap in biodiversity conservation is mainly due to a mismatch between protected areas and biodiversity-rich areas. Most protected areas were not originally created primarily for biodiversity conservation and thus have not always been biologically rational

(Barzetti, 1993; Brandon *et al.*, 1998; Bass *et al.,* 2001; Chape *et al.,* 2008). Many areas were specifically declared as a protected area because they were not suitable for human use and were in remote locations with minimum land use conflicts (Adams, 2005). Such a mismatch between the protected areas and biodiversity-rich areas suggests that the global extent of protected areas reveals little about the actual levels of protection afforded to biological diversity (Pressey, 1999; Barnard *et al.,* 1998). Where reserved areas are located in the wrong place they may contribute little to a nation's and the globe's overall conservation goals (Brunkchorst, 2000).

Evidence also reveals that most of the existing protected areas are not large enough to ensure long-term conservation of species requiring a large home range to maintain their genetic viability (Barber *et al*., 2004; Maiorano *et al.,* 2008). Half of the world's eco-regions have less than 10% of their area protected in any way, with three-quarters having less than 10% strictly protected (Jenkins and Joppa, 2009). Although biodiversity hotspots, eco-region approaches and so on have identified areas meriting protection, these existing global conservation prioritization templates are still inadequate to address the threat from the combined effects of human-induced climate and land-use changes (Lee and Letz, 2008). The global protected area systems are far from complete (Brooks *et al*., 2004). According to one study, the overall situation of the protected area system in the world is as follows:

"(i) it is incomplete, and does not cover all biomes and critical species; (ii) protected areas are not fulfilling their biodiversity conservation objectives; (iii) participation of local communities in the establishment and management of protected areas is inadequate; and (iv) protected areas in developing countries are poorly funded" (Dudley et al., 2005:3).

Experience suggests that in order to achieve long-term conservation objectives, conservation actions should be located strategically and appropriately, using suitable approaches and with the right purpose. The establishment of protected areas must be based on the application of the best available data and tools (IUCN, 2005). Various studies reveal that a large proportion of the world's biodiversity is concentrated in a small fraction of its surface area (Bass *et al*., 2001) and by adding just 2.6 percent of the world's land area would bring approximately two-thirds of unprotected species into the global protected area system (Wilson, 2006; Rodrigues *et al*., 2003). It is suggested that there is a need to strategically expand and strengthen the coverage of PAs, particularly in tropical rainforests, and on islands (Rodrigues *et al*., 2003). Proportionally, it is advised to give priority to the expansion of protected areas in South Asia and the consolidation of existing protected area

networks in Africa and South America (Rodrigues *et al*., 2003). The establishment of comprehensive, effectively managed and ecologically representative national and regional systems of protected areas is necessary to fulfil the CBD Programme of Works on Protected Areas and the 2020 biodiversity targets. The CBD suggests that at least 17% of terrestrial and inland water and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, should be conserved by 2020.

1.3.2. Socio-economic incompatibility:

In general, there is a consensus within the conservation communities on what to conserve and where to establish protected areas for the protection of important biological resources. Similarly, the importance of protected areas in securing both biodiversity and human well-being is also well recognised (Wilson, 2006; MEA, 2005a). The role and importance of protected areas in sustainable development has also been well articulated in international policy instruments such as the Convention on Biological Diversity and the Millennium Development Goals (Scherl *et al*., 2004). However, the debate on 'how' to conserve biodiversity is much deeper and wider than the 'why', 'what' and 'where' to conserve. There is a problem in identifying the best methods to achieve conservation (Wilson, 2006). There is also often some confusion between conservation targets, and the approaches needed to achieve them (Redford *et al*., 2003). Arguments for and against strict protection, and the role of local people in protected area management have been central to all these debates. The debate on whether parks are protected for or from people has been widened as more protected areas have been created in human dominated landscapes and economically poorer countries. Furthermore, the debate is now growing in respect of what protected areas can deliver rather than on their creation (Stolton *et al.,* 2008).

The issue of park-people conflict started to emerge strongly when protected areas following 'exclusionary principles' based on the western world view were adopted as mainstream conservation practice in developing countries, without giving due consideration to local contexts. People once living in and around the protected areas were either removed from the area, or restricted in their use of resources in the name of protection.

Globally, the establishment of protected areas based on the wilderness concept have tended to result in the physical and economic displacement of local and indigenous communities (Brockington and Igoe, 2006; Schmidt-Soltau and Brockington, 2007; Bray and Velazquez,

2009). A study by Geisler and de Sousa (2001) suggests that there may be 14 to 24 million environmental refugees as a result of exclusionary conservation in Africa alone. Approximately, one quarter of the total population of Chitwan District of Nepal was evicted during the establishment Chitwan National Park in 1972. In India, some 600,000 tribal people have already been displaced from the protected areas (Ghimire and Pimbert, 1997) and approximately four million indigenous people who have lived inside the protected areas for decades are facing the threat of eviction due to new legal provisions (Kothari, 2004).

Although the livelihoods of the majority of people in developing countries depend on the forestry and wildlife resources of the protected areas, exclusionary approaches do not account for the social ramifications of prohibiting local inhabitants from access to these resources. A study estimates that as many as 150 million poor people, or one eighth of the world's poorest, perceive wildlife as an important livelihood asset (DFID, 2002). Elsewhere, it is suggested that more than 1.1 billion people live within 25 hotspots, and that hunger runs rampant in at least 16 of them (Lele, 2002).

Clashes between local livelihood systems and strict protected areas are almost universal as the rural poor must bear the opportunity costs of total protection (Bass *et al*., 2001; Springer, 2009). A review reveals that as much as 65% of the benefits from forest conservation are global but the costs are local, borne almost completely by the local people in developing countries (Lele, 2002). It can be argued that wildlife conservation is effectively supplied by poor countries with the opportunity cost borne by poor people, for the benefit of national and international elites (Brown, 1998; DFID, 2002; Balmford and Whitten, 2003). Studies carried out in different parks in Asia, Africa and South America reveal that poor farmers living close to protected areas generally lose more than half of their per capita income due to damage caused by wildlife (Mishra, 1997; Distefano, 2005; WWF, 2008;) exacerbating hardship for the people already living around the poverty line. In addition, human casualty is another serious problem where human and wildlife compete for the same habitat. In Kenya alone, over 200 people have been killed by elephants in the last seven years (WWF, 2006). Similarly, on average 300 people are killed annually by tigers in the Sundarbans protected areas situated both in India and Bangladesh (UNEP/WCMC, 2008). It is mostly poor people living around the Sundarbans who fall prey to tigers while collecting honey, wood and fishing inside the protected areas.

However, appropriate measures hardly exist to compensate the losses. The financial compensation received by the villagers from the authorities in some parts of India may amount to just 3% of the perceived annual loss (Mishra, 1997). Elsewhere, compensation offsets only 5% of the livestock loss and 14% of crop losses and is characterised by protracted delays in the processing of claims (Madhusudan, 2003).

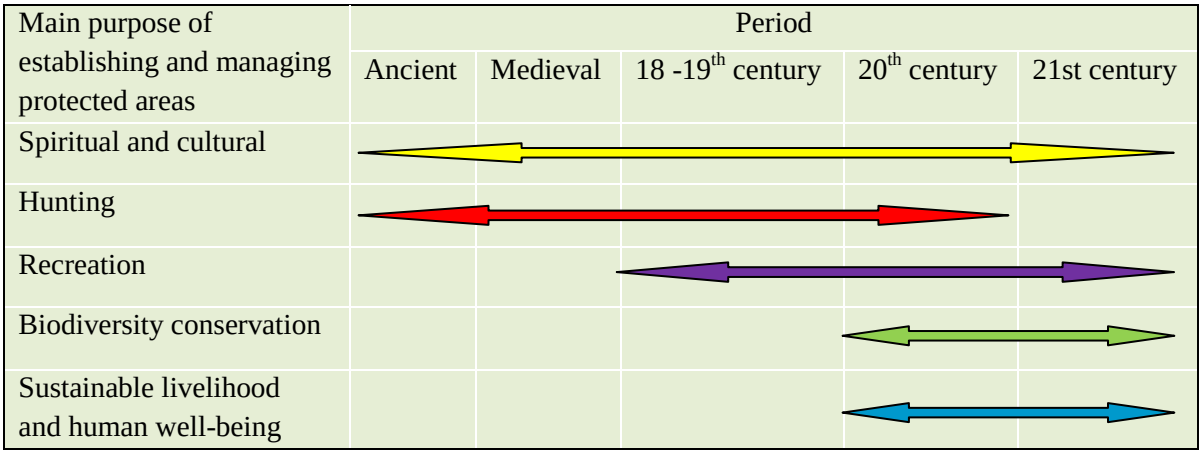
The misfit between local reality and conservation actions has created hostility and non-cooperation by local people with protected area management. A study carried out in mid 80s in India revealed that about 21% of the protected areas had experienced clashes between local people and park staff (Kothari *et al.,* 1998). Similarly, in Tanzania, centralised control over wildlife and forests has removed incentives for local people to conserve biodiversity and resulted in widespread poaching (Swiderska, 2008). It is observed that local residents use covert and overt 'weapons of the weak' to challenge the hegemony of conservation imposed by park authorities (Norgrove and Hulme, 2006:1100). According to Shafe (1999), people reflect their combative attitudes by poaching, destroying government property, blaming the government for wandering large mammals, engaging in pollution and forest fires, extracting resources recklessly and spreading false information.

Protected area systems thus continue to be resisted by poor people who are denied access and rights of use in such areas (DFID, 2002). Continued hostility from such people would be counterproductive to sustainable conservation efforts (Weladji and Tchamba, 2003). Moreover, separating people from nature may buy time in the short-term, but such an approach will not lead to effective conservation (Folke, 2006). Conservation laws resented by the majority of the population would be difficult to enforce (Sayer, 1991). This suggests that although authoritarian approaches to conservation in the developing countries may claim some success, they are becoming increasingly unsustainable (Vermeulen and Sheil, 2007). Colchester (1997) further argues that the strategy of locking up biodiversity in small parks, while ignoring wider social and political realities is largely ineffective. Globally, protected areas under strict management regimes have been a source of park–people conflicts creating problems for attempts to promote local livelihoods in line with the conservation of biological resources in close association. There is a need to redefine our relationship with the natural world (Friedman, 2008).

1.4 Evolution in conservation paradigm:

As the prevailing social, economic and cultural context of the society has largely determined human interactions with nature, conservation paradigms have also been constantly evolving over time since humans started conserving natural resources which they deemed important to them (fig. 1.1).

Figure 1.1: Main purpose of nature conservation in different periods of human history



(Source: *Author, 2010)*

1.4.1. Debate on exclusionary vs. participatory protected area management:

The values and challenges relating to protected areas have been continuously evolving together with our experience with the science of biodiversity protection and the development of policy (UNEP-WCMC, 2008). As social and environmental conditions are deeply and inextricably linked (Adams and Hutton, 2007), conservation is increasingly becoming about managing people and their needs as well as about ecosystems (Barber *et al.,* 2004). The understanding of actors and factors of biodiversity management is increasingly as essential as understanding of biodiversity itself. While since the 1970s, the objective of protected area establishment has been restricted solely to biodiversity conservation, most recently the focus of protected areas has been directed towards the expansion of social and economic benefits that derive from it (Vedeld, 2002; Lockwood *et al.,* 2006). Protected areas have been considered not only as a conservation tool but also as a resource base to realize the reduction of poverty in developing countries (Redford *et al*., 2007). The Vth IUCN World Parks Congress recommended that

"...protected area establishment and management should contribute to poverty reduction at the local level, and at the very minimum must not contribute to or exacerbate poverty" (IUCN, 2005:210).

Moreover, over the last two decades, the top-down exclusionary conservation approach has been increasingly questioned on both ethical and practical grounds (Kothari *et al*., 1998; Ghimire and Pimbert, 1997; Roe *et al*., 2000; Wilshusen *et al*., 2002; Borrini-Feyerabend *et al.,* 2004b; Figueroa and Aronson, 2006; Swiderska, 2008). There is a growing realization that the cost of protection has been largely skewed towards local communities and that such unfair distribution of cost and benefits should be minimized (Borrini-Feyerabend, 2002; Borrini-Feyerabend *et al*., 2004a). The MEA reports also recognise the need to shift the conventional paradigm of 'conservation from people' to one of 'conservation for people'. In a world of global change, empowering and assisting people to manage themselves and the ecosystems upon which we all depend should be an important agenda for all protected areas (Barber *et al.,* 2004).

In recent years, conservation, sustainable use and equitable benefit sharing have been the main guiding principles of protected area management. Although inclusive, participatory and livelihood-based conservation paradigms have been gaining ground since the mid 80s (Zube and Busch, 1990; Charity and Masterson,1999; Borrini-Feyerabend *et al.*, 2004b), the results of such activities on biodiversity conservation have been debatable and inconclusive (Wells & Brandon, 1992; Sayer, 1999; Jeanrenaud,1999; Hackel, 1999; Brown, 2002; Sanderson & Redford, 2003 & 2004; Brockington & Schmidt-Soltau, 2004; Kepe *et al.*, 2004; Roe and Elliott, 2004). Similarly, it has been argued that livelihood linkage is a necessary, but not sufficient condition to ensure sustainable biodiversity conservation (Salafsky and Wollenberg, 2000). Elsewhere, it has been cautioned not to idealize community based conservation as a panacea for the world's protected area challenges (Barber *et al.,* 2004) due to the difficulty in achieving win–win outcomes of poverty alleviation and biodiversity conservation (Adams *et al.,* 2004; McShane and Wells, 2004; Agrawal and Redford, 2006).

As a result, there are still strong arguments in favour of strictly protected areas for the effective conservation of biodiversity (Brandon, 1998; Oates, 1999; Bruner *et al*., 2001; Terborgh, 1999; Terborgh *et al.,* 2002). Many suggest that nature must be protected for its own intrinsic value regardless of its utilitarian values to humans (Victor, 2004; McCauley, 2006). Also, as the essence of ecological consciousness calls for a desire for less and less

(Uniyal and Zacharias, 2001), conservation based on use or on a market driven approach would not work in the long run if the growing demands of people are not constrained. The first priority of conservation agencies should be the protection of threatened nature from the destructive effects of human materialism (Oates, 1999). It has been further argued that a people-centred conservation approach not only dilutes the protection efforts in existing protected areas, it also undermines the creation of more strictly protected areas in the future, necessary for effective conservation of wild biodiversity (Locke and Dearden, 2005). Since parks cannot solve the structural problems of society created by social political systems (Brandon, 1998), they should not be pushed into a situation where their whole rationale for existence is dependent on their ability to reduce poverty in surrounding human communities (Barber *et al*., 2004).

However, Sachs *et al.* (2009) argue that with increasing global challenges, such as population growth, climate change, and over-consumption of ecosystem services, there is a need for further integration between poverty alleviation and biodiversity conservation agendas. Conservation cannot solve poverty, but it can significantly help prevent and reduce poverty by maintaining ecosystem services and supporting livelihoods (Naughton -Treves *et al*., 2005).

'"The question is not about promoting poverty reduction over conservation, but about acknowledging that both poverty reduction and conservation are important objectives and that it is often necessary to address both in order to achieve either" (Fisher et al., 2005: back cover page).

Likewise, Brown (2002) and Adams *et al*. (2004) further stress the need for exploring complementarities and trade-offs rather than conflict between conservation and development. In protected area management, it is generally believed that "*tradeoffs between biodiversity conservation and economic uses of natural resources are inevitable" (*Sayer, 1999:32) and no neutral paradigms exist in conservation (Madhusudan and Shanker–Raman, 2003). Thus, linking conservation and poverty reduction means trying to achieve the best possible outcome, not necessarily a perfect outcome (Fisher *et al*., 2005).

The main challenge to using protected areas to alleviate poverty is how to find the right balance between the desire to live harmoniously with nature and the need to exploit resources to sustain life and develop economically (CBD, 2004). Although unrealistic at the site levels, conservation and sustainable development could be reconciled if protected areas are set in an appropriate institutional context and geographical scale (McShane and Wells,

2004; Fisher *et al*., 2005; IUCN, 2005). Lovejoy (1999) suggests that sustainable ecosystem management essentially equates to sustainable development. Integration of protected areas into wider land use policy frameworks seems important as a balance between biodiversity and livelihood objectives, and is usually best achieved at the landscape level[2] (Bass *et al.,* 2001; Madhusudan and Shanker–Raman, 2003), because it is suggested that landscape level conservation approach provides a broader range of opportunities for trade-offs necessary to address multiple land use objectives (Fisher *et al.,* 2005). Furthermore, managing protected areas as a part of the wider social and economic landscape is becoming increasingly critical due to the changing environmental and economic context of the world, including challenges induced by climate change. IUCN suggests that

"the impacts of climate change on people are felt through climate's impacts on ecosystems...and ...healthy ecosystems are the best defence against climate change, and the extreme climatic events." (IUCN 2009: 49-50)

As knowledge and information on bio-physical situations and socio-economic needs of society are growing, the conservation paradigms have also been changing over time to address the emerging challenges. The values and policies associated with protected areas are now very different from those that prevailed in the past (table 1.1). Mainstream conservation policy now favours socially just conservation (Schmidt-Soltau and Brockington, 2007). In contrast with previous 'island' or 'fortress' protected area management approaches, protected areas are now seen as part of a mosaic of land and natural resource uses and considered interdependent with communities and economies (Chape *et al.,* 2008). Furthermore, a new conservation paradigm advocates a more mainstream approach to biodiversity that moves beyond protected areas and seeks to address root causes of biodiversity loss (table 1.1). The new paradigm of protected area management promotes building a wide range of constituencies that support protected areas, locating protected areas within the wider agenda of sustainable development, and giving greater recognition to the rights, needs and cultures of indigenous and local communities (Lockwood and Kothari, 2005). This shift from the classic rigid to a new adaptive approach is needed to better plan and manage the current and emerging challenges and threats to protected areas (Phillips, 2003).

Table 1.1: Classic and emerging conservation paradigms

[2] Landscape encompasses a mosaic of land uses from cultivation to wild lands over a large geographic area that has been shaped and influenced by human integration over time (Mitchell *et al*., 2005).

	Classic Approach	New approach
Objectives	• Set aside for conservation • Established mainly for spectacular wildlife and scenic protection • Managed mainly for visitors and tourists • Valued as wilderness • About protection	• Run also with social and economic objectives • Often set up for scientific, economic and cultural reasons • Managed with local people more in mind • Valued for the cultural importance of so-called "wilderness" • Also about restoration and rehabilitation
Governance	• Run by the central government	• Run by many partners
Local people	• Planned and managed against people • Managed without regard to local opinions	• Run with, for, and in some cases by local people • Managed to meet the needs of local people
Wider Context	• Developed separately • Managed as "islands"	• Planned as part of national, regional and international systems • Developed as "networks" (strictly protected areas, buffered and linked by green corridors)
Perceptions	• Viewed primarily as a national asset • Viewed only as a national concern	• Viewed also as a community asset • Viewed also as an international concern
Management Techniques	• Managed reactively within short timescale • Managed in a technocratic way	• Managed adaptively in long-term perspective • Managed with political considerations
Finance	• Paid for by taxpayer	• Paid for from many sources
Management Skills	• Managed by scientists and natural resource experts • Expert-led	• Managed by multi-skilled individuals • Drawing on local knowledge

(*Source: Adopted from Phillips, 2003)*

It is now quite evident that protected areas need to be managed by adapting to change rather than attempting to control or ignore the changes occurring in social and ecological landscapes. Such an approach demands a significant shift in policies, institutions and practices. The concepts and structures that guided parks development in the 20th century are inadequate for the challenges of the 21st century (Whande *et al*., 2003). Many conservation agencies may require far-reaching structural transformation, in order to be effective in

biodiversity conservation by adopting more informed, integrated, inclusive and equitable approaches (Cowling *et al.,* 2002). Conservation strategies should address the human and natural processes that influence the ecology of wider areas (Wilkie *et al*., 2008).

According to Budhathoki (2005a), adoption of the principles of partnership, inclusion and linkages is crucial to scale-up conservation initiatives to a larger landscape level. More specifically, 'ensuring benefits for people' is a principle that underpins the new landscape and ecosystem-based conservation approach (Redford *et al.,* 2003; MEA, 2005b). Similarly, extending conservation to the wider landscape requires conservationists to acknowledge the engagement of wider stakeholders in conservation planning and land management (Kesel, 2009). This demands a form of resource governance based on participatory principles in order to achieve multiple objectives of protected areas management in this changing world. In summary,

"...a **MAP** for the future of conservation include 1) **M**ainstreaming biodiversity and ecosystem services in all sectors; 2) **A**dapting to change through diversity, creativity and respect for nature; 3) **P**romoting policies that support equity and rights as integral to conservation" (McNeely and Mainka, 2009: 177).

1.4.2. Shift towards pragmatic conservation approach:

Most conservation organisations now recognise the importance of incorporating people and their needs into conservation efforts (Pimbert and Pretty, 1997; Vermeulen and Sheil, 2007; McNeely and Mainka, 2009). It has been argued that recoupled social–ecological systems would be more viable than decoupled systems for long-term conservation of biodiversity (Hoole and Berkes, 2010). Various push and pull factors have encouraged national and international conservation agencies to opt for a more conciliatory approach to conservation. According to Lockwood (2009:9) the

"...factors driving the change include greater scientific understanding of the role of humans in shaping environments and landscapes; cultural and social awareness of local and indigenous communities; acknowledgement of human rights, especially of indigenous people to their environments; recognition of the rights of people to have a say in decisions that affect them; democratisation and devolution of central government power; and political economic forces leading to more business-like approaches".

Since the 1980s, top–down conservation practices have been remodelled in a number of ways to adjust to a participatory approach and to integrate development and conservation aims (Adams, 2001). Various participatory and integrated projects have been designed to address the needs of park-dependent communities. These projects have been often based on

innovative land use strategies, including biosphere reserves, multiple–use conservation areas, Buffer Zones adjacent to protected areas, extractive reserves, social/community forestry, and a variety of other approaches (Pandey and Wells, 1997).

The projects which are commonly known as Integrated Conservation Development Programmes (ICDPs) (Wells and Brandon, 1992), have been implemented with the aim of reducing the impacts of protected areas to local communities by providing alternative resources and livelihood opportunities. In contrast to conventional conservation practice, ICDPs are based on the premise that human and non-human systems are interdependent and, therefore, conservation and development are inextricably linked (Barrett and Arcese, 1995). Moreover, ICDPs can be viewed as a testimony to the shift in the protected area management paradigm to address shortcomings of exclusionary conservation practices and to some extent to redress the past anomalies in wildlife conservation. It has been taken as

"...an attempt to undo the damage caused by ignoring, limiting, upsetting, and eroding the original (indigenous) natural resource management systems"(Borrini–Feyerabend, 2002:9).

It is also an advance over past conservation practices that ignored rural people (Hackel, 1999) and seeks to re-distribute the costs and benefits associated with natural resource management (Hughes and Flintan, 2001).

The ICD concept, which aims to link conservation with socio-economic development of adjoining communities, was considered so promising in its early stages, that almost every conservation project talked about its potential at the time (Wells and Brandon, 1991). According to MacKinnon (2001:1), ICDPs

"... offer an almost irresistible cocktail of perceived gains such as biodiversity conservation, increased local community participation, more equitable sharing of benefits and economic development for the rural poor".

In principle, it seemed that the concept could offer something to everyone, being easily saleable to a broad range of interests, from local communities to international development and conservation agencies (Wells *et al.*, 2004).

As a result, since the 1980s, most of international development agencies' support for biodiversity conservation has been mainly in the form of ICDPs (Sayer and Wells, *2004;* Van Schaik *et al.*, 2002*).* Many national governments have taken ICD approaches as an opportunity to fulfil their obligations under the CBD and other international agreements and

to tap into international funding for local development. For example, Indonesia embraced ICDP as its main approach to biodiversity conservation covering 40% of the country's conservation estates and with more than US$300 million budget mostly donated from international agencies (Wells *et al*., 1999). Over two decades, billions of dollars have been spent in ICDPs (Terborgh and Boza, 2002) covering all parts of the continents from Costa Rica to Cambodia and from Kenya to India. By the late 90s, there were thought to be over three-hundred ICDPs worldwide (Hughes and Flintan, 2001). In many countries, the ICD approach is a mainstream conservation practice rather than just a paradigm. For example, the government of Botswana allocated 20% of its land in an attempt to bring conservation and development together (Twyman, 2000).

A diverse range of initiatives has been initiated to link biodiversity conservation in protected areas with social and economic development of the adjoining communities (MacKinnon, 2001). The scale and scope of these initiatives ranges from a local NGO-driven programme in a small area to a large scale regional/ trans-boundary project supported by big donors. Some of the well-known projects and programmes based on ICDP principles in the 80s and early 90s were the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) in Zimbabwe, and the Luangwa Integrated Rural Development Project (LIRDP) and the Administrative Management Design (ADMADE) for Game Management Areas, both in Zambia, the Eco-Development Project in India, the Annapurna Conservation Area Project in Nepal, Sustainable Development Reserve (MSDR) in Brazil, and the Community Based Natural Resource Management (CBNRM) programme in Southern Africa. Similarly, protected area outreach programmes have been the dominant model adopted in Savannah national parks of East Africa (Roe *et al.*, 2000).

In generic terms, these projects have been referred to as pro-people conservation, community based conservation, pro-poor conservation, community conservation, participatory conservation, eco-development, collaborative conservation, Buffer Zone management, community based wildlife management, incentive based conservation, etc. Although there would be a considerable degree of overlap between them, it is important to recognize that each can have different priorities (Maginnis *et al*., 2004). There is also considerable diversity in the philosophy and strategies of each of these programmes (Mahanty, 2002), such as conservation through development (CTD), development through

conservation (DTC) and conservation and development (C&D) (Frank and Blomley, 2004; Robinson and Redford, 2004).

These approaches are based on different interpretations of the conceptual linkages between conservation and development, and have been implemented in many different countries in variable guises (Brosius *et al*., 1998; Brown, 2002; Frank and Blomley, 2004). According to Brandon and Wells (1992:560), there are three major strategies that the ICD projects

"..have attempted often in combination: strengthening of park management and/or creating Buffer Zones around protected areas, providing compensation or substitution to local people for lost access to resources; or encouraging local social and economic development."

Besides this, a review of subsequent literature suggests that most of the participatory and integrated conservation programmes hold the following common features:

i) The main aim of the programmes is biodiversity conservation, and development activities have been implemented as a means to achieve conservation objectives (Barrett and Arcese, 1995; Sanjayan *et al.,* 1997;; Hughes and Flintan, 2001; Uniyal and Zacharias, 2001).

ii) Almost everywhere, these initiatives have been either directly implemented or facilitated by local wildlife/park authorities (Gibson and Marks, 1995; Shackleton *et al*., 2002; Budhathoki, 2004 see annex 9 for abstract of this article; Musumali *et al*., 2007; Springer, 2009).

iii) Community level investments are the most common component of the programme (Barrett and Arcese, 1995; Sanjayan *et al.,* 1997; Hughes and Flintan, 2001; Berkes, 2007; Kaimowitz and Douglas, 2007).

iv) The programmes are largely site-specific interventions and focus on substitution and compensation to reduce local threats to conservation (Brandon and Wells, 1992; Larson *et al*., 1998 cited on Franks and Bomley, 2004; Muttulingam and Shen, 1999; Songorwa, 1999; Hughes and Flintan, 2001; MacKinnon, 2001; Sayer and Wells, 2004).

v) The programmes are incentive-focused rather than empowering people (Hughes and Flintan, 2001; Barrow and Fabricius, 2002; Worah, 2002; Balint and Mashinya, 2008; Hemson *et al*., 2009).

vi) The programmes are generally externally motivated and funded (Hughes and Flintan, 2001; Worah, 2002; Frank and Blomley, 2004; Sayer and Wells, 2004).

1.5 Challenges and issues in reconciling community and conservation needs:

The overriding premise of all people-oriented conservation approaches[3] is that local people will participate in conservation endeavours when they perceive and/or receive benefits from the intervention and that biodiversity losses can be minimised through community participation. However, the implementation of participatory conservation on the ground is complex (Twyman, 2000). It is quite difficult to understand and reconcile the interests, needs and expectations of a wide range of stakeholders as well as the complexity of their relationships with the resource and with one another (Geoghan and Renard, 2002; Wells *et al.,* 2004). Targeting the most appropriate members of the community with appropriate incentives has been always a challenge for ICDPs. One report suggests:

"..in ICDPs it is often especially difficult to be fair and effective in targeting communities and individuals for development activities. Should one target the main offenders responsible for most biodiversity loss (turn the poachers into gamekeepers), provide benefits to those who are protecting the forest (reward good behaviour), or target the poorest of the poor (for poverty alleviation and social equity)" (MacKinnon, 2001:3).

Similarly, broad conservation benefit is unlikely to provide a sufficient incentive to offset the wildlife costs incurred by an individual farmer (Barrow and Fabricius, 2002). In addition, there always remains inadequacy in implementation with regard to outreach and inclusion (Musumali *et al.,* 2007). As multiple objectives pull in different directions (Berkes, 2007), the inability to strike a right balance between public and private benefits is likely to affect the success of community-based conservation initiatives (Shyamsundar *et al.,* 2005).

According to Wells *et al*. (1999), there are very few successful and convincing cases, which can show a positive relationship between local livelihood improvement and the conservation of protected area resources. Furthermore, several studies reveal that conservation projects based on incentive and alternatives have many limitations and have

[3] "People-oriented'' conservation means the suite of strategies typically called ``community-based conservation'' (CBC), including integrated conservation and development projects (ICDPs), community-based natural resources management (CBNRM), co-management, and community-managed or indigenous reserves (Brechin *et al.,* 2002).

largely failed to achieve both conservation and development objectives (Brandon and Wells, 1992; Barrett and Arcese, 1995; Brandon *et al.,* 1998; Oates, 1999; Terborgh, 1999; Virtanen, 2003; McShane and Wells, 2004; Blaikie, 2006). According to Murphree (2000), although a few islands of successful examples exist in the sea of initiatives, the performance rarely matches the promise and is sometimes abysmal. Some critics even suspect that success stories of community-based conservation are stories told by the initiating agencies themselves (Blaikie, 2006) and the approach is being oversold (Hackel, 1999). This claim seems valid in some cases such as in India's eco-development project, which was reported to be successful by internal evaluation but refuted by an independent evaluation (Gubbi *et al.,* 2009).

In addition, Redford *et al.* (1998: 461) warn that instead of doing well, development activities promoted by ICDPs could sometimes create a situation of "*death by friendly fir"*' – the destruction of that which they were designed to preserve. For example, activities introduced by community-based conservation to improve living conditions in and around protected areas could induce immigration, resulting in more pressure to the very natural resources targeted for conservation (Noss, 1997). Similarly, in the CAMPFIRE programme area, local people were found using the income derived from trophy hunting to expand their farmland in wildlife areas (Morumbedzi, 1999 cited in Kiss, 2004). These indicate that participatory conservation runs the risk of misplaced priorities and confusion between means and ends (Khadka and Nepal, 2009).

Since larger political and economic processes generally influence the local people's resource use decisions (Terborgh, 1999; MEA, 2005b), incentives provided by integrated projects at the local level are generally insufficient to change conservation unfriendly behaviours of the local communities that are linked to external forces (Gibson and Marks, 1995; Salafsky and Wollenberg, 2000; MacKinnon and Wardojo, 2001). Additionally, economic incentives generated by community-based conservation programmes are not only inadequate to offset the cost (Nuding, 2002), but the distribution of benefits is also generally not equitable and fair among wildlife affected communities (Spiteri and Nepal, 2005).

Evidence reveals that the key reasons for poor performance of people-oriented conservation approaches could be due to a combination of factors such as incorrect assumptions (Barrett and Arcese 1995; Van Schaik and Rijksin, 2002; McShane and Newby, 2004), unrealistic

expectations (Newmark and Hough, 2000; Barrett *et al.,* 2001; Musumali *et al.,* 2007), an unfavourable policy and institutional environment (Songorwa, 1999; Wells *et al*., 1999; Hughes and Flintan, 2001; Uniyal and Zacharias, 2001; Mahanty, 2002; Singh and Sharma, 2004), insufficient benefit to local communities (Gibson and Marks, 1995; Sayer and Wells, 2004; Arjunan *et al*., 2006; Hemson *et al.,* 2009), and a short term approach (Muttulingam and Shen, 1999; McShane and Wells, 2004; Spiteri and Nepal, 2005; Kaltenborn *et al*., 2008). Some critics argue that ICDP approaches can rarely cope with being the ultimate solution to long-term conservation problems of PAs (Muttulingam and Shen, 1999) and to increase the numbers of charismatic but destructive animals (Songorwa *et al.,* 2000). Others suggest that the approach may be as ineffective as the 'fortress' style approach that it has replaced in many parts of the world (Klein *et al.*, 2007).

However, there is a lack of consensus on how to define long-term success as different stakeholders attach different values and priorities to biodiversity conservation (Gruber, 2008). Ried (2002) argues that pursuing synergies between biodiversity, ecosystem management and human wellbeing in a world with highly sectoral institutions, inequitable distribution of wealth, little experience of participatory process and little reward for multidisciplinary research are naturally fraught with difficulties. Furthermore,

"..the success or failure of community-based conservation is highly context specific and depends on many factors— social, cultural, ecological, market and institutional—at both community level and in the broader context" (Swiderska, 2008:33).

Participatory and integrated conservation programmes have also been going through a constant refinement both in assumptions and applications. In a major review of the ICD experience, the WWF observed three generation of ICDPs:

"first generation emphasizing mitigation and substitution, a second generation emphasizing community participation in management and utilization of biodiversity resources and a new generation based on so called landscape approach" (Larson et al., 1998 cited in Franks and Blomley, 2004:78).

Similarly, definitions based on explicit and site specific objectives have been broadened to capture large spatial and wider issues. For example, the definition of ICDP has been broadened from a classic definition such as *"…an approach that aims to meet social development priorities and conservation goals"* (Worah, 2000 cited in Hughes and Flintan, 2001:4) or "*projects that link biodiversity conservation in protected areas with local socio-economic development"* (Wells and Brandon, 1992:557) to more holistic such as

"..an approach to the management and conservation of natural resources in areas of significant biodiversity value that aim to reconcile the biodiversity conservation and socio economic development interests of multiple stakeholders at local, regional and international levels." (Franks and Blomley, 2004: 82)

According to Roe *et al.,* (2000:24)

"..community-based approaches was the dominant conservation and development paradigm in 90s where as 'collaborative'[4] rather than 'community-based' management better describes the current state of play."

Although the understanding of community-based conservation has changed over time, implementation has generally been dominated by the thinking and priorities of conservationists (Jeanrenaud, 1999) and continues to be based on old paradigms (Gibson and Marks, 1995; Hughes and Flintan, 2001; Worah, 2002; McShane and Wells, 2004). In the view of Norgrove and Hulme (2006:1095)

"..the goals of park managers (conservation) are not fundamentally reworked; rather the manner by which conservation goals are pursued is changed."

Despite its widespread adoption, many countries have not yet introduced necessary and adequate legislative and policy revisions to empower community institutions through decentralization and devolution of decision-making authorities (Songorwa *et al*., 2000; Singh and Sharma, 2004; Khadka and Nepal, 2009). Participation of people has been taken as a strategy rather than conservation principle (Vedeld, 2002) and community development merely as a means to conservation (Barrett and Arcese, 1995). Alternative livelihoods and related social activities are primarily designed to compensate social costs – rather than to prevent them (Springer, 2009).

Furthermore, community-based conservation programmes have sometimes been implemented as little more than a token gesture and as a way to buy favour in order to maintain the old, strict management approach for the park (Kaltenborn *et al*., 2008). Elsewhere it has been further criticised that these programmes have helped states to further their authority over settlements and land uses well beyond protected area boundaries, which in some countries may go up to 50km in the name of Buffer Zone management (Neumann,

[4] A partnership in which government agencies, local communities and resource users, non - governmental organisations and other stakeholders negotiate, as appropriate for each context, the authority and responsibility for the management of specific area or set of resources. (Source: IUCN, 1996b cited in Borrini-Feyerabend et al., 2004b)

1997). It is also argued that in many cases in southern Africa, Buffer Zones have resulted in local communities losing access to land and resources due to restrictions being imposed that were not there before (Jones, 2003). All these indicate that many so-called community-based conservation initiatives have been half-hearted, misdirected, and theory-ignorant (Berkes, 2007) and in substance, these approaches are not much different from conventional approaches.

Though promising, community based approaches have been facing criticism from conservationists, social advocates and by developmental economists alike (McShane and Wells, 2004). There is a danger that they will be discredited and discarded altogether (Worah, 2002). Even proponents are coming to realize that collaborative approaches to natural resource management can, but do not always work (Conley and Moote, 2003). Arguments among conservation practitioners have been pendulum-like, swinging radically from returning outright to the old classic conservation approaches (Brandon *et al*., 1998; Teborgh, 1999; Oates, 1999) to the effective adoption of 'neo-liberal' and socially just approaches to conservation (Brechin *et al.,* 2003; Gruber, 2008).

However, the failure of strategies linking conservation and development is not necessarily of their own making (Kiss, 2004; Robinson and Redford, 2004). Wells and McShane (2004:541) succinctly explain that

"..it is not discouraging because of any sign that the principle of linking protected area management with local social and economic development is flawed, however. Rather, there is plenty of evidence that it is the expectations and implementation that have been problematic, with design and implementation mistakes being repeated in apparent disregard of experiences reported from the field."

Limited success is due to a scarcity of knowledge, rather than a complete failure of the community-based approach (Wilshusen *et al.,* 2002). Similarly, another study argues:

"much of the problem lies with external governance regimes (policies, institutions and processes) which have not provided effective support for community conservation., ...conservation organisations (both government and non-government) have often been reluctant to devolve resource management responsibility and rights to communities, build local institutions and institutionalise participatory approaches" (Swiderska, 2008:3).

These arguments indicate that people-oriented conservation approaches have many shortcomings both as conservation instruments and in their implementation and impacts. However, McShane and Wells (2004) suggest that linking protected area management with

the interest of local stakeholders remains one of the few widely applicable site-based biodiversity conservation approaches that offer a realistic prospect of success. Although not perfect, participatory approaches to conservation offer the best hope for generating local support for conservation (Spiteri and Nepal, 2005; Bajracharya *et al*., 2006). Experience from the Annapurna Conservation Area Project, Nepal, has revealed that conservation through development takes considerable time and patience (Brown and Wyckoff-Baird, 1995; Baral *et al.,* 2007). In the same vein, Steelman (2002) also suggests that community-based approaches are resource-intensive in terms of time and money to facilitate their success. Similarly, evidence and experience form eastern and southern Africa and Brazil indicate that although difficult, reconciliation between livelihood improvement and biodiversity conservation is feasible and community conservation remains a viable conservation option (Adams and Hulme, 2001; Barrow and Fabricius, 2002; WRI, 2005; Haque *et al.,* 2009). Moreover, community-based conservation efforts form a critical part of the solutions to global biodiversity and ecosystem issues (Timmer and Juma, 2005) and represent the future of conservation (Horwich and Lyon, 2007) if properly applied at the right institutional and ecological scales through the right institutional mechanisms.

1.6 Expanding institutional and ecological landscapes:

The literature review clearly indicates that existing people-oriented conservation approaches need to be *"both refined and enhanced"* (Newmark and Hough, 2000; Brechin *et al.,* 2002) to resolve a number of "*conceptual dilemmas and design tradeoffs"* (Brandon and Wells, 1992). For this, issues such as spatial and temporal scale, governance, incentives and alternatives, benefit distribution, assessment of conservation impacts etc. should be properly designed and implemented. Since poverty and ecological degradation have both micro- and macro-level origins (Barrett and Arcese, 1995), balancing ecological, economic, social and institutional scales has always been a considerable challenge in terms of the integration of diverse and often conflicting conservation objectives. Furthermore, any conservation strategy must be employed on a scale appropriate to the scale of the threat, and it must be economically and socially viable and responsive to changing conditions (Salafsky and Wollenberg, 2000).

Evidence suggests that integrating conservation and development is easier at large scales (Robinson and Redford, 2004). If properly applied, a large-scale or landscape-conservation approach can balance the ecological, social and economic land uses necessary for sustainable development, including biodiversity conservation, through a process of land-use negotiations among a wide variety of stakeholders (Wells and McShane, 2004).

This means for effective biodiversity conservation and better human wellbeing, protected areas and wider landscapes need to be governed effectively, sustainably and equitably (Balasinorwala *et al*., 2008). Governance[5] is a major factor affecting the abilities of protected areas to achieve their goals and is now accepted as a critical aspect of biodiversity management (Barrow and Fabricius, 2002; Ried, 2002; Dearden *et al*., 2005).

1.7 Governing protected areas: quality and types:

Good governance is a prerequisite for effective protected areas management (UNEP, 2002; Lockwood, 2009). Since the livelihood impacts of protected areas vary with protected area status, management strategies and community involvement in their governance (Coad *et al*., 2008), conservation approaches that do not give attention to governance do little for either conservation or people's livelihoods (Sandker *et al*., 2009). Both the patterns and the processes of governance relevant to achieve these objectives are necessary (Wilkie *et al*., 2008). The CBD Programme of Work on Protected Areas, therefore, calls on Parties to develop and adopt standards, criteria, and best practices for management and governance of national and regional systems of protected areas (Borrini-Feyerabend, 2008).
Protected area governance can be defined as the degree to which protected area decision-making practices and structures follow fair, equitable and ethical principles across an array of different protected area management types and categories (http://conserveonline.org/workspaces/ patools/governance - accessed 05/05/2011).

Evidence suggests that plurality of governance structures is needed, as no single governance structure will be sufficient for effective protected area management and meeting the larger goals of biodiversity conservation beyond protected area boundaries (Dietz *et al*., 2003;

[5] Governance is about power, relationships and accountability. It is about who has influence, who decides and how decision makers are held accountable (Borrini-Feyerabend *et al*., 2006:115)

Barber *et al*., 2004; Borrini-Feyerabend, 2008). Broadly, there are four types of protected area governance systems currently under practice (government managed, collaborative, private, and community conserved) (Borrini-Feyerabend *et al.,* 2006). Also, at least twenty four management and governance options can be anticipated, if these four governance systems are put against the matrix of six IUCN management categories (Borrini-Feyerabend *et al.,* 2004b) (table 1.2). Each of these has different strengths and weaknesses, but all have a place in diverse protected area systems (http://conserveonline.org/workspaces/patools/governance – accessed 05/05/2011).

The wealth of governance options provides protected area policymakers with the opportunity to develop a mixed 'portfolio' that effectively responds to both conservation imperatives and the local socio-economic, political and cultural contexts (Barber *et al.*, 2004). It has been further suggested that protected areas managed on the basis of a range of governance types can achieve biodiversity conservation, address gaps in PA systems and improve landscape connectivity, and encourage higher levels of societal engagement and equity in protected area management (IUCN, 2005; Borrini-Feyerabend *et al.,* 2006). Lockwood (2009) eloquently explains the reasons for an upsurge in the interests and attention of polycentric regimes of protected area governance.

Table 1.2: Protected Areas Governance Matrix

Governance types / PA categories	Government Managed Protected Area			Co-managed Protected Areas			Private Protected Areas			Community Conserved Areas	
	Federal or national ministry or agency in charge	Local/municipality ministry or agency in charge	Government delegated management (e.g to an NGOs)	Transboundary Management	Collaborative management (various forms of pluralistic influence)	Joint management (pluralistic management board)	Declared and run by individual land owner	Declared and run by non profit organizations e.g NGos, universities	Declared and run by for profit organisations individual land owner	Declared and run by indigenous people	Declared and run by local people
Ia. Strict Nature Reserve											
Ib. Wilderness Areas											
II. National Parks											
III. Natural Monuments											
IV. Habitat/Species Management											
V. Protected Landscape/Seascape											
VI. Managed Resource Protected Areas											

(Source: Borrini-Feyerabend et al., 2004b)

As scale is an important consideration in governance setting (Borrini-Feyerabend *et al.*, 2006), a careful analysis of institutional or governance arrangements is important in order to achieve effective conservation outcomes, both for biodiversity and for people. Evidence from Africa reveals that a mismatch between social and ecological scales imposes costs on one community and benefits on another (Shyamsundar *et al*., 2005). An effective protected

area system thus needs wide diversity in institutional approaches and calls for creating complex, nested systems of governance for protected areas with different institutions having different responsibilities at different scales (McNeely, 1999). For example, local governance arrangements are often well suited to the protected areas of limited size and specific local values, whereas arrangements at the ecosystem level, more appropriate to large protected areas, tend to engage actors of different backgrounds and values (Borrini-Feyerabend *et al*., 2006). Lockwood (2009) suggests that in order to ensure consistency in objectives and implementation of policy and management instruments, strategic direction should be vertically consistent with arrangements at other governmental levels, and policy and management instruments should be horizontally consistent across protected area organizations. Additionally, the governance settings at different levels need to have compatible rules and effective communication to share a common conservation vision by society at large (Borrini-Feyerabend, 2008).

It is suggested that not only the types but the quality of governance is also crucial to improve outcomes for both biodiversity and livelihoods (Borrini-Feyerabend *et al.*, 2006, Swiderska, 2008). The types and quality of protected area governance will influence the achievement of management effectiveness, equity and sustainability of protected areas (CMWG and TILCEPA, 2004). Furthermore, good governance demands equity, which means not only fairness in the present and future arrangements but also re-dressing past inequalities (Barber *et al*., 2004). Conservation must embrace moral and ethical principles, which start by "*doing no harm*", especially to local people who depend on natural resources for their livelihoods (CMWG and TILCEPA, 2004:2).

Ethics and rationality provide twin bases to support the identification of good governance principles (Lockwood, 2009). Graham *et al.* (2003) suggest that a universal set of principles for defining good governance[6] can be fashioned and that these principles can be usefully applied to help deal with current governance challenges in a protected area context. The general principles for good governance viz. legitimacy and voice, accountability, performance, fairness and direction have also been recognised by the Vth World Parks

[6]Characteristics of good governance: Participation, Rule of law, Transparency, Responsiveness, Consensus orientation, Equity, Accountability, Strategic vision.
(Source: Governance for sustainable human development - A UNDP policy document- Good governance and sustainable human development. Available at: http://mirror.undp.org/magnet/policy/chapter1.htm, (Accessed: 18 Jan 2010).

Congress to promote good governance in protected area systems (IUCN, 2005). Elsewhere, a recent study by Lockwood *et al.* (2010) presents a set of eight good governance principles. According to them, legitimacy, transparency, accountability, inclusiveness, fairness, integration, capability and adaptability are eight principles which provide normative guidance for the establishment of good-practice multi-level Natural Resource Management (NRM) governance, including biodiversity conservation.

Furthermore, according to Swiderska (2008:134), good governance principles of protected area management are:

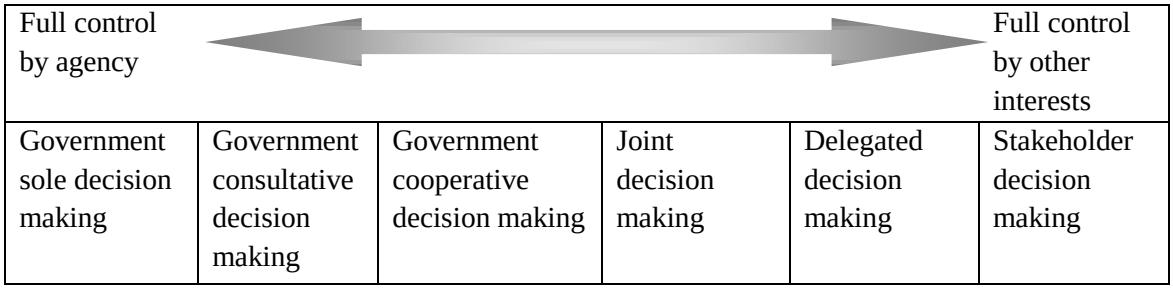
"recognising pre-existing customary rights to land and resources; sharing benefits fairly so that poor communities do not bear just the costs of conservation; enabling active community participation in PA management (even if use is not allowed); creating shared or devolved management responsibility; and giving communities compensation equal to the loss of livelihood, income and opportunity where exclusion is the only means of protecting critical biodiversity."

The choice of governance solutions needs to enhance social justice rather than economic efficiency (Paavola, 2007); and should help link between conservation and human rights and the fight against poverty (Borrini-Feyerabend, 2008).

Governance is different to management. According to Borrini–Feyerabend (2008:1) "*while 'management' addresses what is done about a given protected area or situation, 'governance' addresses who makes those decisions and how"*. The central tenet of governance is authority and control (Brechin *et al*., 2002). But governance is not only power, it is also responsibility. Many protected area governance issues revolve around the balance of responsibilities between protected area agencies and other actors (Borrini - Feyerabend *et al*., 2006). However, the institutional landscape setting for biodiversity conservation has been changing. Now, the state government is not the only actor that can foster improvement in the governance of protected areas (Borrini - Feyerabend *et al*., 2006) and wider landscapes. As the power, influence and resources of the government have been flowing to all directions – upward to super-national institutions, outwards to private sectors and NGOs and downwards to local communities (Phillips, 2008), the role of other actors such as local communities, private sectors, NGOs and international agencies are also increasingly critical for good conservation governance. Contemporary modes of protected area governance now range from the traditional exercise of government authority, through to a wide variety of partnership, co-management and informal arrangements involving

multiple agencies, NGOs, communities, and individuals (Lockwood, 2009) (See also fig. 1.2).

Figure 1.2: Options for governing protected areas



(Source: Dearden et al., 2005)

1.8 Protected area governance to landscape based conservation governance:

Good governance of protected areas alone is not enough to ensure long-term conservation objectives. For example, conservation of functional populations of species and functional ecosystems demands the management of much wider areas beyond the boundaries of protected areas (Wilkie *et al.,* 2008). The extension of conservation activities into such landscapes can be termed 'mainstreaming' (Redford, 2005:69) which means

"...internalising the goals of biodiversity conservation and the sustainable use of biological resources into economic sectors and development models, policies and programmes, and therefore into all human behaviour" (Petersen and Huntley, 2005:2)

A review of GEF projects reveals that mainstreaming biodiversity into other development sectors is vital to achieve the CBD objectives (Huntley and Petersen, 2005). When conservation strategies encompass "*protecting beyond protected"* (Ried, 2002:314), issues of governance of wider landscape resources will also have a strong influence on the conservation outcomes (Hulme and Murphree, 1999; Barrow and Fabricius, 2002; Painter *et al*., 2008).

However, governance in the wider landscape is considerably more complex, as primary land-use objectives within these larger spaces are multiple and often contrary to those needed to conserve biodiversity (Wilkie *et al.,* 2008). Moreover, managing public involvement meaningfully at the landscape scale, to get the right people to be part of the

decision making at the right time and to manage the process of creating consensus amongst very disparate groups would be enormously difficult (Younge, 2002).

This indicates that the expansion and integration of institutional and ecological landscapes makes biodiversity governance a vast and complex field (Swiderska, 2008) that extends beyond protected area governance. Effective conservation governance at the landscape level requires good governance of the 'protective landscape' as well effective conservation governance in the wider 'production landscapes' such as farm land, pasture land, wetlands and production forests. When the responsible stakeholders outside a protected area get the opportunity to engage with the resource governance process, the likelihood of embracing conservation-compatible land-use practices will increase (Shafe, 1999). Recognising the legitimacy and importance of a range of governance types would help address gaps in protected area systems and enhance public support for such areas (IUCN, 2005).

Implementing conservation across multiple scales requires unprecedented levels of coordination among different stakeholders at different levels of governance (Poiani *et al*., 2002). Although sometimes politically challenging, cooperation across different governance types will be increasingly important to address large-scale conservation issues (http://conserveonline.org/workspaces/patools/governance - accessed: 05/11/2011). The governance setting largely depends upon formal mandates, institutions, processes and relevant legal and customary rights (Borrini - Feyerabend *et al*., 2006). The achievement of conservation goals requires a set of governance processes that allow state, society (including local and indigenous communities) and markets to operate in mutually inclusive ways (Hulme and Murphree, 1999). Moreover, good conservation governance is about the responsible exercise of conservation mandates by conservation actors in order to meet conservation objectives (Graham *et al*., 2003).

Similarly, a good landscape conservation governance process is one in which stakeholders have the opportunity to really understand each other's needs, develop a range of alternatives for how to address those needs, and reach mutually agreeable solutions. This means the promotion of democratic decision-making will be a necessary step to effective wider landscape conservation (Wilkie *et al.*, 2008). The issue of subsidiarity, which means that decisions should be taken at the level closest to the issue at stake, is vital for effective conservation governance. Rio Principle 10 also states that "e*nvironmental issues are best*

handled with participation of all concerned citizens, at the relevant level" (McNeely and Mainka, 2009:184). Situating decision-making power closer to the place of resource use and making decision-makers accountable for the repercussions of their decisions creates the potential for more flexible and prudent resource management *(*Bradshaw, 2003).

Studies suggest that devolution of resource rights and management responsibility to local communities are some of the fundamentals for the success of biodiversity governance at the local level (Murombedzi, 1999; Whande *et al.*, 2003; Swiderska, 2008; Berkes, 2007; Nelson, 2007). Moreover, good conservation governance should create mechanisms by which different stakeholders collaborate with each other to achieve common conservation goals while satisfying their own needs. It is suggested that an effective conservation regime should adopt a '3Ps' policy: namely, "*pluralism in governance; participation of local communities and indigenous peoples; and partnerships with other development agencies and private sectors*" (IUCN, 2009: 87).

The difficulty of effective conservation governance at the landscape level should be recognized in the design of conservation strategies. Successful conservation governance models to address large scale conservation issues are scarce and always politically challenging (http://conserveonline.org/workspaces/patools/governance - accessed: 05/11/2011). Some even argue that a landscape conservation approach based on eco-regional planning reduces the participation of communities and increases the role of state agencies and national NGOs (Gezon, 2003). Furthermore, Ribot (2004) cautioned that a landscape approach to environmental management should not be used as one more excuse to maintain or re-centralize control over natural resources. However, it is contested that site-based activities in partnership with local communities would always remain critical to protected areas (Wells and McShane, 2004), "*as no single actor has the resources or knowledge to respond to the complexity of current conservation problems and/or opportunities"* (Lockwood *et al.*, 2010:5). Also, scaling up conservation activities to the landscape level, on the contrary, would be an opportunity to provide a framework for helping groups of stakeholders agree on how to balance the trade-offs inherent in land use (Maginnis *et al.*, 2004).

The Natural Resource Management (NRM) movement as a whole has been going through active governance innovation and experimentation (Lockwood *et al.*, 2010). A new

paradigm strives to integrate biodiversity conservation into thinking and action at all levels of intervention and across all sectors (Huntley and Petersen 2005). This means that conservation paradigms are shifting from issues of management to issues of governance (Painter *et al*., 2008; Berkes, 2009) and from government driven to governance focused. The recognition of the possible role, capacities and comparative advantages of social actors, besides governmental agencies, has been growing in protected area governance (Borrini - Feyerabend *et al.*, 2006) and in biodiversity conservation. As the future of the world's biodiversity will depend on our choices and actions (Raven and Cracraft, 1999), conservation practices should be diverse, dynamic and adaptive. Similarly, Lockwood (2009) advises that the design and implementation of conservation policies and management instruments need to take account of, and be suited to, the particularities of local conditions. Since uniform conservation strategies will not work, and designing protected areas and park governance regimes appropriate to the local context is crucial to sustainable conservation (Naughton - Treves *et al*., 2005), a proper understanding of local socio-economic, institutional, policy and ecological settings is essential to identify, develop and implement an appropriate conservation strategy.

1.9 Rationale of the study:

The literature review in the above sections suggests that striking a good balance between the long-term objectives of protected area management, and the diverse and often conflicting interests of various stakeholders, including the immediate needs of the communities living in and around protected areas are some of the most pressing challenges facing conservation managers all over the world. In poorer countries such as Nepal in particular, protected areas are more difficult to manage, as the majority of people depend on park resources to sustain their livelihoods. Half of Nepal's protected areas embrace settlements and farmlands and all are surrounded by areas of high population density. More than 1 million people live in and around the protected areas of Nepal. In reality, places without human footprints are difficult to find in Nepal.

The management of the park-people interface is crucial for both human well-being as well as conservation of biodiversity and ecosystem services. Thus, in Nepal, the Buffer Zone (BZ) concept has been introduced as a key component of the national conservation strategy to mitigate the impacts of protected areas on local communities, and thereby reduce the

adverse impacts of anthropogenic pressure on protected areas. The BZ concept is based on the notion that the future of conservation depends on the scaling-up of conservation efforts beyond protected area boundaries and on the widening of conservation constituencies. The BZ management programme in Nepal focuses on the formation of various community institutions and their mobilisation in developing an alternative natural resource base in the Buffer Zone, and on the improvement of livelihood opportunities for park-dependent communities.

In Nepal, the Buffer Zone concept has been widely adopted (in eleven out of sixteen protected areas) since its introduction at the beginning of 1995. The initiative has been identified as one of the means to achieve people's participation in protected area management (HMG/MOFSC, 2002). However, the programme is at different scales and stages of implementation in different protected areas. Although it has been a widely adopted conservation strategy, systematic and scientific study of its strengths and weaknesses has not been assessed yet. Overall, achievements of the Buffer Zone programme in Nepal are inconclusive and the extent to which meaningful progress has been made towards broadening the conservation constituency is unclear.

The Buffer Zone management programme of Nepal incorporates a number of innovative and unique policy provisions and practices. These provisions as stated below offer an excellent opportunity for innovative and useful research:

- Nepal is possibly the only country in the world that has well developed Buffer Zone management regulations and guidelines that are entrenched in legislation.
- It is the only country in Asia, if not in the world, where 50% of the total incomes of the National Park (core area) have been recycled for the purpose of community development activities in the Buffer Zones.
- The programme is restricted to revenue sharing with the communities, to develop and manage alternative livelihood resources in the Buffer Zone, in order to reduce pressure on the critical park resources.
- The programme is based on the principles of indirect and group benefits, rather than sharing park resources and management responsibilities.
- Registered community-based organisations (under the overall supervision of Park authorities) have been entrusted to manage the Buffer Zone programmes, rather than international or national NGOs, or locally elected political bodies.

Furthermore, various groups interact differently with the protected areas as their needs are very diverse. Decisions and actions taken far away from the local boundary can make significant impacts on protected area management. In this context, the Buffer Zone management programme offers an opportunity to examine whether or not partnership between people and park at the local level would be sufficient to ensure effective long-term management of protected areas and sustainable biodiversity conservation.

The study also has a wider relevance. In recent decades, widening constituencies to build public support for biodiversity conservation has become a global agenda and one of the main strategies of many national and international conservation agencies all over the world. The World Parks Congress (2003) and the COP 10 of the CBD held in Oct 2010 also emphasised the need for better integration of conservation and development. Thus, this research will be useful in the development of an appropriate conservation governance strategy to broaden the constituency of public support for conservation and enable more effective protected area management.

Another reason for this particular study is the researcher's personal engagement in the Buffer Zone programme in Nepal. With the initiation of the United Nations Development Programme (UNDP) supported 'Park - People Project' in 1995, Nepal embarked on the BZ management programme. This researcher's engagement as Programme Manager/Advisor of the project from 1996 to early 2002, gave him first-hand experience of initiating and institutionalising Buffer Zone management initiatives. As a programme manager, he was responsible for designing and managing integrated conservation and development programmes and projects in seven protected areas of the country in order to develop park–people partnerships in conservation. During the programme's implementation, it was evident that public participation was vital for conservation. However, it is also complex and challenging to bring together diverse interest groups for long-term conservation initiatives. Buffer Zone management is an ambitious and controversial prospect (Paudyal, 2007). Studies from elsewhere indicate that successful working examples of Buffer Zone management as an integrated conservation strategy are quite scanty (Wells and Brandon, 1992; McShane and Wells, 2004). There is no general agreement among conservation agencies regarding what is, or should be, the role of Buffer Zones (Martino, 2001). This has led to an intense personal and professional mission to examine Buffer Zone policy and practices in an in-

depth and systematic way, in order to establish whether or not the concept really is a viable conservation model for Nepal.

The (Royal)[7] Chitwan National Park (CNP) (fig. 1.3), which is situated in the lowland Terai south to Kathmandu, was selected as the study area. The Park is significant and unique in terms of its biological richness, which includes many globally endangered animal species such as the greater one-horned rhinoceros (*Rhinoceros unicornis*), tiger (*Panthera tigris)*, and the Asiatic elephant (*Elephas maximus*). This is Nepal's first national park and is also a World Heritage site, which receives more than 100,000 visitors annually. The intensity of park-people conflict is very high, since more than 200,000 people live within a few kilometres of the park periphery. The Chitwan National Park is the highest earning park in the country, and since the declaration of its BZ in 1997 the park has already recycled more than US$ 3.3 million (US$1=Rs.75.00) of its revenue to community development activities in the BZ (DNPWC, 2009).

1.10 Aim and objectives of the study:

The aim of the study is to develop an appropriate management strategy to broaden the conservation constituency of protected area management in Nepal by analysing the Buffer Zone programme currently under implementation by the government and other development agencies.

It has been assumed that reducing the dependency of local people on protected area resources and linking conservation benefits to local development will result in harmony between protected areas and people, and thereby help long-term biodiversity conservation. This research attempts to test the validity of these assumptions in order to identify whether the BZ programme of Nepal can be considered as a viable conservation strategy for both current and wider application. While doing this, the study examines the features of Nepal's BZ programme from policy through to practice, and will evaluate its effectiveness over its initial six-year period from 1996-2003. The research is primarily aimed at enhancing the understanding of the current conservation model and to suggest necessary policy and practical strategies based on empirical (case study) evidence, and other global experiences

[7] The word ‘royal’ has been stripped from all protected areas after the country became a republic state in 2008.

to widen conservation constituencies for the long-term management of protected areas. In summary, this research examines the conceptual, practical and management aspects of BZ initiatives in Nepal. The research offers new insights into the institutional and community empowerment issues of the BZ management, the effectiveness of the BZ programme in biodiversity conservation and sustainable land-use planning at the landscape level, and the contribution of the BZ programme to good governance and rural livelihood promotion.

Specifically, the research seeks to answer the following three key questions to test the validity of the above assumptions. The answers to these three questions are explored by asking various direct and indirect sub-questions to the persons representing User Committees (UCs), User Groups (UGs) and BZ households.

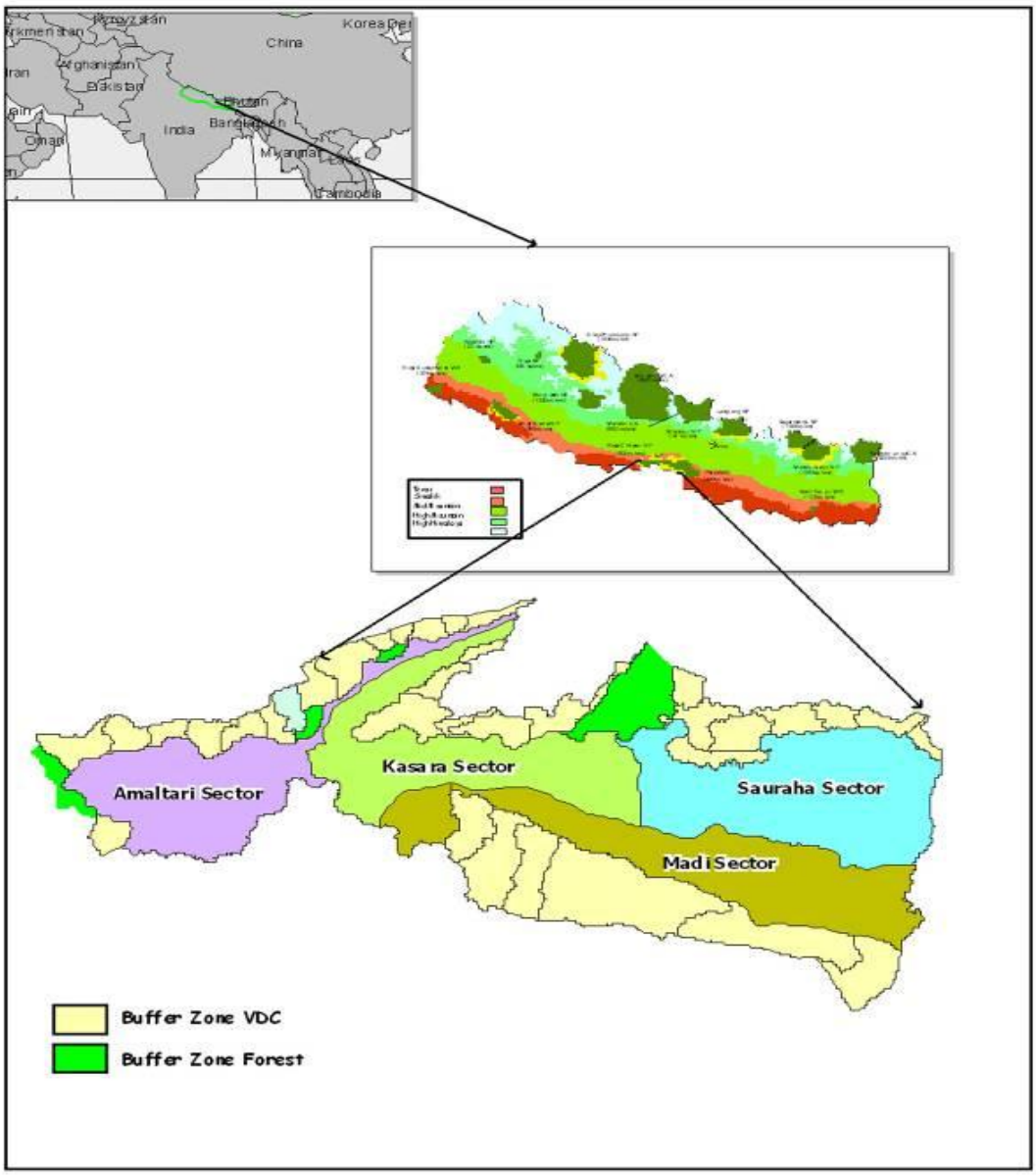
a) Has the BZ management programme/approach contributed to the biodiversity conservation objective?

The impacts of the Buffer Zone management programme on biodiversity are assessed by asking questions related to status of illegal activities such as wildlife poaching, grazing inside the park etc, the status of forests in the Buffer Zone, conservation awareness levels of community representatives, perception on wildlife population, the community's views on protected areas etc.

b) Has the BZ management programme contributed to improving livelihoods of the people living in the Buffer Zone areas?

The improvement of livelihood opportunities due to the BZ programme is assessed by asking questions related to wildlife depredation, dependence of people on park resources, improvement in income, main beneficiaries of the BZ programme, level of investment in livelihood improvement activities such as irrigation, education, income generation activities, micro credit etc.

Figure1.3: Royal Chitwan National Park and Buffer Zone



(Source: Modified from DNPWC/PPP, 2001)

c) Has the BZ management programme contributed to good governance in general and protected area governance in particular?

The governance outcomes of the BZ management programme are assessed by asking questions related to change in park-people relationships, interrelationship between BZ institutions and local government agencies, affiliation of BZ representatives such as UC and UG chairpersons to various political parties and local elected bodies, change in leadership capacity, compositions of the BZ institutions in relation to gender, ethnic group and caste,

most appropriate local and national institutional arrangements for BZ management, participation of UC chairpersons in the Buffer Zone management committee meetings etc.

1.11 Scope and limitation of the study:

This research analyses information ranging from policy to practice, and the global to grassroots levels. The study rigorously examines secondary information from around the world relating to community-based conservation in general and BZ management in particular, and presents the benefits and constraints of the various approaches. With a clear understanding of the global context, the conservation policies and practices of Nepal have been examined in detail to trace the paradigm shift from strict species protection to that of a wider biodiversity focus incorporating social, economic and cultural considerations. Through an intensive case study in CNP, the study carries out an in-depth investigation of the application of the BZ policy of Nepal. The extensive field study gathers research data from 687 people, both women and men, migrants and indigenous population, representing a full range of stakeholders (local people, park staff, NGO representatives, local government and political representatives, etc) spread over 700 sq km. and in 510 settlements.

The research study presents the level of adoption and acceptance of Buffer Zone policies and practices, the opportunities and constraints thereby presented, and the successes and failures of the initiative in CNP. In conclusion, the study pulls together the three important and inseparable issues of conservation, development and governance, and presents a range of progressive and far-reaching recommendations. These findings should help refine both local and national BZ and PA management strategies and policies, and thereby make a tangible contribution to resource conservation practices in Nepal.

However, the study also has a number of limitations due to the nature of the research topic, the methodology adopted, the researcher's previous association with the BZ programme and familiarity with the research area, the security and political situation of the country, and the remoteness and vastness of the study sites.

The conservation issues are very wide, diverse and complex. Synthesising and integrating ecological and socio-economic issues together to draw meaningful conclusions have always been a challenging task. Similarly, since the study is largely based on social survey

techniques, some degree of human prejudice is inevitable. Like the researcher, some of the enumerators were or had previously been associated with the BZ programme, which also posed both opportunities and constraints in generating adequate and unbiased information. The remoteness and vastness of the research sites created challenges in carrying out in-depth field observations and verifying respondents' views physically and empirically. Political instability and the poor security situation of the country have created further difficulties in information gathering and mobility. The time gap between field survey and final write-up also posed considerable challenges in updating and inferring the data. The researcher was aware of these problems and various measures were adopted to ensure unbiased and required data collection (see research methodology chapter).

1.12 Outline of the Thesis:

The thesis is divided into seven chapters. The First chapter as a background to the study offers a critical and in-depth review of conservation paradigms and the emergence of community-based conservation approaches to build an awareness and appreciation of protected area management issues from the wider and global perspective. In order to examine the opportunities and challenges of community-based conservation, this chapter concentrates more on a review of community-based conservation and Buffer Zone management initiatives all around the world and particularly in the context of developing nations where the park-people interface is direct and more imperative. Chapter One also presents the rationale of the study, and the researcher's personal and professional interests in the research topic, aim and key research questions, and scope and limitation of the study.

Chapter Two describes the methodologies and various techniques of information gathering applied in the field for the purpose of this research. While developing field research techniques, the objectives of the study and security situation in the field were taken into consideration so that there would be minimal compromise in the quality of the data.

Chapter Three provides an overview of the national conservation policies and practices of Nepal and the evolution of conservation paradigms. Additionally, the linkages between conservation practices and contemporary national political governance and socio–economic priorities are also analysed. Chapter Three also discusses the influence of international conservation thinking in national-level conservation paradigms.

Chapter Four examines the ecological, economic and social settings of Chitwan National Park. Confucius once said that the more the string of a bow is pulled back, the farther an arrow can be shot. Similarly, the more the knowledge we have of the past, the deeper we can understand the current situation. With this in mind, this chapter analyses the past land-use practices in an around Chitwan valley to establish the history of resource governance policies and government priorities. This chapter also contains a thorough account of current park management issues, particularly in relation to park-people issues.

With a thorough understanding of park-people issues, Chapter Five discusses an in-depth implementation mechanism and status of Buffer Zone management practices in CNP.

The outcomes of the BZ programme, according to the analysis of field data, are presented in Chapter Six. In this chapter, the research results based on primary field data are meticulously analysed and compared with secondary information to answer the main research questions.

Finally, Chapter Seven draws together the research findings and prescribes important policy and strategy recommendations for improved conservation governance appropriate to a country such as Nepal.

CHAPTER II
RESEARCH METHODOLOGY

2.1 Methodological overview:

The literature review reveals that the participatory conservation approach is an increasingly important strategy for the management of protected areas all over the world. In this context, assessment of the interests and interactions of various actors and stakeholders involved in natural resource management seems very important in the development of an appropriate conservation strategy capable of ensuring wider and tangible public participation. An appropriate research methodology is critical to any successful research, which in its general sense refers to both the theoretical and practical aspects of conducting research (Oliver, 2004). Broadly, there are two types of research approaches – quantitative and qualitative.

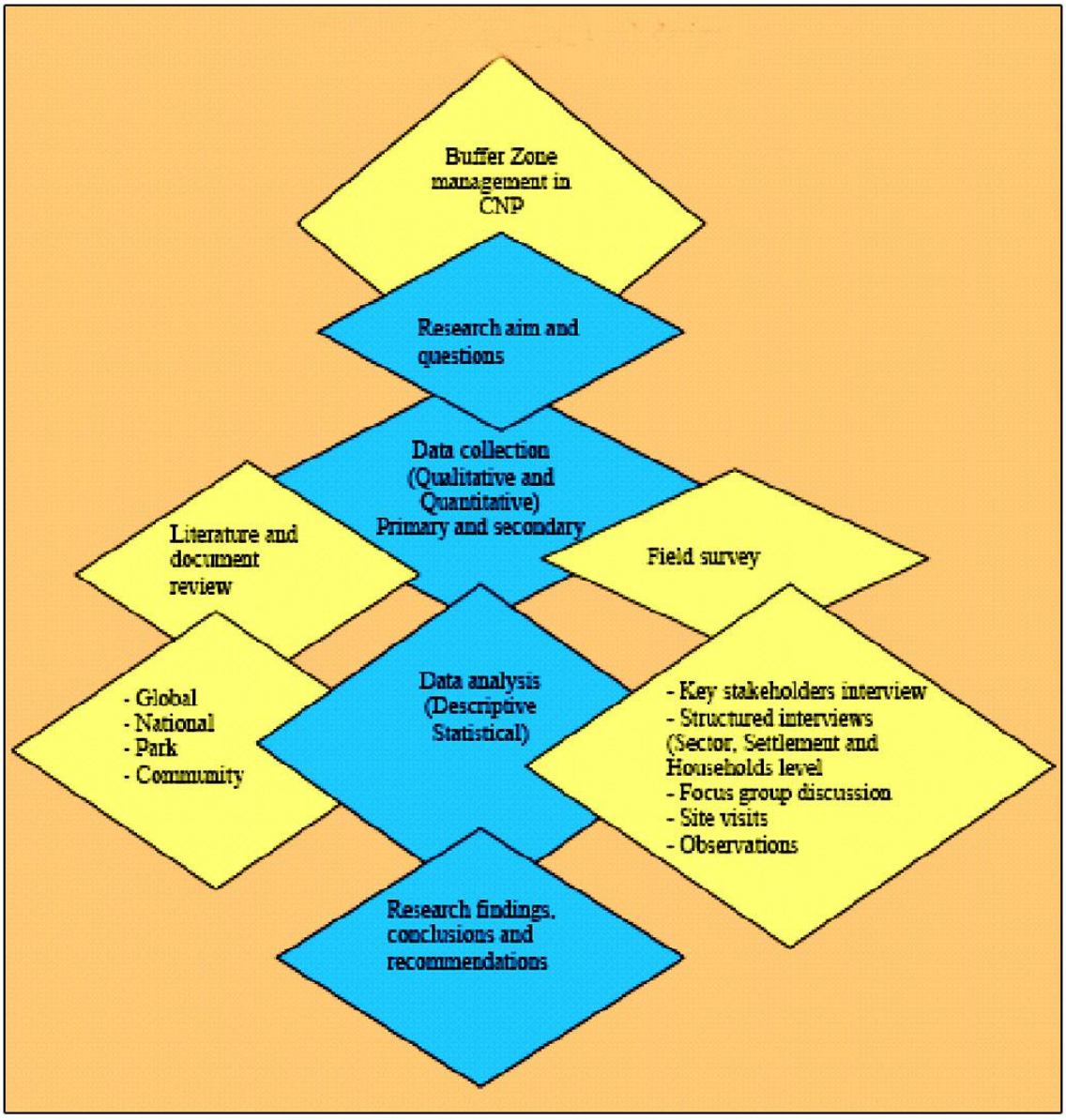
"Quantitative research uses numerical data, and typically, structured and predetermined research questions, conceptual frameworks and designs. Qualitative research not only uses non- numerical and unstructured data, but also, typically, has research questions and methods which are more general at the start and become more focused as the study progress" (Punch, 2001:29).

This chapter discusses the research methodologies devised to assess the effectiveness of protected area management strategy in the case study of the BZ management programme in Chitwan National Park. Various authors have discussed the strengths and limitations of both qualitative and quantitative research methods (Patton, 1990; Bell, 1996; Bryman, 1996; Nicolas, 1998; Punch, 2001). Nicolas (1998) suggests that there are no strict rules for the choice of research methods. This depends on the purpose of the research and the kind of questions to be explored (Bell, 1996; Nicolas, 1998; Punch, 2001) and in practice, qualitative and quantitative approaches are often combined (Patton 1990; Bryman, 1996; Punch, 2001).

The intention of this research is to evaluate the BZ policies and programmes. Evaluation research helps assess the effectiveness of different programme actions in meeting needs or addressing problems which can be transferred to other contexts beyond the case study area (Punch, 2001). Considering the aim of the research and nature of the questions to be answered, this study generally adopts a combination of both qualitative and quantitative research methods (fig. 2.1). Qualitative methods permit the study of selected issues in depth

and detail whereas the quantitative method would be necessary for generalised inference beyond the study area. The combination of qualitative and quantitative research methods will help ensure much more complete accounts of the social reality (Bryman, 1996) which is necessary to unpack interaction of various actors necessary for the better understanding of conservation issues in general and BZ management in particular.

Figure 2.1: Field study research design



(Source: Author, 2003)

2.2 Research design:

Systematic collection of evidence is important in all types of researches (Ragin, 1994). The design of research guides the investigator in the process of collecting, analyzing and interpreting observations (Nachmias and Nachamias, 1976). Walker (1985) suggests that the real art of research design is to select from many techniques and to marry the chosen ones in mutually supportive ways.

A research strategy ensures the fulfilment of the purpose of the research (Nicholas, 1998). Case study research methods have been adopted because the main purpose of this research is to conduct an in-depth evaluation of the BZ policies and programmes in CNP. Case study research investigates "what is happening" (Balnaves and Caputi, 2001: 66) and helps to understand the interaction between policy and problem in its implementation (Smith and Cantley, 1985). A case study can be based on any mix of qualitative and quantitative evidences (Yin, 1994). Mixing research methods allows the researcher to cross-check information collected in different ways (Nichols, 1998). Burns, (2000) notes that the use of multiple sources is the major strength of the case study approach.

However, a common concern about case studies is that they provide little basis for scientific generalization (Yin, 1994; Nicolas, 1998) - the primary goal of any scientific study. Critics also say that this approach allows creeping in of equivocal evidence or biased views which influence the direction of the findings and conclusion (Yin, 1994). However, in defence Punch (2001) suggests that a case study can also produce generalisable results depending upon the purpose of researching such a case study, and on the way its data are analysed. Yin (1994) further clarifies that case studies, like experiments, are generalisable to theoretical propositions. It is also suggested that specific ideas or conclusions from a piece of qualitative work can stimulate further research that provides information on their replicability (Schofield, 1997). These arguments and counter arguments together suggest that rarely can any single research fully address all its objectives (Walker, 1985).

Keeping in mind of the strengths and weaknesses of different research methods, various qualitative and quantitative research tools/instruments have been used to collect data, as

described below. Triangulation or combination of methodologies has been adopted, which according to Patton (1990) is an important way to strengthen any study.

2.3 Documents and literature review:

Generally, a researcher undertakes a literature review to lay a theoretical and conceptual foundation for the current research (Oliver, 2003). For case studies, the most important use of documents is to corroborate and augment evidence from other sources (Yin, 1994). However, review varies in scope and depth (Neuman, 2000).

This study reviews literature and documents ranging from global to local conservation issues. Articles published in peer review journals, books and reports published by international organizations such as IUCN, WWF, IIED, documents of international conventions and treaties related to conservation and sustainable development, as well as other documentation, were reviewed, helping the researcher to identify changes in conservation paradigms and assess the strengths and limitations of participatory biodiversity conservation around the world. At the national level, conservation policies, periodic development plans, decentralization governance policies of the government, historical documents related to land use policy and natural resource management were thoroughly analysed to trace the shift in policies and practices over time. Similarly, at the park level, park management plans, previous research reports (including PhD theses), annual reports official records relating to BZ management, project evaluation reports, records of park offences, and so on, were examined to assess the nature and scale of park-people conflict and the management response. At the community level, documents such as UC/UG plans, progress reports, audit reports, visitor books, and meeting minutes of the selected UC and UG were examined to find out the status of BZ programme implementation and management at the grassroots level.

Programme records and documents are rich sources of information, which helps to build on our understanding of the inner workings of the programme such as its progress and implementation status (Patton, 1990). However, Patton (1990) cautions that programme documents are also subject to a variety of measurement errors and are generally found to be incomplete and inaccurate. Therefore, it is important not to accept such documentary sources at face value (Bell, 1996).

In CNP, the researcher had difficulty in collecting reliable official data and documents as information was widely scattered, in poor formats and not regularly maintained. On many occasions, the researcher had to use his personal influence to get access to information. At the community level, the system of record keeping was found to be rudimentary and generally maintained as per the interest and efforts of UC chairperson and field staff. Besides, there were often difficulties in identifying the appropriate staff in the park office to access the right information. Shifting responsibility to another person and *'bholi dinchhu'* (I will give you tomorrow) were common responses from staff, which was often frustrating, and also disturbed the research scheduled.

Finally, important secondary information relating to national and international organizations such as IUCN, WWF, WRI, UN, UNESCO, CBD and others, was also collected from web sites. These literatures are referred to in various Chapters, particularly in chapters one, three, four and five and in the bibliography.

2.4 Field research:

Fieldwork is not a single method or technique (Patton, 1990)**.** For this research, fieldwork was broadly carried out by conducting: i) questionnaire surveys, ii) key stakeholder informal interviews, iii) field observations and project site visits, and iv) focused group discussions. These methods and the data they generated would help the researcher to understand the interaction between BZ policy and problems in its implementation.

"Evaluation of field work means that the evaluator is on site (where the programme is happening) observing, talking with people, and going through programme records. Multiple sources of information are sought and used because no single source of information can be trusted to provide a comprehensive perspective on the programme. By using a combination of observation, interviewing, and document analysis, the field worker is able to use different data sources to validate and cross – check findings" (Patton, 1990:244).

Before commencement, permission to conduct field research was sought and obtained from the Department for National Parks and Wildlife Conservation (DNPWC). Subsequently, free park entry and movement permits were also acquired from the Park office. The researcher made the first preparatory visit to the research site in December 2002 to pre–test questionnaires and checklists, to arrange accommodation and logistics, and to brief park

officials and the Buffer Zone Management Committee (BZMC) members about the research. Subsequent park visits were also carried out in 2009 and 2010 to update research data and observe BZ activities.

During the preparatory visit, the researcher also attended a BZ Management Committee (BZMC) meeting. The meeting was a good opportunity to explain the purpose of the research to BZMC members. The following was a summary of a short introductory briefing to BZMC members (translated from Nepali):

Namaskar (Nepali word to say "hello" respectfully)!

I am happy to be with you again. This time, I am here not as a Programme Manager of the PPP but as a PhD research student. My main objective of doing this research is to find out whether the BZ programme has been producing results as envisaged or not. Since 1995, millions of rupees–both of the project as well as government revenue, have been invested to implement various conservation and development activities in the BZ to develop park-people cooperation. Moreover, you and many villagers are also voluntarily contributing time and energy to bring some positive changes in the park-people relationship. Now, we are all be interested to know where are we at the moment, and where should we go from here and how. This is purely an academic study and all the information collected during the study process will be strictly used for academic purpose only. The name of the informants will be kept anonymous too. So, I would appreciate unbiased information whether it is positive or negative. I hope you will cooperate with me by providing official information and will also share your personal experience. Your wealth of experience is valuable and the information provided by you will shape my research findings. Again, I humbly request you that please forget my past association with the Park-people Programme and the park, and consider me just as a research student. I will also honestly try to be like that. I will be grateful for your support and cooperation.

Dhanyabad (Nepali word for "Thank you")

Namsakar!

A temporary field station was established in Sauraha by renting private accommodation. Despite the possibility of using park facilities, outside accommodation was preferred in order to maintain neutrality and to provide better access to community interaction. Due to the insurgency problem, park office premises were heavily fortified and free public movements were severely controlled by the army. Furthermore, there was also a fear that

rebels could create problems in villages during the survey by suspecting the researcher to be a government agent, if close attachment to the park office was observed. Maintaining an independent image with no connection with the Park office and its staff was vital to the successful conduct of the field work.

Seven field assistants, both men and women, from local areas and representing different ethnic groups, were hired to make the team gender-balanced and multi-ethnic. For research in rural areas, it has been suggested that local interviewers are normally considered the best choice (Nicolas, 1998). Similarly, community mobilisers of the Participatory Conservation Programme (PCP) working for the BZ management were also used in collecting office data and survey. Using existing staff had major advantages enabling completion of the field work with minimum travel and disruptions (Nicolas, 1998). Field interviewers were familiarised with the purpose of the research and their role, and the importance of the information they had to collect. Throughout the survey period they were closely monitored and facilitated by the researcher himself. The completed questionnaire forms were reviewed and debriefing sessions were also regularly organized. To be more acquainted with the field situation, during the field the research team stayed in the villages most of the time, slept in village huts, and shared food with villagers. Motor cycle and bicycle were the main means of transportation used during the field surveys, which covered over 700 sq km. and 510 settlements (photo 2.1).

Photo 2.1: Researcher visiting research sites

(Photo: Author, 2003)

2.5 Sample survey design and selection:

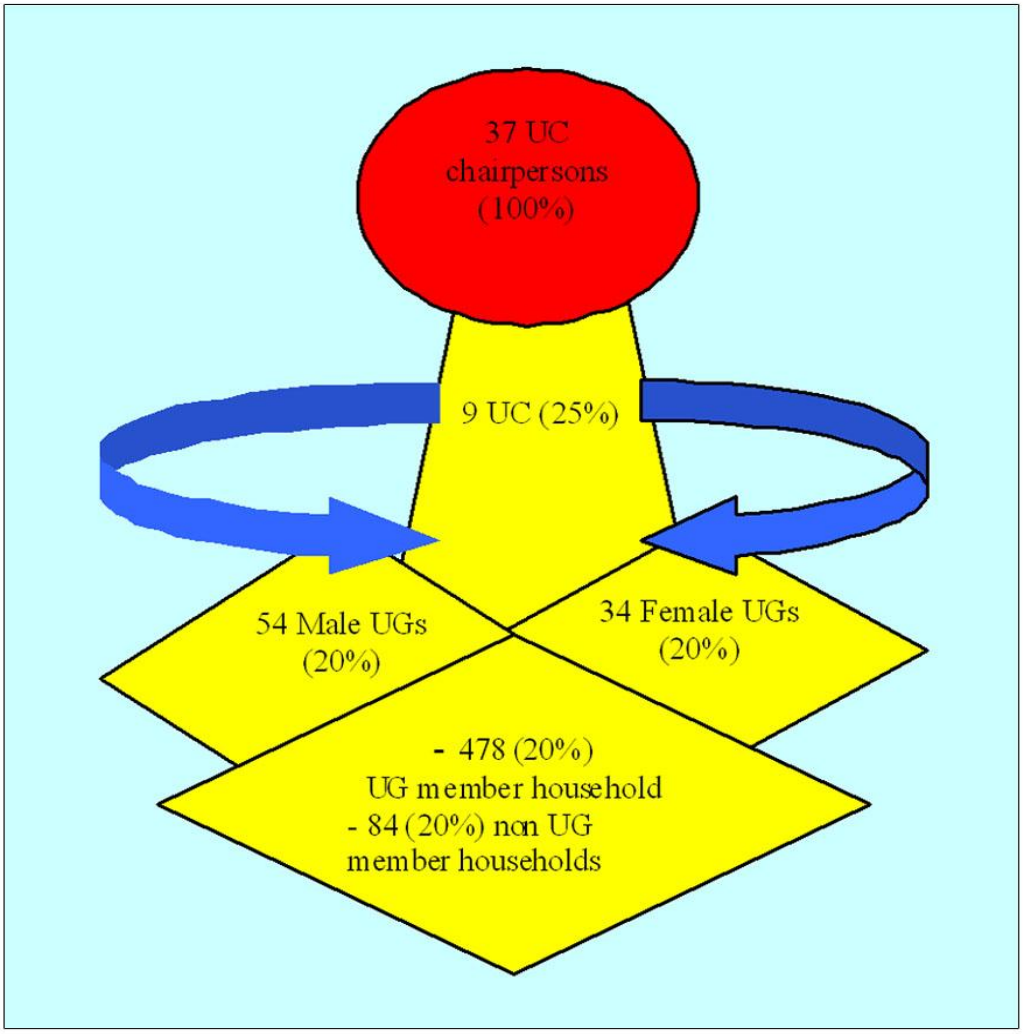
Galtung (1970) suggests that selection of samples and instruments must be done in accordance with their relevance and feasibility. Since qualitative inquiries are guided by purposeful strategies instead of methodological rules, the size of the samples will be generally determined by the scope and quality of the information likely to be available (Patton, 1990). Moreover, in such studies, representativeness of the sample is more important than sample size (Burns, 2000) and data should be sufficiently rich to reflect the plurality of perspectives (Smith and Cantley, 1985). Hence, a multilayer sample survey with varying sample size was adopted in order to capture views and perceptions of stakeholders and BZ programme beneficiaries at different strata.

According to Nepal's Buffer Zone legislation, park income for development projects is received and managed by clearly identified Users Committees (UCs), which are in effect, administrative units for the purpose of BZ management. These UCs mobilise settlement-based User Groups (UGs) to implement BZ activities. There are 37 such UCs in the BZ of (Royal) Chitwan National Park and on an average 40–50 UGs in each UC. Thus, a survey framework to capture the views and the perceptions of various stakeholders and programme beneficiaries at different strata was designed as explained below (fig.2.2).

i) The chairpersons of all 37 User Committees (UCs) (100%) were selected for interview. From these, 9 UCs (about 25%) were purposively selected for more detailed study (fig.2.3), taking into consideration the criteria set out below. The purposive sample, which is based on informed judgment, was possible due to the researcher's lengthy working experience and knowledge of the study area.

a) Proximity to the Park
b) Level of park investment in the BZ management
c) Level of park-people conflicts (e. g crop damage, grazing, poaching, etc)
d) Population of indigenous communities
e) Forest area
f) Level of tourism activities
g) UC category (there are three categories based on the number of wards covered by the UC)

Figure 2.2: Questionnaire survey design



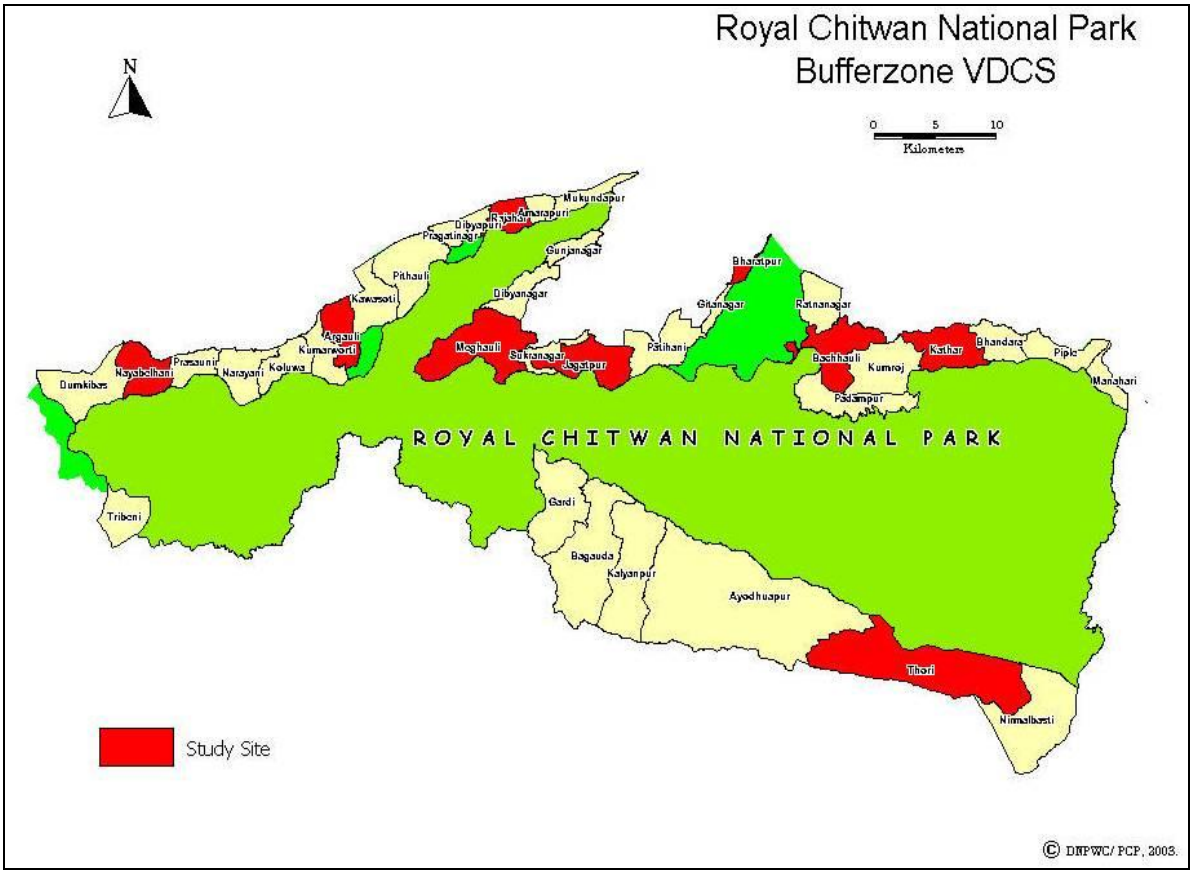
(Source: Author, 2003)

ii) From the selected 9 UCs, 20 % of the User Groups (UGs) were randomly selected. To make the sample more gender balanced, user groups were first stratified into male and female groups. UG names from each of the selected UCs were put in a bowl and were randomly picked. The mixed groups were included in the male groups as all chairpersons of the mixed UGs were found to be male.

iii) From the selected UGs, 20% UG member households were selected for detailed household survey by using standard random sampling techniques. Although systematic or standard sampling is a simple sampling technique, it helps to spread the sample evenly throughout the target population (Nicolas, 1998). The UGs constitutions, which contain the lists of their members, were used to select member and non-member households.

iv) Following the same sampling techniques in (iii), from the selected UGs, 20% of the non-UG member households were also surveyed. However, in some areas, UGs were recently formed and all households in the settlement were included as a member of the UGs.

Figure 2.3: Location of detailed field survey UCs



2.6 Questionnaire survey:

A well designed questionnaire is a vital research tool, which helps to collect information quickly and easily. Bell (1996:76) suggests that '*types of question will depend on the type of information needed*". Identification and understanding of the interests and interactions between different community groups and individuals is vital to the assessment of the complexity and context of the park-people relationship. Therefore, in order to obtain the required information, questions were designed in such a way that both process and outcome of the BZ programme could be captured. A separate set of a well structured questionnaires having both open ended and closed questions was designed to carry out the survey at all

three levels viz. i) sector level/UC level (UC representatives), ii) settlement level/UG level (both men and female UGs representatives) and iii) at the household level (UG members/head of the household).

Similar questions were asked at all levels to assess the perceptions of community members (representatives as well as common people) on the outcomes of the BZ management programme. In particular, respondents at all levels were asked the questions related to park-people issues (illegal harvesting of firewood/timber, grazing, poaching, wildlife depredation, relationship with park staff, status of forests and biodiversity and so on) and the change in the situation of these issues after the implementation of the BZ programme. Aside from this, as per the nature of the respondents, most of the UC level questions were focused towards the policy and programme management whereas UG and household levels questionnaires were directed towards the assessment of programme implementation and its benefits to BZ communities. In essence, all questionnaires comprised a composite of the issues related to institutional and socio-economic concerns, park-people interaction, programme planning and management, programme outcomes and programme improvements (see annex 5).

A funnel sequence of questions - that is, more general questions in the beginning and specific one afterwards (Oppenheim, 1972; Neuman, 2000) - was adopted. Questions related to beliefs, attitudes and intentions were left for the later stage of the interview (Nicolas, 1998). 'Opinion seeking' types of questions were included towards the end. For example, respondents were asked for their views on the positive aspects of Buffer Zone programme, the level of support they received from park staff and their capacity to manage the programme, the relevance of the BZ programme in improving their livelihood and biodiversity conservation, institutional arrangements and suggested improvements for better programme delivery.

The survey was intentionally carried out in three periods so that multiple visits to the research sites could be made. This enabled the refinement of information already collected as well as the collection of new information. At the UC and UG levels, interviews were purposively carried out with the chairperson of the UCs and UGs and with the secretary if the chairperson was not available in order to ensure detailed and authentic information about the Buffer Zone programme. At the household level, UG members (generally heads

of the household become the UG member) were interviewed to collect their views and perceptions about the impacts of BZ management activities on their livelihood. If the UG member was not available any adult member of the household was interviewed.

Altogether, 60 to 107 questions were administered. More questions were asked of UC chairpersons (107 questions) than UG members (58 questions). Each question was first developed in English and then carefully translated into Nepali, giving special attention to the precise meaning of the questions.

Many approaches such as postal survey, self-administered questionnaires, or telephone interviews can be used for social surveys (Neuman, 2000). However, given the remoteness and rural setting of the study area, face to face interview with well-structured questionnaires having both closed and open ended questions was clearly the most appropriate approach to collecting information from the respondents. According to Yin (1994), interviews with more structured questions, along the line of formal survey, can be designed as part of a case study. The benefits of the face to face interview approach is that it produces the highest response rate as well as permitting the use of long questionnaires (Neuman, 2000), necessary to understand the complex human-nature interface. However*, "...interviews are also subject to the common problems of bias, poor recall, and poor or inaccurate articulation and are necessarily to be corroborated with information from other sources"* (Yin, 1994:85) in order to increase the validity of the data collected.

As per the survey plan, firstly the questionnaire for the UC level interviewee was developed. The questionnaire was then discussed with the Planning Officer of DNPWC and the BZ Management Advisor of the UNDP supported Participatory Conservation Programme. The main purpose of the discussion was to ascertain the adequacy, relevance and feasibility of the questions. After their feedback, the questionnaire was modified and sent to International Centre for Protected Landscape (ICPL) supervisors for their review. The comments from ICPL supervisors were mainly related to length, language and logical flow.

The questionnaire was pre-tested "*to get the bug out from the instrument*" (Bell, 1996: 84). Furthermore,

"..the pre-test is not only just for testing instruments (questionnaires), but a test of the entire process of data collection. It is a test both of feasibility and of relevance. A test of the data collection is not only a test of the subject but also the interviewers or observers. The function of the pre-test is to discover the difficulties, and try to remedy it not to avoid them" (Galtung, 1970:137-38).

Pre-testing was carried out in the Sauraha area in the BZ of the CNP. This location was selected due to the accessibility of the area and availability of all the important stakeholders within a close distance. The UC level questionnaire was pre-tested with the chairperson of Bachhauli UC and BZMC chairperson, and proved to be valuable in assessing the challenge of carrying out the full survey. Based on the pre-test experience, the researcher decided to carry out the UC level interviews himself. Since UC chairpersons are the main people responsible for the management of the BZ programme in the field, thorough interviews with them were necessary to collect in-depth information about the programme. It was thought that face to face interaction between the researcher and the UC chairpersons would help understanding of the issues of protected area governance from a wider perspective. Moreover, most of the UC chairpersons were politically active, socially influential and articulate persons and were likely to be more interested in being interviewed by the researcher rather than by research assistants, and hence more responsive (photo 2.2).

Photo 2.2: Researcher interviewing UC president

(Photo: Author, 2003)

2.6.1 UC and UG level survey:

Having been notified, interviews were mostly conducted in the offices of UC chairmen. Field-level project staffs were used to arrange times for interview and to brief interviewees in advance about the purpose of the interview. Former attachment of the researcher with Park-People Project offered both opportunities and challenges in collecting unbiased and sensitive information. This association with the project provided the researcher an advantage in collecting accurate information regarding the programme in particular and park-people issues in general, as UC chairpersons would find it difficult to conceal information. However, there was something of a challeng in convincing them that the researcher was not a park or government official and would create no problem if they spoke against the programme or about illegal activities such as poaching, grazing or stealing forest products from the park forests.

In most cases, respondents were found open and honest in their views. The researcher had also used his experiences to explore further and extract accurate information from the interviewees. Moreover, he was always cautious and personally determined to be neutral. On most occasions, the interview exceeded more than the allocated time, ranging from one to three hours. The researcher was frequently able to probe more deeply into responses, and to clarify perceptions, allowing for lively interchange. However, the level of cooperation from UC chairpersons in sharing their experience was exceptional and encouraging.

A similar questionnaire was administered to UG representatives to collect UG-level data. However, given their role and responsibility, questions related to BZ policy were omitted and more programme-level questions were included.

Concurrently, research assistants with the help of a UC office assistant collected the office data in a prescribed format including data on members, office management, meeting agenda, programme and planning process, income and expenditure, community forestry and so on (see annex 6).

2.6.2 Household level survey:

After the completion of UG level survey, a detailed household level (both UG members and non-members) survey was conducted. Casley and Lury (1987) suggest that ‘the household’

frequently serves as the most convenient, appropriate and logical sample unit for a variety of development based research. Moreover, such households are programme beneficiaries as well as being UG members who participate in programme planning and management, and influence programme implementation, both directly and indirectly. In this case, the survey questions were more about the socio-economic conditions of the households, their participation and benefits in the BZ programme and dependency on park resources. In general, the focus of the household level survey was to collect information on whether or not the programme has been reaching out to real beneficiaries.

Non-member households were interviewed by administering a questionnaire similar to that for UG members, focused mainly on understanding the reasons for non-participation in the programme.

Most of the respondents were interviewed in their own homes as per their convenience. They were informed beforehand and the interview time was generally fixed in advance with the help of local staff and UG chairpersons. Special attention was given not to disturb their normal household activities as far as possible. Household-level interviews usually lasted for about one hour, depending upon the respondent's level of articulation and knowledge. In addition, before the formal interview, informal talks were often required to break the ice. After the interview, interviewers also observed the household/homestead in order to crosscheck the respondent's information, particularly in respect of the amount and type of firewood, fodder, and possible wildlife damage.

The UG level survey was conducted by the researcher with the help of research assistants, whereas household level surveys were mostly carried out by research assistants with the help of local level field staff (photo 2.3). Regular debriefing sessions with research assistants were organised to discuss their impressions and field observations. Altogether, data were collected from 687 people, both women and men, migrants and indigenous people, representing a wide range of stakeholders spread over 700 sq km. and in 510 settlements (table 2.1).

Table2.1: Ethnic and gender composition of the respondents

Level	Male	Female	Indigenous	Non-indigenous
User Committee representatives	37	0	6	31
User Group representatives	54	34	18	70
UG members	242	236	193	285
Non UG member	45	39	40	44
Total	378	309	257	430
(%)	(55)	(45)	(37)	(63)

(Source: Field Survey, 2003)

Photo 2.3: A female enumerator taking interview with a female BZUG member

(Photo: Author, 2003)

2.6.3 Key stakeholder interview:

According to Yin (1994), key informants who can provide the investigator with insight into a matter and sources of corroboratory evidence are often critical to the success of case study research. In this study, the Park Warden, District Forest Officer (DFO), District Development Committee (DDC) chairperson and DDC member; VDC chairpersons, tourism entrepreneurs, NGO and Project representatives were considered to be important stakeholders, whose actions would potentially affect the BZ programme. An informal interview approach was adopted, and in accordance with their institutional roles each group

was interviewed with a different set of semi-structured questionnaires. For example, interviews with wardens were more focused on their acceptance and adoption of BZ policy and programme, management capacity and co-ordination with other agencies, change in the park-people relationship after the implementation of BZ programme, future management strategy and the replicability of the BZ concept and so on. From DFOs, information on the co-ordination between park and forestry authorities, impact of BZ programme, condition of BZ forestry resources (because most of the forest area were under DFO jurisdictions before the declaration of BZ) and application of the BZ concept in wider landscape level conservation initiatives, were sought. Issues such as co-ordination between BZ institutions (UGs, UCs, and BZMC) and politically elected institutions (VDC, DDC), conflict and overlap between BZ policy and decentralisation policy, coordination between Park office and DDC, outcome of BZ programme, were discussed with DDC and VDC representatives. Tourism entrepreneurs were asked to provide their view on issues such as the status of tourism, and the role of tourism and tourism entrepreneurs in conservation and BZ management. Project and NGO representatives were interviewed to assess their involvement in BZ management, outcomes of the BZ programme and replicability of the BZ concept and programme in other parts of the country.

In total 19 in depth interviews of 1 to 2 hours were conducted with three wardens, one DFO, two NGO representatives, one DDC chairperson, seven VDC Chairpersons, one DDC member, two hotel representatives/tourism entrepreneurs, one donor/project representative, and one senior DNPWC officer. These interviews helped to understand the views of these stakeholders on what was happening in the programme and was also useful to triangulate their views with community views on the BZ programme and on park-people issues.

2.7 Focus group discussions:

Like all community groups, those in Nepal are complex social constructs. Various groups interact differently with the national park as their needs are very diverse. Smith and Cantley (1985) suggest that a methodology that focuses heavily on the quantification of outputs would not reveal the social processes that produced the outputs. Thus, some types of informal research methods are essential in exploring community attitudes and priorities (Nicolas, 1998). After the completion of the household level survey in 2003, a focus group discussion with indigenous *Tharu* people was organised to collect their views on the BZ

programme and how this has or has not changed in their interaction with the park over time. The researcher facilitated the discussion process whereas three research assistants sitting in different corners quietly noted down the main points emerging from the discussion. The group discussion was largely based on three questions/issues namely; i) Effects (both positive and negative) of the Chitwan National Park in people's livelihood ii) Process and outcomes of the BZ programme, iii) Suggestions to make the BZ programme more effective to improve the park-people relationship. Each question was discussed for about one hour and the whole process took about 3 hrs. Altogether there were 20 people both male and female, out of which 15 people actively took part in the discussion. In order to update the implementation status and outcomes of the BZ management activities, another focus group discussion with the selected BZMC members and park staff was organised in 2009. Participants were asked to provide five key indicators of better park-people relationship, five important achievements of the BZ programme, and five main challenges and limitations of the BZ programme in Chitwan National Park. These focus group discussions enabled cross-examination of the information provided by the various stakeholders through the questionnaire surveys and park office (photo 2.4). According to Neuman (2000) focus group discussions help to interpret the results.

Photo 2.4: Focus group discussion with BZMC members in 2009s

(Photo: Author, 2009)

2.8 Observation visits:

Observational evidence is often useful in providing additional information about the topic being studied (Yin, 1994). With this understanding, many site visits were made in order to observe specific BZ project activities and to assess their status and impacts. The activities such as flood control, fencing and trenches, community forests, and income generation training implemented by Maghauli, Rajahar, Kathar, Bharatpur, Bachhauli, and Divyapuri UCs were observed. During the project site visits, the opinions of local beneficiaries were also sought. The observation visits were helpful in verifying the office data and information collected through questionnaire surveys. The researcher also attended meetings of the Buffer Zone Management Committee (BZMC) and UCs as an observer.

Observation is important in research since interviewees - both community as well as staff - will only report their perceptions (Patton, 1990), and it is critical to verify statements by observed actions (Burns, 2000). Direct observation is a useful tool for validation because it helps cross-check respondents' answers (Margoluis and Salafsky, 1998). Covert observations were carried out in Bachhauli and Meghauli VDC in April and May 2003 in order to cross-check the grazing dependency of local people on the park. One site in Meghauli and two in Bachhauli were identified as the main livestock entry points. At each location a research assistant was assigned to collect the number and types of animal taken through the park boundary. The gender and ethnicity of the herders were also recorded. For about two months, on every alternative day, grazing activities were observed for 2 hours in the morning (when people drive in their stocks) as well as in evening (when they drive out the animals from the park). Additionally, forest products carried back home by herders were also recorded. Research assistants were asked to record incidents such as wildlife attacks and chasing and catching of juveniles, and the collection of wildlife products such as wild animal horns or feathers, if observed. Similarly, the activities of fishermen in Rajahar and Parsauni VDC were also observed to assess the level of their dependency on park resources.

2.9 Data analysis:

The data recorded during the field research were first coded, categorized and entered in the computer. Open ended answers were collated with great care so that all views expressed by the respondents should be captured as accurately as possible. UC level data were also

grouped together taking into the consideration criteria such as proximity to the park, amount of revenue recycled, level of park-people conflicts such as crop damage, grazing and poaching, populations of indigenous communities, forest area and tourism opportunities and so on. The selected UCs were then ranked into three groups namely high, moderate and low for further assessment of the park-people interactions (table 2.2 and annex 7). These data were processed and analyzed using computer based software that included MS Excel and SPSS (Statistical Package for Social Science) 11.0.

Table2.2: Grouping criteria adopted for detail analysis

Criteria	No of UCs selected			
	High	Moderate	Low	Total
Proximity to park office	2	3	4	9
Level of investment	4	1	4	9
Level of park -people conflict	3	3	3	9
Population of indigenous community	2	2	5	9
Forest area in the BZ	3	3	3	9
Level of tourism activities	1	3	5	9
Size or area coverage by UC	6	2	1	9

(Source: Author, 2003)

Descriptive statistics were used to summarize the data pertaining to the personal characteristics of the respondents. Where multiple responses were possible on an open-response question, data are presented as the percentage of respondents giving each response, and may therefore sum to over 100%. The views of respondents at different levels were analyzed by using one way ANOVA and other tools such as means, percentage, cross tabulation and so on. Both univariate as well as bivariate correlation coefficients were calculated to determine the relationship between the respondent's view and the perceived success factors of the Buffer Zone programme. Inferential statistics were used whenever appropriate and chi square tests (test of independence) were also carried to explain the association of different variables. Data analysis has been focused on finding answers to the key research questions related to impacts of the BZ programme in a) promoting biodiversity conservation, b) improving rural livelihoods and c) instituting good protected area governance.

2.10 Summary:

Assessment of "*plurality of perspective"* (Smith and Cantley, 1985:158) is the heart of the research strategy discussed in this chapter. This research attempts to find out in what context, with what consequences, and to whose benefits the successes or failures have been measured while unpacking the outcomes of the BZ programme. The multi-layered survey based on the institutional hierarchy helped to assess the level of 'grassroots' participation in the BZ programme, as well as the trickle-down effects of the programme. This method and data it generated helped to build on understanding the interaction between policy and in its practice as well identifying their complexity and context.

However, Oppenheim (1992) suggests that in any study of effects or changes, the respondents will probably relate their own ideas concerning the nature and degree of such changes. Those perspectives and perceptions are subject to distortion due to personal bias, anger, anxiety, politics and simple lack of awareness (Patton, 1990). Nonetheless, it is important to note that this research consciously attempts to present the BZ programme outcomes such as biodiversity conservation and the promotion of local livelihoods and good protected area governance practices from the local communities' perspectives. Pratt and Loizos (1992:2) explain that "*the best development research begins and ends with the expressed needs of local groups who will be affected by it*".

CHAPTER III BIODIVERSITY CONSERVATION POLICIES AND PRACTICES IN NEPAL

"...there is a mutual relationship between people and the land they inhibit. Just as the people mould and use the land to suit their purpose, so the land itself force an adaption on people, even shaping their thinking and outlook on life" (Stiller, 1995:1).

3.1 Introduction:

A proper understanding of people-nature interaction is crucial to the planning and practice of conservation activities in any society. Furthermore, knowledge of the past is central to understanding the present and developing a future course of actions. A scholar notes:

"In the life of any society, the past and present represent a continuum rather than discrete period of time. The present is determined by the past, but our view of the past is determined by the present" (Regmi, 1995: ii).

As the past generally influences the use and conservation of natural resources in many developing countries, the investigation of the historical dimension of environment and society interactions deserves special attention (Soliva *et al.,* 2003). This chapter attempts to present an overview of wildlife and biological resource management policies and practices in Nepal from ancient time to today. The analysis of conservation policies and practices will help understand the park-people interface and protected area management and governance systems of the country.

3.2 Physical and ecological settings of Nepal:

The history of Nepal as an independent political and territorial entity goes back to many centuries before the birth of the Christ. However, in ancient and medieval periods, the designation 'Nepal' was largely applied only to the Kathmandu Valley. The modern state of 'Nepal' which now spreads over the area of around 147,000 sq km along the foothills of the Himalayas came into existence when King Prithivi Narayan Shah of the then Gorkha kingdom united the petty kingdoms across the hills, including the three kingdoms of the Kathmandu valley in the latter part of the eighteenth century. The brick shaped country (about 885 km-long with the average width of 193 km) is surrounded by India from three

sides and by the Tibet Autonomous Region (TAR) of China from the northern side. The altitudinal variation of the country ranges from lowland tropical Terai (approximately 90m a.s.l.) in the south to Mt. Everest (8848m a.s.l.), the highest mountain in the world in the north. The rapid change in altitude within a short distance from north to the south has been "*very aptly and poetically described as the stair steps to the sky"* (Bhattarai, 2003:28).

The country is situated in the transition between the Indo-Malayan and Palaearctic bio-geographical realms (HMG/MOFSC, 2002). This unique geographical position as well as its altitudinal and climatic variations make the country more land-linked rather than land-locked, harbouring a rich and unique biological diversity ranging from tropical to tundra ecosystems. Altogether, six floristic provinces of Asia occur within Nepalese territory (Shrestha, 1999). The extreme altitudinal gradient has resulted in nine bio-climatic zones from tropical to nival within a short horizontal span of less than 200km (HMG/MOFSC, 2002). A report suggests that the number of ecosystems per unit area is probably greater than any other country in the world (HMG/MOFSC, 1988a). Complex relationships between man (humans), the mountains and the monsoon have been shaping the biological diversity of the country (Shrestha, 1999).

The country with just 0.1% of the world mass contains over 2% of the world's species of flowering plants, 8% of its birds and 4% of its mammals (BPP, 1995). Globally, Nepal ranks twenty-fifth in biodiversity with about 118 ecosystems, 75 vegetation types and 35 forest types (FAO, 1999). Shrestha (1999) passionately articulates that the Royal Bengal Tiger (*Panthera tigris*) and the greater one-horned rhinoceros (*Rhinoceros unicornis*) of Chitwan National Park are less than 100 km away from the snow leopard (*Panthera uncia*) and the blue sheep (*Pseudois nayaur*) of the Manaslu Conservation Area. Within a small geographic area, the country includes four of the Global 200 eco-regions[8], critical landscapes of international biological importance where biologically large areas are not fully explored yet. In Nepal, within a decade (1998-2008), 94 new species have been reported, including 40 plants, 36 invertebrates, seven fish, two amphibians, and nine reptiles (WWF, 2008). Despite its relatively small size, there are 27 IBAs (covering about 18% of

[8] The four eco-regions included in Nepal are i) Eastern Himalayan Alpine Meadows, ii) Eastern Himalayan Broadleaf & Conifer Forests, iii) Terai-Duar Savannas and Grasslands, iv) Western Himalayan Temperate Forests. Available at: http://www.panda.org/about_our_earth/ecoregions/ecoregion_list/ecoregions_country/ecoregions_country_n.cfm (Accessed: 12 Feb 2010).

the country's land) in Nepal hosting the richest bird species in Asia (GON/MOFSC, 2009). In summary, Nepal has a wealth of biodiversity out of proportion to its area, and much has yet to be explored and discovered.

3.3 Status of forests and wildlife untill the1950s:

Nepal was a heavily forested country until a few decades ago. The first British envoy, who travelled to Nepal in 1793, reported the existence of grate forests (*char kose jhaadi* in Nepali) of about 8.5 mile (approximately14km) wide skirting the whole length of Nepal along the foothills of Siwaliks **(**Kirkpatrick, 1996). The area was *"covered with a dense forest, chiefly of sal trees"* (Oldfield, 1981:17) with unmatchable dimension and timber quality (Landon, 1993; Kirkpatrick, 1996). The forests of the Terai were considered as "*an almost inexhaustible source of riches"* **(**Kirkpatrick, 1996: 42) and were full of numerous wild animals such as tiger, elephants, rhinoceros, etc **(**Landon, 1993; Kirkpatrick, 1996). The area was a great hunting paradise in Asia (Landon 1993; Oldfield 1981; Smythies, 1942; Kawakita, 1991). It was likely that until the 1950s there were more game animals than human beings in the Terai as most of the area was infested by malaria carrying mosquitoes and maundering wild animals.

Historically, the forests of Nepal have usually been valued either in strategic or economic terms (Regmi, 1988) rather than as environmental resources. With the exception of protecting forests for security and recreation purposes, throughout Nepalese history, the government and ruling elites have always promoted reclamation of forests to expand farmlands and their revenue base (Regmi, 1988; Dhungel and Pradhanaga, 1999; Shrestha, 2001; Tiwari, 2003). Most of the mid hills[9] (1000–2000m) forests were cleared for agriculture by the late 18th century (Regmi, 1999a; Stiller, 1999). However, after the unification of Nepal in 1769, land reclamation had been shifted to newly acquired virgin territories, namely the Terai, the lowland part of the country. Oldfield (1981) suggests that most of the forest areas in the eastern and the central Terai had been lost by early 19th century. However, due to various socio-political reasons most of the inner Terai valleys (*Dhuns*) and western parts of the Terai forests remained in a fairly natural state. According

[9] The county can be broadly divided into three physiographic zones – i) Terai and Siwalik zone (up to 1000m), ii) Mountains zone (1000 – 4000m) and iii) Himalayan zone (4000 m above).

to Smythies (1942:50), until the mid 1930s, the mid and the western parts of the Terai were "*covered with primeval jungle, a sea with islands of cultivation*". Similarly, most of the Chitwan valley and surrounding areas had been maintained as a natural security barrier to the Kathmandu valley, as well as a royal hunting area. According to one contemporary British officer

"..in Nepal, the dhuns have been mostly allowed to fall into a state of jungle, and are consequently clothed with forests of sal and cotton trees, and are inhabitated only by wild beasts. The Nepalese are averse to the 'clearing' at the foot of their hills as the safer and surest barriers against the advance of any army of invasion from the plains of Hindustan" (Oilfield, 1981:47).

To protect Terai forests as a natural defence, royal decrees had been issued on several occasions in the early 19th century to ban settlements and cultivation in strategic areas (Regmi, 1999b). For centuries, the strategic value of Terai land and forests has been the very foundation of Nepalese politics (Gyawali and Kopanen, 2004).

Although deforestation and hunting of wildlife population such as elephants, rhinoceros, bison and tiger had been recorded much earlier (Smythies, 1942; Oldfield, 1981; Kirkpatrick, 1996), the rapid decline of wildlife species occurred since early 1950s after the downfall of the autocratic Rana[10] regime in 1951. Since wild animals were strictly protected during the Rana rule for their hunting purpose, people started to kill wildlife viewing it as a symbol of Rana's oppression[11] (McDougal, 1977). The Chitwan valley, which was strictly protected as a royal hunting reserve up to 1950, suffered particularly, as the government also launched a massive malaria eradication programme with the help of United States Aid for International Development (USAID) and started resettling people from the hills in mid 1950s.

3.4 The period of crisis and beginning of the new conservation era:

The massive influx of people and the destruction of the grassland and riverine forests of the Chitwan valley had caused a rapid decline in wildlife, notably the greater one-horned rhinoceros. During the 1950s, poaching of rhinoceros for their precious horns reached a

[10] Rana family ruled Nepal from 1846 to 1950 after a coup in 1846.

[11] Similar incident happened in Annapurna Conservation Area. Maoist destroyed infrastructures and barred staff to work in the area citing that the conservation area management is linked to NGO with the king as patron and crown prince as chairperson.

climax (Sharma, 1991). A survey in 1968 revealed that the "*population of rhinoceros in Chitwan had fallen from more than 1000 in early 50s to between 90 and 108"* (Mishra, 2008:42). However, elsewhere it was reported that the rhinoceros population was already no more than 300-400 by the mid 1930s (Smythies, 1942). The appointment of more than 100 *gaida gasti* (rhinoceros guards) to protect rhinoceros by Prime Minister Juddha Shamser Rana as early as mid 1930s (Smythies, 1942) could be taken as an indication of the serious condition of the rhinoceros population.

The alarming rate of forest destruction and loss of wildlife habitat, particularly the rapid loss of the rhinoceros population in Chitwan prompted both international and national concerns. At that time the Rapti valley of Chitwan had probably more rhinoceros than in the whole of India (Smythies, 1942). This made conservationists nervous that any further loss of greater one-horned rhinoceros from Chitwan could lead to the global extinction of the species. In response to this grave situation, the Fauna Preservation Society and IUCN sent missions in the late 1950s. After taking stock of the ground situation, the government of Nepal was advised to take urgent actions to protect rhinoceros.

As in other countries, Nepalese Royals also had been the "*consumers of nature for private amusement*" (Bhatt, 2003:247). The international pressure worked as a stimulus for the King, Mahendra, to take strong action, as he was also concerned about the declining wildlife populations in the Chitwan Valley. The following statement explains the mind and mood of the king at that time:

"...we are not keen on any human settlement in the forests or grasslands of Chitwan, Bardia and Sukla Phanta' the king told to the American ambassador. Why, Your Majesty? questioned the American ambassador. These areas are good for agriculture and the United States has helped your country eradicate malaria. ..in accordance with your directives, we have helped your government settle many of your poor citizens from the eroding hills to the fertile plains of the terai. 'I like hunting there' curtly answered the king with his flair for regal pomposity'..." (Mishra, 2008:73)

Responding to the royal interest as well as to international concerns, the government took action. The Wildlife Conservation Act, 1957 was enacted, resulting in the establishment in 1959 of the Mahendra Mrigakunja (Deer Park) in the north of the Rapti River and of a rhino sanctuary in the south of the Rapti River in the Chitwan valley (Tamang, 1982). Similarly, by the late 1960s, the government established seven hunting reserves in different parts of the Terai to protect important game animals for royal hunting purposes. These hunting

reserves are forerunners of the current national parks system in the country. This may be the reason as some critics argue that wildlife preserves of Nepal were basically created to satisfy and protect the game and recreational interests of the aristocracy, rather than for forest and wildlife protection per se (Ghimire, 1992). There was no doubt that the tradition of the royal hunt did a great deal to protect the wildlife in Nepal by prohibiting cultivation to protect wildlife habitat and prevent poaching (Mishra, 2008). However, whatever the reasons, the personal interest of kings and royalties was instrumental in commencing the modern wildlife conservation practice in Nepal (Sharma, 1991). Furthermore, fostering foreign tourism in the country was another motivation behind the establishment of an expansive national park system in Nepal (Keiter, 1995).

3.5 Politics behind wildlife conservation:

The reasons behind royal interest in protecting wildlife and hunting reserves had been more than mere sports and tourism. It should be understood in the context of the political ecology and economy of the country. Historically, the control of wildlife and wildlife parts were critical to smooth functioning of political, religious and cultural functions of the state. For example, the Nepalese use more parts of the rhinoceros than any other state or society for religious, medicinal and decorative purposes (Martin, 1985). In the past, ruling elites used to control the business of timber, elephant and its tusks, rhinoceros horns, musk pods, and so on as a key source of income (Regmi, 1988; Shah, 1992; Kirkpatrick, 1996; Subedi, 1996; Dhungel and Pradhanaga, 1999; Regmi, 1999a; Ghimire, 2000). Many such controls existed until the establishment of a multiparty democratic system in 1990.

It was estimated that in 1793, the annual revenue of Nepal from the elephant was about 20% of the total revenue of the country (Kirkpatrick, 1996). Till the middle of the nineteenth century, the export of wild elephants captured in the forests of the Terai and inner Terai region was thus an important source of revenue for the state (Regmi, 1988). Elephants were also required for transportation, royal processions, religious functions and hunting. Prime Minister Janga Bahadhur Rana, who ruled the country from 1846-1877, used to maintain as many as 700 tame elephants (Smythies, 1942) dispersed in 32 elephant stables (*hattisar*) for his hunting purposes (WWF, 2003).

Historical evidence reveals that live wild animals such as elephants, tigers and rhinoceros, as well as musk pods, rhinoceros horns, *Khukuris* (Gurkha knife) with rhinoceros horn and ivory handles, used to be presented as royal gifts to visiting kings and royal dignitaries (Smythies, 1942; Rana, 2003). Similarly, in a Hindu society, rhinos satisfy several religious needs of the royals and elites as a part of tradition. The royal palace used to provide musk pods to Pashupati temple (the holiest Hindu shrine in Nepal) and gift out tiger, leopard and deer skins to *sadhus* (Hindu saints) visiting Pashupati Nath temple during Shivaratri in the month of February each year (personal communication: Biswa Bikram Shah, a former senior Royal Palace official, Feb 16, 2010). Mishra (2008) describes a fascinating story of a *Sradha*[12] by the King Birendra in 1979 and offering libation of rhinoceros blood after entering its disembowelled body. There was a tradition in Nepal that each head of state (king) was required to perform such a religious ceremony once in his lifetime (Martin, 1992) for the salvation of his ancestors.

Similarly, massive royal hunts were more than just a diversion (Mishra, 2008). The Ranas who ruled Nepal for more than 100 years (1846–1951) used to utilise hunting programmes as a tool of diplomacy to please British counterparts and strengthen personal relationships with them to sustain their power in the country (personal communication: Hemanta Rana, June 2004; see also Smythies, 1942; Rana, 2000). Similarly, during the Shah Rule after the 1950s, protected areas had served as relaxation venues for making important political decisions (Mishra, 2008). One study elaborates the relationship between parks and politics as follows:

"..the pretext of the royalty needing rest and relaxation was also the opportunity by which they gathered key political, administrative and military leaders in the jungle. These were important settings for reconnaissance — to get a sense of public sentiments towards the monarchy, particularly in remote areas, and to gather intelligence from the border areas. Drawing parallels to the Mughals, hunts became ritualised activities laden with political meaning" (Bhatt, 2003:257).

As wild land, wildlife and wildlife parts had been the axis of political power, rulers had always played an active role in protecting wildlife and in setting aside certain areas for wildlife protection. There is evidence of the existence of protected forests and hunting areas in Nepal since the first century AD (Tiwari, 2003). Since time immemorial, animals having economic and recreational values have been receiving special protection status. Throughout history, animals such as elephant, rhinoceros and musk deer have been under strict

[12] Sraddha is a function to worship dead parents based on Hindu religious code of conducts.

protection in Nepal. Janga Bahadur, the first Rana Prime Minister, had declared the greater one-horned rhinoceros as a 'Royal Animal' in 1846 and strict measures including the death penalty were introduced for its protection (Mishra, 2008). The State Law of 1854 prescribed Rs 1000[13] fine (equivalent to more than £200 at that time) and three years jail sentence for the killing of rhinoceros. Similarly, during the first half of 20th century no one was allowed to shoot tiger, rhino or wild buffalo anywhere in Nepal without the permission of Prime Minister (Smythies, 1942). Restriction of timber extraction had been imposed from the permanent or seasonal habitats of elephants and rhinoceros (Regmi, 2002).

During the Rana regime, any person who intruded into the protected forests with the motive of hunting wildlife for monetary purposes was sentenced to compulsory imprisonment for six months (Regmi, 2002). There used to be a unit of *Gaida Gasti* (rhinoceros guards) with more than 100 people and a Hunting Management Office (*Shikari Adda*) within the palace responsible for the protection of royal game animals and to coordinate royal hunting programmes.

3.6. Embarkation on modern conservation:

Although some sort of wildlife protection practice was in existence, previous wildlife protection efforts were mainly driven by recreational objectives rather than ecological considerations. State wildlife policies were somewhat rudimentary and based on ad-hoc decrees. Until the 1960s, there was no formal agency within the government for wildlife management. Due to the lack of appropriate legislation, an attempt to establish a national park in Chitwan in the late 1950s did not materialise (Chaudhary, 2000). Similarly, in the absence of adequate regulations, organisation and staff, seven hunting reserves gazetted in 1969 could not be effectively managed (HMG/MOFSC, 1988b).

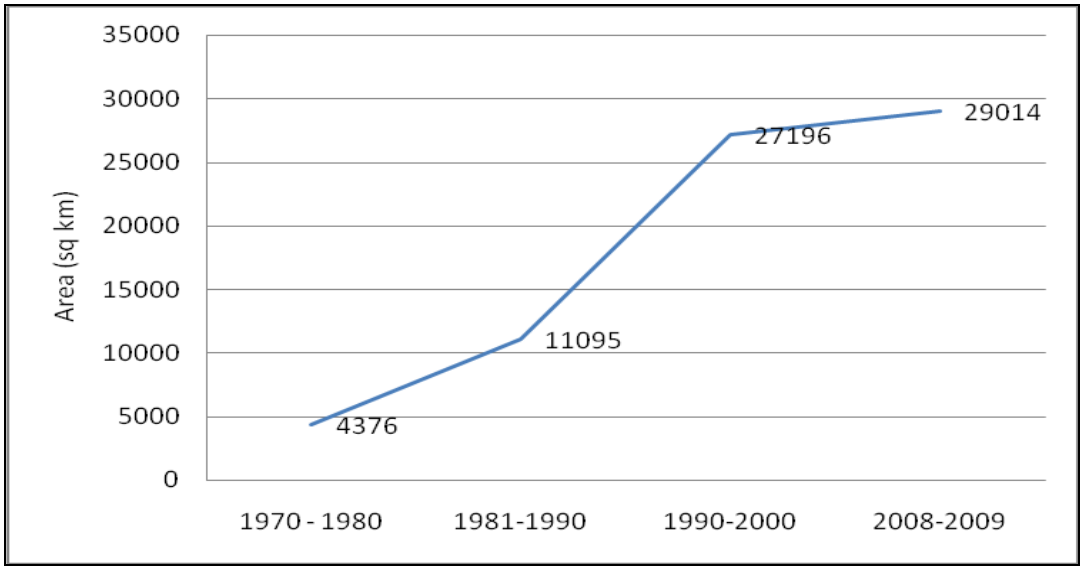
In fact Nepal started to adopt modern conservation approaches only in the 1970s by enacting the National Parks and Wildlife Conservation Act and the establishment of (Royal) Chitwan National Park in 1973. As well as this, hunting has been prohibited to protect wildlife in 21 districts (HMG/MOFSC, 1988a), mostly adjoining protected areas. Initially, conservation activities were primarily guided by two objectives – the preservation of important wildlife species from rapid destruction of forest particularly in the Terai, and the

[13] During that time the price of 10 gm gold in Nepal was just Rs.18 only.

promotion of nature-based tourism as a major economic enterprise (Heinen and Shrestha, 2006). The priority was to protect areas having charismatic animals such as tiger and rhinoceros, and spectacular landscapes such as the Mount Everest region.

Over the past three decades, the country has been successful in establishing an impressive network of Protected Areas (PAs) covering 19.7% of the country's total land mass (DNPWC, 2009). The area under PAs has been increased by more than 6 times, from 4,376 sq km in 1973 to 29,014 sq.km in 2009 (fig 3.1). To date, there are 16 PAs, which include nine National Parks, three Wildlife Reserves, three Conservation Areas and one Hunting Reserve (annex 1). There are also many sacred sites and community conserved areas, which act to conserve important biodiversity, but are yet to be included in the formal protected area systems.

Figure 3.1: Trend of PAs establishment in Nepal



(Source: HMG/MOFSC, 2002 and DNPWC, 2009).

Some of the protected areas of Nepal are globally significant and have been listed as World Heritage property and Ramsar sites.[14] Buffer Zones have been established in and around 11

[14] Sagarmatha (Mt. Everest) National Park and Chitwan National Park are two World Heritage Sites in Nepal. Similarly, altogether seven sites have been designated as Ramsar sites – the wetlands of international significance inside various PAs. These are: Koshi Tappu Wildlife Reserve, Rara Lake in Rara National Park, Phoksundo Lake in Shey-Phoksundo National Park, Gosaikunda and associated lakes in Langtang National Park and Gokyo and associated lakes in Sagarmatha National Park. Other three wetland of

national parks and reserves. With the recent decision of the government to create four new protected areas (one National Park and three Conservation Areas), the networks of PAs would cover more than 23% of the total landmass of the country. Furthermore, recently four new conservation areas have also been proposed in the mountain areas (THT, 2010). The continued increase in the areas under conservation regimes shows a great commitment of Nepal in biodiversity conservation despite being one of the economically underdeveloped and poor countries in the world[15].

The country has been a leader among least developed countries for its commitment to conservation of biodiversity (Heinen and Kattel, 1992). The ratio of PA to total land area of the country is one of the highest in south Asia after Bhutan. An estimate suggests that Nepal spends the highest budget per ha (US$ 26/ha and approx or more than US$ 100,000 per an adult tiger annually) for the protection of tiger habitat in comparison to other tiger range countries. The spending per adult tiger is approximately 26, 13 and 4-6 times more than Indonesia, India and Russia respectively (Damania *et al.*, 2008). The country has developed a wide array of biodiversity conservation policies, plans and legislative instruments (annex 2). Nepal is one of the first countries to have adopted a national conservation strategy in Asia. It has been active in international forums and has been the signatory to more than 20 environment and biodiversity conservation related multilateral agreements such as the Ramsar Convention, the World Heritage Convention, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); the UN Framework Convention on Climate Change (UNFCC) and the UN Convention on Biological Diversity (CBD).

3.7 Conservation achievements:

Nepal's conservation achievements have been impressive. The country has been successful in achieving more than twice the CBD's 2010 protected area coverage target. Only 45% (106 of 236) of nations have over 10% coverage of their terrestrial area (UNEP/WCMC, 2008), of which Nepal is one. After the establishment of protected areas, the populations of many endangered and the globally significant species such as the greater one horned

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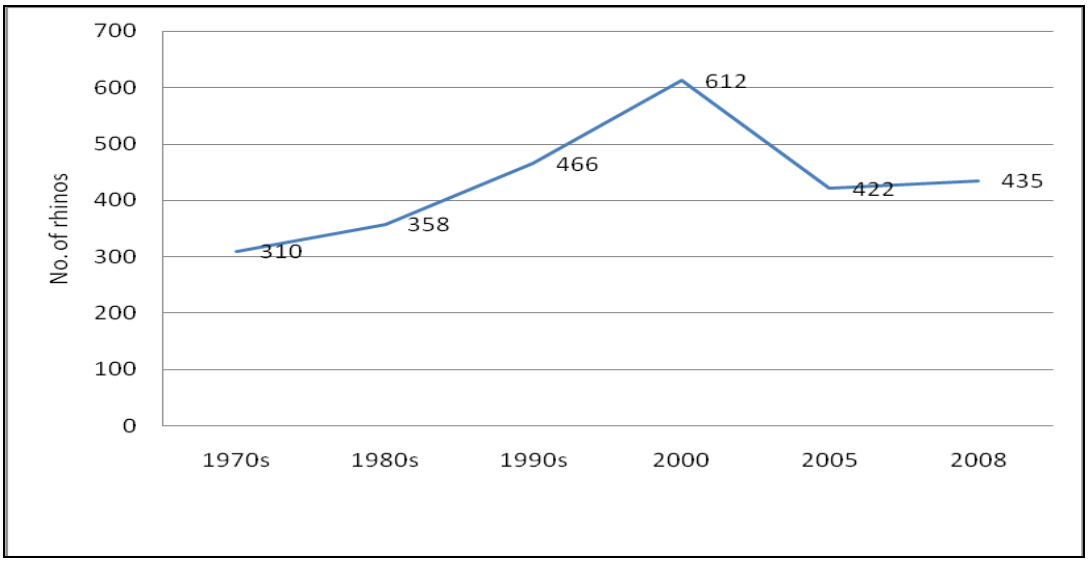
international importance lie outside protected areas are Bishhazari Tal in Chitwan, Jagadishpur Reservoir in Kapilbastu and Ghodaghodi Tal in Kailali districts.

[15] Nepal is in 99th position out of 135 countries in terms of the Human Poverty Index (UNDP, 2009).

rhinoceros, tiger, Asian bison, and wild buffalo have recovered and significantly increased. Figure 3.2 presents the population trend of rhinoceros since the establishment of first national park in Nepal.

Figure 3.2: Rhinoceros population trend in Nepal



(Source: Budhathoki, 2003a & DNPWC, 2009)

In 2000, the population of rhinos was approaching 1950s level. Protected areas both in the mountain and Terai have also been successful in improving as well as protecting the quality of forests inside their boundaries (Beltrán, 2000; Nagendra, 2002; Panta, 2009). Many forestry resources such as thatch, reed and rope grasses, vital for the subsistence of local livelihoods in the Terai, are now available only in protected areas (Lehmkuhl *et al.*, 1988; Sharma, 1991; Sætre, 1993; Sha, 1997).

Furthermore, protected areas have been important tourist destinations for trekking and wildlife safaris for both domestic and international tourists. Mountain protected areas are generally considered as "*a paradise for trekkers and the Mecca for mountaineer*" (Upreti, 1985:21) and a corner stone of the tourism industry (Lucas, 1990). Approximately 40% of the tourists visiting Nepal visit different protected areas (DNPWC, 2009). Government records suggest that almost 94% of trekkers coming to the country in 2007 went to three mountain parks – Annapurna Conservation Area (ACA), Langtang and Sagarmatha (Mt. Everest) National Parks (MOCTCA, 2009). Tourism contributes 76 % of the parks' incomes. The total tourism revenue generated by protected areas (under DNPWC

management) in the fiscal year 2007/2008 was estimated to be approximately US$1.2 million which accounts nearly 44% of the total expenditure of protected area management. In some protected areas, tourism revenue covers up to 85% of the annual budget of the protected area's management (Bajracharya, 2003). This means that the sustainability of both tourism and of protected areas is closely interlinked in Nepal.

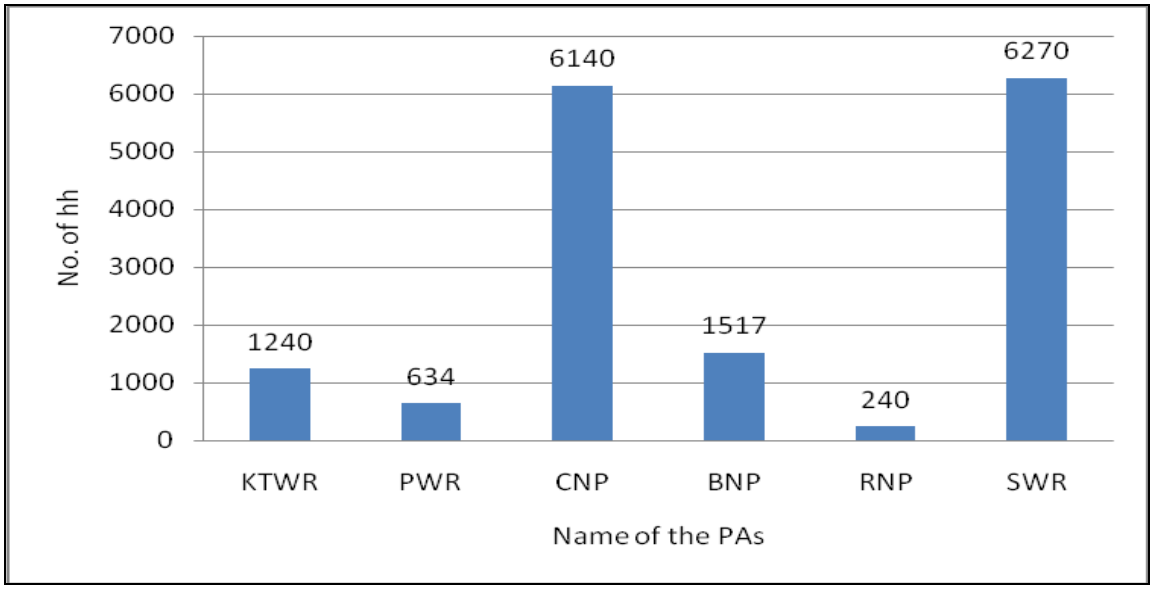
Furthermore, protected areas have been supplying various environmental goods and services. Most of the protected areas contribute to the conservation of watersheds and regulating fresh water, which are fundamental to the economic development and human wellbeing of the country. A study estimates that 40% of the water in Kathmandu comes from Shivapuri National Park (NTNC, 2004). Similarly, the water released from the Shivapuri National Park generates approximately US$7.65 million of financial revenues and economic benefits per year to downstream users, which is 46 times more than annual management costs (US$165,000) of the park (Iftikhar, 2004; Karn, 2008). Similarly, in 1998 it was estimated that villagers collected more than 50,000 tons of biomass (thatch grass, reed, firewood, rope grass) worth more than US$1 million gross from Chitwan National Park (Stræde and Helles, 2000). This amount was nine times more than the annual management budget of the park. Significant benefits were also reported from Bardia National Park (Sætre, 1993**)** and Koshi Tappu Wildlife Reserve (Heinen, 1993). The annual report of the DNPWC suggests that in 2008 more than 170,000 people bought permits to harvest grass from various protected areas in the Terai. Based on Stræde and Helles (2000) calculations, it can be safely estimated that the total net benefit to people in 2008 from grass cutting alone in the Terai protected areas was US $8.5 million. Furthermore, these resources have more than monetary values as the living conditions of the local communities would be difficult if these resources are not available in the protected areas (Lehmkuhl *et al*., 1988).

3.8 Costs of conservation:

The impressive conservation outcomes have been achieved by inflicting the significant costs particularly to communities living in and around protected areas. Critics argue that the creation of national parks and reserves has created particular hardships for indigenous groups who remain dispossessed and displaced (Seeland, 2000; Wily *et al.*, 2009). As of

2010, more than 16,000 HH[16] (over 80,000 people) have been relocated from various protected areas of Nepal (fig. 3.3). Moreover, by creating the parks, the traditional resource use practices of the local communities have been largely restricted or denied.

Figure 3.3.: No of households relocated from various PAs (1964-2010)



(Source: Personal communication: Surya Pandey, Former Management Officer, DNPWC; and Tulasi Sharma, Chief Warden, PWR, 2010).

Besides restriction on the utilisation of forest resources for basic needs, protected animals pose serious threats to life and property of the local people. A study in CNP suggests that 90% of farmers living close to the park have been affected by crop depredation and almost 45% of those raising livestock experience predation on their animals by wildlife (Spiteri and Nepal, 2008). Problems of crop depredation have been similarly reported in other protected areas (Studsrød and Wegge, 1995; Sha, 1997; Bajrachrya, 2003). A study suggests that on average a household living close to Bardiya National Park spends 266 sleepless nights (73% of the total nights in a year) in makeshift watch towers (*Machan*) to protect their crops from park animals (Studsrød and Wegge, 1995).

[16] CNP – Recently, 1740 hh were relocated from Padampur village. Similarly in mid 1960s approx. 22,000 people (calculated as 4400 hh) from 36 settlements were relocated to different parts of the Chitwan valley.
BNP – Squatters who occupied present Lamkuli and Bagauda phata in BNP are not included as they were removed before the establishment of protected area in 1984 and most of them were not permanent settlers.

Additionally, wildlife-induced death and injuries are quite common in Nepal, which adds further hardship to people living in proximity to protected areas. An official report reveals that an average of 2.12 persons per month became the victim of wild animals in different protected areas in 2007/08 (DNPWC, 2008). Similarly a study suggests that during the ten-year period (1997/98 to 2006/07), 424 people were attacked by various wild animals in and around the CNP in which 23% were deaths and 77% were injuries cases (Nakarmi, 2009). Another report revealed that between 1979 and 2006, tigers killed 88 people in and adjacent to CNP (Gurung *et al.,* 2008). Such deaths and disability impose serious economic and emotional problems at the household level (Nakarmi, 2009) making the park-people relationship quite contentious.

Similarly, crop and livestock depredation by wildlife is a significant threat to the subsistence economy of the people living adjacent to protected areas (Sharma, 1991). Some villages close to parks, which were once self-sufficient, are now heavily dependent on income sources from off-farm jobs (SAGUN, 1996, cited in Seeland, 2000). A study in Shivapuri National Park estimated that the average annual opportunity cost of protected areas to local households has been Rs. 27,000 (approximately US$ 375) (Karn, 2008) causing a high incidence of poverty among residents in and adjoining parks (Iftikhar, 2004).

3.9 Understanding park-people conflicts:

Human–wildlife conflict has been a common phenomenon in Nepal for centuries. According to Mr. J V Collier, a forestry advisor to Nepal during the 1930s, "*the history of mankind in Nepal has been, and still is, in many places a story of struggle against the forests and their wild denizens"* (Landon, 1993: 252). Farming was restricted to one crop due to the problem of animal depredation (Regmi, 1999c). However, in the past, people had been compensated to an extent by having free access to forestry resources and grazing. People were also allowed to hunt and to kill or capture problem wild animals. People were not only free to kill animals such as bears, leopard and tigers which intruded into their villages (Regmi, 2002) but could also be rewarded for killing them[17] (Kandel, 2008). There

[17] There was a provision of reward of Rs.5 to the person who could kill a tiger (Kandel, 2008).

was also some tax relief on land prone to wildlife damage (Regmi, 1999b). In this way, the opportunity costs of living close to forests were somehow balanced.

However, the equation changed with the establishment of protected areas. Government policy and practise have been largely in favour of wildlife rather than local communities. Furthermore, the conservation policies of Nepal have always been towards protection and restriction, which has turned the once traditional lifestyles of local people into illegal activities. Some critics argue that *"...there are laws to exclude, but few to give people rights"* (Sætre, 1993:3). Local people have been viewed as 'poachers', 'encroachers', 'squatters' or 'illegal users' (Paudel, 2005). Large numbers of soldiers have been deployed to impose restrictions on the 'unlawful' activities of the local people. Nepal may be the only country in the world where the army has been regularly deployed in the protection of parks (Budhathoki, 2003b). This has left people with no choice other than to evade the rules for their survival. One study reveals:

"….while the park administration is committed to effective wildlife conservation, the local people continue to trespass on the park for collection of various forest products, livestock grazing, and wildlife hunting and fishing, as there are hardly any alternative sources for firewood and fodder collection and grazing grounds"(Nepal and Weber, 1995:854).

In a country where 90% of the population live at the interface between farm and forest, the restriction or denial of access to protected area resources would obviously cause economic and social hardship for local people (Shrestha, 1999) leading to serious conflict between people and park management. For example, in 1998/99 around 1,239 people were caught illegally collecting grass and fuel wood from the Chitwan National Park (Adhikari *et al*., 2005) which is generally believed to be just a 'tip of the iceberg' of the actual offences (Sharma, 1990). Besides, many incidents of violent clashes between park staff and local communities have been reported (Nepal and Weber, 1993; Jana, 2007; Mishra, 2008). Villagers poison animals such as tigers and rhinos in retaliation for the loss of their livestock and crop respectively (Mishra, 1982; Martin, 2001). A study suggested that at least 10% of the park's tiger populations in Nepal were poisoned between 1988 and 1999 (Martin, 1992). Electrocution of rhinos and wild buffalos (*Bubalus arne*) has also been occasionally reported. It was reported of the eight wild buffalos (*Bubalus arne*) found dead in 2006 in Koshi Tappu Wildlife Reserve, seven (or > 87%) were killed (mainly by electrocution) by farmers to save their crops (DNPWC, 2007). Although globally significant and strictly protected by state law, for a poor farmer these animals are no more than pests.

Local people have been found indifferent to rhino poaching as they generally believe that poaching would help reduce their crop damage (personal observation). Even if local people rarely collaborate with poachers, lack of public support has been making anti-poaching activities more difficult despite the presence of large numbers of army in the parks. In Chitwan National Park, soldiers themselves express limited confidence that the conflicts between human and wildlife needs can be solved by force (Sharma, 1991) and consider the posting to Chitwan National Park as a hardship posting (Martin and Vigne, 1995).

Apathy among local people towards park management seems obvious as they lose more from conservation than they gain by supporting it (Upreti, 1991; Adhikari *et al.,* 2005). The opportunity cost is so high that there is too little for people to realise conservation benefits (Shrestha and Alavalapati, 2006). A study revealed that the value of crop damaged by the park wildlife in Bardia National Park is ten times more than economic value of grass harvested from the park (Studsrød and Wegge, 1995). For poor people, strictly protected parks are no more than a symbol of hardship and locked resources (Budhathoki, 2004).

The issue of park-people conflicts has been one of the biggest challenges for the effective management of protected areas in Nepal. Evidence suggests that from the very beginning of the establishment of national park systems in Nepal, the problems of a 'fortress approach to conservation' had been well realised at all levels – from royalty to park ranger (Bolton, 1976; Mishra, 1982, Upreti, 1985, Sakya, 1989, Mishra, 2008, Gurung, 2008). The following three statements: first by the former King Gayanendra Bir Bikram Shah; second by the first Director General of the Department of National Parks and Wildlife Conservation (DNPWC); and third by an internationally well-known conservationist will elucidate the difficulties of imposing strict conservation rules on the real ground situation of Nepal.

"In the long run, the protection and proper management of national parks is not viable without making adequate provisions of the basic needs of the rural communities that reside on the fringes of such protected areas" (Shah, 1985:6).

"In fact, talking about conservation without giving adequate importance to human life and property is futile, as far as maintaining the stability of the parks and reserves is concerned" (Upreti, 1985:21).

"The problems of Nepal's protected areas arise from significant imbalance between economic costs and benefits at local levels – in communities close to the park boundaries. A

failure to correct these local costs–benefit imbalance could lead to a worsening of these problems" (Wells, 1994:326).

The growing realisation of difficulties in the application of the 'Yellowstone Model' in the Nepali context should be taken as an important learning. In fact, the initial motivation among the elites was crucial in shaping the trajectory of the conservation policies of the country, since conservation initiatives in the beginning were primarily driven by the interest of the royal family and their foreign friends. The lessons were clear that in a country such as Nepal, where no park has been out of human use for centuries "*human use of protected areas is not only necessary but inevitable*" (Ham *et al.,* 1993:234). As a result, more reconciliatory conservation policies have been gradually developed to accommodate the basic resource needs of the local people (Gurung, 2008; Paudel *et al.*, 2008).

Since 1976, annual grass cutting programmes in the Terai parks and the collection of 'pine needles' in Rara National Park in the mountain have been introduced. Subsistence fishing and wild vegetable collection with permits has been allowed in the Terai Parks. Similarly, taking the lessons from the difficulties of relocating people from earlier established parks, 'people-free park' policies have been abandoned in establishing protected areas in the mountains. Sharma (2001) argues that the exclusionary criteria laid down by the international conservation communities was not possible or even desirable in the context of park management in the Himalayas.

The Himalayan National Park Regulations 2036 (1979) was thus passed to accommodate the basic needs of local people such as grazing, timber, firewood and fodder collections, and wild plant gathering in the mountain PAs. Such policy changes paved the way to create protected areas in the mountain regions of the country without disturbing the livelihood, culture and traditional practices of the local people. The policy recognised the rights of indigenous people to live in their homeland. Most of the parks established after the 1980s thus allow the continuation of existing settlements within them. To date, half of the protected areas in the country embrace settlements and farmlands. Nonetheless, in legal terms, settlement and private lands have been technically excluded as 'enclaves' even where they are located within park boundaries, and traditional resource use and management mechanisms have not been fully recognised. Additionally, as in the Terai Parks and Reserves, the use of park resources by people living outside but adjacent to the boundary of parks is restricted.

Although park-people interactions are wide and complex, earlier legislation was mainly focused on protecting species and their habitat from people (Heinen, 1993; Heinen and Kattel, 1992). Since the access to some basic forestry resources was important to improve park-people relations (Mishra, 1982; Stræde and Helles, 2000), the government had tried to minimize park-people conflicts by giving limited access to resources. However, the access to park resources was insufficient to reduce the overall level of conflict (Nepal and Weber, 1995; Stræde and Helles, 2000). This has prompted the search for more comprehensive and sustainable conservation mechanisms to address the complex issue of park-people conflicts in Nepal (Sharma, 1991; Nepal and Weber, 1993).

3.10 Shift towards participatory conservation:

With a conciliatory approach in mind, the NPWC Act has been amended four times since its first enactment in 1973. These amendments slackened the government control in protected area management and set the ground for the development of socially progressive conservation programmes (Heinen and Shrestha, 2006). In each amendment some innovative and progressive elements have been introduced to enable park management to be more pro- people and participatory. Although the first amendment was relatively minor, the second amendment in 1982 was very important because it not only tried to extended protection of endangered species and areas, but also introduced the provision of culling problem animals to protect lives and properties of the local people from wildlife (HMG/MOFSC, 1995). The third and fourth amendments of the NPWC Act were substantive and can be considered as a milestone in the conservation history of the country. The third amendment in 1986 introduced the concept of Conservation Areas[18] and recognised the role of local communities and NGOs in protected area management. The Conservation Area model attempts to balance the needs of the people, tourism and nature conservation (HMG/MOFSC, 1988b). In 1993, the Act was further revised to incorporate more participatory and collaborative elements such as the Buffer Zone[19] concept and the

[18] Conservation Areas most closely correspond to IUCN Category VI (managed resource or extractive) reserves, but have aspects of Category V as well (managed landscapes and seascapes) (Heinen and Shrestha, 2006).

[19] Buffer Zone is an area set aside around a national park or reserve for granting opportunities to local people to use forest products on a regular basis (HMG/N, 1996).

provision of park benefit sharing with local communities (HMG/MOFSC, 1995). Moreover, the Buffer Zone concept was introduced to mitigate the impact of government managed protected areas on local communities and thereby to reduce the adverse impacts of local people on protected areas (Budhathoki, 2004).

An analysis of conservation policy development process reveals that Nepal's conservation policies and practices seems to have inbuilt adaptive learning approaches in them (Paudel *et al.,* 2008). As a result, the conservation paradigm in Nepal has been always dynamic and progressive in order to embrace the prevailing situation and in maintaining a better balance between short-term human needs and long-term ecological integrity. Overall, the trend suggests that within the short period of three and half decades of conservation history, there have been major changes in conservation policies and strategies giving emphasis from sheer protection to people's participation and from species to ecosystem focus (table 3.1).

Table 3.1: Change in conservation paradigms in Nepal

Past	Present
• Strict protection • Species focus • Control in resource use • Island approach • Centralized and government controlled	• People's participation • Ecosystem focus • Resource and revenue sharing • Landscape approach • Decentralised and opened to NGO and private sector involvement

(Source: Budhathoki, 2005a)

Since the 1990s, conservation discourse in Nepal took a major participatory turn (Ojha *et al.,* 2008). The change in the socio-political context in Nepal following the restoration of a multi-party democratic system in 1990 encouraged the government to introduce participatory management approaches in protected areas (Budhathoki, 2004). Review of conservation literature also indicates that these changes have been largely influenced by national development priorities and by contemporary international conservation discourses (table 3.2). Furthermore, participatory conservation initiatives such as conservation area and Buffer Zone management initiatives were initially piloted through externally funded projects in mid 1980s and 1990s respectively.

Current approaches to nature conservation in Nepal are directed toward preserving and harmonizing the contrast between nature and traditional practices (Müller-Böker and Kollmair, 2000). The country has been trying to balance protective and participatory approaches to resource conservation simultaneously. At the one end of this continuum, there are strictly protected Terai parks with no or minimal people's participation in park protection and management. On the other hand, in Buffer Zone (BZ) and Conservation Area (CA) management, a participatory conservation approach with better community access to the forest resources has been adopted. The Himalayan Parks fall in the middle of this continuum where local people are allowed to collect fuel-wood, fodder and leaf-litter for domestic use and seasonal grazing (fig. 3.4).

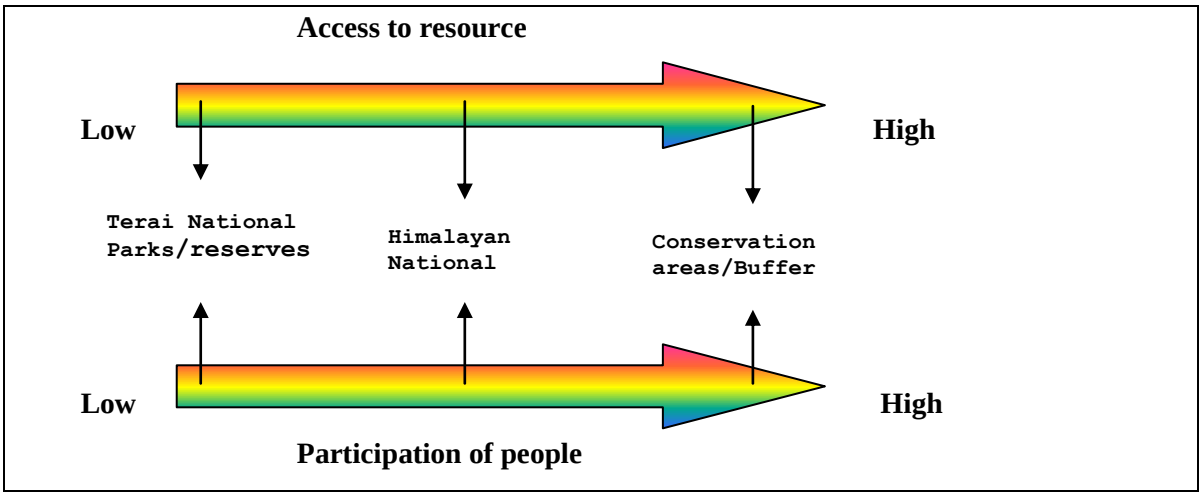
Broadly, the country has been adopting the conservation area model (conservation with people) in creating new protected areas, and the Buffer Zone approach (conservation through people) in managing existing parks and reserves, recognising the role and importance of 'people' and 'lived in landscapes' for the long-term conservation of biodiversity (Budhathoki, 2005a:85). With the introduction of the conservation area and the Buffer Zone concepts, the management paradigm of protected areas has been shifted from protective to collaborative management (Maskey, 2001).

Table 3.2: National political systems, development policy and international conservation discourses and their influence on the conservation paradigms of Nepal.

Period	Major national development discourses	National political systems	Major national PA discourses	Major international conservation discourses
1970s Imposition and enforcement era	Infrastructure development Regionally balance development Top down	Autocratic party less Panchayat system with king as absolute sovereign	Establishment and expansion of PAs. Adoption of strict rules to protect globally threatened species and habitat from rapid destruction.	Protecting biodiversity from human activities Expanding protected areas systems
1980s Expansion and involvement era	Fulfilling the minimum basic needs of the people. Integrated rural development Decentralisation		Introduction of integrated conservation programme to fulfil basic needs of the people.	Linking protected areas/biodiversity conservation to sustainable local development.
1990s Integration and incentive era	Decentralisation and empowerment Economic liberalisation	Multi party parliamentary democratic system with constitutional monarch	Participatory and collaborative conservation approach. Conservation benefit sharing with local communities	Integration of local and indigenous people in conservation decision making.
2000s Empowerment and environmental mainstreaming era	Poverty alleviation Inclusive socio economic development	Since mid 2000s republic federal democratic state	Conservation through landscape based approach in collaboration with local communities and other development agencies	Expanding biodiversity conservation in the wider landscape through social and economic mainstreaming.
2010 Inclusive and equitable era	Inclusive and broad-based economic growth			

(Source: Author, 2010)

Figure 3.4: Conservation Continuum



(Source: Budhathoki, 2005a)

Now, participatory and people-oriented approaches to conservation have been the mainstream conservation discourses in Nepal. Conservation policies of Nepal also recognise that the future of conservation largely depends on the better management of the areas outside the parks and with the cooperation of local communities. Adoption of such policies has facilitated the emergence of a variety of protected area governance regimes ranging from government managed strict protected areas for biodiversity conservation to community managed multiple resource use conservation areas (table 3.3).

Governance analysis of PAs suggests that government is still a dominant actor in conservation, taking direct responsibility for over 81% of the protected areas of various IUCN categories where local communities have no or very little formal role in their management (fig. 3.5). In total, NGOs/CBOs are responsible for the management of 19% of the PAs whereas the private sector is completely absent in the biodiversity governance process. However, the spatial area under co-management regime is more than the area under direct government management regime (fig. 3.6). Similarly, at present only approximately 34% of the PAs' surface area and 62.5% of the number of PAs are under army protection in comparison to 100% for both in 1970s. Three decades ago, the involvement of NGOs and community based organisations (CBOs) in conservation was not in existence and largely unthinkable.

Table 3.3: Protected area management objectives and governance types of Nepal

National designation	Management objectives and definitions	IUCN category	No. of PAs	Area (Sq Km)[20]	Governance type
National Park	An area set aside for conservation, management, and utilization of wildlife, vegetation, and landscape together with the natural environment.	II	9	10303	Government Managed
Wildlife Reserve	An area set aside for the conservation and management of wildlife resources and their habitat.	IV	3	979	Government Managed
Hunting Reserve [21]	An area set aside for the management of wildlife resources for hunting purposes.	IV	1	1325	Government Managed
Conservation Area[22]	Area managed with an integrated plan for the conservation of the natural environment and the sustainable use of natural resources	V	3	11327	Co - managed[23]
Buffer Zone[24]	An area set aside around a national park or reserve for granting opportunities to local people to use forest products on a regular basis	VI	11	5079.67	Co-managed [25]
Total			27	29013.67	

(Source, Author, 2010)

Data also reveals that NGOs and local CBOs have been involved in the management of PAs in categories V and VI (table 3.3), found in the high mountain zone where population pressure is relatively lower than in the Terai parks. All protected areas in the lowland Terai are still under a strict management regime and any role of people in their management has

[20] PAs data are derived from (DNPWC, 2009).

[21] The broad goals of hunting reserves as managed in Nepal correspond approximately to those of IUCN category VIII (Heinen and Kattel, 1992). However, (Shrestha, 1999) suggests IUCN category IV.

[22] CAs do not exactly correspond to any particular IUCN protected area category but have some characteristics of both Category V (Managed Landscape) and Category VI (managed resource area) protected areas (Heinen and Mehta, 1999).

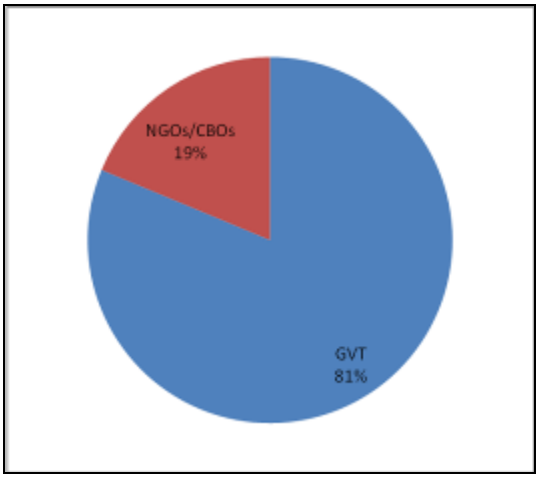
[23] Two conservation areas jointly managed by the government, national NGO and local communities and one CA jointly managed by government and local conservation committee

[24] BZs in Nepal adopt all the key elements of the Category V protected landscape approach (Budhathoki, 2003a).

[25] BZs are jointly managed by the government and Buffer Zone users committee

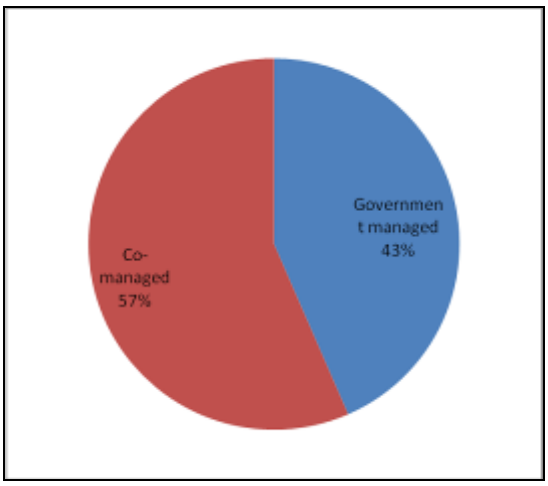
been completely denied. Some assert that due to intense human pressure over resources, government's strict control in the Terai PAs is necessary to check unsustainable human activities (Bajimaya, 2005). Conservationists further argue that without constant vigilance and strong enforcement by the army, protected areas in the Terai having globally important species would be difficult to protect (Wells and Sharma, 1998; Shrestha, 1999; Terborgh, 1999). By adopting such mixed governance and management strategies, DNPWC has been successful in continuing its strict conservation practices as well as bringing more areas under conservation regime. Approximately 62% of the total areas under protected area regimes have been actually added since 1990, 92% of these being conservation areas and Buffer Zones in the existing park and reserves.

Figure 3.5: Management authority and no. of PAs (%)



(Source: Author, 2010)

Figure 3.6: PAs governance types and area coverage (%)



(Source: Author, 2010)

3.11 Challenges of biodiversity conservation:

Despite nearly four decades of active conservation and progressive policies, threats to sustainable biodiversity conservation continue to exist in different forms and scale. The DNPWC is successful in establishing excellent networks of PAs, but have been facing difficulties in running these networks effectively (HMG/MOFSC, 1988a). The statement below describes the precarious state of conservation in the Terai:

"...increased human pressure and subsequent degradation of critical forest habitat outside protected areas continued unabated. As a result, large carnivores, such as tigers became restricted into small and isolated parks and reserves surrounded by a matrix of other competing land use. Currently, wildlife conservation in forests outside protected areas

(national forest) is virtually nonexistent; very few tigers occur in this habitat because the degraded landscape, increased human activities, and hunting pressure have widely reduced the tiger prey base below a level needed to support resident breeding tigers" (Shrestha, 2004:2).

Challenges to protected area management are multi-dimensional (table 3.4). Many of the factors leading to biodiversity degradation of protected areas have been linked to national government policies far from PAs boundaries (McNeely, 2008). Similarly, the social, economic and political situation of the country critically influence and limit the environmental performance of legal and administrative processes (NPC/IUCN, 1991). Wells (1994) argues that conflicting economic interests appear to be more critical to the sustainable protected area management in Nepal than social and institutional factors. Threats deriving from these factors can undermine the long-term survival of protected areas in Nepal. Many of the conservation problems are beyond the capacity of PA management authority and demand actions from diverse stakeholders at different levels. A study suggests that in order to achieve conservation and livelihood objectives in human dominated landscapes, a clear understanding of synergies between livelihoods and biodiversity conservation and the institutional arrangements or social conditions that facilitate potential synergies is essential (Persha *et al.*, 2010).

Table 3.4: Achievements and challenges of protected area management in Nepal

Achievements	Challenges
➢ Impressive networks of PAs ➢ Increase in the number of globally endangered wildlife species ➢ Elaborated policy frameworks ➢ Strong institutional presence ➢ Progressive and people centred policies ➢ Strong law enforcement mechanism ➢ Varieties of protected area categories/ governance types ➢ Attractive destination for national and international tourists ➢ High interests of the international conservation agencies	➢ Destruction and fragmentation of natural habitats outside protected area ➢ Growing industrial pollution ➢ Evasion of invasive species ➢ Poaching of key animals ➢ Growing pressure on park resources ➢ Growing development pressure ➢ Unmanaged tourism activities ➢ Poor public relation ➢ Unstable political situation ➢ Delay in policy improvement and community empowerment ➢ Decreasing budget and human resource ➢ High protection cost (>75% of the total NP budget) ➢ Climate change

(Source: Author, 2010)

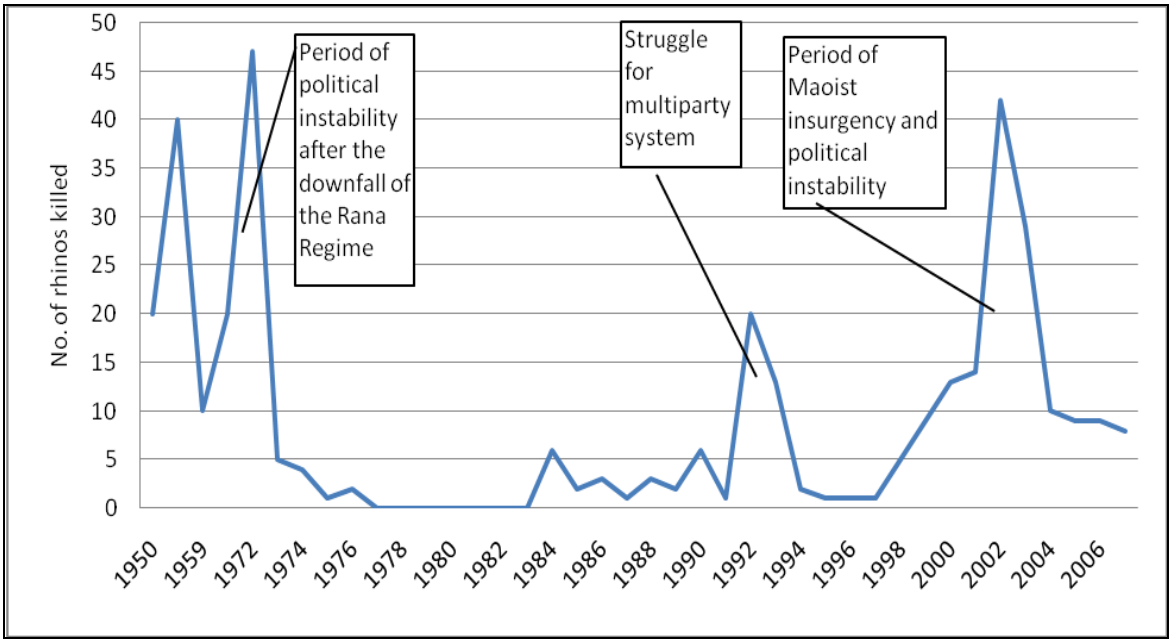
3.11.1 Political issues:

A key factor in sustainable conservation has been the recurrent political instability in the country. Since the 1950s, Nepal has been in political turmoil approximately every ten years, and every period of political unrest has been detrimental to natural resources and biodiversity. Elsewhere political instability and conflicts always accelerate deforestation and forest encroachment (FAO, 2009b). Evidence suggests that during the last six decades of conservation history, Nepal has undergone two major 'eco depressions' one in the 1950s and another in the early 1920s. Due to political instability in the 1950s and 1960s, the wildlife population of the country drastically reduced resulting in a local extinction of some species (Heinen, 1995 cited in Sah, 1997). This period can be termed as a decade of 'population sink' for wildlife species. Data reveals that between 1950 and 1966, Nepal lost approximately 87.5% of its rhinoceros population, mostly due to rampant poaching.

Similarly, the recently ended Maoist insurgency (1996-2006) had had devastating effects on protected area management. During the peak of the government-Maoist conflict (2000-2004), the country lost 31% (from 612 to 422) of the rhinoceros population, in which 50% (95 rhinoceros) of the deaths were recorded as poaching losses (fig. 3.7). The number of rhinoceros poached in Nepal between 2001- 2005 was probably the highest of any country during that period (Martin and Martin, 2006).

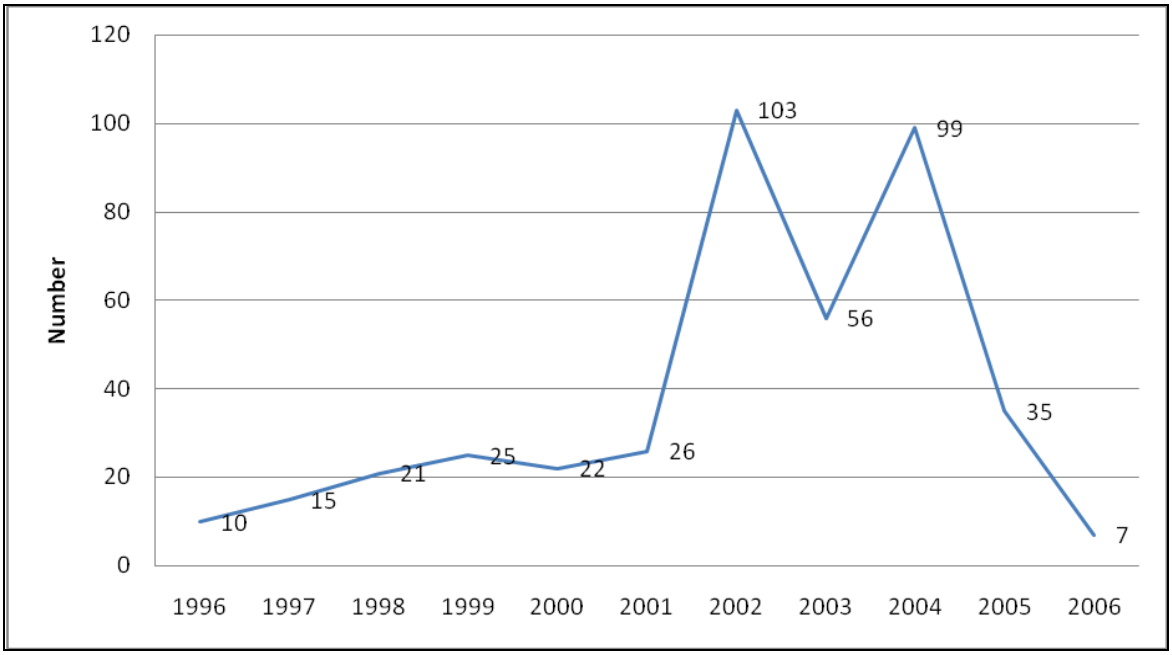
Additionally, throughout the insurgency period, biodiversity-related infrastructure was one of the key targets of Maoist rebels (Upreti, 2009) (fig. 3.8). Besides destroying wildlife, its habitat and park infrastructure, the decade-long insurgency also took the lives of many park staff (Yonzon, 2002; Budhathoki, 2003b; Baral and Heinen, 2006; Sakya and Chitrakar, 2006; Uperti, 2009). Maoist rebels maintained the perception that parks and reserves were protected for the purpose of recreation of the royal families at the cost of the poor people (Uperti, 2009). Even the highly-regarded ACA and KCA became victim to Maoist attacks (Bajracharya, 2003; Gurung, 2006), citing their affiliation with NTNC (formerly KMTNC whose patron was the King) and WWF – a US-based NGO.

Figure 3.7: Impact of political instability in rhinoceros population



(Source: Modified from Maskey, 1998; DNPWC, 2008)

Figure 3.8: Destruction of biodiversity-related infrastructures by Maoist attacks

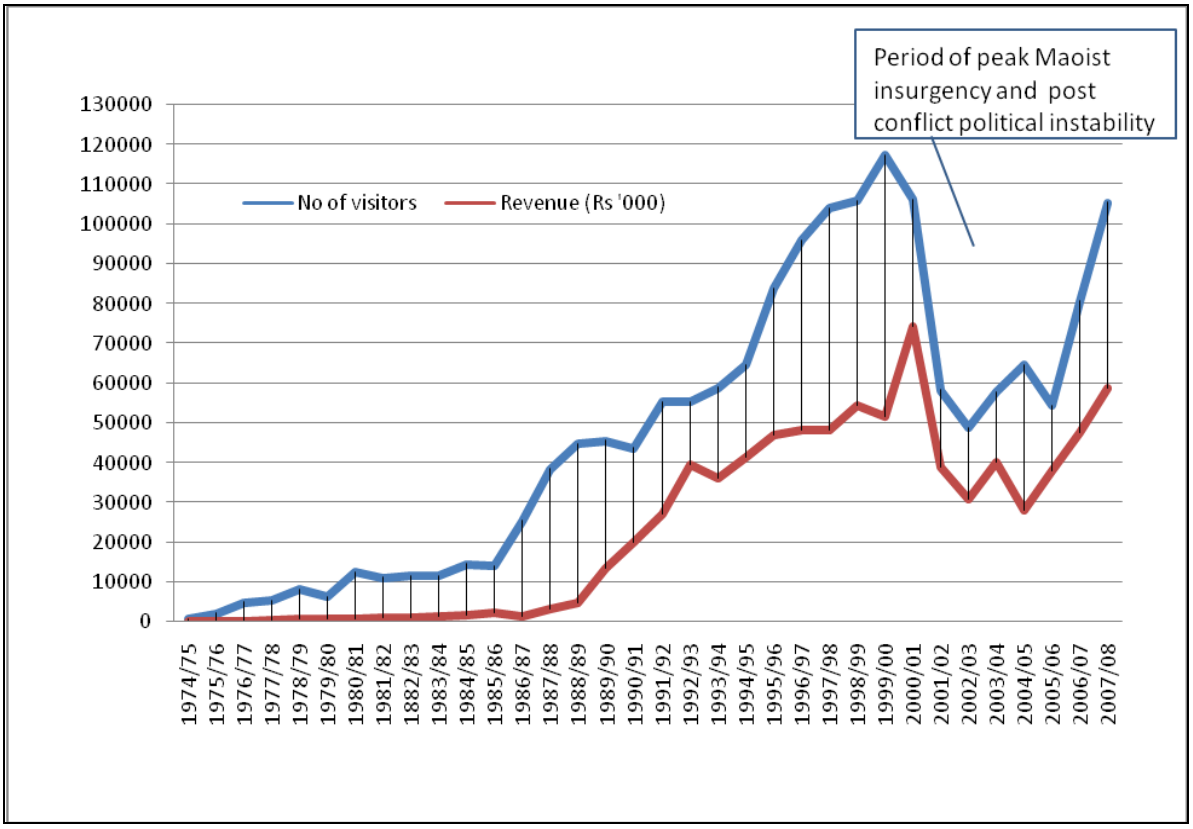


(Source: Adopted from Upreti, 2009)

A similar relationship can also be observed between political instability and tourism activities in the PAs. During the peak of Maoist insurgency numbers of tourist in PAs severely declined, resulting in a drastic reduction in park income and local livelihood

opportunities. For example in CNP, between FYs 1999/00 and 2002/03 the number of visitors and park revenue dropped by nearly 58% and 40% respectively (fig. 3.9). To some extent all protected areas in Nepal had been found quite vulnerable to political crisis irrespective of their governance systems, suggesting that the conservation agencies of a developing country such as Nepal, where political unrest regularly occurs, should give due attention to the adoption of policies and strategies that are less susceptible to potential political instability. Without a robust system in place, a country such as Nepal can lose years of conservation achievements within a short period of political unrest.

Figure 3.9: Tourists and revenue trend in CNP



(Source: Author, 2010, & CNP Office Data)

However, political change also creates an opportunity to improve policies. Political crisis generally brings about a greater pressure on and willingness on the part of the establishment to accept and implement long-overdue political reforms. Moreover, political regime changes can affect the state's land management objectives and control over resources (Nightingale, 2003). It has been observed that liberalization in protected area paradigms in Nepal largely coincides with the popular and broader democratic and decentralisation movements in the country and the openness of public policies (Heinen and Rayamajhi, 2001), including

conservation policies, as described in the previous section. Governments abusive to people have generally been found to be abusive to nature (Shapiro, 2001), whereas egalitarian government in general promotes benign and socially just policies, which help to create a more favourable socio-economic situation vital to sustainable conservation.

3.11.2 Socio- economic issues:

Nepal is one of the poorest countries in the world with per capita income at US $470 (2009) (World Bank, 2009) and 31% of the population below the poverty line[26] (NPC, 2007). It is also one of the most land hungry countries in the world where 85% of households are considered land poor (Wily et al 2009). Among all countries in the Himalaya region (Himalaya part only), Nepal has the lowest percentage of forest cover, has the highest density of human and livestock per Ha of land, and also has lowest availability of forest and grazing per unit of livestock (Bhatt, 1993).

Despite an increase in area under cultivation, agricultural production per unit area has not increased, turning the country from a major food exporter to South Asia into a net food importer (NPC, 1992). Nepal has lowest economic growth and the highest inequality index (Gini coefficient 0.41) in South Asia (World Bank, 2009). Even the modest economic growth achieved in recent years has come at a high environmental cost (World Bank, 2008). A study by Koop and Tole (2001) suggests that high levels of poverty and inequality generally accelerate forest decline by hindering the transition to demographic stability.

Since the average agricultural land per capita is just around 0.14 ha (FAO, 2009a), the amount of land available is simply insufficient to produce enough food for an average household size of nearly six people. Since about 80% of the households depend on farmland for their livelihood (CBS, 2004), continued population growth in the absence of alternative economic opportunities obviously increases the demand for farmland. A report reveals:

"..lack of off–farm livelihood opportunities is one of the main drivers behind the continuing need for land and reliance on forest resources, and hence it has been identified as a key factor behind land conversion, unsustainable harvesting of timber and firewood and degradation of watersheds" (HMG/MOFSC, 2004:19).

[26] In reality, no matter how and where we draw the poverty line, everyone in Nepal is poor. The only difference may be that some are 'hard core poor', some 'ultra poor' and the rest 'merely poor' (Panday, 1999).

A study suggests that deforestation and fragmentation are generally driven by the prevailing socio-economic and demographic factors (Grau *et al.*, 2003). Since the population and land-based resources are not evenly distributed across the physiographic zones (fig.3.10), in recent decades the forests of the Terai region have been taking the burden of this mismatch between population growth, poor economic performance and land-based resources. Deforestation is still continuing particularly in the mid and far western Terai regions of the country (DoF, 2005), where HDI is the lowest (UNDP, 2009) and the concentration of poor and landlessness is the highest in comparison to other development regions[27] of the country (Shrestha, 2001). Nepal is one of the top ten countries in terms of deforestation of primary forest,[28] having lost 9.1% between 2000 and 2005 (Butler, 2005). A report also suggests that the deforestation rate of Nepal between 1990 and 2005 was approximately 6.4 times the global average (Irland, 2009).

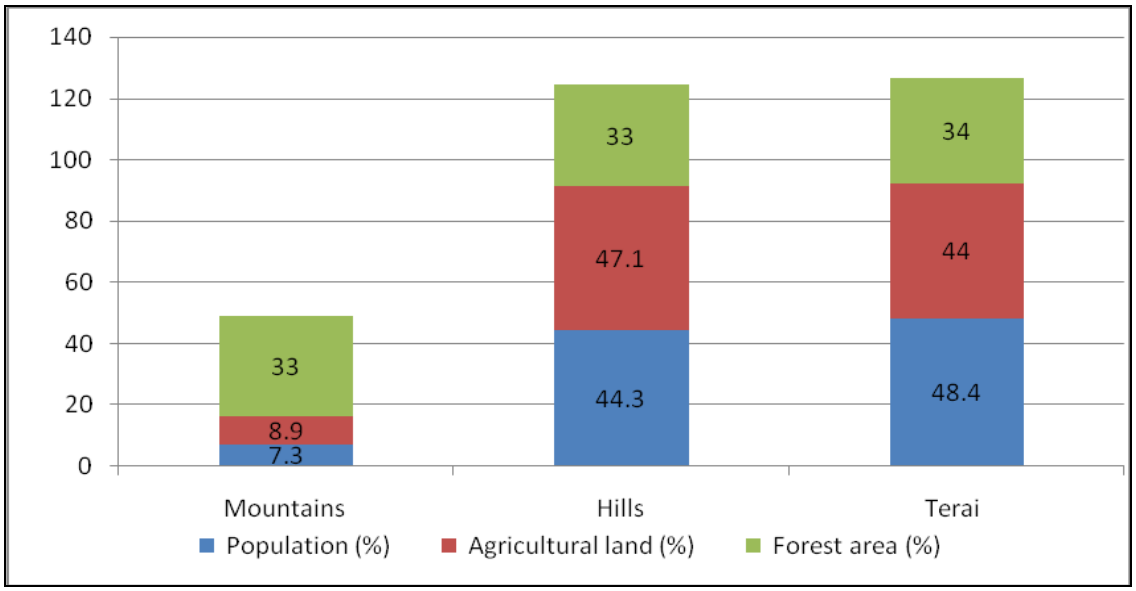
The Terai, which covers only 23.1% of the total land mass of the country, is currently inhabited by 48.5% (36.6% in 1971) of the population with 330.78 person/sq km density (CBS, 2002). The per capita forest area including PAs in the Terai (0.10 ha) is less than half of the national per capita (0.27 ha) (DOF, 2005). The continuing decline per capita of land-based resources (agriculture and forests) indicates that further land colonization in the Terai would not be possible without causing permanent damage to its bio-physical resources (Srivastav, 2008), in particular protected areas and important wildlife corridors.

Impacts of the continued loss of forests on biodiversity conservation are already evident in Nepal. As forests of the Terai have become highly fragmented and degraded, many big mammal species such as rhinoceros, elephants and tigers have been restricted to a few small and partially or completely isolated habitats (HMG/MOFSC, 2004; Shrestha, 2004; Pradhan, 2007). At present, suitable and safe habitats for wildlife are available in protected areas only and megafauna such as tiger, elephant and wild buffalo (Arna) have been confined to three, four and one populations respectively (Shrestha, 2004; Pradhan, 2007).

[27] Nepal has been divided into five development regions namely East, Central, Western, Mid Western and Far Western development regions.

[28] Primary forest: Forest of native species where there are no clearly visible indications of human activities and the ecological processes have not been significantly disturbed (FAO, 2010).

Figure 3.10: People and key land based resources in the different physiographic regions of Nepal

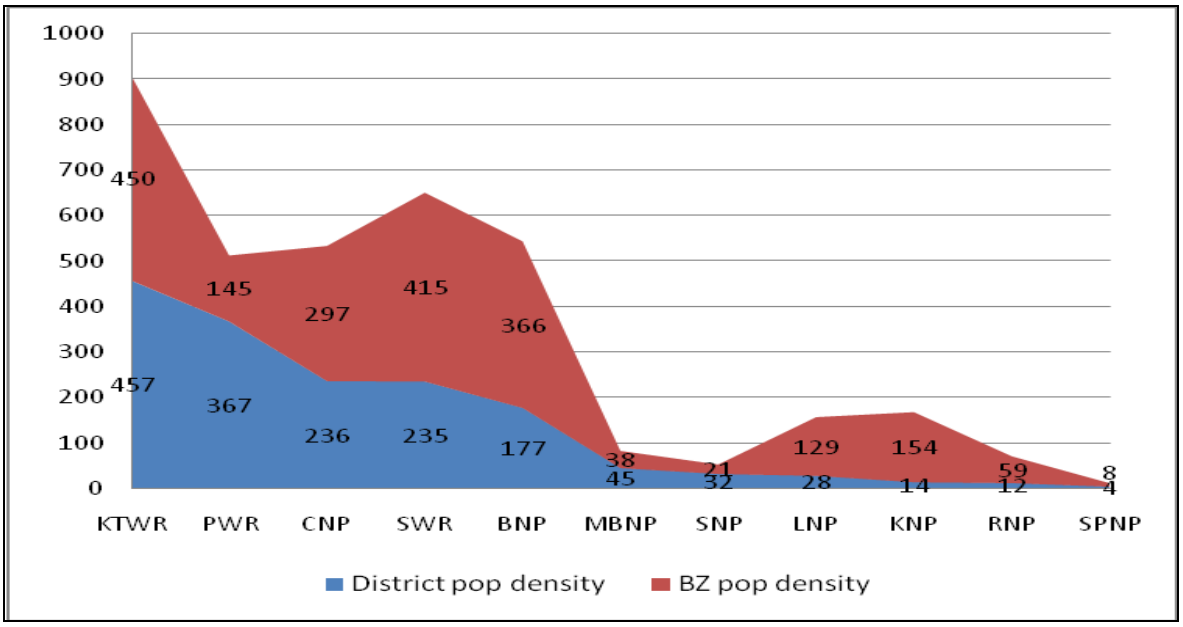


(Source: HMG/MOFC, 2002)

The ongoing deforestation of natural areas has been threatening the basis of ecological sustenance and human subsistence (Shrestha, 1999). The further growth of human population thus poses a much great threat to conservation in a country like Nepal where the preferred habitat of endangered large mammal species overlaps with intensive cultivation and a high human population (Dinerstein, 2003). Data also reveals that population densities in proximity to many protected areas are higher than the respective district averages (fig. 3.11). Sætre (1993) suggests that human pressure on areas adjoining park boundaries will continue to grow under the current economic scenario.

With rapid habitat loss, many wild animals inevitably live in close proximity to villages. According to one study, more than 88% of all elephant sites are less than 500m from human settlements (DNPWC/MOFSC/GON, 2009) causing intense human-wildlife conflicts. Evidence suggests that a high population density has a converse relationship with the amount of land set aside for conservation, and a positive co-relationship to the extinction of species (Luck, 2007) requiring larger and natural habitat. Such a relationship between population density in the Buffer Zone and the local extinction of big mammals can be observed (correlation coefficient (r) = 0.59) in the Terai PAs of Nepal (fig. 3.12).

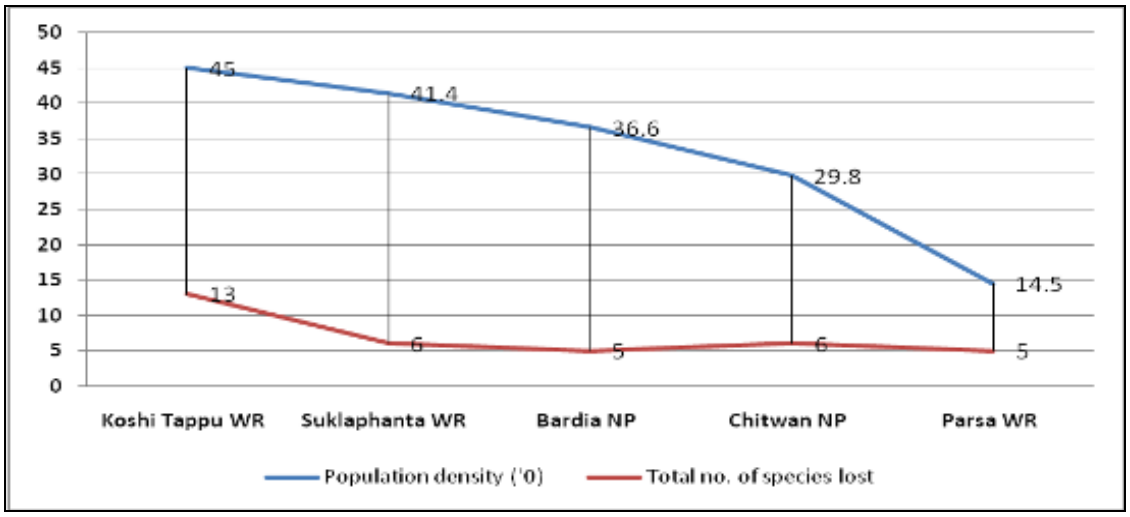
Figure 3.11: Population density of the parks adjoining districts and the BZ areas



(Source: ICIMOD/CBS, 2003 for district population density; DNPWC Annual report 2006/07 for BZ population density).

Note: Population densities of PA adjoining districts have been averaged for the calculation district population density.

Figure 3.12: Relationship of population density and loss of species in the Terai PAs



(Adopted from Heinen, 1995 cited in Sah, 1997)

The socio-economic indicators of Nepal thus indicate multiple challenges to sustainable biodiversity conservation. It has been argued that with the current level of poverty, Nepal cannot sustain the present level of protection and associated resource use restriction (RRN/CECI, 2007). However, poverty and overpopulation may be symptoms rather than causes of environmental degradation (Bhatia *et al.*, 1998). Similarly, deforestation and

fragmentation are not unidirectional processes in the tropics. Since many of the factors leading to loss of biodiversity originate in national government policies (McNeely, 2008), shifts in socio-economic and political decision making can reverse deforestation and fragmentation trends (Lugo, 2002). A Puerto Rican case study suggests that the change in national economic policy from agriculture to industry-based economies, and human migration from rural to urban areas in response to shifts in economic activities could increase forest cover (Lugo, 2002; Grau *et al*., 2003).

Since macro-economic policy may change land use practices leading to the recovery of forest cover and biodiversity, the rapid resource degradation problems of Nepal should be a central concern in the design of both macro-economic and sectoral policies (World Bank, 1992). Studies suggest that a productive approach to development can actually be built upon conservation insights (Hatley and Thompson, 1985). According to Koop and Tole (2001), Nepal's environment–development trajectory would take a path of sustainability if the country were able to alleviate poverty pressure on the environment and promote environmental awareness. In other words, indirect and direct drivers of biodiversity change need to be addressed, and enabling conditions need to be established in order to achieve the conservation and sustainable use of biodiversity (MEA, 2005b). This suggests that appropriate policies and institutional frameworks are paramount in addressing complex problems facing protected areas and biodiversity conservation in general. The section below discusses the policies and institutional issues affecting biodiversity conservation and protected area management in Nepal.

3.11.3 Policy and institutional issues:

In Nepal, conservation agencies have to function in a very complex and conflicting policy and institutional context. In order to accommodate various often conflicting interests, the government generally pursues policies that promote short-term benefits at the cost of long-term sustainability. For example, until the 7th development plan (late 1980's), the state had been pursuing a contradictory land use policy, namely promoting land reclamation on one side and preserving natural areas and sustainable forestry on the other, without having any comprehensive regional land use strategy. The establishment of national parks appeared to be somewhat at odds with the state's own land use policy (Paudel, 2005). Furthermore, there has been a lack of coordination of activities in the field of biodiversity (GON/MOFSC, 2009), particularly between the Department of Forests (DoF) responsible

for the management of forests and wildlife outside PAs, and the Department of National Parks and Wildlife Conservation (DNPWC) responsible for the management of PAs.

Another issue in biodiversity conservation in Nepal relates to its policymaking processes and implementation practices. In spite of the many efforts at decentralisation, projects tend to be implemented from the capital and maintain their heavy presence at the centre (Heinen and Shrestha, 2006). Critics argue that in a real sense, Nepal's conservation policies have been consistently top down, regulatory and protection-oriented (Paudel, 2005). The policy formulation process has been generally based on the conventional linear model: policy formulation – implementation and evaluation (Pokharel, 1997). The processes of policy making, programme planning and implementation have been guided by the technocratic mindsets of experts, planners and officials, with limited opportunities actually available to local community groups and civil society networks to influence policy-practice processes (Ojha *et al*., 2007). Jana (2008) further argues that the rationales behind biodiversity conservation are still not deliberated and debated extensively, and public discourse on alternatives to mainstream practice and governance of conservation is inadequate. Due to the practice of undemocratic policymaking processes, the legitimacy of conservation policies and their implementation on the ground have always been contentious.

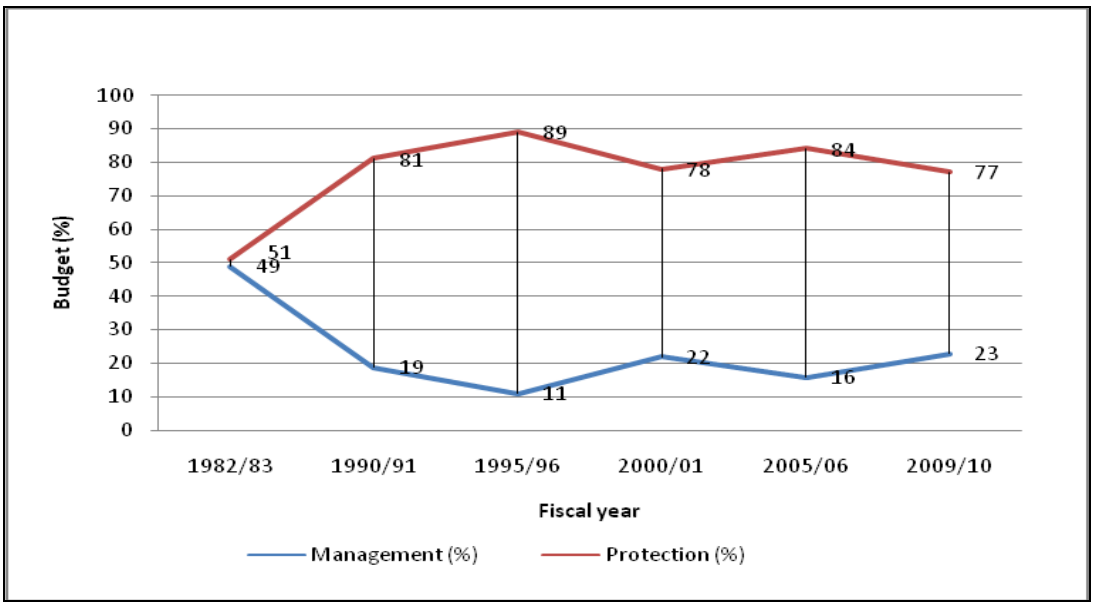
Until 1990, the Wildlife Conservation Committee (WCC), a committee in the royal palace under the Chairmanship of Prince Gyanendra, was the ultimate decision-making body on conservation issues. Through WCC, the Prince and the former King Gyanendera absolutely controlled the domain of wildlife conservation in the country for nearly three decades (WWG, 2009). Although WCC decisions were instrumental in institutionalising conservation in Nepal, some of its decisions, such as involving regular armed forces in park protection and allowing tourist resorts to be established within park lands on a concession basis, have far reaching impacts and have been controversial (Sharma, 1991). Currently there are seven large tourist resorts operating on a concession basis inside Chitwan National Park, with exclusive rights to park resources, alongside severe restrictions to local people (Wells and Sharma, 1998). Local communities and politicians consider that the lease contracts are unfair and have been pressuring government for its discontinuation **(**Republica, 2009).

Conservation policies and practices are basically guided by the objectives of biodiversity conservation (preservation) rather than those of biodiversity management (Bhatia *et al.*, 1998). In general, ecological concerns surpass local social – cultural interests (Paudel, 2005) and communities adjoining park areas have been perceived as problems rather than as partners or as stakeholders (Jana, 2008). Although policies have been shifted towards more participation (Heinen and Shrestha, 2006), the fortress paradigm maintains a considerable influence on conservation practices (Hufty *et al.,* 2008). Many of the old protected areas are still under strict management regimes. There has been continued scepticism among government officers concerning the ability of local communities to conserve biodiversity (Paudel and Bhatt, 2008).

The political realities can best be understood by following the money (Sachs, 2008). An analysis of the last twenty years' (1982/83 – 2009/10) government budget indicates that an average of approximately 82% of the budget for national park and wildlife conservation has been used for park protection activities (fig. 3.13). Similarly, nearly 80% of personnel have been exclusively assigned for protection activities (fig. 3.14). Actually, over the three and half decades of modern conservation, the strength of protection staff (army) has been increased by nearly 11 times whereas the spatial area under army protection has increased by just 1.48 times. The ratio of protection staff to area of protection is 1:1.7 sq km which is 13.2 times the ratio of management staff to area under the protection regime. The allocation of the government's budgetary and human resources clearly indicates that in reality the government of Nepal has been consistently pursuing a "gun and guard' approach to protected area management.

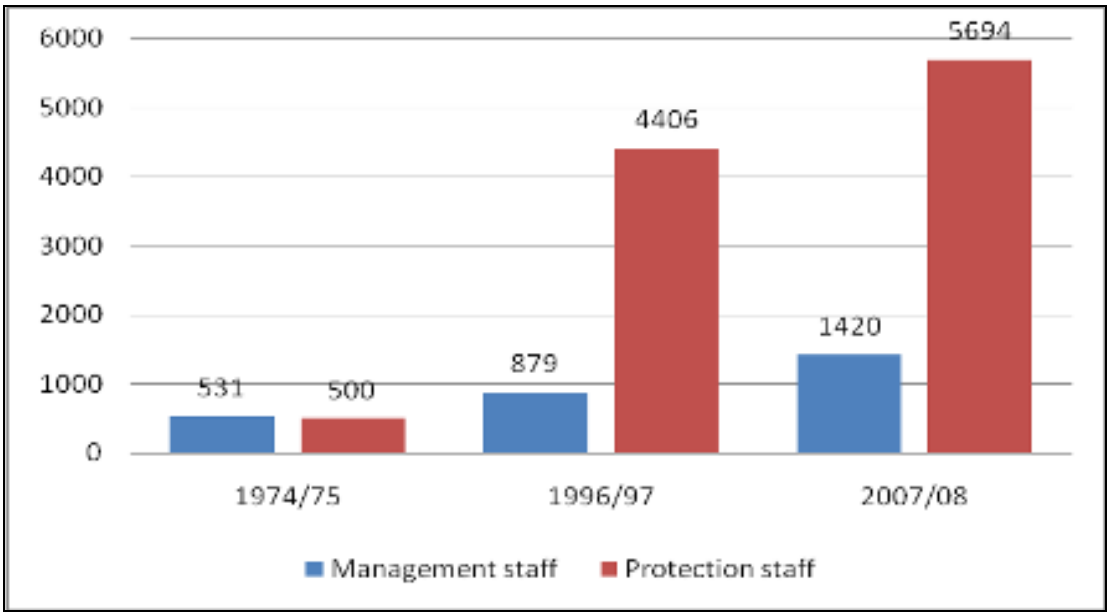
Nepal also has some of the most stringent conservation laws in the world, with up to a maximum of 15 years imprisonment for poaching rhinoceros, tiger, elephant, snow leopard, musk deer and other protected megafauna. In the case of tiger poaching, this punishment is second highest of the tiger range countries after Cambodia, where a tiger poacher could receive 20 years' imprisonment (Damania *et al.,* 2008). This indicates that the country's conservation policies are still grounded in the belief that punishment is a more effective conservation tool than the participation of people.

Figure 3.13: Government budget allocation for the management (DNPWC) and protection (army) of PAs



(Source: Author, 2010 & Ministry of Finance budget book)

Figure 3.14: Trend of management and protection staff deployment



(Source: Surya Pandey, Former Management Officer DNPWC personal Communication; Gurung, 1997; DNPWC Annual Reports – 1996/97 and 2007/08; Poudel, B. S.,and Bhattari, G. P (eds.) 2008).

Moreover, despite having the most egalitarian political system ever in the last two decades, the conservation laws of the country still do not embrace many principles of a good and

democratic governance system. For example, the NPWC Act 1973 section 3(1) gives full power to the government to designate any areas as protected area (national park, wildlife reserve, conservation area and Buffer Zone) deemed necessary to conserve biodiversity. There is no requirement or even provision for community consultation. In recent times, although some consultation processes with stakeholders have been rehearsed, the legal consent of local and indigenous people is not required to create PAs of any types including conservation areas and Buffer Zones. Moreover, these practices are ad-hoc, informal and non-binding. The unilateral declaration of national parks and conservation areas in various parts of the country in 2010 provides a strong evidence of the government's attitude. This recent declaration raised controversy as local communities and civil societies have perceived this as a continuation of the hegemonic approach of the government and a clear violation of international commitments and practices (Pandey, 2009). Such an attitude is not only inconsistent with the core values of the otherwise democratic political system of the country but is also largely in conflict with international protocols and CBD/COP decisions to which Nepal is a party. Furthermore, it can be argued that conservation actions opposed by local communities might well be legal, but are hardly fully legitimate.

In fact, there are many policy provisions which help promote undemocratic and top down conservation practices. Some of the important legal provisions which hamper good governance in protected areas are: i) the quasi-judiciary power retained by the Park warden (the chief warden of the Park has complete judiciary authority to punish the park offenders); ii) provision to shoot park offenders in certain circumstances; iii) control of the BZ fund allocation by the forest ministry; iv) a lack of role by local people in the management of parks and reserves; iv) no legal standing of the Buffer Zone Management Committee (BZMC) other than as an advisory body to the Park warden.

Many of the powers vested by current laws have had the effect of making park staff more authoritarian and less sensitive to local people. The recent killing of a juvenile girl and two women in Bardia National Park (BNP) indicates the misuse of legal powers, and constitutes a human rights abuse by the protection force (NHRC, 2010; THT, 2010). Similar inhumane actions by army and other park staff have been recorded previously (Jana, 2007). Campese, (2009) argues that there is very little understanding among conservation authorities that the recognition of human rights can promote an enabling environment for achieving conservation objectives. Moreover, Nepalese rights campaigners for justice alongside

conservation have been accused of being "*anti-conservation*" (Jana, 2009:197). It is hard to convince Park authorities that poor people are merely demanding their 'right to live' not a 'right to kill wildlife'. Critics argue that many of the existing conservation policies and practices fall short on the ethos and obligations of international agreements and treaties relating to human rights (Jana, 2008; Stevens, 2009). Nepal has been always weak in adopting international obligations into its national policy frameworks (Belbase, 1997).

In general, policy process in Nepal has been more reactive than proactive. Current forestry related legislation generally reflects the past rather than the present and future (HMG/MOFSC, 1988a). It has been argued that

"...in many ways, the social conservation programmes instituted in the 1980s and 1990s were reactive in that they were not considered until after the situation deteriorated and created local movements against conservation" (Heinen and Shrestha, 2006:52).

There is also an excessive delay in translating policies into legislation and then into operational rules and administrative orders (Chaudhari, 2000). Sometimes, deviation from the intention of the original policy has been observed while implementing policies in the field (HMG/MOFSC, 1988a). Besides, the authorities show some resistance to formalising successful field level participatory practices into policies (Paudel and Bhatt, 2008). The following are some of the examples of policy-practice gaps in conservation planning and management in Nepal:

- The sharing of a certain percentage of park proceeds was envisioned in the first management plan of Chitwan National Park in 1975 (Bolton, 1975). The benefit sharing policy came into practice in 1996, 21 years after the initial recommendation.

- The creation and management of Buffer Zones on the fringe of protected areas was proposed in the Forestry Sectors Master Plan in 1988 (HMG/MOFSC, 1988a). However, the BZ policy was passed only in 1993 and BZ activities were initiated in 1995 through the UNDP supported Parks People Programme. Similarly, it took 10 years (1996-2006) to declare BZs in 11 PAs (DNPWC, 2008).

- Wildlife conservation outside protected areas has never received due importance despite the policy and legal provisions since mid 1970s (NAFP, 1976; HMG/MOFSC, 1995). To date, most of the forests outside protected areas are severely depleted and

fragmented (Shrestha, 2004) and largely empty of wildlife. Furthermore, the importance of natural forests outside park boundaries, and the adoption of a broader landscape approach to conservation was officially suggested by the Master Plan in 1988 (HMG/MOFSC, 1988a). However, landscape-based conservation activities started only when the government included the concept in its Tenth National Development Plan (2003-2007) (NPC, 2003). Besides some sporadic projects, there are as yet no any convincing policy and institutional instruments for the effective implementation of a landscape-based conservation approach in the country. The 13-member National Biodiversity Coordination Committee (NBCC) is largely defunct, despite its Chairmanship under the chair of Minister of Forests and Soil Conservation, with representatives from key government ministries, the private sector, user groups, civil society, academic institutions and major donors (GON/MOFSC, 2009).

- Although the National Biodiversity Strategy (NBS) recognises public participation in conservation as a fundamental public right (HMG/MOFSC, 2002), so far it has been considered only as an instrument to achieve conservation objectives (Hufty *et al.,* 2008). In general, most of the participatory conservation programmes in Nepal are development focused, government regulated and international donor promoted or supported (Heinen and Shrestha, 2006). Currently, local communities have no formal role in any of the protected areas under direct management of the DNPWC (Wells and Sharma, 1998). Some argue that current participatory policy rhetoric can be understood as simply a desperate cost cutting measure aimed at maintaining international support for environment and development aid rather than a genuine move towards devolving power to local people (Paudel, 2005). These policies have not been progressive as promised in relation to local livelihoods (Mclean and Stræde, 2003). Furthermore, contemporary PA policies in Nepal do not explicitly capture the philosophy of right based approaches (RBAs) [29] (Jana, 2009).

- Nepal continues to lose its forest areas despite the government's declared policy of maintaining approximately 40% area of the county under forests (NPC, 2007) and

[29] RBAs can be understood as integrating rights norms, standards, and principles into policy, planning, implementation, and outcomes assessment to help ensure that conservation practice respects rights in all cases, and supports their further realisation where possible (Campese, 2009).

restricting resettlement in the forest areas (NPC, 1985). The country lost more than 17,000 ha of forest areas between 1990/91-2000/01 in the plain areas of the Terai (DoF, 2005) mostly to settle spontaneous hill migrants who forcefully occupied forest land. It has been argued that the forest sector became the major source of personal income for these cunning and shrewd people (NPC, 1992). Moreover, evidence suggests that from monarch in the past to Maoist at present, land has been the axis of political power in Nepal and the forest lands have been exploited as the main source of surplus land in the country.

- Although informal compensation mechanisms at the park level have been in practice since the mid 1990s, government policy on compensation for wildlife damage was formally introduced only in 2009, 36 years after the establishment of the first national park in Nepal. Newly enacted compensation policy[30] of the government has a provision of Rs. 150,000 for a death case, a maximum of Rs. 50,000 for serious injury, maximum of Rs. 5,000 for simple injury, maximum Rs. 10,000 for livestock loss, a maximum Rs. 4000 for damage to a house and a maximum Rs. 5000 for damage to a vegetable plot or fruit orchard.

A study also suggests that DNPWC, the main agency responsible for protected area management, is structurally weak in several respects resulting in a number of structural problems in implementing an effective conservation programme (Heinen and Rayamajhi, 2001). The sharing of protection responsibilities with the army has inevitably created problems of divided control (HMG/MOFSC, 1988a), affecting the efficient management of parks and protected areas (Uperti, 1991). Furthermore, protected area management activities have been carried out largely on an ad hoc basis without having any systematically developed and workable management plans (Heinen and Rayamajhi, 2001).

The management capacity of DNPWC has not kept pace with the growth in size of PA systems and complexities and challenges entailed (Wells and Sharma, 1998). The department continues to suffer from a limited budget and insufficient human resources. It is observed that in the last 35 years, the number of park staff (excluding the army) has

30 http://www.dnpwc.gov.np/publication/Wildlife%20Damage%20Releif%20Guideline%202066.pdf accessed on 12 April 2010).

increased by just 2.67 times, compared to a 3.86 times increase in the area directly under the management jurisdiction of the DNPWC. To date the average number of management staff to protected area coverage is 1: 22.45 sq km, compared to about 1:9 sq km in 1976. Although BZs cover nearly 18% of the areas under protected area systems, no additional staff positions for the management of Buffer Zones have been assigned yet.

Apart from numbers, the absence of trained staff has been another problem to effective conservation. Records indicate that only around 3% of the personnel (42 out 1420) possess a university degree related to park and wildlife management (DNPWC, 2008). Furthermore, Park staff have not been properly trained in response to the change in policies (Maskey, 2001; UNDP, 2004). The existing park staff lack adequate skills to manage park-people conflicts (HMG/MOFSC, 1988b) by implementing participatory conservation policies such as Buffer Zone management (Maskey, 2001). Many of them are still making a transition from an insular approach to conservation to a more inclusive and engaging approach (Budhathoki, 2005a).

Similarly, an analysis of the Government budget reveals that expenditure on protected area management has been not only low but is also decreasing . In the financial year 2009/10, approximately 0.34% of the total national budget is allocated for national parks and wildlife conservation activities, which is just over half (0.66%) the 2001/02 allocation. If the protection budget (army) is deducted, DNPWC's actual budget for protected area management and administration for 2009/10 will reduce to less than 0.1% of the total national budget. To date, average government expenditure for the management and administration of protected areas is Rs 13,535 per sq km (approximately US$ 2 per ha) which is grossly insufficient to effective management. It is also important to note that recurrent costs absorb 99.3% of the total budget leaving only less than 1% budget for conservation activities such as habitat management, awareness generation and related initiatives.

It appears that current conservation practices are confined just to park administration and protection rather than biodiversity conservation activities based on scientific and systematic approaches. It has been argued that despite their ecological and economic significance, the values of the protected areas of Nepal have been substantially underestimated by the government, which has not invested in their management to an adequate level (Wells,

1994). It is somewhat paradoxical that the government allocates less than 0.5% of its annual budget towards the management of more than 20% of the country's area. Conservation agencies have been finding themselves at a disadvantage when competing for funds against other development sectors that bring wider development benefits or can demonstrate higher or immediate tangible benefits (Emerton, 2005). However, some critics believe that it is the weakness of the responsible government agency such as MOFSC and DNPWC not being able to convince the government treasury to allocate more resources (MOEST/UNDP, 2008). Furthermore, conservation agencies in Nepal have failed not only to access an adequate allocation from the national budget but have been weak in exploring the country's funding opportunities under different bilateral and multilateral mechanisms and processes (MOEST/UNDP, 2008).

It can be argued that the present institutional structure does require restructuring and strengthening for effective implementation of conservation activities in Nepal (HMG/MOFSC, 2002; UNDP, 2004). There is also a need to ensure adequate resources to carry out conservation activities effectively by increasing its conservation budget as well as controlling the escalating park protection costs (HMG/MOFSC, 1988b). Since sufficient and sustainable financing is crucial to effective protected area management, all available sustainable financing mechanisms should be explored to supplement the costs (Emerton, 2005). A country such as Nepal must be careful in its choice of conservation strategies so that they match with the financial and human resources capacity of the country (HMG/MOFSC, 1988b). Similarly, policy and institutional frameworks should match the expanding conceptual and biophysical requirements of protected area management.

3.11.4 Biophysical issues:

Nepal's protected areas are generally physically small in size. Half of the the parks and reserves are less than 1000 sq km in size, and approximately 19% of the PAs are below 200 sq km in size (DNPWC, 2009). The average size of the parks and wildlife reserves in the Terai having mega mammal species such as tigers, rhinoceros and elephants is approximately 576 sq km, which is well below the mean size of the protected areas having tiger populations in the Indian subcontinent (Wikramanayake *et al.,* 1998). Studies suggest that current size of the protected areas of Nepal is too small to support viable populations of large endangered mammals and ecological processes (Heinen and Yonzon, 1994; Gurung, 2005). Elsewhere, studies suggest that the rate of extinction is in inverse proportion to park

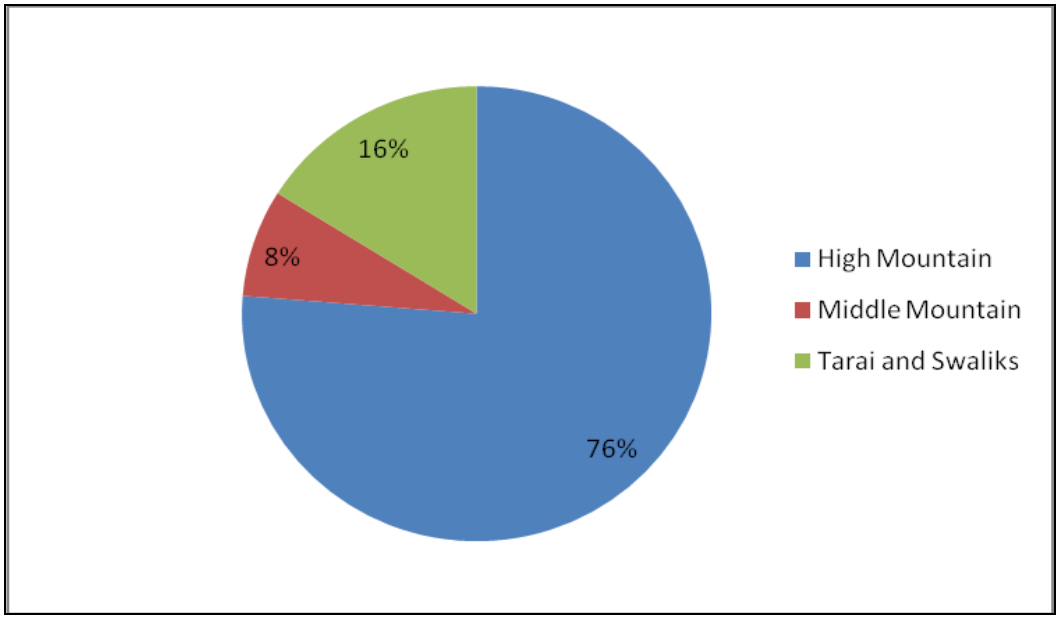
area (Newmark, 1995) so that the smaller the park, the steeper the rate of decline (Wilson, 2006).

Additionally, protected areas of Nepal are rapidly turning into isolated green islands surrounded by a human-dominated landscape. According to a recent report, in general biodiversity rich ecosystems that occur in low and middle altitudes are relatively critical and endangered in comparison to those located at high altitudes above 3,000m (GON/MOFSC, 2009). Especially in the Terai, the fragmentation and destruction of natural habitat outside protected areas have been posing a major challenge to the long-term survival of large fauna (Shrestha, 2004; Pradhan, 2007). Since 1950, Terai protected areas have lost on an average 33% of their large mammal species. Noteworthy local extinctions include tiger and leopard from KTWR area and Arna (wild buffalo) and Brasingha (swamp deer) from Chitwan National Park (Sah, 1997; Heinen, 1995 cited in Sah, 1997, Shrestha, 2004). Furthermore, KTWR, the only protected area in the eastern Terai and a Ramsar site, is in extremely vulnerable condition due to its size (175 sq km) and the lack of natural habitat around it (HMG/MOFSC, 1988b). In comparison to other protected areas, this reserve has lost most of its carnivores (86%) and ungulates (58%) over the last few decades (Heinen, 1995 cited in Sah, 1997). Biologists argue that

"..activities that tend to create ecological sinks adjacent to the parks will decrease both the persistence time of mammal populations within the parks and the likelihood of extinct populations recolonizing the parks" (Newmark, 1995:521).

Although nearly 20% of the areas of the country are under protected area designation, the existing PA system still does not cover 32% of the ecosystems found in the country (BPP, 1996). In addition, many of the Important Bird Areas (IBAs) and Important Plant Areas (IPAs) of the country remain unprotected (GON/MOFSC, 2009). The distribution of PAs has been quite uneven and skewed towards the high mountain physiographic region (fig. 3.15). Currently, habitats in the Terai are under-represented, and habitats throughout the middle elevations of the country are virtually unrepresented (Heinen and Shrestha, 2006). Moreover, the eastern mid hills of the country are unrepresented in the protected area system (annex. 3). This gap exists mainly because the planning and management of the country's protected area system has focused on flagship species protection rather than ecological representation (Shrestha T. B, 2001). From the beginning, charismatic animals and spectacular landscape have been the main criteria for PA establishment in Nepal.

Figure 3.15: Spatial coverage of protected areas in different altitudinal regions (as of 2009)



(Source: Author, 2010)

The literature review reveals that, in common with many global PA systems, current protected areas of Nepal are "*...not sufficiently large, sufficiently well-planned, nor sufficiently well-managed to maximize their contribution to biodiversity conservation and livelihood improvement of the poor people"* (Dudley *et al.*, 2005:77). However, since the turn of the century there is a growing understanding among conservation planners that existing PAs should be integrated to broader landscape planning to maintain their ecological viability and the genetic variability of species. Interim Constitution of Nepal (2007), Three Year Interim Development Plan (2007/08-2009/10), Sustainable Development Agenda for Nepal (2003) and various other sectoral policies advocate broad scale conservation planning and biodiversity mainstreaming[31] in development and economic sectors. The National Biodiversity Strategy (2002) also succinctly articulates the importance of comprehensive management of both protective and production landscapes to achieve long-term conservation and livelihood objectives.

The strategy states:

"..a comprehensive, representative and ecologically viable protected areas system, integrated with the management processes of other natural resource sectors including

[31] The objective of mainstreaming biodiversity as defined by GEF is: to internalize the goals of biodiversity conservation and the sustainable use of biological resources into economic sectors and development models, policies and programmes, and therefore into all human behaviour (Petersen and Huntley, 2005: 2).

forests, agricultural lands, wetlands, rangelands and mountains, is crucial for the long-term in-situ conservation of biodiversity" (HMG/MOFSC, 2002:4).

Conservation planning at a broader geographical scale is now imperative not only to balance trade-offs between different environmental and development needs but also to manage and mitigate potential climate change impacts on ecosystems and biodiversity. A recent study revealed that small parks like KTWR in the eastern Himalaya region are vulnerable to the pervasive effects of climate change (Sharma *et al.*, 2009). The government has been implementing a number of landscape conservation projects both in mountain and lowland Terai regions with the help of various donors and international conservation agencies. Some of the key programmes currently under implementation are the Terai Arc Landscape (TAL) Programme, the Western Terai Landscape Complex Project (WTLCP) and the Sacred Himalayan Landscape Programme (SHLP). Similarly, initiatives are also underway to manage biodiversity in the Mount Everest ecosystem, shared by Nepal and the Tibetan Autonomous Region (TAR) of China and the Mount Kangchenjunga ecosystem shared by India, Nepal, Bhutan and the TAR (GON/MOFSC, 2006). Among these projects, the TAL programme is a particularly ambitious and complex project in which more than 11 bilateral and multilateral agencies are involved. More than US$ 38 million over a period of five years have been earmarked for the programme related to sustainable development, natural resource management and biodiversity conservation (HMG/MOFSC, 2004).

Government development policy articulates that 'multifaceted and multi-organisation approaches' are necessary to solve the ecological problems of Nepal (NPC, 1985). However, scaling up conservation initiatives to a larger landscape level and wider constituencies are not without its challenges (Budhathoki, 2005a). These programmes have been facing a range of conceptual, institutional and attitudinal problems (table. 3.5). A government report suggests that mainstreaming environmental issues in development sectors is one of the biggest challenges the country has been facing in implementing the provisions of CBD articles (GON/MOFSC, 2006). The same report further argues that although infrastructure development organizations include biodiversity concerns in their plans and programmes, they scarcely adopt any conservation measures or environmental management systems during programme or project implementation (GON/MOFSC, 2006). This suggests that without addressing existing and emerging challenges, sustainable conservation in Nepal would be difficult to achieve.

Table 3.5: Challenges of landscape conservation approaches in Nepal

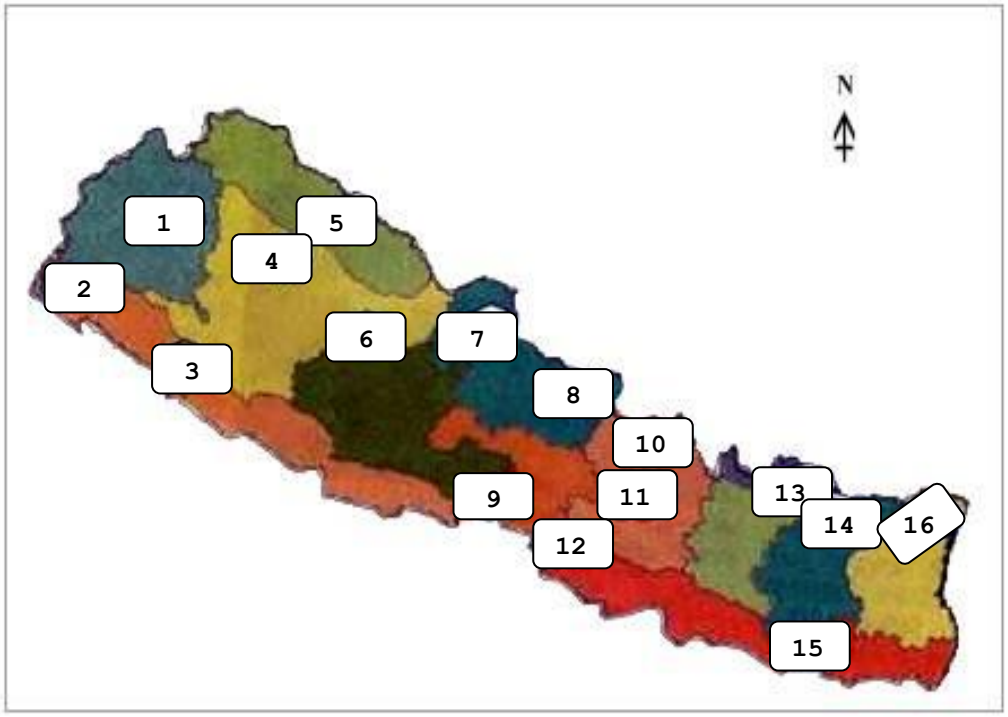
Challenges	Reasons
Difficulty in communicating a novel approach and engaging the local communities.	There is a widespread suspicion among rural people that landscape conservation initiatives could be another way to extend protected areas and control over local resource uses.
Difficulty in coordination between various stakeholders.	There exists inadequate horizontal communication between different sectors of government such as forestry, agriculture, local development as well as vertical communication between different tiers of the government.
Failure to incorporate climate change issue in their design.	One of the biggest shortcomings of the current landscape conservation complexes is their focus on the problem of 'wildlife dispersal limitation' on single altitudinal gradients. All existing complexes whether in the Terai or in the Himalayas encompass horizontal landscapes (East –West) only and exist largely in the same eco-regions limiting connectivity between bio-geographic ranges. Due to absence of interconnectivity between the different climatic zones, their ability to refuge species shifting from the rise in temperature and other effects associated to climate change would be minimum.
Inadequate institutional capacity, human resources and necessary skills to deliver diverse responsibilities.	Landscape-level conservation is much more complex and difficult than national park management. However, protected area managers in Nepal often lack many necessary skills and knowledge to deal with the diverse and complex social and economic issues associated with resource conservation at the landscape level.
Programmes with high conservation focus that are driven by conservation agencies and involve less engagement of local people.	Certain landscape conservation programmes focused exclusively on specific conservation goals and are led by park and forestry officials in collaboration with specialised conservation agencies. Programmes such as forest conservation, wildlife protection and habitat restoration give high priority to the ecological dimensions, and communities often find these efforts less engaging and do not tend to participate.
External rather than internal funding sources.	Landscape conservation programmes currently under implementation depend heavily, if not totally, on outside funding. The sustainability of such externally driven programmes will be questionable if successful experiences have not been internalised and institutionalised within the regular government structure and programmes. Although landscape based approach to conservation has been included since the Tenth National Development Plan, the policy has not been properly incorporated in the plan and programmes of the implementing agencies.
Required policy and legislation are still not in place.	Currently, Nepal does not have comprehensive legal and institutional frameworks to coordinate diverse and complex conservation interventions at the landscape level. In the absence of an umbrella policy framework and a coordinating institution, agencies working according to different and sometimes conflicting legal mandates and priorities may compete or overlap with each other.

(Source: Modified from Budhathoki, 2005a).

3.12 Conservation in changing and challenging contexts:

Climate change and the political transformation currently occurring in Nepal will have profound impacts on protected area policy, planning and management. Since the country is in the process of restructuring from a unitary to federalisation, the existing centralised protected area management system is likely to undergo major transformations. The State Restructuring Committee of the Constitution Assembly has proposed to divide the country into 14 federal states (CAS, 2010). If this proposal is formally adopted in the new constitution of Nepal, the existing 16 protected areas of the country will be dispersed among 12 federal states (fig. 3.16 and annex 4).[32]

Figure 3.16: List of PAs in the proposed federal states of Nepal



(Source: Author, 2010).

[32] Note: 1. Khaptad National Park, 2. Shuklaphanta Wildlife Reserve, 3. Bardia National Park, 4. Rara National Park, 5. Shey Phoksundo National Park, 6. Dhorpatan Hunting Reserve, 7. Annapurna Conservation Area, 8.Manaslu Conservation Area, 9. Chitwan National Park, 10. Langtang National Park, 11. Shivpuri National Park, 12. Parsa Wildlife Reserve, 13. Koshi Tappu Wildlife Reserve, 14. Sagarmatha National Park, 15. Makalu Barun National Park, 16. Kanchenjunga Conservation Area

Decentralisation and devolution will take place rapidly once the new constitution of Nepal comes into effect in 2012 which will constitutionally vest various central state powers to the lower levels of the state structures. This indicates that the institutional landscape will be changed and increasingly become more complex. In general, the conservation playing field will be more levelled as more actors and stakeholder will emerge and current central powers related to forestry resource management will be shared among different stakeholders. In this changing political context, the ability of conservationists to draw support from the people both powerful and powerless and to coordinate with various actors will be crucial to the survival and success of protected areas in Nepal.

Being a mountainous country, Nepal is extremely vulnerable to the effects of climate change (MOPE, 2004). Change in temperature and precipitation makes the species ranges dynamic (Hannah *et al.*, 2007). A report predicts that some areas of the Hindu Kush-Himalayan region will experience an altitudinal shift of approximately 80-200m per decade with the current rate of warming, which makes high-altitude species in the transition zone vulnerable to climate change (ICIMOD, 2009). It is predicted that Nepal's tropical wet forest and warm temperate rain forest will disappear, and cool temperate vegetation would turn into warm temperate vegetation under double CO_2 conditions (MOPE, 2004). Temperature-related shifts have been observed in a wide variety of plant and animal species (Root *et al.*, 2003). Such shifts may reduce the effectiveness of protected areas to manage species for which a particular protected area was established (Dudley, 2003).

As protected areas are vulnerable to climate change in proportion to their size (ICIMOD, 2009), the enlargement of protected areas is vital to compensate for altered species distributions caused by climate change (Hannah *et al.*, 2007). Experts suggest that the careful design of dynamic conservation systems on a landscape scale are more likely to minimise the impact of human-induced climate change on protected areas (Hannah *et al.*, 2002; MEA, 2005a; Welch, 2005).

However, most of the existing protected areas in Nepal are not only small and but also largely confined to individual ecological zones, rather than adequately spread over different ecological zones. The landscape conservation programmes currently under implementation do not encompass vertical landscapes connecting different climatic zones as a single complex. Similarly, recently proposed state structures and constitutional provisions related to protected areas and forests do not take into full consideration the principles of comprehensive and holistic conservation approaches necessary to address livelihood conflicts and the impact of climate change on biodiversity. Since all

proposed federal states mostly cover not more than one physiographic zone, it would be politically quite challenging to promote "*connectivity conservation between ecological zones to enhance natural catchments and safeguard environmental integrity"* (Sharma, 2009: 15). It has recently emerged that the Committee on Natural Resources, Economic Rights and Revenue Allocation of the Constitutional Assembly has recommended retaining the management responsibility of protected area with the federal government and devolving other forest areas to the management of provincial and local governments (CAS, 2009). This implies that change in protected area governance in Nepal is unlikely to be substantial, even after the historic political transition from a kingdom to a federal republic state and a shift in state power from palace to parliament. It appears that public representatives have been guided more by "*administrative will than by public will*" (Ojha, 2008:281).

However, the evidence indicates that government policies and institutional setups need to be improved in order to manage the challenges associated with emerging changes. There is a need of either a thorough revision or redraft of the National Park and Wildlife Conservation Act in order to reflect the socio-political context of the country (MoEST/UNDP, 2008). Some suggest that national park and reserve management should be fully devolved to local governments (RNN/CECI, 2007). Similarly, policy and institutional structures, which recognise highland- lowland interdependency and promote the involvement of multi-stakeholders, is more likely to be able to address the current and future implications of climate change for biodiversity conservation. Recognising and establishing various PA governance types would help to conserve a much wider range of ecosystems, habitats and species by providing ecological connectivity across a wider landscape (Kothari, 2008b). The current political transition should be used as an historic opportunity to redress past anomalies and to introduce appropriate policy and institutions for an effective, inclusive and equitable protected area management system in the country. Additionally, the challenges likely to be imposed by climate change provide a much-needed impetus to evaluate how conservation policies respond to change in general (Heller and Zavaleta, 2009).

3.13 Summary:

The literature review reveals that Nepal's conservation approaches have been multi-faceted, controversial, and sometimes groundbreaking (Murphy *et al.*, 2005). The nation's commitment to conservation has always remained intact despite several political upheavals in the last four decades (Keiter, 1995; Heinen and Shrestha, 2006). During these difficult political transitions, conservation activities have not only continued but have further expanded and strengthened by the introduction of various policies and programmes such as conservation area and Buffer Zone concepts in 1990s.

The efforts of sustainable conservation in Nepal cannot be separated from, and is dependent on, the social, economic, and political climate in which it occurs (Heinen and Kattel, 1992). Since the environmental and biodiversity conservation problems of Nepal have a direct relation with the basic human needs of the majority of the people, long term conservation is not possible without the involvement of local people and the support and success of other development sectors. Furthermore, without making conservation activities more relevant to people both the political commitment and public support would be difficult to achieve. Adaptive management and innovation in conservation policies and practices are required in order to sustain and enhance the biodiversity of a country such as Nepal, where threats are many and capacity is extremely limited (Cracraft, 1999).

Nepal has been implementing the Buffer Zone Management Programme since the mid 1990s as a key strategy to address the existing and emerging challenges of the country's protected area management. The following chapters will investigate in detail the status of the BZ management programme implementation in Chitwan National Park and explain the extent to which, if any, the BZ management programmes have been effective in linking conservation with development and in expanding the conservation landscape and constituencies necessary for the sustainable management of the country's protected areas.

CHAPTER IV MANAGEMENT AND GOVERNANCE ISSUES OF CHITWAN NATIONAL PARK

4.1. Introduction:

In most respects, Chitwan National Park has been a forerunner in the conservation movements of Nepal. This is the first national park of the country and the most popular tourist destination among protected areas in Nepal. The park was once a 'pet project' of the King (Terborgh, 1999) and Park rhinoceross were considered as his 'official property' (Dinerstein, 2003). The management of the Chitwan National Park has been considered as tantamount to the success of biodiversity conservation in the country. The park could be the most guarded National Park in the whole world where more than 1000 soldiers of the Nepalese army are stationed to protect just over 900 sq km of park area. In addition, this is also the first park in the country where government introduced the BZ (BZ) concept, together with a park revenue recycling scheme in 1996 to improve the relationship between park management and the local people. This is the most researched park not only in Nepal perhaps in the whole of south Asia. The park was acclaimed as a Best Managed Park at the 5th World Park Congress held in Durban, South Africa in September 2003 (Bhuju *et al.*, 2007). However, the park is situated in a densely populated landscape where approximately 225 000 people living in the BZ and numbers of globally threatened wildlife species compete in the same space for their survival. These prevailing bio-physical and socio economic settings of the park make its management quite challenging.

The Chitwan National Park (CNP) and its BZs are selected for my detailed field research. The physical, biological and socio-economic attributes of CNP offer a unique opportunity to study a wide range of conservation issues related to Nepal. This chapter describes the general background and significance of CNP and its management and governance issues. Furthermore, in order to better understand how park-people relationships evolved over time, this chapter examines the history of resource governance in and around CNP, and assesses various direct and indirect drivers affecting sustainable park management, which is essential to make this study comprehensive and to understand how national policy and plans have been interpreted and implemented in the field. This chapter will present an overview of CNP and its management paradigm through the following five sections.

4.2. Physical settings-location, topography and climate:

The park lies between 27^0 34' and 27^0 68' North latitude and between 83^0 87'and 84^0 74' East longitude in the inner Terai valley popularly known as *bhitri Madhesh* of the central Nepal. A BZ declaration in 1996 extended the management jurisdiction of the park further at 27^0 28' to $27^0$70' North latitude and 83^0 83' to 84^0 77' East longitude (DNPWC, 2001b). The total gazetted area of the park is 1682 sq. km, which includes 932 sq. km[33] under the core area or park and approximately 750 sq km area within the BZ. The park spans across Chitwan, Nawalparasi, Makwanpur and Parsa Districts. However, approximately 78% and 64% of the park and BZ areas respectively fall in the administrative territory of the Chitwan district.

The name of the park is derived from that of the Chitwan district, within which a major portion of the park lies (KMTNC, 1996). The ark is approximately 60 air miles southwest of Kathmandu. The park headquarters is situated in Kasara which is located in the western part of the park and can be reached by a 4-5 hrs (170 Km) drive from Kathmandu. Sauraha, which lies in the eastern part of the park and closer to Bharatpur, the headquarters of Chitwan district, is the main entry point for the tourist visiting the park.

The park is surrounded by Parsa Wildlife Reserve in the east, Someshwar hills (Siwalik range) bordering India, Reu River in the south and Rapti and Narayani Rivers in the north. Narayani River and Douney Hills delineate the western boundary of the park. A portion of the southern boundary of the park follows the Nepal–India border (Sharma, 1991). The main axis of the park is east-west, parallel to the Rapti River until its confluence with the Narayani River which flows westward for a further 25 km along the base of Someshowar hills before entering the Indian territory through a narrow gorge formed between the Dauney and Someshwar Hills (Bolton, 1975; Lehmkuhl, 1989). The detail of the boundaries of the park and BZ are described in Nepal Gazettes (1981 for the park boundary and 1991

[33] The latest GPS survey of park boundary and GIS digitization based on 1992 topographic maps has calculated the total area of park (core area) as 1182 sq km (DNPWC, 2001b) which however has not been officially endorsed yet citing various administrative and legal complications. Similarly, after the evacuation of Old Padampur VDC additional 17.82 sq km area has been added to the park which is also not yet included in the park area.

for the BZ). Half of the park boundary is delimited by rivers so that riverine influence, including the presence of flood plains, is a major factor in the park's ecology (Bolton, 1975). Although most of the park boundaries are natural features such as rivers and ridges, almost all river banks opposite to the park side are under heavy cultivation (Sharma, 1991).

The Chitwan National Park lies in the Terai-Siwalik physiographic region. The elevation of the park ranges from 815m on the crest of the Siwalik (churia) hills to 120 m along the Rapti River flood plain (Bolton, 1975). Approximately 44% of the area falls below 250 m, another 44% between 250-500 m elevation and the remaining 12% above the 500 m elevation zone (DNPWC/PPP, 2001). The flood plains in the park include the low lying riverine areas south of the Rapti River, east of the Narayani River and the north of the Reu River. About 85-90% of the total area of the park falls within the Rapti watershed (KMTNC, 1996), and almost 90% of the forests of the park are found in Chitwan district (DOF, 2005). The flood plain of the Rapti River extends from the eastern park border to the Narayani River in the west. It occupies an area of about 1.5km to 5 km in width and 50km in length inside the park and area with similar width in the BZ (DNPWC, 2001b). The soils of the park and BZ areas are largely alluvial deposits left by frequently shifting big rivers such as the Narayani and Rapti (Lelmkuhl, 1989).

The climate of Chitwan is sub-tropical with a summer monsoon from mid June to late September and a relatively dry winter between November and January. The mean temperature in summer is 33°C and in winter 17°C. The temperature reaches its highest point in the pre-monsoon period from April to the middle of June (Muller-Boker, 1999). Humidity is high throughout the year reaching 100% in the early morning during monsoon and its lowest density in March. During the winter months (December-January), nights are damp and cold whereas days are pleasant and sunny. During the winter night, the vegetation is soaked by heavy dew and starts dripping as if it is raining (McDougal, 1977). Winter time is the most agreeable season in Chitwan valley, with clear skies and mild temperatures. This period presents the best opportunity to see spectacular views of the Himalayas in the distant north. The first management plan of the park describes the scenery as follows:

"…. the forested hills and changing rivers do serve to make Chitwan one of the most pleasant and attractive parts of Nepal's lowlands. And in the dry season, views of the snow clad Himalayan ranges are superb" (Bolton, 1975:3).

Chitwan experiences altogether five wet months in a year including the pre-monsoon period. Cumulative precipitation is typically over 200cm (Lelmkuhl, 1989). More than 80% of the rainfalls occur between June and September (Muller-Boker, 1999). The monsoon season is perhaps the most dramatic and important season in terms of ecosystem dynamics (Dinerstein, 2003). The monsoon rains cause dramatic floods and alter the character and courses of rivers (UNEP/WCMC, 2008a). Intense monsoon rain annually brings floods in the rivers discharging a thick layer of alluvial soil and inundating extensive areas of grasslands and riverine forest. Streams and rivers frequently change course on the valley floor forming numerous ox–bow lakes, a most important element of park ecosystem. Swamps (*ghols*) and small lakes (*taals*) with permanent water are scattered throughout the park (Tamang, 1982).

4.3. Biological settings–ecosystem, flora and fauna:

Chitwan National Park (CNP), situated in the central Terai-Siwalik region of the country, contains the highest number of species (Bhuju *et al.*, 2007). The park also lies within a Conservation International-designated 'Conservation Hotspot' and a WWF's 'Global 200 Eco-region' (Terai-Duar savannah and grassland) (UNEP/WCMC, 2008a). This is also a Level I Tiger Conservation Unit *(*Wikramanayake *et al., 1998)* and Important Bird Area (IBA) (Baral and Inskipp, 2005). Chitwan National Park contains the largest and least disturbed example of natural Sal hill forest and associated communities of the Terai (WCMC, 1992). The park and its BZ forests if combined with Parsa Wildlife Reserve in the east and bordering Indian PAs such as Valmiki Tiger Reserve and Udipur Sanctuary forms the largest contiguous protected areas system of more than 2000 sq km in the lowland of the Indian sub-continent (BPP, 1995).

A WHC report states:

"At the foot of the Himalayas, Chitwan is one of the few undisturbed areas of the Terai region which formerly extended over the foothills of Indian and Nepal with its very rich flora and fauna. One of the last populations of single-horned Asiatic rhinoceros lives in the park, which is also among the last refuges for the Bengal tiger." (WCMC, 1992) (photo: 4.1).

Photo 4.1: The Chitwan National Park is famous for one-horned rhinoceros

(Photo: Andrew, 2006)

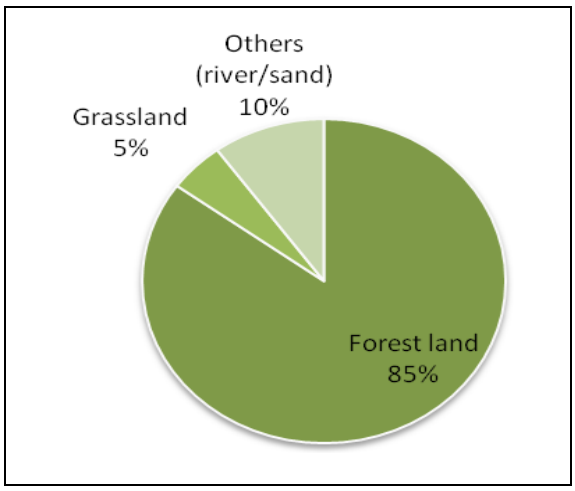
Thus the Chitwan National Park (CNP) harbours both a significant biological diversity, and an assemblage of unique and important species (photo 4.1). The park encompasses eight ecosystem types that include seven forest types, six grassland types, five wetlands and three main river system habitats (DNPWC, 2001b) (photo 4.2). At least 20 large oxbow lakes lie within CNP in various stages of succession (BPP, 1995). The Sal (*Shorea robusta*) forest which covers 70% of the park's area is the dominant ecosystem (Mishra, 1982). Purest stands of Sal occur on better drained ground where as riverine forest and grasslands form a mosaic along the river banks (WCMC, 1992). Palms and bamboo species occur on the upper, drier ridges of the Churia and the moist slopes of the valleys and ravines of the Siwaliks respectively (Sunquist, 1979). Besides, a mixed forest of Sal and pine (*Pinus roxburghii*) occurs on the Churia in the eastern part of the park.

Photo 4.2: Chitwan National Park, unique ecosystem-grassland, wetland and forest

(Photo: Author, 2008)

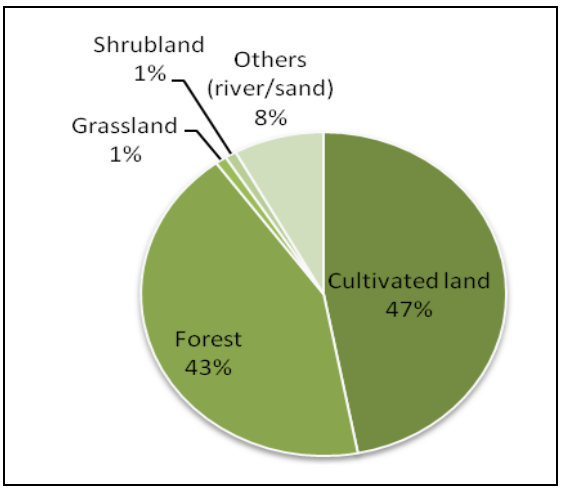
More than 80% of the park and 40% of the BZ areas are still under forests above 10% tree coverage (figs. 4.1 & 4.2). Some of the forest patches such as Barandabhar forests, Dumkibas forests and Madi Valley forest in the BZ are important animal refuges, and the last remaining corridors linking CNP with the wider mountain ecosystem to the north and Indian Wildlife Sanctuaries to the south.

Figure 4.1: Land use distribution in CNP



(Source: DNPWC 2001b).

Figure 4.2: Land use distribution in BZ, CNP



(Source: DNPWC 2001b).

Flood caused by monsoon rain, natural or human induced fire, annual grass cutting and cattle grazing play major roles in shaping the park ecosystems. Specially, seasonal floods are a major structuring force in grasslands and riverine ecosystems (Dinerstein, 2003). Similarly, succession due to the encroachment of fire resistant woody species and tall grasses is quite visible in different grasslands of the park (DNPWC, 2001b). A study revealed that between 1978 and 1992, the park lost a total of 3852ha of grassland (DNPWC/PPP, 2000). In fact there is not much grassland both within and outside the park.

The forests, grasslands and wetlands of the park are repositories of biological diversity. Chitwan's flood plain and terraces probably produce the world's tallest grassland, 'elephant grass' (*Saccharum spontaneum*) which reaches a height up to 8m by the end of the monsoon season (Dinerstein, 2003). The tall grasslands and riverine forest support a wild ungulate biomass and species diversity much higher than any other in the subcontinent (UNEP/WCMC, 2008). Although a complete inventory of biological diversity in CNP has not yet been accomplished, an outstanding biological richness with 234 vascular plants, 58 mammals, 539 birds, 56 herpetofauna, and 124 fish species are recorded (Bhuju *et al.*, 2007) (table.4.1). Similarly, 919 species of flora are estimated to be present in the park, including endangered species such as Tree fern (*Cyathea spinosa*), Cycas (*Cycas pectinata*), Screw pine (*Pandanus nepalensis*), and several orchid species (BPP, 1995). More than 100 (approximately 11%) plant species of the park have been identified as edible (Mahara, 1999). The flora and fauna of the BZ area are generally considered similar to those of the park. However, the biodiversity in some of the BZ areas such as Beeshazari and associated lakes, itself a Ramsar site, are as rich as that of the park itself (Bhuju *et al.*, 2007). The detailed list of species found in the park and their conservation status is described in BPP, (1995); DNPWC, (2001b); Buju *et al.*, (2007). Similarly, some of the newly discovered species are described in a recently published WWF report (WWF, 2009).

In terms of national biodiversity, CNP is particularly rich in bird and fish species (table 4.1), although so far very few endemic species have been reported in the park. The Maskey frog (*Tomopterna maskeyi*), discovered in 1998, is the only species reportedly endemic to the park (DNPWC, 2001b). The recently discovered *Heterometrus nepalensis* is a species of scorpion new to the world (WWF, 2009), and could be endemic to the park.

Table 4.1: Flora and fauna species recorded in Chitwan National Park

Species	Nepal (No)	CNP	
		No	% (approx.)
Flora (flowering plants)	6391	227	3
Mammals	185	58	31
Bird	874	539	62
Herpeto species	195	56	29
Fish	187	124	66

(Adopted and modified from Bhuju et al., 2007)

The park harbours numbers of important species of fauna, particularly globally endangered and threatened large herbivorous and carnivorous species. These globally important species include the Greater one-horned rhinoceros (*Rhinoceros unicornis),* Royal Bengal tiger (*Panthera tigris tigris*), Clouded leopard (*Neofelis nebulosa*), Asiatic elephant (*Elephas maximus*), Giant hornbill (*Buceros bicornis*), Bengal florican (*Houbaropsis bangelensis*), Sarus crane (*Grus antigone*), Lesser-adjutant stork (*Leptoptilos javanicus*), Ghariyal (*Gavialis gangeticus*), Gangetic dolphin *(Platanista gangetica) and* Asiatic rock python *(Python molurus).*

The Chitwan National Park is thus home to a sizeable number of several endangered species compared to other protected areas in the country. The park harbours 75%, 94%, 80% and 89% of the tiger, rhinoceros, gharial crocodile and gaur populations of the country respectively (table 4.2). Moreover, the park and its BZ forests hold more than 16% of the approximately 2500 populations of greater one-horned rhinoceross in the world (DNPWC, 2009). The Chitwan rhinoceros population is the second largest after Kaziranga National Park in India. The park also harbours the highest density of tiger (*Panthera tigris tigris)* population in Asia (Sunquist *et al.,* 1999 cited in Dinerstein, 2003) which is believed to be 8.08 per 100 sq km (http://www.DNPWC.gov.np/currrent_news.asp). Chitwan National Park is also considered as one of the richest sites in Asia for birds, where almost 6% of the world's known species are recorded (Dinerstein, 2003).

Table 4.2: Population of important species in Chitwan National Park

Species	Population (no)			Census year
	Total	CNP	%	
Tiger	121	91	75	2008-09
Rhinoceros	435	408	94	2008
Gharial crocodile (in the wild)	81	65	80	2008
Gaur	333	296	89	2007 – CNP, 2008 - PWR

(Modified from DNPWC, 2009)

These rich biodiversity is an outcome of diverse (Lehmkuhl, 1989; Sharma, 1991; Dinerstein, 2003) and dynamic habitats (Tamang, 1982). Nonetheless, these ecosystems resources are also equally important for the people living close to the park boundary, resulting in intense competition between human and non-human species. Understanding these interactions is crucial for effective Park management.

4.4. Socio-economic settings:

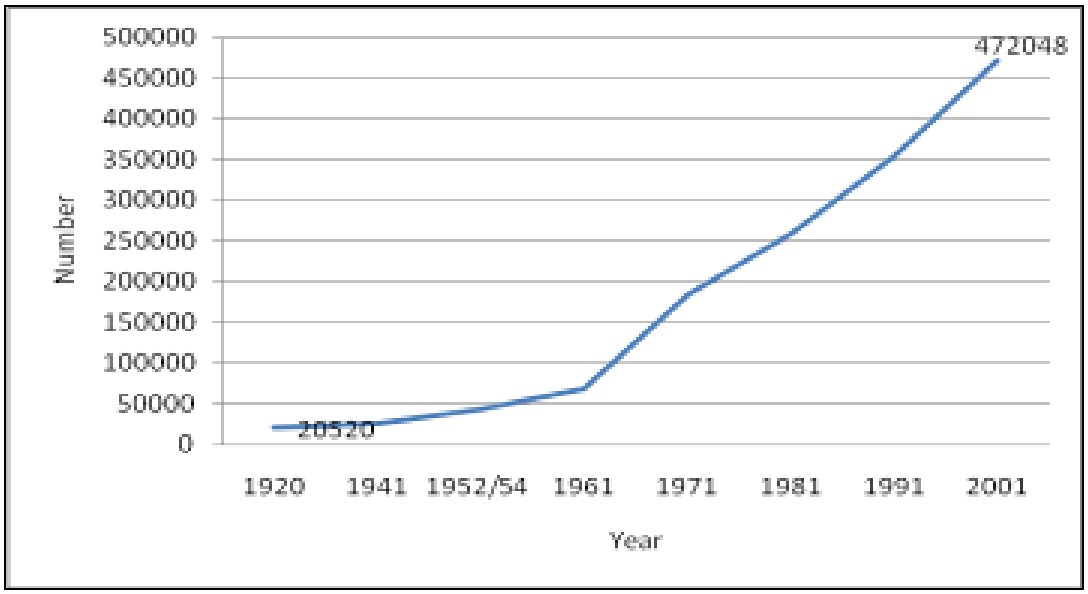
Like ecology, the socio-economic settings of the park and its BZ are also quite diverse and complex resulting in an intense and challenging park-people interaction.

4.4.1. Population and demography:

The park is situated in one of the most densely populated landscapes in south Asia[34] where more than 36,000 households (HHs) live in its periphery, approximately 225,000 of whom are subsistence farmers (DNPWC, 2001b). Population statistics suggest that the current population of Chitwan is 23 times more than it was in the 1920s (fig. 4.3).

[34] The population in the Buffer Zone of Chitwan National Park is more than double than the BZ population of the Kanha National Park in India. Available at: http://www.mponline.gov.in/portal/Services/Forest/FinalForest/kanha.html#Top Accessed on: 15 Jun 2010).

Figure 4.3: Population growth trend in Chitwan district



(Source: Muller- Boker, 1999; ICIMOD/CBS, 2003)

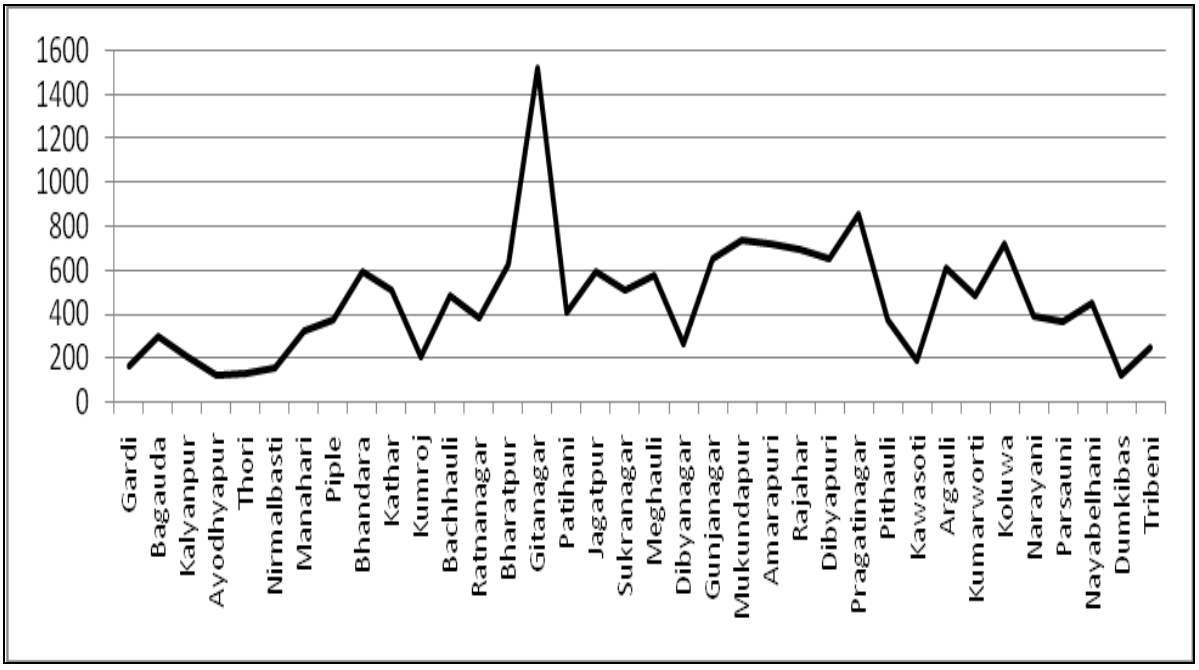
The average population density in the BZ area of CNP is 447 persons/sq km which is nearly three times more than the national and two times higher than district (Chitwan) averages respectively. Moreover, the population density in some parts of the BZ exceeds 1500 people per sq km (fig. 4.4). The average household population size in the BZ (6.16) is higher than national (5.6) and district (5.4) averages (DNPWC/PPP, 2001). The annual population growth rate in Chitwan has also remained consistently higher than the national average, which reached up to 10.5% in the 1960s (Muller- Boker, 1999). This suggests that the Chitwan valley has been an attractive place for immigrants searching for better land, resulting in heavy pressure on natural areas and biological resources. A study in late 1990 revealed that 75% of the population of Chitwan had migrated from the hill districts (Shrestha, 2001). With the influx of hill immigrants, the population composition of the Chitwan valley has been drastically changed over time.

Until the 1950s, Chitwan was a malaria-infested area thinly settled by the Tharus[35] and few other aboriginal people such as *Bote, Mushehar, Kumal and Darai,* and so on. To date, more than two thirds of the population comprises hill migrants such as *Brahman, Chetteri, Newar, Gurung Tamang, Kami, Damai, Sarki*. The once dominant *Tharus* have become the

[35] See Guneratne, 1994; Bista, 2000 (5th edition) for the details about the origin, culture and traditions of Chitwan *Tharus*.

minority in their own native land (Nepal and Weber, 1993) amounting to just above 25% of the population (DNPWC/PPP, 2001). The various ethnic and cultural backgrounds of the migrant people have rendered the Chitwan Valley a 'population melting pot'. They present a wide range of cultures, which have intermingled over time to produce a society at varying stages of acculturation (Sharma, 1991). Despite a manifold cultural overlap, alongside strategies to adapt to new economic conditions, various groups continue to retain their own identity, ways of life and forms of livelihood (Muller – Boker, 1999).

Figure 4.4: Population density in the BZ VDCs of CNP



(Source: DNPWC/PPP, 2000)

4.4.2. Economy and livelihood:

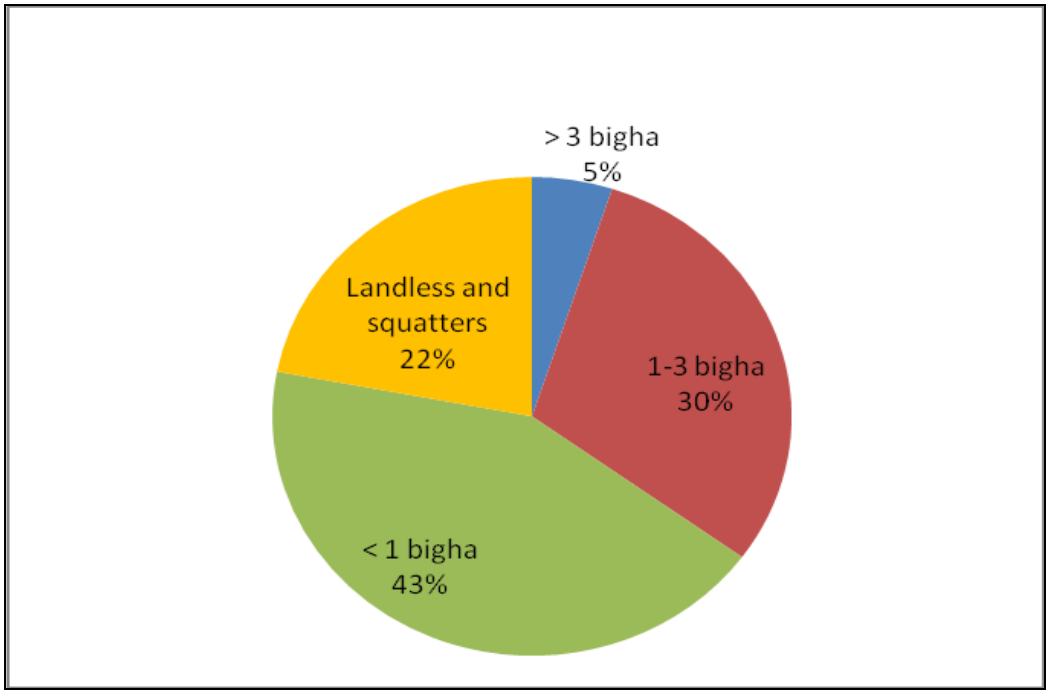
Field survey indicates that farming is the main occupation of almost 90% of the households living in the areas adjoining the park (photo 4.3). However, most of them are marginal and small farmers. More than 40% of the households occupy less than one *bigha* (1 ≈ 0.68 ha) of farmland. Landless groups and squatters together constitute more than 20% of the households (fig. 4.5). Most of the landless and squatter households belong to lower caste and indigenous groups, whereas more than 80% of the big farmers (> 3 bigha) in the survey area come from *Tharu* and higher caste (Brahmin/Chatteri) groups (fig. 4.6). Although landless families are scattered in all parts of the BZ, they are concentrated mainly in Mukundapur and Pithauli Village Development Committee (VDC) areas (DNPWC/PPP,

2000). Similarly, most of the squatters are found in Nayabelhani and Ayodhyapur VDCs (personal observation).

Photo 4.3: Farming is the main livelihood activity of the people living in the BZ

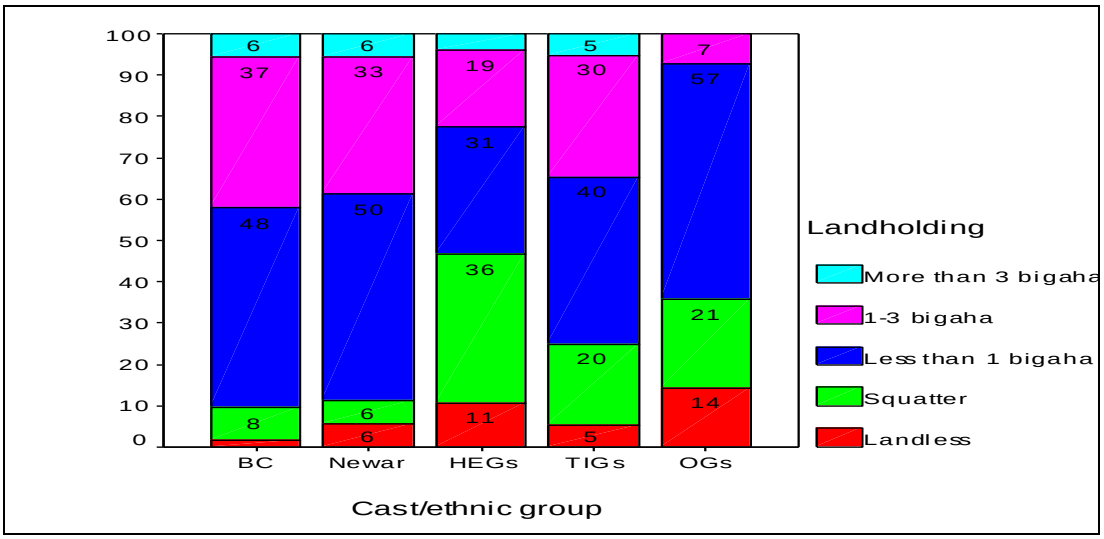
(Photo: Author, 2003)

Figure 4.5: Land holding pattern of the BZ households



(Source: Field Survey, 2003)

Figure 4.6: Land holding by ethnic group/caste (N=478)



(Source: Field Survey, 2003)

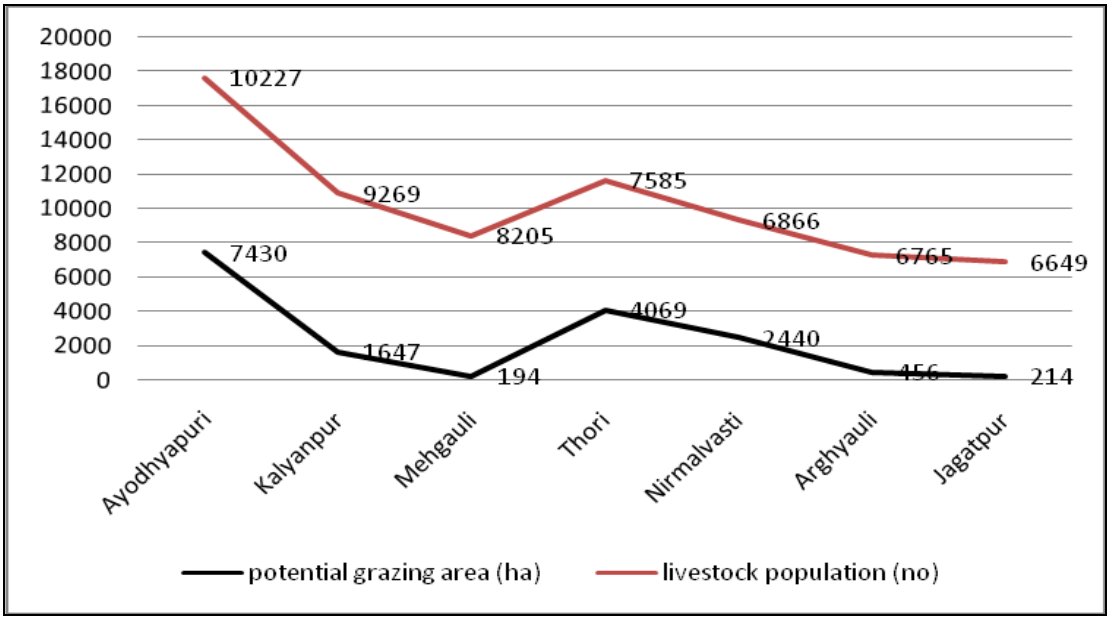
Note: BC- Brahaman/Chetteri; HEGs- Hill Ethnic Groups such as Gurung, Magar, Tamang etc; TIGs – Tarai Indigeneous Groups such as Tharu, Bote, Thenet, Kumal etc; OG – Occupational Groups such as Kami, Damai, Sarki etc.

Only 57% of the sampled households were found to be self sufficient in food production. More than 90% of the landless and 80% of the squatter families face a serious food deficit. More than 50% of the families have been engaging in various economic activities such as wage labourer; share cropping, business and services to supplement their income. Field survey also suggests that 1.5% of the BZ populations such as *Bote* and *Majhies* generally posses no farmland and largely depend on fishing and wild vegetables for their living. Traditionally wetlands and the river have been the main source of livelihood and ritual life of these communities. The fishes and vegetables they collect from the park or surrounding rivers and forests are either consumed directly or some times bartered for grain or sold in the local market (Gurung *et al.*, 2008). Local people catch more than 40 different fish species from the park Rivers *(*Strædea and Treue, 2006) for their consumption or commerce.

Livestock is another vital component of subsistence farming households living in the BZ. Livestock are a source of farm manure, draught power for ploughing, and important sources of food and protein (Gurung, 2008). A survey suggests that about 86% of the households in the BZ of the Chitwan National Park keep livestock such as cattle, buffalo, sheep and goats (KMTNC, 1996). The percentage of such households goes up to 96% in the areas close to the park (Nepal and Weber, 1993). On an average, each household in the BZ owns 4.14

heads of livestock (DNPWC/PPP 2001). The upper caste families own more livestock units than the lower caste households (KMTNC, 1996). Similarly, 33% more livestock biomass (kg/sq km) was estimated in villages adjoining the park than the villages far (6 km) from the park (Seidensticker, 1979). Data also suggests a positive relationship (correlation coefficient (r) = 0.65) between livestock population and forest area in the BZ (fig. 4.7). This is unsurprising, as farmers fulfil more than 78% of the fodder requirements from the forests and grasslands (DNPWC/PPP, 2001). This suggests that proximity influences the ability of farmers to use forests (Gurung, 2008).

Figure 4.7: Livestock population and potential grazing/fodder areas



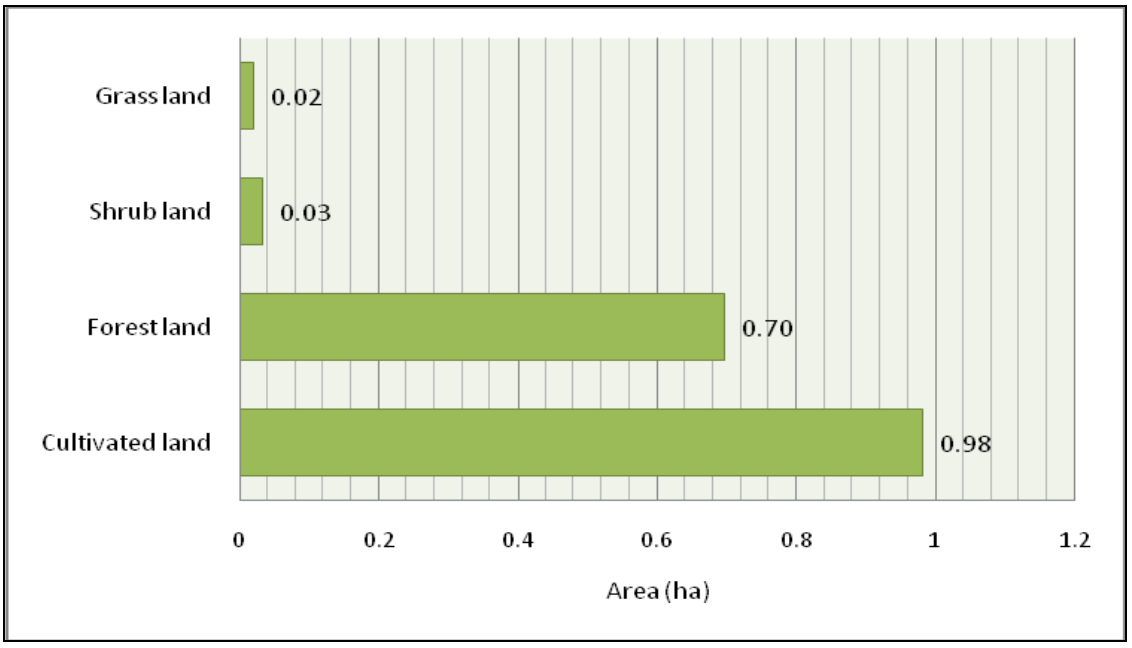
(Source: Modified from DNPWC/PPP, 2000)

Land use practices in Chitwan have drastically changed over time. In the past, the lifestyle of people was simple and almost in a state of nature (Oldfield, 1981). The following account describes the livelihood practices of people in Chitwan before the arrival of hill migrants in 1950s:

"While the Rulers engaged in the feudal pastime of big game shooting in Chitwan, the native Chepangs hunted birds and small games with bows and arrows on the slopes of Mahabharat Lekh, Majhis and Danuwars fished in the Rapti and the Narayani rivers and the Tharus and Darais farmed small patches of land amidst the vast grassland and Sal forest. The peaceful Tharus led an easy life with abundance of agricultural land. Their ploughs had no iron tip and no weeding was done. Harvested crop would be stored at leisure and no measurements would be taken of the quantity. The farmers kept large herds of cattle and grain formed the main commodity of exchange" (Gurung, 1980:254).

The above note suggests that *Tharus* before the colonisation of Chitwan valley by hill migrants used to practice traditional shifting cultivation (*sari kheti*) (Muller – Boker, 1999). However, to date there is very little free land available for extensive farming and sedentary grazing practices. In the BZ, average per household forest, shrub land and grassland area are estimated to be 0.7 ha, 0.03 ha and 0.02 ha respectively (fig. 4.8). To date, farmers from all ethnic backgrounds practise intensive and permanent farming systems. The use of chemical fertilisers is increasing and traditional crop varieties have been largely replaced by improved high yielding varieties.

Figure 4.8: Average per household forest, shrub land and grassland area in the BZ of CNP

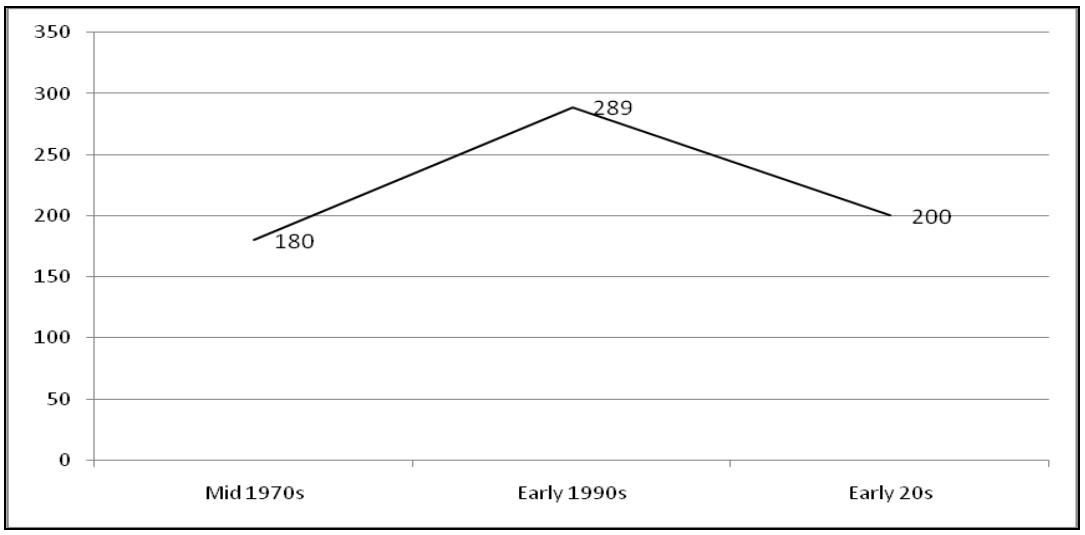


(Source: DNPWC/PPP, 2001)

Recent studies also reveal that the average livestock size and the number of households involved in livestock rearing have been decreasing (Aryal, 2008; Gurung, 2008). Prior to National Park establishment, many households used to keep large herds of cattle, which were reported to be between 100 and 150 head per family (Focus Group Discussion, 2003). Large numbers of cattle were maintained not for meat and milk but mainly for draft power to plough land. However, at present the average livestock holding per household in the BZ villages is estimated to be 4.14 head (DNPWC/PPP, 2001), which is 36% less than the figure reported by KMTNC study carried out in the mid 1990s (KMTNC, 1996).

In addition, livestock structure in the BZ has been changing due to prevailing resource management policies, which restrict free grazing in the park and BZ forests. In the early 1990s, farmers were found shifting away from cattle and sheep towards the ownership of buffaloes and goats (Sharma, 1991). A more recent study, however, found that goat rearing was popular among the farmers in comparison to less productive cattle and high maintenance buffalo as a strategy to increase productivity and to offset forage demand (Gurung, 2008). There is a clear trend towards shifting to stall feeding practices and favouring small animals, which are easy to maintain and which bring quick economic return. Nevertheless, average livestock density (number/per sq km) in the BZ is still higher than the mid 1970s, despite change in structure and number of livestock (fig.4.9). The increase in livestock density can be attributed to the increase in the number of farming households in the BZ. Hill migrants maintain a tradition of keeping certain numbers of livestock, which forms an integral part of their farming practices (Nepal and Weber, 1993).

Figure 4.9: Average livestock density (no per sq km)



(Adopted from Seidensticker, 1979; Sharma, 1991; DNPWC/PPP, 2001).

Since farmland, forests and livestock are three mutually reinforcing livelihood pillars of subsistence farming households, change in any one of these components would affect the livelihood situation of the rural communities. Critics argue that change in farming and animal husbandry practices have resulted in adverse impacts on the wellbeing of the indigenous communities in Chitwan (Muller- Boker, 1999). As the poor tend to be heavily dependent on commonly pooled resources (CPRs), restriction or denial of access to CPRs can significantly increase the vulnerability of the poor (Mahanty *et al*., 2006). One of the

most serious impacts of the change in livestock husbandry from open grazing to stall feeding in Chitwan is the increase in human casualties by tigers (Gurung, 2008). People (mostly women) have been found more vulnerable to the attacks of wild beasts as they are mainly responsible for collecting fodder from the forests. Various impacts on the livelihoods of indigenous people, resulting from the change in livestock husbandry regimes, have been reported elsewhere (Nautiyal *et al.*, 2003). Land use policies, and resource management and governance regimes significantly affect human-nature interrelationships and the wellbeing of people.

4.5. History of resource governance in Chitwan valley:

The following sections examine the evolution of resource use, management and governance mechanisms in and around CNP in order to better understand the genesis of the prevailing Park management policies and practices.

4.5.1. Pre-historic period:

The existence of human settlements in the valley of Chitwan and its surrounding areas can be traced back many millennia (Ghimire, 1997; Shrestha, 2008). The finding of the remains of pre-historic humans and their tools in the vicinity of the park (Bennerji, 1969) indicates the imprint of humans on its ecosystems for many thousands of years. Based on archaeological findings in and around CNP, some historians conclude that many parts of the present National Park might have been heavily inhabited and utilised by early human beings (Ghimire, 2000). Early human activities in the Chitwan valley might have started in the early Quaternary Period (Pandey, 1987), i.e. since the early/middle Pleistocene period. There is little knowledge about resource management practices in prehistoric times. Nonetheless, during the Vedic period (1700-650BC), land was classified into two categories – settlement area and forest area. The cutting of green trees was considered a great sin (http://www.iloveindia.com/history/ancient-india/vedic-age/index.html). Manu says "*someone who believes he can go to the heaven by destroying forest and cutting green trees, and killing animals, then who will go to the hell*?" (Footnote 36). Some types of resource control regime might in fact have existed in those times. A historian suggests:

"Even at the hunter-gather stage, there must have been competition for resources both in the hills and in the Terai. In a pre-agricultural society, one sq km was needed to support

one person so those who had established themselves in an area did not welcome the arrival of others , who would decrease their available land" (Whelpton, 2005:26).

4.5.2. Ancient period:

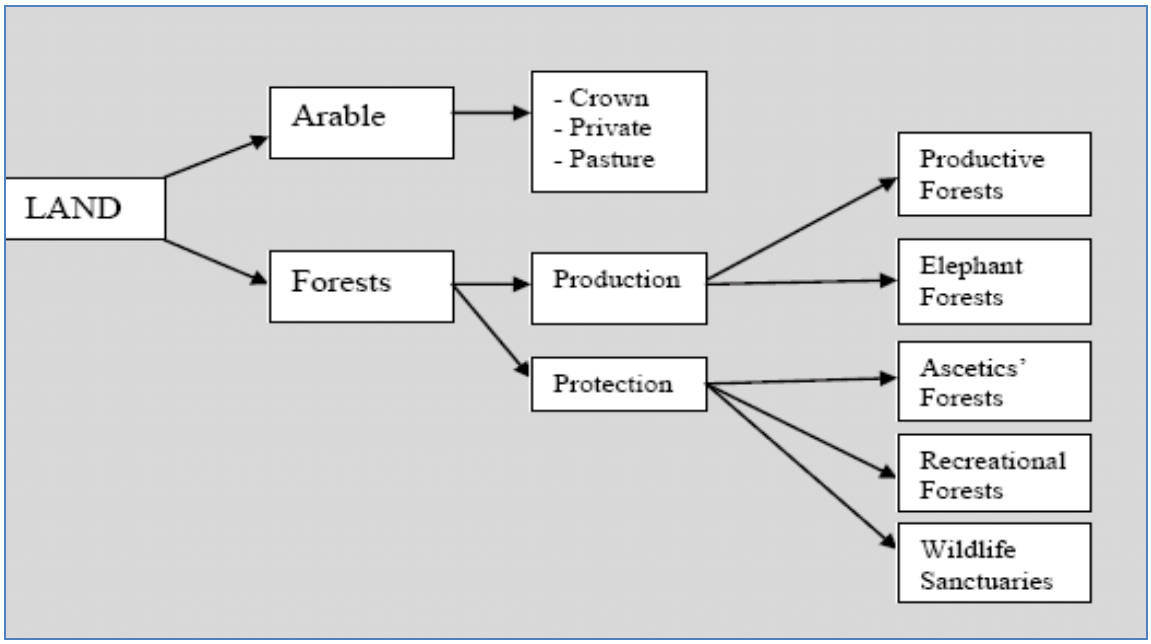
Since ancient times, Chitwan has been an important territory due to its strategic location, rich forest, wildlife resources and river navigation facilities. Chitwan was also a part of the India–Tibet trade route. It was also considered a holy land, famous for meditation and *banabas*, ascetic retreat - one of the four ashrams of Vedic life in Hinduism (Ghimire, 2000).

In the fourth century BC, Chitwan was under the rule of the Licchivi kingdom of Nepal. The state laws, policies and practices of the Licchivis were based largely on Manusmitrit (an ancient Hindu code of conduct) [36] and Kautailya's Arthasastra[37]. The king was considered an incarnation of the god, and absolute monarchy by divine right was the form of the government (Shah, 1992). The Licchivis had centralized land tenure policy and all land and forests were considered the property of the Ruler. Land and forests were classified as per Kautilya's principles. The forests were categorised based on different uses and managed under different management regimes (fig. 4.10). In the Licchivi period, a forestry official named *Vaskaradhikarta* was responsible for the protection of forests and the distribution of firewood and timber to local people (Joshi, 1973). The importance of forests and forest authority in the state bureaucracy is reflected in the fact that the king had to send an invitation to the chief of the forests at his coronation. Without permission of the forest authorities, people were not allowed to collect forest products in protected forests. People were also not allowed to carry axes and sickles when protected forests were opened to public for leaf litter collection.

[36] Manusmrti, the Laws of Manu (100 AD) is considered to be the most authoritative of the socio-cultural codes, Dharmasastras, which have prescribed the normative pattern of the Hindu society.

[37] 'The Kautiliya Arthasastra', a Sanskrit work of the c. 4th century B.C., is more known for its contents on politics and statecraft.

Figure 4.10: Land use classification in the ancient time (4th century BC) in the Indian Sub-continent



(Source: Modified from Rangarajan 1992)

Since Chitwan was a border territory containing numerous elephants, it can be assumed that there were likely to have been special protection arrangements. Any territory containing elephants was important, as ancient kings had to maintain a large number of elephants due to their versatile utilities from war to religious ceremonies. Ancient inscriptions reveal that Nepal had a contingent of elephant riding soldiers, and that the Lichhivi King Mandeva had used elephant to cross the Gandak[38] river during the war with Kasha Mall, king of Jumla region (north-western Nepal) sometime around 6th century AD (Regmi, 1996; 1992; Joshi, 1973). Kautiliya Arthasastra succinctly explains the importance of elephant forests over other forests.

"Some teachers say that land with productive forests is preferable to land with elephant forests, because a productive forest is source of a variety of materials for many undertakings while the elephant forests supply only elephants. Kautilya disagrees. One can create productive forests on many types of land but not elephant forests. For one depends on elephants for the destruction of an enemy's forces" (Rangarajan, 1992:620).

Since historic times hunting had been in practice in the Chitwan valley (Nepal and Weber, 1993). However, hunting or killing of elephants for tusk was prohibited throughout Nepal, mainly due to religious beliefs that the elephant is the symbol of Ganesh, the wisdom god

[38] Also known as Narayani River which now makes part of north and westerns border of CNP.

and son of the lord Shiva. In ancient times the death penalty was imposed on the killing of wild elephant whereas rewards were arranged for anyone submitting the tusks of a wild elephant dying naturally (Rangarajan, 1992). Similarly, it can be assumed that in ancient times rhinoceross were not killed for food, despite its meat being mentioned in Manusimirit as a holy thing and edible for Hindus. However, historically, a tiger needed to be killed for the King's coronation, as the King had to walk three steps over a tiger skin as a symbol of freeing the earth, ocean and sky by God Vishnu (Joshi, 1973). Killing tigers was in fact considered a service to humanity (McDougal, 1977).

4.5.3 Medieval period:

During the Medieval period, the territory of Chitwan was transferred to the control of different Kingdoms. From the sixteenth century AD, it came under the control of the Sen Dynasty of Palpa. Later on, the area became part of the Tanahu Kingdom, when the Palpa Kingdom was divided under the rule of different princes following the death of their father King Mukund Sen I of Palpa in 1553 AD (Ghimire, 2000).

In medieval Nepal, there were many principalities (*Bhure Takure Rajya*) in the hills. The kingdoms in possession of Terai territories such as Chitwan were considered rich and powerful, and thus superior. War among kingdoms to control territories containing forests and trade route access were common (Stiller, 1999). Conflicts among kingdoms over the Chitwan territory are recalled in the folklore of *Tharu*, the aboriginal inhabitants of Chitwan, which goes as follows:

"King Mukunda Sen worried about possible attacks against his Kingdome by other kings….when people heard of this so many of them set off that the country looked like it was fully covered in clouds. They bore weapons, spears and rifles… the king marched together with his people to fight against the other kings" (Muller- Boker 1999:31).

Being at the frontier of many battles, Chitwan thus remained largely undeveloped (Sharma and Malla 1957). Due to strategic interests, the Sen Kings of Thanahu made few efforts to encourage cultivation in Chitwan. Instead, they pursued a policy of exploiting and controlling forestry resources such as timber, herbs, elephant and pasturage (Regmi, 1999a). Ghimire (2000) suggests that the Sen Kings had a good income from the sale of timber, animal hide and skins, rhinoceros horns, and ivory. Nonetheless, evidence of rhinoceros hunting during this period was rare in comparison to the hunting and capture of elephants.

This could be mainly due to the limited availability of powerful weapons, as rhinoceros hide is difficult to penetrate with traditional weapons such as arrows and spears. However, there is a record of a major rhinoceros hunt in the floodplains of the Indus River by Babur, the Muslim ruler, who established the Mogul dynasty in India (Mishra, 2008).

The priority of maintaining the area as a wilderness did not preclude cultivation in Chitwan, nor was it devoid of inhabitations. The existence of elaborate land classification and ownership systems during Sen Rule suggests that agriculture was vital to the state (Ghimire, 2000). Various historical sources and *Tharu* folklore indicate that successive Sen Kings had tried to occupy different areas of Chitwan (Muller- Boker, 1999; Ghimire, 2000; Regmi, 1999a). Officially, the basic unit of land was a *pargana*, which comprised a number of villages (Guneratne, 1994). Chaudharies were appointed from among local land owners to collect revenue, and to promote land reclamation and resettlement (Regmi, 1999a). The existence of a separate district administration responsible for state related affairs and *panchayats* (a council of five local elites) to look after local issues, including the uses of forests and pasture lands, also indicates that the Chitwan valley was under extensive human use during the medieval period (Ghimire, 2000).

4.5.4 Chitwan during Shah and Rana rule (1777-1950):

Historical evidence suggests that during the period of Shah and Rana rule (1777-1950), the valley of Chitwan was frequently populated and depopulated in order to achieve the overriding political and economic objectives of the central government and ruling elites.

4.5.4.1. Chitwan as a newly acquired frontier for reclamation:

In 1777 AD, the territory of Chitwan came under the control of Gorkhali rule, signalling a change in land use priorities. Since economic factors were the main reason behind the Gorkhali capture of Chitwan (Regmi, 1999a), the new regimes vigorously pursued the policy of land reclamation and timber extraction to meet their expanding military expeditions and the expenses of the royal court.

In order to administer timber exploitation on a commercial basis, *Kathmahal* was established in Chitwan (Regmi, 1988). Special orders were issued from the royal court to

transport timber to Calcutta, India (Landon, 1993), and until the middle of the nineteenth century wild elephants were also taken and exported to India (Regmi, 1988), using the expertise of *Tharus*, an indigenous people of the area (Oldfield, 1981), and the export of rhinoceros horns and ivory was likewise sanctioned and controlled by the government (Regmi, 1999b). According to Mishra (2008: 46), all parts of the rhinoceros – "*from the tip of its tongue to the end of its tail"* - were lucratively traded throughout Asia's markets. Furthermore, various forest and wildlife products including baby rhinoceross and tiger skins were regularly acquired from Chitwan and its surrounding areas for royal household purposes (Regmi, 1988).

In the early 19th century an officer was appointed in Kathmandu to coordinate reclamation and settlement of wastelands (Regmi, 1999a), and a series of royal orders were issued to increase the cultivation area in Chitwan (RSS, 1986; Kandel, 2008). Land taxes for new settlers were not only reduced but were also waived for the initial years of cultivation. As there were some movements of *Tharus* back and forth across the border with Champaran, India (Guneratne, 1994), efforts were also made to retain existing cultivators in Chitwan (Regmi, 1999a). The following Royal order by King Rana Bahadur Shah to Rupan Chaudhari (*Tharu*) in 1812 AD reveals the desperate efforts of the then government to expand cultivation in Chitwan.

"You had been living in our territory but have now gone to Bettiah because of harassment by the Amali[39]. Come back to our territory along with your relatives and other kinsmen. You had been engaged in the timber (trade) during the time of Subbha Zorawar also, do so again along with Padampani Pandit. We shall grant you a tract of Kalabanjar land where ever you want, either in Nawalpur or in belod (Chitwan). Do your work with full assurance" (RRS, 1986:97).

It is suggested that prior to 1816 the valley of Chitwan may have been under extensive cultivation, due to the concerted efforts of the government (Oldfield, 1981). However, after its defeat in the Anglo–Nepal war of 1814-1816, the Nepal government decided to revert back the areas of strategic importance to jungle in order to protect Kathmandu from a possible invasion from the south, and such areas (eastern part of the valley) were depopulated (Oilfield, 1981). However, it would be untrue to say that the whole of the Chitwan or Rapti valley reverted to a state of wilderness. Historical evidence suggests that successive governments after 1816 did not in fact call a halt to the colonisation drive in the less securely sensitive parts of the Chitwan valley (RSS, 1986; Kandel, 2008). Throughout

[39]Chief revenue collection official of a district.

the Rana period (1846-1950), Chitwan forests were selectively felled, and timbers were exported to India through Thori and Tribeni depots established on the border with India. In order to maximise revenue from timber sale and then from cultivation, forest lands comprising valuable timber were selected as a priority area for colonisation (Regmi, 1999c). Since the early 20th century, large scale clear felling was also promoted in order to reduce wildlife depredation (Collier, 1928). Thus, it can be assumed that the rulers had little interest in reclaiming economically less important riverine forests and grass land areas, probably a key factor in the retention of fairly intact rhinoceros habitats till 1950.

Contrary to a popular belief of strict protection, Chitwan was also always available for resettlement to relieve the burden on the densely populated mountainous region of the country (Muller-Boker, 1999) In fact; the Chitwan Valley could not be reclaimed as desired due to the absence of potential cultivators rather than to the strict protection regime. Hill people were not interested in migrating to Chitwan, as the area was known as *Kalapani* (Death Valley) among them. Similarly, the flow of Indian immigrants was also negligible as the adjoining Indian districts bordering Chitwan were also sparsely populated. Some also argue that the extremely exploitative land tenure policy of the then government was more responsible for deterring hill people from migrating to Chitwan than the hostile climate of the area (Ojha, 1983). The land tax was so severe that farmers had to pay up to 80% of their main crops to local functionaries (Whelpton, 2005). The following two remarks made by a noted economic historian reveal the desperate situation of the farming communities in the 19th century Nepal.

"In the Terai districts, higher land revenue assessments and progressively higher bids offered by revenue collection contractors made conditions so intolerable for the peasantry that they were left with no alternative but to emigrate. The post war period, in fact witnessed a large scale exodus of people from several parts of Nepal to Indian territory" (Regmi, 1999a:94).

"Freedom in exile must have appeared a better prospect in life to them than a return to slavery, bondage and indebtedness and obligation to toil long and hard on waste lands in malarial area of the inner Terai…..In 1834, large areas of lands in all parts of the country were reported to have reverted to waste as a result of enslavement of the peasantry" (Regmi, 1999a:190).

4.5.4.2. Chitwan as a royal hunting ground:

Difficulty in resettlement made Chitwan economically less important than other parts of Terai. Besides, the hunting interest of the ruling elites also played a role in maintaining the area in a natural state (photo 4.4). The importance of Chitwan as a hunting preserve increased during the 20th century as the wildlife population dwindled in other parts of the country due to the expansion of cultivation. Guneratne says:

"Although the initial security requirements that kept Chitwan forested and undeveloped diminished in significance as relations improved between Nepal and British India, its quality as a prime hunting preserve located relatively close to Kathmandu probably played some part in keeping it undeveloped until the Ranas were overthrown in 1951" (Guneratne, 1994:105-6).

Photo 4.4: Hunting in Chitwan was a favourite pastime for royals and elites

(Photo Source: Sohan Shah, 2003)

In 1864, Prime Minister Janga Bahadur Rana declared Chitwan as an exclusive royal hunting area and rhinoceros as a royal game animal (Tamang, 1982; Shrestha, 1998), and many protection measures were subsequently introduced to protect game animals and the royal hunting preserve (Tiwari, 2003). For example, hunting of rhinoceros became prohibited. Forests containing important animals in and around the Chitwan valley were also protected to provide additional habitat to important animals such as rhinos, elephants and tigers (Regmi, 1988). Punishments for the poaching of protected animals such as rhinoceros, elephant and tiger wre successively increased over time. For example, in 1918 the maximum fine for killing rhinoceros was Rs 200. By 1927 this had increased to Rs 1000 and 3 years imprisonment and to Rs 2000 and 3 years jail term by 1938. Although the

hunting of rhinoceros was illegal for local citizens, foreigners could obtain hunting licences by paying Rs 10,000 (approximately £1000 in those times) (Sharma and Malla, 1957).

Chitwan was considered the best shooting ground for the rhinoceros in the whole of Nepal (Oldfield, 1981). Throughout the 19th and first half of the 20th century, Chitwan remained as a renowned hunting ground for Nepalese royalties and their foreign guests notably the British royalties (Table 4.3). One British advisor wrote:

"Chitwan! the famous big game reserve of Nepal and one of the most beautiful places in the world……a name synonymous with the acme of big game shooting, reserved for the sport of the Maharaja and his distinguished guest, an Emperor, a prince, a viceroy" (Smythies, 1942:80).

The Rana Rulers hunted with much passion and fanfare. The hunting programme used to be "*a luxury that was known to no Mogal on the march*" (Landon, 1993:151), requiring the people of Chitwan to help organize and conduct this carnage (Muller- Boker 1999). Although royal hunting was a burden to local people, it was also a bounty to them, as crop and livestock depredation after the big hunts used to be significantly lower due to the reduction in the wildlife population. Generally, there was a system of arranging seasonal royal hunting expeditions in high wildlife depredation areas (Smythies, 1942; Kandel, 2008). Furthermore, "*royal tiger hunts were metaphorically ridding the land of dangerous beasts and protecting the people"* (Smith *et al.,* 2010:333) and were also used as a means to demonstrate absolute rule over the country.

Due to political, economic and climatic reasons, until mid 20th century, the valley of Chitwan remained sparsely populated. The total population of Chitwan district during 1920s was just above 20 000 (Landon, 1993) which was only about 0.37% (now 2.1%) of the total population of the country[40] in that time. As described above, historical evidence suggests that many parts of the Chitwan valley had been populated and depopulated many times over. Although the population was sparse, the valley on the whole was not free from the impact of ploughing. Tillage shifted from area to area (Muller-Boker, 1999) and the landscape had been turned into mosaics of farmland, grassland and forest of different sizes.

[40] In 2001 census the population of Chitwan district was 2% of the country.

Table 4.3: Major hunting expeditions carried out by foreign dignitaries in Chitwan during Rana rule (1854-1951)

Hunting year	Hunting party	Hunting duration	Total bag
1876	Prince of Wales (King Edward VII)	20 days	23 tigers, 1leopard,1 bear
1893	Prince of Austria – Crown Prince Arch Duke Frany Ferdinand	N/A	18 tigers, 6 leopards
1911	King Gorge V of England, Prime Minister Chandra Samsher Rana and party	8 days	39 tigers, 38 rhinoceros, 27 leopards, 15 bears
1921	Prince of Wales (King Edward VIII) and party	8 days	18 tigers, 8 rhinoceros, 2 leopards and 2 bears
1938	Lord Linlithgow, Viceroy of India , Prime Minister Juddha Samsher Rana and party	3 months (Viceroy spend 8 days and rest of days by Prime Minister Juddha Samsher Rana and party	120 tigers, 38 rhinoceros, 27 leopards and 15 bears

(Source: Adopted from Smythies, 1942; Shrestha, 1998; Rana, 2003; Kandel, 2008)

4.5.4.3. Chitwan as extensively human used landscape:

Available information indicates that the natural resources of Chitwan had been extensively exploited by both the ruling class and rural communities. Apart from some restriction on the use of certain commercially important tree species and royal game animals, there were no restrictions to collecting basic forestry resources.

"…Except for certain woods and within certain districts, traditional sanctions that timber needed for public and private use may be taken, but only with the consent of the village headman, whose duty it is to see that there is no waste" (Landon, 1993:204).

Indigenous communities such as *Bote, Majhi* and *Musahar* whose livelihood was mainly based on the use of aquatic resources also had free access to fishing and fetching wild foods. Some of them even had some exclusive rights to resource uses (Paudel, 2005). However, local uses were well below the regeneration capacity of the land and the animal off takes by royal hunts was within the limit of reproductive capacity of the animals. The royal hunts were irregular and such hunting expeditions hardly affected the total population of wildlife in Chitwan (Shrestha, 1998). A report of an English officer who travelled Chitwan during the first quarter of 20th century corroborates this fact. The report states:

"The great one horned rhinoceros is still plentiful in Nepal Terai, especially so in the Chitwan district and along the Rapti river. Though many are shot every year no appreciable diminution in their number has yet been made" (Landon, 1983: 292 (Part I)).

All these suggest that although Chitwan valley in the past was not a human dominated landscape, but was certainly an extensively human used area. The human population in the valley was scattered in more than 280 settlements (Kandel, 2008). Most of the existing grasslands of the park were once settlements and cultivated areas, and many of the forest areas currently within the park and BZ were once extensively cultivated, extracted and hunted. One report reads:

"Man has long been an important component in the environment of Chitwan Valley through letting livestock graze, cultivating crops and utilizing natural resources ranging from collecting the thatch grass, gathering firewood and fishing to collecting wild fruits, edible stalks and tubers" (Nepal and Weber, 1993:31).

Despite extensive use by both rural and ruling classes, till 1950s Chitwan remained in a largely natural state replete with wildlife. The reason for coexistence between human and non-human species in the past was not the absence of conflict between them but mainly due to the availability of enough space for them to co-exist (Muller- Boker 1999). In any case, till 1950 due to the strict protection and adequate habitat, wildlife populations continued to thrive in Chitwan Valley.

4.5.5. Chitwan after the fall of Rana rule (1951 -1975):

Up to 1950, land use and resource governance policies of the state in Chitwan were largely influenced by factors such as national security, revenue maximisation and the hunting interests of the ruling class. However, after the overthrow of the Rana regime in 1951, the state priorities changed from non-economic interests such as security and hunting to enhancing socio-economic benefits through planned and large scale resettlement programmes (Paudel, 2005). The new government introduced various policy reforms to improve the peasant's position over land[41] (Ojha, 1983). In 1955, with the help of the United States Agency for International Development (USAID), the government of Nepal

[41] Jagir tenure was abolished in 1951 and substituted by the cash payments to government employees, the Zamindari system was replaced by the collection by the district revenue officers, laws were enacted to protect tenancy rights, compulsory labour obligations and other levies by the landlords and state were abolished and most important of all, birta tenure was abolished in 1959 making almost all land raiker (state land) (Ojha, 1983).

also launched the Rapti Valley Multipurpose Development Project to create the necessary conditions (including the eradication of malaria) for a planned settlement in Chitwan. Resettlement was viewed as a logical solution to mitigate some of the severe consequences of the natural calamities of 1953/54 as well as agrarian problems (Shrestha, 2001). Land reclamation in Chitwan was also promoted to tackle food shortages in the Kathmandu valley (Sharma and Malla, 1957).

Besides economic and social reasons, there were also political objectives behind the colonisation of Chitwan. After the downfall of the Rana regime in 1950, Nepal entered into a period of political instability for more than a decade. The resettlement programme was thus used as a tool to pacify political discontentment and to consolidate the Royal grip on national politics (Shrestha, 2001). Furthermore, *paharization*[42] of the Terai was one of the key strategies in the resettlement policy of the government (Shrestha, 2001). The King Mahendra was the architect of this policy, fearing that once malaria was eradicated form the Terai there would be an influx of Indian settlers (Mishra, 2008). In the change of circumstances, it was perceived that national security could be better achieved by creating a 'wall' of Ghurkha settlers than maintaining the wall of jungle along the southern border. One former forest officer recalls his interaction with the King as follows:

"I was once summoned by the King Mahendra in his palace when I did not issue felling permission to clear forests in Thori area (an area on the southern part of the Chitwan National Park along the India border) having the best quality Sal trees despite repeated request from the forest minister and royal palace officials. After listening my points of view, the king ordered me to issue felling permission because the settlement in that area was necessary for the long term security of the county" (Personal communication- Mohan Bikram Thapa, Chief, Forest Department in 1960s, 2003).

The original objective of the planned resettlement was to settle the victims of natural disaster and landless hill people (Sharma and Malla, 1957). However, contrary to the original objective, a large number of landless and flood victims could not get land (Agergaard, 1999): **"***Land that had been reclaimed in the name of landless and flood victims was customarily channelled to influential officials and their patrons in Kathmandu"* (Shrestha, 2001:205). This forced genuinely landless families and flood victims to encroach on forest land on an ad hoc basis. At the same time, large numbers of land-hungry people

[42] Colonisation of the Terai by hill tribes to minimise Indian influence. Actually, only after 1960s government officially stopped attracting Indian immigrants to settle in the Terai. Nonetheless, certain level of migration from adjoining Indian states is still continuing in Terai.

from the hills started to migrate towards Chitwan once the fear of death and debt by migrating there diminished, due to the improvement in the government's land tenure policy, and to the implementation of the malaria eradication programme. Elsewhere also, it was observed that population growth when coupled with changes in land tenure induces in-migration, which increases pressure on the environment and on natural resources (Mwamfupe, 1998).

In Chitwan, the government became the victim of its own policies. In the early 1960s, it was estimated that more than 100 000 people were involved in land encroachment (Willam, 1965a cited in Tamang, 1982). Once a 'hunting paradise' (Smythies, 1942), Chitwan now became a 'paradise' for new settlers. The destruction of forests and grasslands for cultivation was unprecedented (Bolton, 1975). A former Forestry Officer recalls the 'drama of destruction' in Chitwan as follows:

"Millions of trees were indiscriminately grilled, felled and burned, swamps were drained and most of the extensive tall grass savannas were ploughed and put under cultivation"(Tamang, 1982:23).

The destruction was so rapid that by 1959, the entire length of the valley was settled, and 70% of the forest and grassland habitat had been converted to agriculture (Dinerstine, 2003). Besides cultivation, overgrazing by thousands of cattle which hill migrants had brought with them caused devastating effects on forest ecosystems (Sharma, 1991; Nepal and Weber, 1993). Sedentary grazing was a common practice (Gurung, 2008), and the competition between wildlife and domesticated animals was so high that on one occasion at least 20 000 livestock were estimated to be grazing in the rhinoceros habitat (Mishra, 2008). Political instability during the 1950s also caused widespread poaching of wildlife including rhinoceros (Shrestha, 1998). For some time thereafter, people also perceived the destruction of the former royal hunting reserve and the killing of royal game as an expression of people's victory over an oppressive regime and an exercise of freedom and democracy. Along with new settlers, hunters mainly from India and the hills of Nepal took advantage of the unstable situation and poached wild animals for their own benefits (Muller-Boker, 1999). It was reported that 75 rhinoceros were killed illegally in 1960 alone (Martin, 1985), and their population plummeted from 1000 in 1950 to 100 in 1968. Within one decade, some of the globally most endangered animals such as rhinoceros and tigers came to the verge of extinction (Gurung, 1983; Mishra, 2008). Similarly, wild water buffalo and once abundant swamp deer completely disappeared from the Chitwan valley (Tamang, 1982).

Destruction of globally significant wildlife species such as rhinoceros and tiger attracted global attention, resulting in various missions by international conservation agencies such as IUCN and Fauna Preservation Society, in order to assess the situation and persuade the government to take necessary protection measures. King Mahendra, who was an ardent hunter, was also concerned about the loss of future hunting opportunities, and in response the government initiated measures to contain the rapid decline of wildlife populations and their habitats. Wildlife Conservation Act–2015 (1957) was promulgated to give the necessary protection, and in 1959, Mahendra Mirga Kunja (Mahendra Deer Park), with an area of 175 sq km north of the Rapti River, and a rhinoceros sanctuary covering 800 sq km south of the Rapti river were established to protect the remaining rhinoceros and other wildlife species (Shrestha, 1998). In the same year, a Wildlife Management Division was established and headquartered at Tikauli, Chitwan, and entrusted with the responsibility of protecting rhinoceros (Tamang, 1982). The office was reorganised in 1961 with 130 armed guards to control widespread poaching (Shrestha 1999), and a shoot on sight authority was given to rhinoceros patrol units (Mishra, 2008).

Despite protection measures however, cultivation and exploitation in the deer park and rhinoceros sanctuary continued, and as a result the government decided in 1965 to make the area free of human occupation. Altogether, 22,000 settlers of which 18,000 (4000 families) were new settlers and 4000 were old settlers (600 families), were resettled in other parts of the valley (Tamang, 1982). The evacuation was praised by wildlife biologists as the single most important step in the creation of Chitwan National Park (Tamang, 1982; Dinerstein, 2003).

Although the people were removed, the existing legal instruments were not sufficient to designate those areas as a National Park and to impose complete restriction on human exploitation. As a result excessive grazing by livestock and the intensive harvesting of forest products continued (Bolton 1975; Tamang, 1982), and the population of mega herbivore and carnivore species continued to deplete. Realizing the unrelenting deterioration of the wildlife population and its habitat, national and international conservationists persuaded the palace and politicians to establish a National Park to the south of the Rapti River (Bolton, 1975; Sakya, 1987; Gurung, 2008; Mishra, 2008). In 1970,

the King gave his consent to establish a National Park in the existing rhinoceros sanctuary, which was also his exclusive rhinoceros hunting area[43].

Once the King had agreed in principle to establish the park, the government appointed an expatriate advisor under the UNDP/FAO Technical Assistance Programme to assist with boundary demarcation and other technical activities (Bolton, 1975). In 1973, the National Park and Wildlife Conservation Act came into effect, replacing the Wildlife Conservation Act–2015 (1957). The Act enabled the authorities to set aside certain areas as National Park and to impose restrictions on human activities within the designated protected area. This landmark legislation paved the way to the establishment of the (Royal) Chitwan National Park and other protected areas in Nepal, which now entered into the modern era of conservation.

4.6. General management history of CNP:

The (Royal[44]) Chitwan National Park was formally gazetted in 1973, covering 544 sq km of the central and western part of the Chitwan valley on the south shore of the Rapti River (Tamang, 1982). In 1977 the park was extended from 544 sq km to its current size[45] of 932 sq km (Shrestha, 1998). Based on the suggestion made by the first management plan, in 1977 forest areas west of the Tiger Tops and the east of Sauraha were included in the park (Bolton, 1975), and habitat enlargement has been continuing in a small way. Recently, about 18 sq km area was added to the park by evacuating people from Padampur - a park enclave village to the south of Sauraha - in anticipation that the rhinoceros and tiger population would be increased by five percent (5%) with the addition of this village area (Dinerstein, 2003). The government has also been considering the inclusion of 100 ha of Bodreni forests comprising the Beeshazari Tal (also a Ramsar site) within the National Park boundary (WHC, 2002). In 1996, in order to reduce park-people conflict, the government also declared 767sq km area around the park as BZ. (Discussed in detail in Chapter V).

[43] Since it was an exclusive for royal hunting area, in the beginning forest department was hesitant to declare the area to the south of the Rapti River (Rhinoceros Sanctuary) as a national park (Sakya, 1987).
[44] The word 'Royal' was removed after the monarchy was abolished in 2006.
[45] Although officially not endorsed yet, recent survey reveals that the actual size of the park is 1182 sq km (DNPWC/PPP, 2001).

The park is managed by the Department of National Parks and Wildlife Conservation (DNPWC) with the active support of the Nepal army. The park administration headed by Chief Warden is responsible for day to day management. Since 1975, a contingent of Nepalese army has been taking the protection responsibility of the park. To date, there are two sets of staff - 295 management and administrative staff under the direct supervision of the park warden, and more than 1000 protection staff under the command of an army colonel. The protection function of the park is conducted in close coordination between the Chief Warden and officer commanding.

With its headquarters in Kasara, the park administration is divided into four sectors. The staff are stationed in 56 posts, of which 45 are under the direct supervision of the park administration, seven under joint supervision of park administration and four under the direct supervision of the Nepal army (WHC, 2002). According to Martin and Martin (2006), the number of staff per square km in Chitwan National Park is believed to be one of the highest amongst government-managed national parks in the world.

In recognition of its unique and rich biodiversity and strict conservation measures, in 1984 the park was declared a UNESCO World Heritage Site. The park is also known as a well studied national park in the Indian subcontinent. Initially most of the research work was focused entirely on species. However, since the 1980s there has been an increasing realisation of the need for research on the park- people interface. In recent years, since the BZ concept has been put into practice, research has also been focusing on the institutional and socio-economic aspects of biodiversity conservation and on park management. As well as individual studies, the Smithsonian Institution of the USA in the 1970s and 1980s and now NTNC (formerly KMTNC) have been actively engaged in various research and monitoring activities. The NTNC has established a permanent research station, the Biodiversity Conservation Centre (BCC) that facilitates and conducts research activities in the park (WHC, 2002)

Over last three decades of park establishment, more than 50 research projects have been carried out in Chitwan. Since most of the research studies have been carried out by students of various college and university for their individual academic purposes, they have not been of much relevance to park management (Paudel, 2008). However, some research (for

example: Sharma, 1991) was instrumental in developing conservation policies such as the BZ management policy of the country.

The National Parks and Wildlife Conservation Act–2029 (1973), Chitwan National Park Regulations–2030 (1974) and National Parks and Wildlife Conservation Regulation 2030 (1974) provide wide ranging mandates for the protection and management of the park. Similarly, BZ Management Regulation 2052 (1996) and BZ Management Guidelines (1999) have been instrumental in improving park-people relationships by recycling 50% of the park's income to community development activities in the BZ areas. The recently approved Wildlife Damage Relief Guidelines 2066 (2009) is another important legal instrument which is likely to help Park officials to address wildlife depredation related problems. Although not fully implemented, successive park management plans (Bolton, 1975; DNPWC, 2001b) and species management guidelines are also available for the park managers to identify and implement Park management activities effectively.

The establishment of the Chitwan National Park was the most important milestone in the conservation history of Nepal. It is the country's first national park, enabling Nepal to enter into the modern era of conservation. However, literature review suggests that the park came into existence amid conflicting land use priorities and at a significant cost to the immigrants and indigenous people of Chitwan. During the establishment of the park, the government adopted quite coercive and top down approaches, neither have the park's creation nor its subsequent management been easy. The next section considers the various management challenges the park has been facing and the measures it has been adopting to address these.

4.7. Management issues, challenges and responses:

Chitwan National Park came into existence as a desperate attempt to check the extinction of globally endangered species such as rhinoceros and tigers from the country. In order to achieve this, the government adopted strict protection measures and imposed severe restrictions on the use of park resources. During the initial years of its establishment, the sole focus of the park administration was to save wildlife from the poachers and to protect their habitat.

In a relatively recent interview, Dr. Tirtha Man Maskey, the first warden of the park, recalled his priority during mid 1970s as follows:

".. our aim was only to protect species. Talking about species we mean wild animals. We never thought about the welfare of the people while talking about wildlife protection. We only thought about how effectively we could protect the wild animals. So the wildlife protection was our major focus for more than a decade" (Gurung, 2008:81).

Although controversial, the fortress approach to conservation has been successful in saving and reviving important wildlife species and their habitat in Chitwan. The rhinoceros population reached 408 in 2008, which was more than 4 times that at the time of national park establishment in 1973. Actually the rhinoceros population had reached 544 in 2000, which was reduced to its current level due to heavy poaching during the height of the Maoist insurgency. The park also has a healthy population of breeding tigers, which has been estimated to have increased from less than 46 in 1977 to over 91 in 2008 (DNPWC, 2009). The population of sloth bear and gaur (Indian Bison) are estimated to be 200-250 and 396 respectively (DNPWC, 2001b; DNPWC, 2009).

Despite many impressive successes in wildlife protection, threats to sustainable biodiversity conservation in Chitwan National Park continue to exist in many forms and at different scales (Budhathoki, 2005b). The integrity of the park has been exposed to both anthropogenic as well as biologically induced threats. The major issues affecting park management include anthropogenic pressure on natural resources, livestock grazing, wildlife depredation, poaching of endangered species, unplanned tourism and associated infrastructures, encroachment of invasive species, pollution of water courses owing to increasing numbers of industries and development infrastructures such as road, bridges and irrigation channels (DNPWC, 2001b).

It has also been argued that the conservation successes have been achieved largely at the cost of the livelihoods of subsistence farmers living in the periphery of the park (Sharma, 1991; Nepal and Weber, 1993; KMTNC, 1996; Paudel, 2005). Field data suggests that from the perspectives of local people, wildlife depredation and restriction on the use of park resources are two main issues of park-people conflicts (table 4.4).

Table 4.4: Views of UC chairpersons on park-people issues (N=37).

Park - people issues	No. of respondents	Percent
Wildlife depredation	33	89.2
Restriction on Park resources	21	56.8
Inconsistence rules for grass cutting, boulder, sand etc collections	9	24.3
Land erosion from boundary river	7	18.9
Grazing inside the park	5	13.5
Poaching	4	10.8
Restriction on mobility and development activities	4	10.8
Lack of conservation awareness	3	8.1
Restriction on tourism development	2	5.4
Misbehave from protection staff	2	5.4

Note: In some issues, there are multiple responses by the same respondent. *(Source: Field Survey, 2003)*

4.7.1. Subsistence use of forest and aquatic resources:

Most of the people living close to the park are marginal farmers. Access to park resources is vital to their subsistence livelihoods. Many people rely on the park for firewood, fodder, fish, wild edibles, thatch grass, medicinal herbs and so on. It was reported that 23% and 34% of households depend on the park for fodder and firewood respectively (DNPWC/PPP, 2001). A study reveals that local people consume altogether 110 plant species for various purposes (Mahara, 1999). Besides, there are about 1000 households of *Botes, Musahars* and *Majhis* whose livelihoods totally depend on fishing and collection of wild edibles form the parks (Paudel, 2005). Similarly, thatch grass and reeds are crucial resources for the local communities, which are now not available outside the park (photo 4.5).

Since the conflict over resource use is one of the main issues of park-people conflict (Mishra, 1982), the long term success of CNP depends upon ensuring the sustainable supplies of essential forestry resource for the people living in the vicinity of the park (Sharma, 1991). The park management has been trying to address these issues by adopting three pronged strategies – i) by providing limited access to park resources such as thatch grass collection and fishing rights to fishing communities, ii) by helping communities in developing an alternative resource base in the BZ through community forestry management and iii) promoting the adoption of appropriate energy technologies such as the installation of biogas plants to reduce firewood consumption. A study suggested that at least a quarter

of the households in the BZ have to adopt biogas in order to reduce pressure on the park for firewood (KMTNC, 1996).

Photo 4.5: A man carrying thatch grass from Chitwan National Park

(Photo: Author, 2009)

Annually since 1976 the park administration has been issuing permits to thousands of people to collect thatch grass and reeds from the park during winter months. Although the duration of permits has been significantly reduced in recent years (from 20 days in 1976 to 3 days in 2008), allowing people to collect grass annually has been the single most important management tool for creating and maintaining good park-people relationship (KMTNC, 1996; Stræde and Helles, 2000). Annual grass cutting permission is not only critical in terms of collecting thatch grass and reeds but also a valuable opportunity for local communities to extract firewood, though illegal. People steal considerable amounts of firewood by concealing them in the grass bundles (Sharma, 1991). A study revealed that in 1999, grass cutting permit holders harvested approximately 21 thousand tons of thatch grass and reeds where as the quantity of illegally extracted firewood was estimated to be more than 23 thousand tons (Stræde and Helles, 2000).

Livestock grazing and fodder collection exert considerable pressure on Park resources and has been considered as one of the challenges to park management. Research suggests that due to the scarcity of open grazing areas outside the park boundary, grazing pressure on the park has been mounting (Stræde and Treue, 2006). A report suggests that fodder supply from the grasslands may have already reached a critically low level (KMTNC, 1996), with the result that crop and livestock depredation by wild animals is inevitable if the current management practices are not improved.

Sunquist (1979) suggests that besides the regular maintenance of grassland, clearing some areas of Sal forest to create more grassland would be more beneficial in order to increase or maintain the current population of tiger and other mega mammals. Similarly, controlled livestock grazing and grass cutting practices could be beneficial to both wildlife and local people (Bhatta, 2006; see box 4.1). Lehmkuhl, (1989) suggests that judicious grassland management including selling to a local pulp factory would not endanger, and in fact could enhance wildlife or plant conservation values. Regularly managed grasslands were also found to be less infected by alien invasive species such as Mikania (*Mikania micrantha)* (Bhatta, 2006).

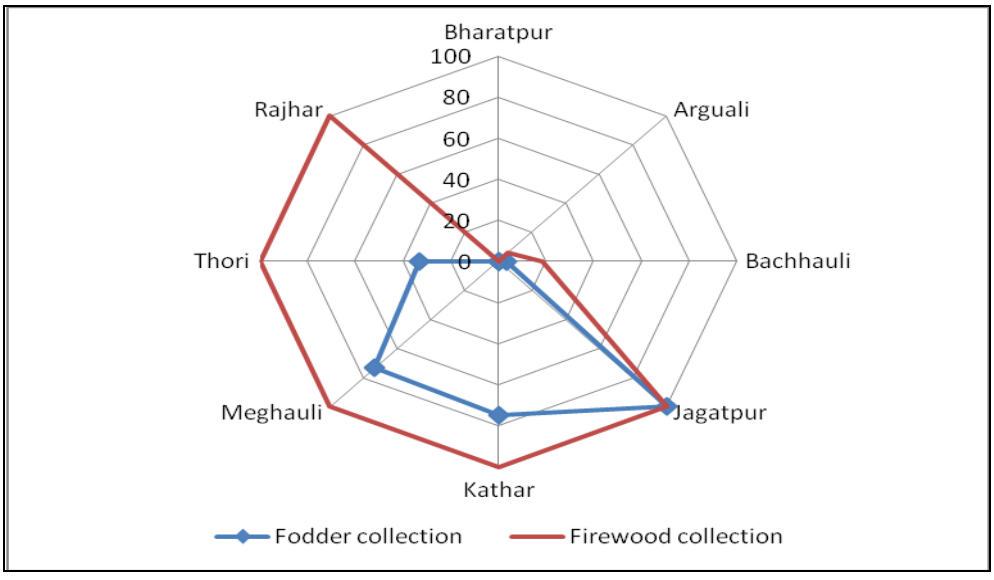
Box 4.1: Grazing management in Suklaphanta Wildlife Reserve

"There is a huge grazing pressure on the forest lands especially in the eastern part of the Reserve. …… In the year 2004, 2005 and 2006, reserve management authority provided forage from nearby reserve areas (some 100 to 200m inside the reserve boundary where villagers usually let their cattle graze) in a regulated manner (twice or thrice per week for 2 hrs either in morning or in evening and one from each group member households) and villagers themselves completely stopped cattle grazing in the reserve from Piparaiya to Baghphanta, the western and northern buffer. In addition, village youths were also engaged in controlling illegal grazing. Adjacent Buffer Zone user groups, female groups in most cases, were fully utilized to make grass cutting more regulated. This has resulted win-win situation for the reserve and the local communities. This practice, in fact, has threefold effect. First, it indirectly helps reduce the number of cattle in the Buffer Zone, second it improved the relation between villagers and reserve staffs and third and the most important, it prepared the grazing land for Chital (Axis axis*) and thereby reduces the crop depredation in adjoining agricultural fields of the Buffer Zone area. This practice can be continued to those areas and can also be applied to other parts of the reserve to control the problem of illegal grazing" *(Source: Paudel, 2007:75).*

*Supplied by this author

Field data indicates that the dependency of people on the park for firewood is higher than for fodder (fig. 4.11). Out of eight UCs surveyed the residents from three areas (Arguali, Rajahar and Bharatpur) were found not collecting fodder from the Park forests (fig. 4.12). Where as for firewood only one UC (Bharatpur) residents were found not dependent to the Park for firewood (fig. 4.13). Furthermore, the extraction levels of firewood and fodder vary considerably from area to area. For example in Bachhauli, only 3% of the residents gather 26-50% of their fodder requirements form the Park forests in comparison 30% in Jagatpur. In Kathar, 22% residents acquire more than 90% of their firewood from the park in comparison to just 6% in Jagatpur. However, it was also observed that due to an increase in population there was an overall increased in the demand of park resources in comparison to the initial years following the park's establishment (Stræde and Helles, 2000).

Figure 4.11: Households collecting fodder and firewood from the park (%)

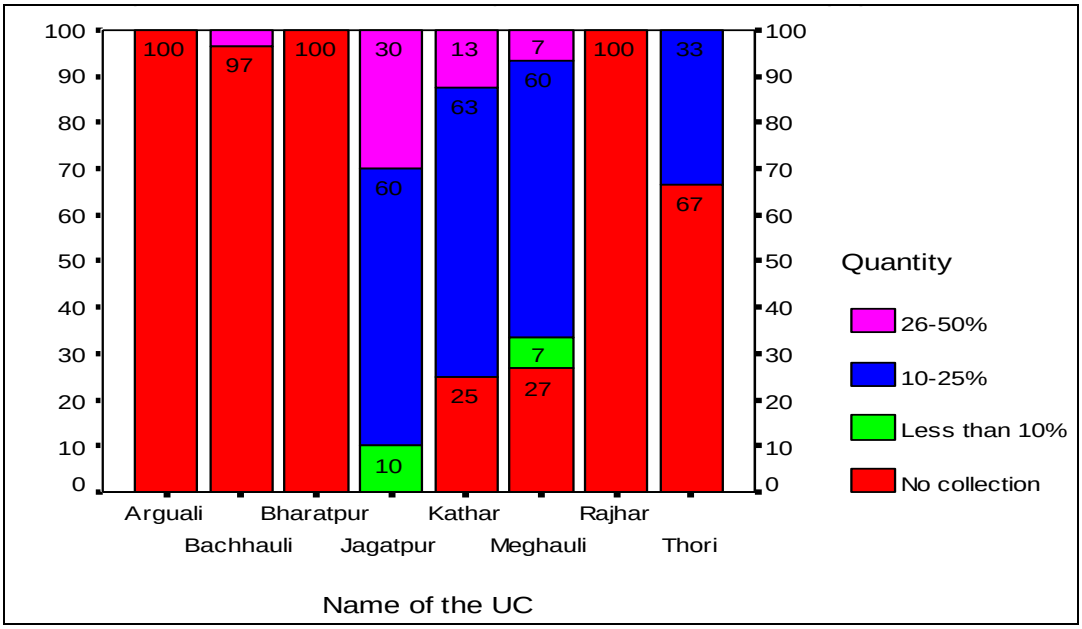


(Source: Field Survey, 2003)

As forest resources outside the national park are rapidly disappearing (Panta, 2008), the pressure on the park forests seems inevitable in the absence of affordable alternatives. For example, May 2010 data on park offences revealed that 98% of the offences related to the collection of basic forest products such as firewood, fodder, fishes and timber from the park (CNP, 2010). Since the park- people conflicts in CNP centre around the issue of meeting the basic survival needs of the people (KMTNC, 1996), a conservation strategy sensitive to the

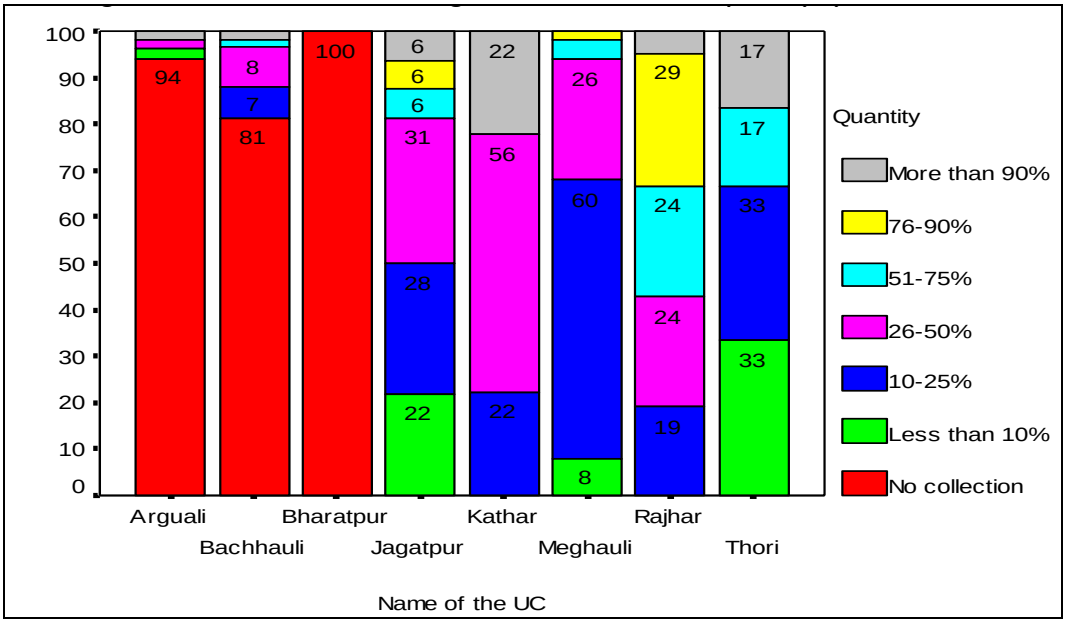
basic forestry resources needs of the local people is fundamental to the success of the park in the long-run.

Figure 4.12: Household collecting fodder from the park



(Source: Field Survey, 2003)

Figure 4.13: Household collecting firewood from the park



(Source: Field Survey, 2003)

4.7.2. Wildlife depredation and human casualty:

Success in wildlife conservation has led to more human-wildlife conflicts in Chitwan (Sharma and Shaw, 1996). Generally, rhinoceros, tiger, leopard, elephant, wild boar and deer have been reported responsible for crop depredation and human casualties. Particularly in Madi valley, sloth bears have been the main species responsible for human injuries. It was revealed that 93% of the respondent households experienced some losses from wild animals (Field Survey, 2003). Similarly, almost 74% of the respondents in study villages reported some damage from rhinoceros. However, fewer than 10% respondents experienced some damage from carnivores.

Field survey also revealed that 93% of the incidents of animal damage occurred within 3 km of the park boundary. Nonetheless, not all areas in the BZ are equally affected by crop depredation. A survey suggests that the intensity of crop depredation is low, medium and high in 28, 5 and 4 VDCs respectively[46] (DNPWC/PPP, 2001). The crop and livestock damaged by Park animals per household per year was estimated to be US$ 46 and US$ 12.45 respectively (Sharma, 1991). According to another study, households living close to the park lose approximately 16% of the total annual crop productions (Nepal and Weber, 1993). Similarly, a study on crop damage by rhinoceros revealed that rich, middle income and poor/small farmers annually lost about Rs. 3913 (US$ 52.17), Rs. 2727 (US$ 36.36 and Rs. 2200 (US$ 29.33) respectively (Adhikari *et al.,* 2005).

Human casualty is another serious issue in Chitwan National Park. On an average, 10 human casualties (death and injury) had been recorded per annum between 1997/98-2006/07, and the park is responsible for 48% of the total number of wildlife victims reported in all Nepal's protected areas.

Although human wildlife conflicts have been the prime cause of park-people conflicts in CNP (see table 4.4), co-existence can be maintained if the park were able and willing to compensate the damage caused by these animals to a reasonable level (Adhikari *et al.,* 2005). Adhikari *et al.,* (2005) found that in general most of the farmers surveyed would be happy if they were compensated up to 60% of the crop losses. However, the existing compensation scheme of the park is unsystematic and has been marred by the lack of

[46] The park is surrounded by 35 VDCs and some parts (wards) of two municipalities.

sufficient budget and a lengthy bureaucratic process (Nakarmi, 2009). Currently, the park management has been paying Rs. 50,000 (US$ 667) [47] in case of death and maximum Rs 25,000 (US$ 333) in case of injury for medical treatment. The resource needed for compensation has been arranged from the 50% of the park revenue that the BZ communities receive every year from the park.

In recent times, the government has been more sensitive towards the issue of human-wildlife conflicts. In 2009, the government for the first time officially recognized the problem of human-wildlife conflict and introduced a compensation policy. Moreover, for the first time the policy has also included the provision of compensation for crop damage (vegetable and fruit orchards) by wildlife. The amount has been increased, and will be paid from the central treasury (table 4.5). Although the new policy is a landmark in itself, its effective implementation remains to be seen, especially as the compensation procedure suggested by the Wildlife Damage Relief Guideline, 2066 (2009) appears to be even more bureaucratic than the previous procedures. Its effective implementation thus remains in doubt unless revised to make it more transparent and decentralised.

Table 4.5: Compensation amount proposed in the new compensation guidelines.

Incident	Compensation amount (Rs)
Human casualty	
• Death	150000
• Serious injury	50000
• Simple injury	5000
Livestock loss	Max 10000
Property loss	
• House/animal shed damage	Max 4000
• Grains	Max 5000
Crop damage	Max 5000

(Source: MOFSC, 2010)

A proper compensation scheme is vital in order to avoid retaliatory killings of endangered wildlife. The evidence indicates that besides the loss of human life and property, human-wildlife conflicts have been taking a toll of endangered animals. For example, between

[47] 1 US$ = Rs.75

1979 and 2006, the authorities were forced to remove twenty-five tigers within and around CNP (Gurung, 2008), 60% of which were euthanised mainly to calm public fury. This represents more than one quarter of the existing total tiger population of the park. Ogada *et al.*, (2003) suggests that species most exposed to conflict with human beings are also likely to be more prone to extinction. Coupled with the demand in international markets, such animals are likely to face a higher risk of poaching.

4.7.3. Poaching of endangered wild animals:

Since the establishment of the park in 1973, wildlife poaching has been a major challenge for the park management, rhinoceros being the prime target. The rise in the price of rhinoceros horn and tiger bones on the world market is one of the main reasons for poaching these animals (Maskey, 1998; Mishra, 2010), as well as local factors, as the following report elucidates:

" The poaching incidents used to increase during politically volatile situations when the government mechanism is comparatively not effective, during monsoon when regular patrolling is difficult, and during the long vacation of Dasain[48] when offices are closed for holidays. Since the 1970s, poaching incidents have a tendency to increase every 10 years, such as in the early period of a decade". (WHC, 2002:41) [49]

Poaching of rhinoceros was well under control between 1973 to the end of the last century, and only around three rhinoceros were poached per year between 1973 and 1998 (Maskey, 1998). However, due to political instability in the country, 121 rhinoceros were killed in and around Chitwan National Park between 2001 and 2007 (Martin *et al.*, 2009).

The poaching of rhinoceros however escalated during the first half of 2000, as the army posts reduced from thirty two in 2001 to seven in 2006 due to the fear of Maoist attacks. Besides, an unholy alliance of poachers, politicians, park officials and judges was also believed to be a reason behind the rise in rhinoceros poaching (Kunwar, 2009; Bhushal, 2010; Martin, 2001).

Not only has poaching in Chitwan been largely uncontrolled, it is also increasing even within the strict protection zone. In May 2010, within the periphery of army posts, four

[48] Main Hindu festival in Nepal
[49] http://whc.unesco.org/archive/periodicreporting/apa/cycle01/section1/np.pdf

rhinoceros were killed over a period of two weeks, raising questions about the effectiveness of protection measures employed by the park. Many believe that poachers are taking advantage of the volatile political situation and weak coordination among conservation agencies, and there is a fear that Nepal is fast developing as an international hub for illegal wildlife trade and a poacher's paradise (Shrestha, 2009; Mishra, 2010).

Park authorities have been initiating various measures to control wildlife poaching in the park, such as joint patrolling by troops and game scouts. The park authorities have also been mobilizing anti-poaching squads under the leadership of the Assistant Park Warden, which conduct both covert and overt anti poaching operations. As well as these measures, a number of local informants, including former poachers in some instances, have been recruited to support intelligence on poacher activities, and there are also reports of growing involvement by youths in anti-poaching efforts (UNDP, 2004).

However, most anti-poaching activities are reactive rather than pro-active, and largely park driven. In other words, most of the efforts have been directed towards catching poachers rather than saving wildlife from poachers. Although the involvement of local communities has been found to be effective in curbing poaching (Maskey, 1998), their involvement so far has been largely notional. Evidence suggests that sluggishness in protection, poor coordination among conservation agencies and a weak intelligence network have been the main causes of ineffective anti-poaching operations. Some experts also caution against the use of former poachers as local informants, as they have a tendency to revert to their previous activities when the situation is more propitious (Aryal, 2003). It can be argued that based on the current approach, park authorities may win a few battles but not the entire war against anti-poaching, signalling a need for serious assessment of the existing policies, institutional arrangements and conservation practices. It is arguable that unabated poaching has posed a serious challenge to park protection arrangements. Some believe that well equipped small anti-poaching squads would be more effective and efficient than a large contingent of army personnel. Experience also suggests that an invisible network of local informants and the visible presence of armed guards are both necessary to protect of species such as tigers and rhinoceros.

Similarly, it has been argued that the fines and penalties imposed are not high enough to deter organised poaching (KMTNC, 1996; Poudyal, 2005). The attractiveness of the illicit

money that poachers receive outweighs the risks of being caught (Adhikari, 2002; Mishra, 2008). In 2006, the maximum fine for rhinoceros poaching is Rs. 100,000 which is approximately one third than a middle man can get in the local market and 10 times less than the international market price for one rhinoceros horn (Martin and Martin, 2006). Current figures (2012) suggest that the price for rhinoceros horn may be $50,000 per kilo, i.e. 37 times the maximum fine (Graham-Rowe, 2011). Increasing the level of penalty to match the market price of tiger bones and rhinoceros horns would be one viable strategy to deter poaching, and a recent Parliamentary Committee formed to study rhinoceros poaching has suggested imposing at least Rs. 5 million fine (Tondon, 2010). In India a similar discussion has been going on to impose a maximum IRs. 10 million penalty for the poaching of a tiger.

However, the problem of poaching cannot be solved in isolation. Sustainable park management requires both strict law enforcement and incentives. Most of the people involved in direct poaching activities come from the economically deprived families of indigenous communities (Adhikari *et al.,* 2005). With small amounts of money, the poor indigenous people such as *Bote*, *Majhi*, *Chepang* and *Musahars* can be easily lured into poaching by smugglers coming from outside (UNDP, 2004). Whilst conservation and these poor communities are not linked in a mutually beneficial way, there will be always somebody to pull the trigger. Moreover, it is most important that park authorities should be able to convince local communities that rhinoceros, tigers and other rare wildlife are worth more to them alive than dead.

4.7.4. Development infrastructures and industrial pollution:

Chitwan Valley and the areas along the Narayani River in Nawalparasi district are in the process of rapid urbanisation and industrialization. After the establishment of the park, many industries such as a paper mill, brewery, cement factory, distilleries, dairy plants and so on have been established along the Rapti and Narayani rivers. At present, there are more than nine major mills and distilleries, which directly or indirectly pose a challenge to the park management. Most of these industries discharge highly toxic effluents directly into the river systems flowing through the park boundary threatening the aquatic biodiversity and overall ecosystem of the park. The pulp mill was identified as a potential threat when CNP was inscribed in the World Heritage List in 1984. The WHC dossier states:

" The major threat to the integrity of the park is proposed establishment of two pulp mills on the Narayani River upstream of the park. Apart from the park being a potential source of raw materials, the effluent could seriously affect the riverine ecology, particularly for the endangered Gharial" (WHC, 2002:10).

However, not only did the government establish the paper factory, but its capacity in recent years has been increased without meeting prescribed environmental standards (Thapa, 2003). Edds *et al.* (2002) suggest that the effluent from the Bhrikuti Paper Mill has been significantly affecting the fish and invertebrate assemblages as well as the physiochemistry and micro habitat of the Narayani River. Besides, household waste and sewage from rapidly expanding urban centres such as Bharatpur and Ratnanagar have been increasing pollution to the Narayani and Rapti rivers. The effects of increasing use of agro-chemicals in these rivers and wetlands are still unknown.

The park is also threatened by increasing numbers of development projects such as road, bridge and electricity (IUCN, 2002). The Gandak barrage on the Nepal-India border restricts the migration and seasonal movements of aquatic animals such as dolphins, crocodiles and fishes. A report suggests that fishing in the rivers bordering the park is also highly intensive and indiscriminate (DNPWC, 2001b).

As the result of these environmentally unfriendly activities, the status of aquatic species in the park Rivers has become bleak. The sightings of Gangetic dolphins have become rare in the Narayani River, which could boast 18-20 sightings of dolphins per year till 1996 (Thapa, 2003). Additionally, a study by Acharya and Lamsal (2010) suggests that the future of otters is also precarious, and although between 1981 and 2009 more than 500 gharial crocodiles were released in the Narayani and Rapti Rivers, only 65 (13%) were counted in 2008 (DNPWC, 2009). It was reported that the survival rate of gharial introduced in into Narayani was just 7% in comparison to 76% and 50% in Babai and Karnali rivers in Bardia National Park respectively (Ballouard and Cadi, 2005). The crocodile survival data indicates the severity of both pollution and anthropogenic pressures on the rivers in Chitwan National Park.

Since most of the industries are located outside the park jurisdiction, little can be done to check the pollution coming from such industries, and it is therefore crucial to gain cooperation from other development agencies including the Ministry of Environment.

Unplanned development activities are now emerging as more serious threats to the long-term integrity of the park and biodiversity conservation than the challenges posed by subsistence local uses of the park resources. Paudel (2005) argues that the industrial pollution and the dam on the Nepal-India border are the main causes of decline in aquatic fauna in the park rather than subsistence use by the poor fishing communities living along the watercourses. The long-term integrity of the park thus depends on its proper integration into the broader land use and economic planning of the valley.

4.7.5. Invasive species and plant succession:

Degradation and reduction of wildlife habitats both inside and outside the park are considered to be serious threats to the long term integrity of the park. Degradation of the quality of habitat is generally induced by succession of grassland into shrub lands in the park and the degradation of forest into shrub lands and conversion to agricultural land in the BZ. Park grasslands are encroached upon by fire resistant tree species, and wetlands are continuously covered with water hyacinth and other weed species. Short grass species such as *Imperata cylindrical* have been replaced by less palatable tall grass species. Some of the grasslands in the park have been changed into savanna type vegetation resulting in a reduction of the area under pure grassland from 20 % in the 1970s to 4.8% in the mid 1990s (DNPWC, 2001b). It is estimated that due to the succession of grassland, the preferred rhinoceros habitat has decreased from 23.5 ha/rhinoceros in 1977 to 10.1 ha/rhinoceros in 2002. Invasive unpalatable exotic species such as Mikania (*Mikania micrantha*) have been further outcompeting the existing grassland species, resulting in the loss of habitat and fodder supply to wildlife (DNPWC, 2001b). It is estimated that 50% of the rhinoceros habitats and 20% of the park areas have been infected by the Mikenia (Khadka, 2010) (photo 4.6). In total, 102 plant species are found to be affected in various degrees by this weed (Sapkota, 2007).

In response, the park administration has been implementing various habitat improvement activities, such as ploughing tall grassland areas and removing tree species from the open grassland. Water hyacinth has been removed to improve the quality of the wetlands. Since both programmes are quite expensive, the scale of such works is limited in comparison to need. Besides annual burning, every year the park has been maintaining 200-300 ha of

grassland by cutting, ploughing, uprooting weeds and burning debris (personal communication: Narendra Pradhan, Chief Warden, 2010).

Photo 4.6: Chitwan National Park is heavily infested by Mikenia

(Photo: Author, 2009)

Likewise, the park office and the NTNC have been attempting to remove Mikenia. To highlight the seriousness of the problem, a recent Mikenia uprooting campaign was organised with the participation of the Prime Minister (Khadka, 2010), although in the absence of any clear road map the visit of the PM was perhaps little more than a public relations event. Since both grassland and wetland resources are of tremendous importance to local people, a collaborative arrangement between the park and local communities in clearing wetlands and grass cutting would be worth exploring. Community involvement in grassland management could be win-win for both local communities and park management (Bhatt, 2006).

4.7.6. Tourism activities:

Organised wildlife tourism activities started in Chitwan in 1965 with the establishment of Tiger Tops Jungle Lodge. In the beginning, visitation numbers were quite low (fewer than

1000), being affordable to wealthy tourists only. Now, however, Chitwan National Park is the most visited park in the country, by both national and international tourists. In the fiscal year[50] 2008/09, approximately 120,000 tourists visited the park, which constituted 34% and 18% of the total visitor numbers to protected areas and to the country respectively (photo 4.7). Although the current visitor numbers are nearly 144 times the numbers registered in 1974/75, tourism growth has been quite uneven (figs.3.9 & 4.14). The tourist arrival trends over the last 15 years clearly reflect the effect of political instability (2000-2003) in the country and the effect of global recession (figs. 3.9 & 4.14). In the financial year 2008/09, tourism activities generated approximately US$ 780,000 for the park (DNPWC, 2009) which was more than 93% of its total annual income.

Photo 4.7: Elephant safari and elephant bath are popular tourist activities in CNP

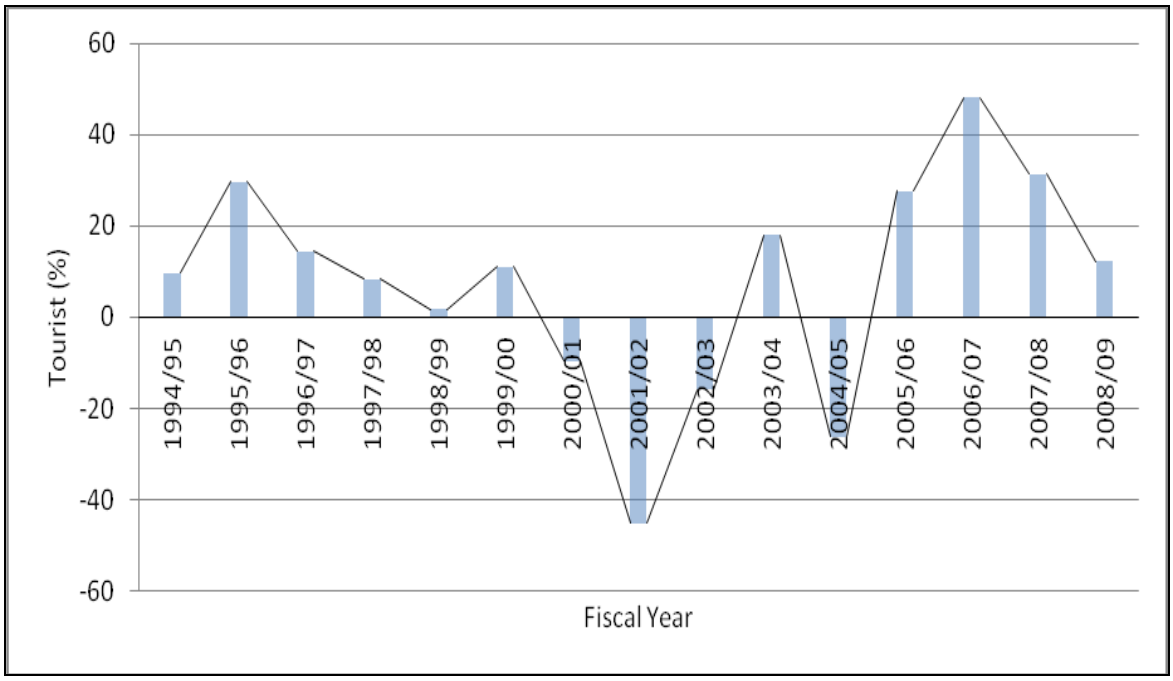
(Photo: Ganga Nakarmi, 2007)

With the growth in tourism activities, the importance of Chitwan National Park to local as well as to national economy has been growing. Currently 77 lodges are operating in and around the park, which generates more than 1900 direct and about 6000 indirect employment opportunities to locals (Pradhanang, 1997). According to NTNC study, 74% of

[50] Fiscal Year refers to July 16-July 15 of the respective year.

the employees of these lodges are from Chitwan district (KMTNC, 1996). Tourist lodges in Sauraha record average transactions of Rs 3-4 million every year (Karki, 2010).

Figure 4.14: Tourists growth trend in Chitwan Nationa Park



(Source: Author, 2010)

Tourism has been able to bridge the gap between local communities and the park authority (Nepal, 2002). Tourism entrepreneurs and people living near to tourist centres have been found more positive towards wild animals (Adhikari *et al*., 2005), such that during the height of the poaching problem in mid 2000, tourism entrepreneurs were instrumental in mobilizing public and political support for rhinoceros conservation, and even forced the government to take action against the Chief of the park who was found to be over lenient towards a notorious poacher while handing down punishment (Shrestha and Joshi, 2007).

As well as providing direct income, park-based tourism activities have also been contributing to local economy through the park's revenue sharing scheme. Since 1996, the park has been recycling 50% of its incomes in BZ development activities. Every year on average, BZ communities receive Rs. 20 million (> US$ 275,000) for their development programmes. Since most of the park revenues come from tourism activities, the policy of recycling park income has linked tourism directly to the wellbeing of the people living in the BZ (see Chapter V for detail discussion). The substantial economic benefits, which people get directly and indirectly from tourism, have provided the impetus and a strong

justification for conservation (Nepal, 2002). Now for many people, tigers and rhinoceros in their backyard has become an economically valuable resource rather than merely a threat to human wellbeing (Dinerstein, 2005). One observer sates:

"…..many of the sons and daughters of those who poached and destroyed rhinoceros habitat in the 1970s and 1980s have become rhinoceros protectors and are profiting from wildlife tourism in the new millennium" (Mishra, 2008: xix).

The current tourism practices in Chitwan National Park, however, have numerous pitfalls, one problem being the unplanned and uneven expansion of tourism. Most of the tourism activities are concentrated within 13.6 sq km or 1.5% of the total park area (Cosgriff *et al.*, 1998). Of the nine entrance gates, tourism is mainly concentrate in the Sauraha area only, since more than two thirds of tourists enter the park through Sauraha entry point where nearly 78% of the tourist lodges currently operating are located. In 1996 (KMTNC) approximately two-thirds of the visitors considered that Sauraha was already overcrowded. The concentration of tourists and tourism activities in Sauraha has resulted in ecological, socio-cultural and economic problems.

In the absence of tourism guidelines, concrete structures of all types are sprouting in Sauraha, resulting in the degradation of the scenic value of the landscape, and garbage problems and noise pollution continue to increase. These factors will contribute to reduce visitor satisfaction, which could affect visitor flow in the future.

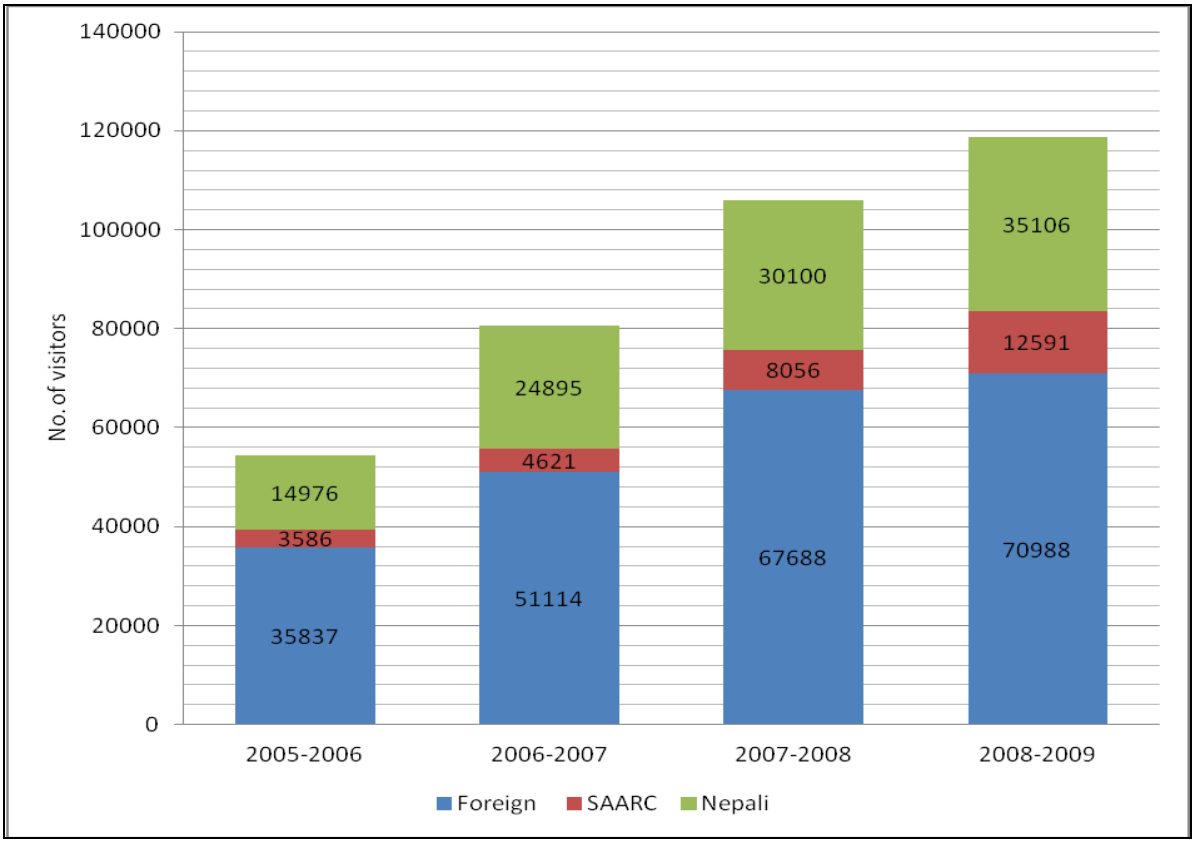
As elsewhere, very few people in Chitwan have actually been benefiting from tourism activities. Guneratne (1994) found that no more than 10% of the hotels are owned and operated by local indigenous people such as *Tharus*. Fewer than 2% of the BZ population are employed in tourism (KMTNC, 1996), and 98% of tourism benefits go out of the area (Shrestha, 1999 cited in DNPWC, 2001b). Bhatterai *et al.,* (2005) further argue that some 63% of the country's park visitors rarely contribute anything to the local economy. In contrast, the growing number of foreign tourists have had the effect of inflating local prices of basic foods and household goods (UNEP/WCMC, 2008), and the increase in land value has been forcing local indigenous people to sell off their land to outsiders (KMTNC, 1996) resulting in the displacement of indigenous people from their original place, and the loss of local tradition and culture.

Similarly, it was reported that concessionary lodges operating inside the park over the last three decades are also contributing to increased stress in the park's ecosystems (KMTNC, 1996; DNPWC, 2001b). There is considerable debate as to whether to continue the leases of these lodges inside the park (Anon, 2009; Ghimire, 2009).

Although elephant safaris are one of the most popular tourism activities in Chitwan, the practice of approaching and surrounding the rhinoceros to get a better view at close distance has been disrupting behaviour of these animals (KMTNC, 1996). Lott and McCoy (1995) suggest that when visitors get within 10 m of rhinoceros, it can seriously disrupt their feeding activities. Cosgriff *et al.,* (1999) argue that a noticeable paucity of sightings of species such as sloth bear, gaur, tiger and leopard in the Sauraha park area suggests that the animals might have migrated to safe areas to avoid high disturbance events from tourists. The growing tourism demand in Chitwan presents formidable challenges to maintaining a balance between conservation priorities and recreational needs (DNPWC, 2001b).

Although unregulated and unbalanced tourism growth has posed a major challenge to park management, the authorities seem ill-prepared to reduce the impact of unplanned tourism as well as to enhance the tourism potential of the park for the benefit of the local community and the conservation of biodiversity. So far, the park lacks a tourism management plan and dedicated staff for tourism management despite tourism being the main source of park income. Visitor facilities have not been improved, nor have park service and facility fees been revised for many years. Aryal (2008) suggests that foreign tourists are willing to pay up to US$ 8 more entry fee than they currently do. Given that the number of domestic visitors (29% of all park visitors in the financial year 2008/09) has been growing (fig. 4.15), a reasonable increase in the entry fee which is now only Rs 20 (around 27 US cent) could increase park income significantly and could offer new opportunities. Moreover, the park could boost national support for biodiversity conservation by providing quality conservation education and a unique wilderness experience to national visitors. Recently, in order to cover the increasing management costs of the park, the Natural Resource Committee of the Parliament recommended to the government to fix the park entry fee between US$ 15 and 20 for foreign tourists (Tandon, 2010). Effective capture of ecotourism benefits both from national and international visitors is vital to check alternative land use and justify strict protection of the area (Aryal, 2008).

Figure 4.15: Trend and composition of visitors in CNP



(Source: Modified DNPWC, 2009)

4.8. Summary:

Throughout Nepal's history, neither state nor ruler has ever lost their sight from the use of land and its natural resources in Chitwan. The government/state has always played a key role in shaping the trajectory of human-environment interactions in Chitwan valley (table 4.6). Till 1950, Chitwan valley had been populated and depopulated many times. Traditional resource management practices have never emerged in Chitwan as the population was historically very low and seasonal, resources were abundant, land tenure was insecure and shifting cultivation was prevalent. The local resource management rules if they existed at all were also largely derived from the decrees issued by the rulers.

Since ancient times, government land use policy in Chitwan has swung between state security concerns and human subsistence needs. In the last 300 years, three landmark government decisions have made significant impacts in the land use and resource governance regimes of the Chitwan valley. They were, i) maintaining the area as a natural security barrier during the 18th century, ii) implementation of a large-scale settlement

programme to boost agricultural production and relieve human pressure in the mountains during the 1950s and 60s, and iii) establishment of the national park in the early 1970s. Similarly three decisions related to Park management such as i) annual grass cutting, ii) revenue recycling and iii) the recently introduced compensation policy have shaped and will shape park-people relationships in Chitwan.

Table 4.6: Land use trend in Chitwan valley from prehistoric to modern times.

Period	Prehistoric period	Ancient period (Brijji and Lichhavi, Malla rules)	Medieval period (During Sen rule) (1500 – 1777)	Shah rule (1777-1846)	Rana Rule (1846-1950)	1951 - 1975	1975 - 1990	1990 -
Condition of landscape	Natural	Human used		Human used & disturbed		Human modified	Modified and human dominated	
Land use purpose	Collection of plant & wild animals for consumption	Collection of plant and wild animals for consumption and commerce Shifting cultivation Preservation for security barrier	Agriculture Forest and wildlife products for consumption & commerce Preservation for security barrier	Agriculture Timber & wildlife harvesting for commerce Hunting Preservation for security barrier		Human settlement Agriculture, wildlife protection & hunting	Agriculture & biodiversity conservation	
Governance	Early human, Hunter gatherer groups	State & indigenous tribes	State			State & individual farmers	State, individual citizen & community - groups	

(Source: Author, 2010)

Within the last few decades, Chitwan has changed from a forested and natural landscape into a human dominated vibrant cultural landscape (table 4.6). The valley of Chitwan is now one of the most complex and contentious landscapes in the Indian subcontinent, if not in the whole world. In this landscape, some of the globally most endangered species and the world's poorest people have been struggling to survive together. Striking the right balance between the immediate needs of a burgeoning population and long-term conservation needs

has been always challenging. Critics argue that conservation objectives have been so far achieved at the cost of local livelihoods (Paudel, 2006; KMTNC, 1996), and the general feeling among local people is that government gives more importance to wildlife than to their problems.

Since CNP is an area of globally significant biodiversity set amidst rampant human poverty, the issue of meeting basic survival needs is the single biggest threat to the conservation of its biological resources (KMTNC, 1996). Various studies suggest that local people recognise the importance of the park and are willing to live in harmony with its wildlife (Nepal and Weber, 1993; Adhikari *et al.,* 2005). *"Even the poorest villagers are conservationists at heart"* (Dinerstein, 2005:260); and despite conflicts with wildlife people generally value biodiversity for subsistence, aesthetic, spiritual and cultural reasons. Thus, creating a situation of human-wildlife coexistence largely lies in the hands of the government and the park authority. A pragmatic approach that helps contain and mitigate human-wildlife conflict is necessary for the long-term conservation of Chitwan's unique biodiversity. In this densely populated area, long-term conservation is possible only by involving local people and by offering the right incentives to align their livelihoods with nature conservation (Dinerstein, 2005). It is imperative to implement programmes which help minimize negative impacts of park on people and of people on the park. In order to realize such a balance, the government of Nepal has been implementing a BZ programme in various protected areas of the country. The next chapter will discuss the principle, policy and practices of BZ activities in Nepal.

CHAPTER V BUFFER ZONE MANAGEMENT INITIATIVES IN CNP: EXPANDING CONSERVATION GOVERNANCE

5.1 Introduction:

It has become an axiom in Nepal that protected areas cannot be managed sustainably without the active support and goodwill of the local communities (Mishra, 1982; Sharma, 1991; Maskey, 2001, HMG/MOFSC, 2002; Nepal, 2002). In general, there is also a consensus that the future of protected areas in the country depends on better management of the areas outside the protected zones, thus requiring park planners and managers to look beyond the park boundary (Nepal and Weber, 1991) and to address the balance between short-term human needs and long-term ecological integrity. In keeping with this notion, the Buffer Zone concept has been introduced in Nepal as a key component of the national biodiversity conservation strategy to mitigate the impacts of protected areas on local communities, and thereby to reduce the adverse impacts of local people on protected areas. It has been envisaged that the BZ initiative will help integrate national parks and wildlife reserves into a larger social and ecological space, linking conservation with the socio-economic wellbeing of the local communities, and creating a mechanism of multi stakeholder dialogue to bring synergy in conservation.

This chapter presents an overview of Buffer Zone management practices in Nepal based on a thorough assessment of its implementation in Chitwan National Park. Section 5.1 sets the background to this chapter whereas sections 5.2, 5.3, 5.4 and 5.5 discuss BZ policy and practices in Nepal, the physical and socio-economic features of the Chitwan BZ, implementation mechanism of the BZ programme and its current status in CNP respectively. Finally, section 5.6 presents the summary of this chapter and takes the discussion forwards.

5.2 An overview of BZ policy and practice in Nepal:

With the encouraging results of the conservation area management and community forestry approach in the hills, the government of Nepal introduced the Buffer Zone concept in the protected areas of the country where the park-people relationship was generally hostile due to restrictions on the use of park resources and wildlife depredation. Establishment of a

Buffer Zone was first attempted in the periphery of Bardia National Park in the early 1980s. However, early efforts could not be formalised due to the absence at the time of the required legal mandates to the Park authorities (Sherpa, 1993, cited in Thapa, 1998). In 1994, the government amended the National Parks and Wildlife Conservation Act, 1973, to authorise park authorities to declare Buffer Zones in the peripheries of existing national parks (IUCN category II) and wildlife reserves (IUCN Category IV), and to enable them to spend 30–50% of park incomes for community development and natural resource management activities in the Buffer Zones. Subsequently, the Buffer Zone Management Regulations, 1996, and Buffer Zone Management Guidelines, 1999 were enacted to facilitate the planning and implementation of resource conservation and development activities in protected area Buffer Zones.

The National Parks and Wildlife Conservation Act 1993 defines a Buffer Zone as "*an area set aside around a national park or reserve for granting opportunities to local people to use forest products on a regular basis*" (HMG/N, 1996:1). Traditionally, Buffer Zones have been considered simply as a layer of protective forest around protected area (Sayer, 1991). Nepal's Buffer Zones however, comprise varieties of land uses such as mosaics of forests, wetlands, agricultural lands, settlements, cultural heritage areas and village open spaces. This is largely a park- people interface zone/co-existence zone, which could be considered as a combination of both BZ and 'transition zone' as envisaged in the UNESCO Man and Biosphere (MAB) Programme. In this approach, the park and its BZ have been considered as 'one management unit' embracing the spirit of managing protected areas not in isolation but as networks or landscapes. Furthermore, Nepal's BZ is conceived as a sustainable development zone to develop an alternative resource base and livelihood opportunities to reduce the dependency of people on park resources (Sharma and Shaw, 1998).

Literature review suggests that there is no general agreement among conservation agencies regarding what is, or should be, the role of Buffer Zones (Martino, 2001). Buffer Zones have been defined and designed depending on the social and ecological contexts of the protected areas but generally in an arbitrary manner (Alexandre *et al.*, 2010). The management objectives of Buffer Zone programmes normally swing between conservation and community priorities (Wells and Brandon, 1991; Wild and Mutebi, 1997; MacKinnon *et al*., 1986). Strædea and Treue, (2006:252) explain:

".....there are great differences among the geographical, legal and managerial characteristics of individual Buffer Zone areas. In geographical terms, Buffer Zones might be defined entirely inside, outside or overlap with the original boundary of the protected area. The legal and, hence, the official management authority over the Buffer Zone might rest entirely with the protected area managers (national parks department or equivalent), it may rest entirely with local communities or it may be shared between a number of different stakeholders".

The Buffer Zone Regulations of Nepal advocate community-based approaches to the conservation of park resources through forging partnership agreements between community organizations and park authorities (HMG/N, 1996). The objective is to stimulate new livelihood opportunities and the use and development of alternative natural resources such as Buffer Zone community forests, thus promoting community self-reliance and minimizing dependence on critical biological resources inside the park, as well as providing additional habitat for wildlife. The mobilisation of communities for effective Buffer Zone management is grounded in the principle of equitable development of human social, financial and environmental resources (Budhathoki, 2003a, see annex for the abstract of this article). So far, the Buffer Zone management programme has adopted indirect and community compensation approaches to compensate for the resources foregone due to the establishment of protected areas (Budhathoki, 2006). The BZ approach can also be considered as a mechanism to compensate the cost incurred by locals for the protection of global common goods such as endangered animals such as rhinoceros and tigers in the case of the CNP.

Nepal is one of the few countries in the world where the Buffer Zone concept has been formalised in legal terms (Ebregt and Greve, 2000). There are well defined policy frameworks to delineate Buffer Zones and to recycle park income for Buffer Zone development, and legally constituted community institutions to implement Buffer Zone programmes (box 5.1 & fig. 5.1). The BZ Regulations and Guidelines provide both regulatory and facilitative roles for park staff. The role of park staff is critical in working with community organisations and in negotiating and delineating BZ boundaries as well as in planning and managing the development and conservation activities in the Buffer Zones.

Box 5.1: Buffer Zone delineation criteria

The followings basis should be given special consideration in attaining the objective of the Buffer Zone in an effective and productive manner while declaring the affected peripheral areas of the national parks and reserves or villages, settlements and hamlets within the national parks or reserves as Buffer Zone

a) Areas likely to be affected from national park and reserve
   - areas directly affected by the prohibited use of forest products of national park or reserve.
   - areas directly affected by prohibited of grazing in the national park or reserve.
   - areas directly affected by the wildlife of national park and reserve on a regularly or partially basis to crop damage.
b) Area that could be practicable and appropriate from the point of management of the Buffer Zone.
c) Geographical situation of national park and reserve
d) Status of the villages and settlements located within national park and reserve
e) Areas with the possibility for the development of eco-tourism
f) Natural boundary as the primary basis to delineate Buffer Zone boundary.

(Source: HMG/N, 1996; MOFSC, 1999)

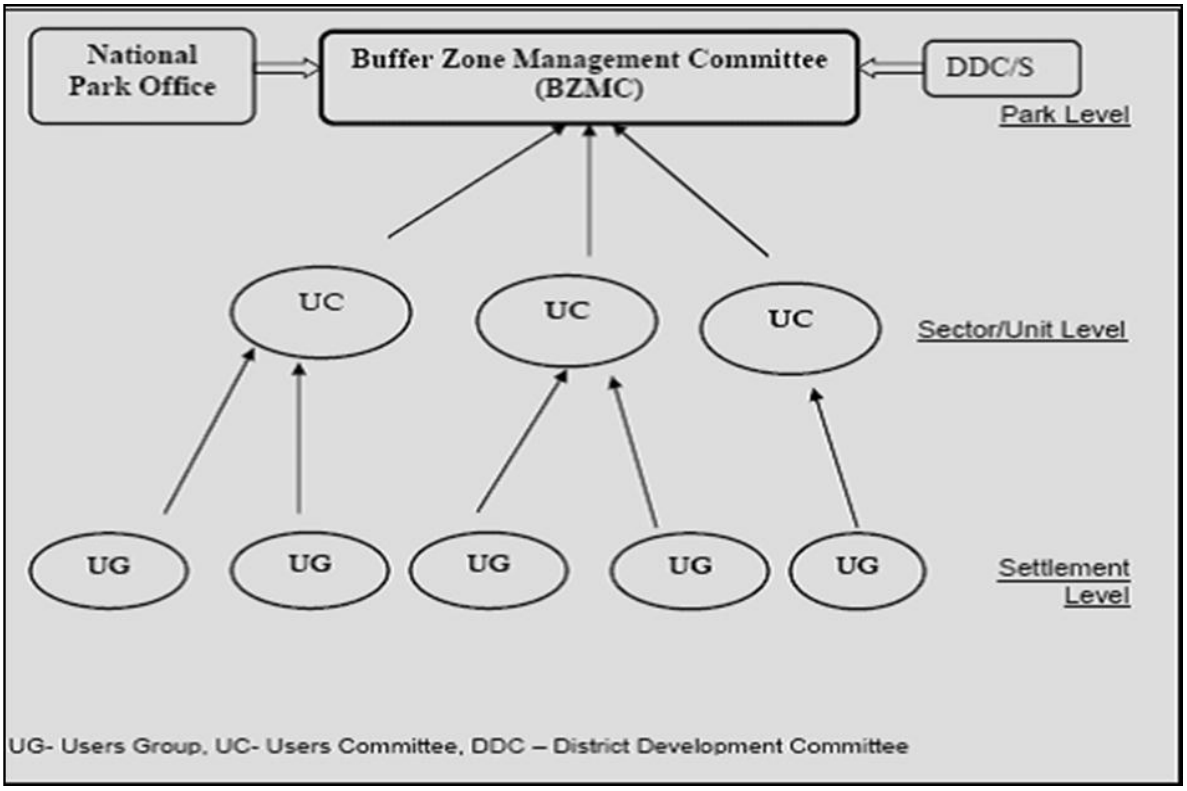
A three-tier community-based institutional model has been developed and is applied for the management of conservation and development activities in the Buffer Zones (fig. 5.1). Communities in the BZ areas are mobilized through the formation of User Groups (UGs) at the settlement level. Local people are encouraged to form separate male and female user groups. These settlement-based organizations have been federated to form a maximum of 21 User Committees (UCs) at the Sector/Unit level[51]. At the park level, UC chairpersons form a Buffer Zone Management Committee (BZMC) with the Chief of the Park acting as Member Secretary. This apex body is entrusted to mobilize 50% of the Park's revenue for development and conservation activities in the Buffer Zone (fig. 5.2).

The criteria for disbursing funds to each User Committee are - size and coverage of the User Groups or represented population, impact of the User Group members on the protected area, the impact of the park on local people, the communities' geographic location with respect to the park, the communities' willingness to participate in the BZ management process, and the level of support from other agencies for the proposed project (HMG/N, 1996). The programme implementation strategy is founded on the principle of careful integration of conservation and development activities (table 5.1). Buffer Zone management is therefore a

[51] As per the BZ Management Guidelines 1999, the total number of User Committees should not exceed 21.

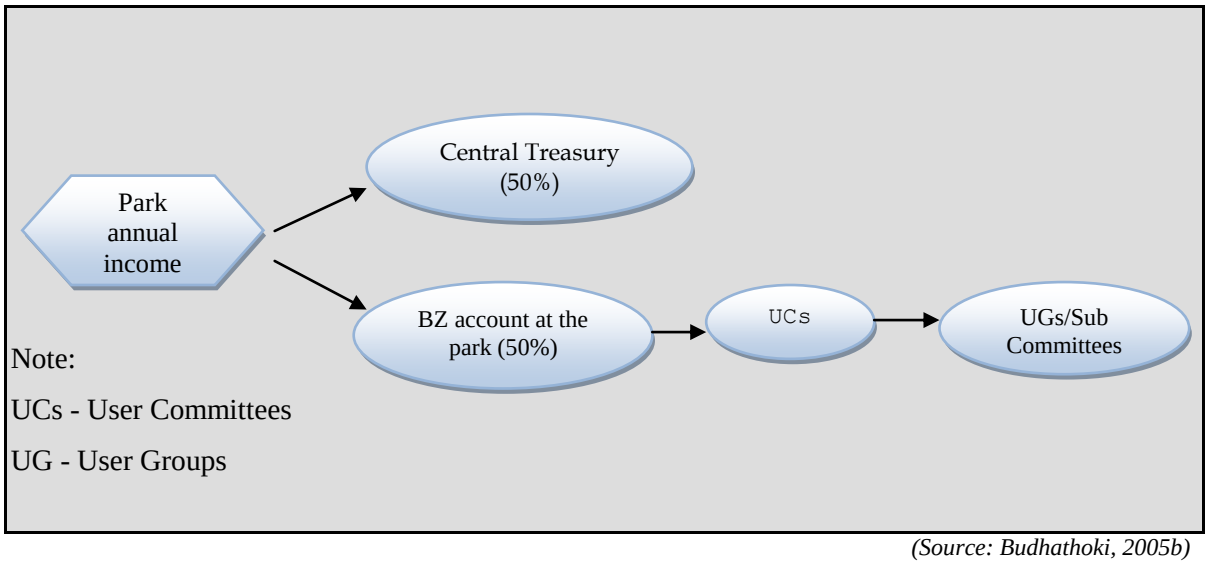
complex task, which demands considerable cooperation among the various stakeholders, and above all the active participation of local people.

Figure 5.1: Community organisational structures for BZ management.



(Source: Budhathoki, 2003a)

Figure 5.2: Fund flow in the Buffer Zone management programme



(Source: Budhathoki, 2005b)

Table 5.1: Buffer Zone fund disbursement guidelines

	Programme Portfolio	Max. fund available from BZMC
1.	Community development activities	30%
2.	Conservation program	30%
3.	Income-generation and skills development programme	20%
4.	Conservation education programme	10%
5.	Administrative expenses	10%

(Source: MOFSC, 1999)

With the introduction of the Buffer Zone concept in the early 1990's, the conservation policy of the government shifted from a wildlife-centred approach towards a people-centred approach (UNDP, 2004). Since the Buffer Zone concept was quite new and ambitious, the government requested UNDP to help pilot the Buffer Zone policy in different protected areas of Nepal. In late 1994, the Park and People Programme/PCP[52] (1994-2004) was initiated to develop and demonstrate a viable implementation mechanism for the management of Buffer Zones and to improve the capacity of park staff and local communities to work more collaboratively. The project was a pioneer initiative in Buffer Zone development in which this researcher was privileged to work as Project Manager and Advisor for about six years (1996-2002). The project was instrumental in helping government to develop institutions and instruments to translate BZ policy into practice in Nepal (DNPWC/PCP, 2002).

Buffer Zone management in Nepal, covering 11 of the 16 protected areas, is now an important conservation portfolio of the DNPWC. By the introduction of BZs, more than 5000 sq km areas have been incorporated into the current protected area regime (table 5.2). Altogether, 111,893 households (2.67% of the total number of households in the country) are engaged in the Buffer Zone programme. More than 31 400 ha Buffer Zone forests have been handed over to user groups benefiting to more than 41 000 HHs (fig. 5.3). Community forestry practices, which transfer Buffer Zone forests to community management, have been adopted for the restoration and conservation of forestry resources outside protected areas for both conservation and livelihood benefits.

[52] Park-people Programme (PPP) was implemented by DNPWC in seven protected areas (KTWR, PWR, CNP, BNP, SWR, KNP, RNP). The main objective of the project was to enhance capacity of the park authorities and local community to jointly manage Buffer Zone resources. The project was closed in 2002, but its activities were continued through Participatory Conservation Programme (PCP) until April 2004.

Table 5.2: Buffer Zone statistics of Nepal

SN	Buffer Zone	Year	Area (sq. km.)	District	VDCs	Households	Population	UG	UC
1	CNP	1996	750	4	37	36193	223,260	1173	21
2	BNP	1996	327	2	17	11504	120,000	230	15
3	LNP	1998	420	3	34	12509	54,326	325	21
4	SPNP	1998	1349	2	11	2263	11,598	90	17
5	MBNP	1999	830	2	12	6000	32,000	88	12
6	SNP	2000	275	1	3	1288	5896	28	3
7	SWR	2004	243.5	1	12	17,006	100,953	501	9
8	KTWR	2004	173	3	16	10,693	77,950	506	9
9	PWR	2005	298.17	3	11	7228	43,238	345	12
10	RNP	2006	198	2	9	1898	11,685	156	10
11	KNP	2006	216	4	21	5311	33,272	418	16
Total			5079.67	27	183	111,893	714,178	3860	145

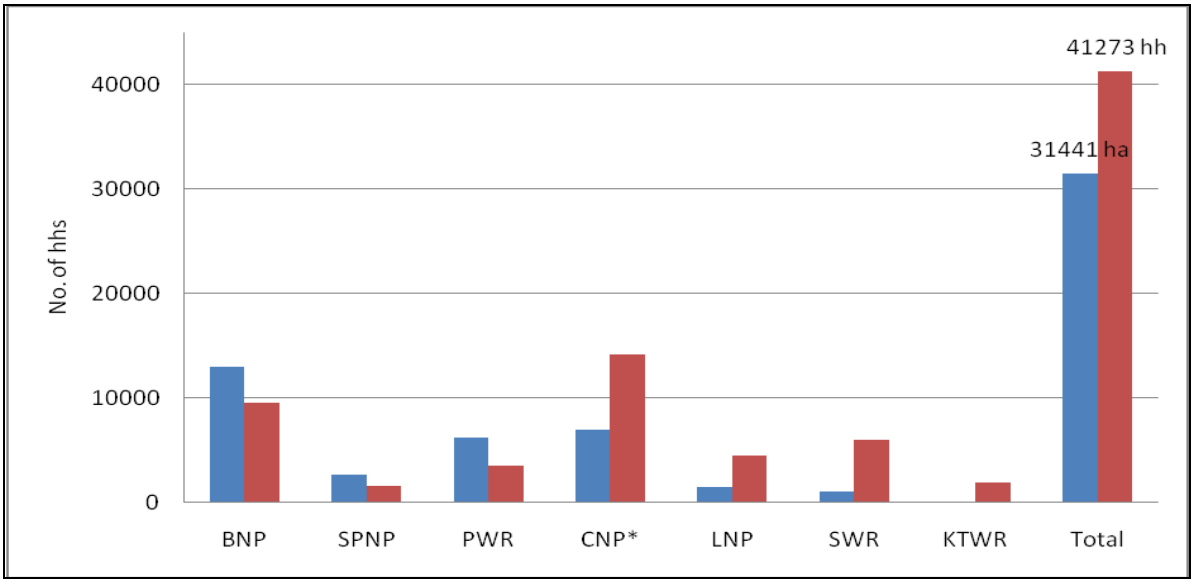
(Source: Modified from DNPWC, 2009)

Within the last 13 years (1995/96 – 2007/08), approximately Rs. 339 million (US$ 4.52 million) has been disbursed to the Buffer Zone Management Committees (BZMCs) of different protected areas for the implementation of various resource management and community development activities in the Buffer Zones (DNPWC, 2009). Due to high variation in park income, however, the availability of funds for Buffer Zone management among parks differs considerably. For example, Chitwan National Park received 73% of the above fund. An analysis of 2008/09 park revenue indicates that the amount available for Buffer Zone management would vary from > Rs 31 million in CNP to just Rs. 64,000 per year in Rara National Park (RNP) RNP (fig. 5.4). Park income data also suggests that in terms of per unit area of the Buffer Zones and per households (HH), Sagarmatha National Park (SNP) (Rs. 43043/sq km and Rs. 9190/HH) is more privileged than the Chitwan National Park (CNP) (Rs. 41865/sq km and Rs 867/HH).

In Nepal, the BZ programmes are at different scales and stages of implementation in different protected areas. The BZ programmes CNP and BNP have been in place since 1996 and are at quite an advanced stage, whereas those around Khaptad National Park (KNP) and Rara National Park (RNP) are struggling to take off as they were officially declared just a few years ago. It is also important to note that in some PAs there is lack of resources whereas, due to various reasons parks such as CNP and BNP are not being enabled to spend

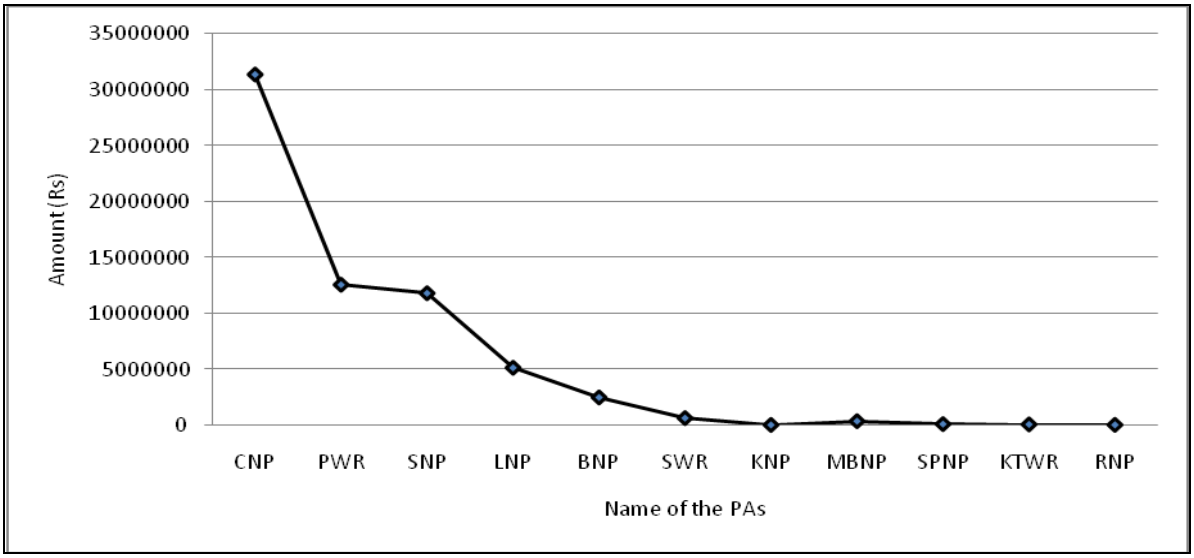
the allocated fund. According to a UNDP (2004) report, 20% of the total funds released for BZ management in CNP and BNP were laying unused.

Figure 5.3: Buffer Zone Community Forests and beneficiary households



(Source: Adopted from DNPWC Annual Report 2007/2008 and 2008/2009).
Note: Data from SNP, KNP, RNP, MBNP are not available
* As of Feb 2010, CF area is 8375ha, and beneficiaries are 23789hh and pop is 127782

Figure 5.4: Share of the annual park revenue available for BZ management (2008/09)



(*Source: Modified from DNPWC, 2009)*

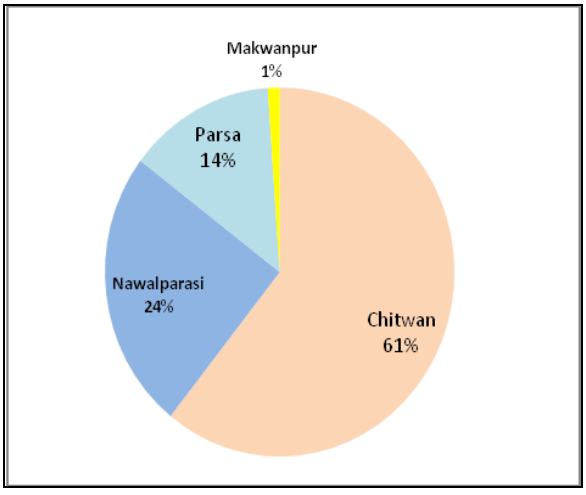
This review indicates a number of challenges of various sorts for the effective and extensive application of the Buffer Zone concept in Nepal. A thorough study of the Buffer Zone

programme in Chitwan National Park, where the programme has been in progress since 1996, would not only help improve programme implementation in Chitwan itself, but would also provide vital insights in order to develop effective strategies to widen its application in other protected areas of the country. The following sections will discuss the implementation of Buffer Zone activities in CNP in detail.

5.3 Buffer Zone area of Chitwan National Park:

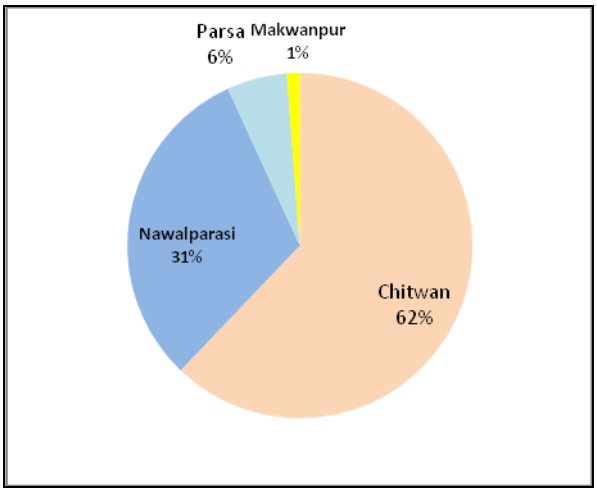
The Buffer Zone on the periphery of CNP was declared in 1996. Depending on the park's bio-physical conditions and the intensity of park-people interaction, it extends from less than 1km to a maximum of 9km from the park boundary. The BZ area encompasses four districts, 35 Village Development Committees (VDCs) and parts of two municipalities, accounting for about 510 settlements, 36193 HHs and a population of 223, 260 people (DNPWC/PPP, 2001). However, the distribution of BZ areas in different political territories is quite uneven. Only 31% of VDCs fall completely within BZs and only 2-8 wards[53] in the remainder of the other VDCs are covered by BZ designation. Similarly, most of the BZ areas and households lie in Chitwan district (figs. 5.5 and 5.6).

Figure 5.5 Distribution of BZ area by area



(*Source: Author, 2010)*

Figure 5.6 Distribution of BZ households



(*Source: Author, 2010)*

The BZ area is a complex mosaic of various ethnic tribes, indigenous as well as hill migrants. Nonetheless, there are some pockets where the concentration of certain ethnic

53 A Village Development Committee (VDC) comprises nine wards.

groups is quite high. For example, concentrations of *Darai, Kumala* and *Parja* are found in Magahuli and Parsauni VDCs. Besides some pockets along the Narayani River, a large number of *Bote, Majhi* and *Musahar* communities reside in Piple and Gardi VDCs. Kalyanpur and Gitanagar VDCs are virtually inhabited entirely by a *Bharmin/Chhetri* community whereas high concentrations of *Damai/Kami/Sarki* (occupational/untouchable castes) are found in Bhandara, Dibyanagar and Jagatpur VDCs. In addition to their sizable presence in Gunjanagar, Bachauli, Koluwa and other VDCs, *Tharus* also constitute most of the populations of Kawasoti and Sukranagar VDCs.

Many parts of the BZs are extensively cultivated (photo 5.1). Nearly 79% of the BZ households live within 3km of the park border. Most of them are poor and marginal farmers with less than 0.5 ha of farmland (photo 5.2). Similarly, common property resources such as forests are also limited in size and unevenly distributed. A DNPWC survey revealed that the average per capita agricultural land and forest area were 0.17 ha and 0.11 ha respectively (fig.5.7). It has been suggested that 1.5 ha of farmland (Seddon *et. al*., 1979 cited in Agergaard, 1999) and 0.5 ha of forestland is required to maintain self-reliant livelihood practices in the Terai (Shah, 2002). Lack of adequate natural resource endowments in the Buffer Zone has been compelling Buffer Zone communities to extract park resources for their sustenance (photo 5.3). A recent survey indicates that on average local people extract about one third of their firewood and about one quarter of fodder requirements from the national park forests (DNPWC/PPP, 2001).

Photo 5.1: Park's BZs are extensively cultivated.

(Photo: Author, 2009)

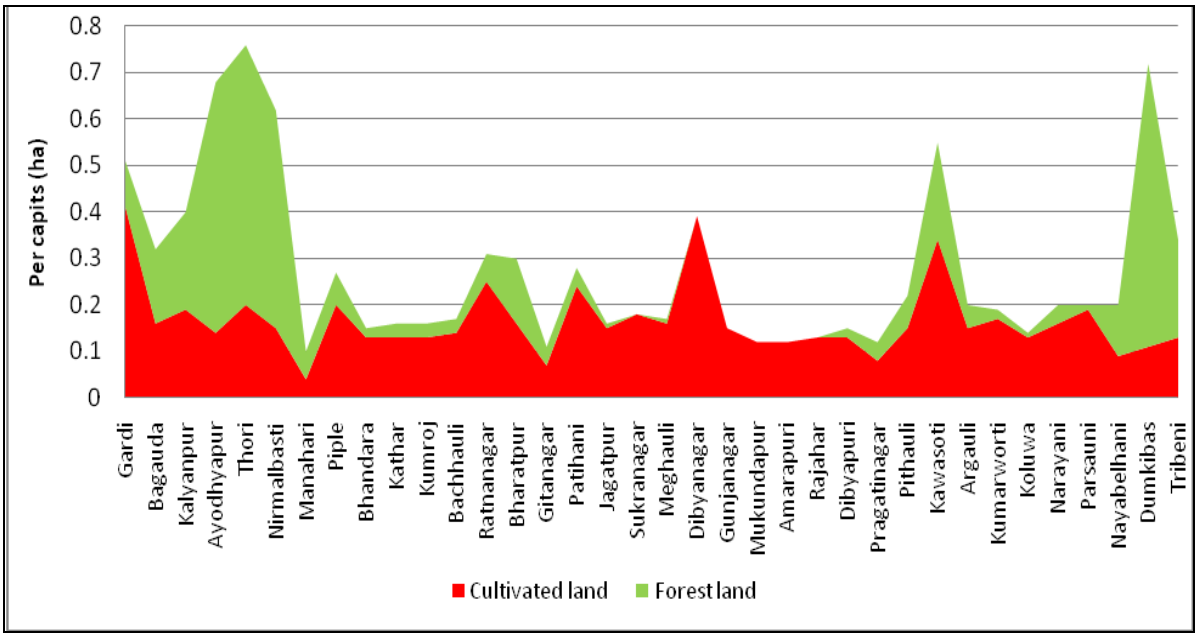
Photo 5.2: A typical BZ household

(Photo: Author, 2003)

Photo5.3: Women carrying grasses from Chitwan National Park

(Photo: Author, 2010)

Figure 5.7: Per capita cultivated and forest lands in the BZ VDCs of CNP



(Source: Modified from DNPWC/PPP 2000)

Buffer Zone communities possess a wealth of knowledge on the use and management of biodiversity. Indigenous people such as *Tharus* have been found to be more knowledgeable on the use of biodiversity than hill migrants (Mahara, 1999). The cultural and religious values and customs associated with BZ communities are very impressive and an expression of a strong blend of nature and culture. Indigenous tribes such as *Bote, Musahar,* and *Majhi,* subsist mainly on river resources. *Tharus* collect varieties of forestry products including fishes to maintain their traditional livelihood practices. Hill migrants such as *Bhramins* and *Chetteris* fetch considerable amounts of firewood and fodder to maintain their farming and subsistence livelihood systems. The people belonging to occupational castes are mostly very poor and rely heavily on firewood selling for their living. It has been reported that local people collect more than 40 different types of fish for consumption, 227 plant species for fodder purpose and 107 species for firewood from the Park *(*Strædea and Treue, 2006). A proper understanding of park–people interactions is necessary to help design and implement Buffer Zone management programmes effectively (see also section 4.4 of chapter IV for park-people interface issues).

5.4 Implementation mechanism of BZ programme:

In Chitwan, the Buffer Zone programme was initiated in 1995 through the implementation of the Park-People Programme (PPP) in two VDCs adjoining to the Park. Initially, the implementation approach was quite vague and the programme's early activities adopted a working modality similar to that of the Annapurna Conservation Area Project (ACAP). However, after one year's trial, it was recognised that the institutional and implementation mechanisms suited for conservation areas were not appropriate for the management of the Buffer Zone programme. There were both conceptual as well as contextual differences between the conservation area approach and that for Buffer Zones. The conservation area concept was designed on the premise of people-park interdependence, whereas the BZ concept was primarily introduced to reduce people-park interdependence and to reduce anthropogenic pressures on the Park from people living in the Buffer Zone areas.

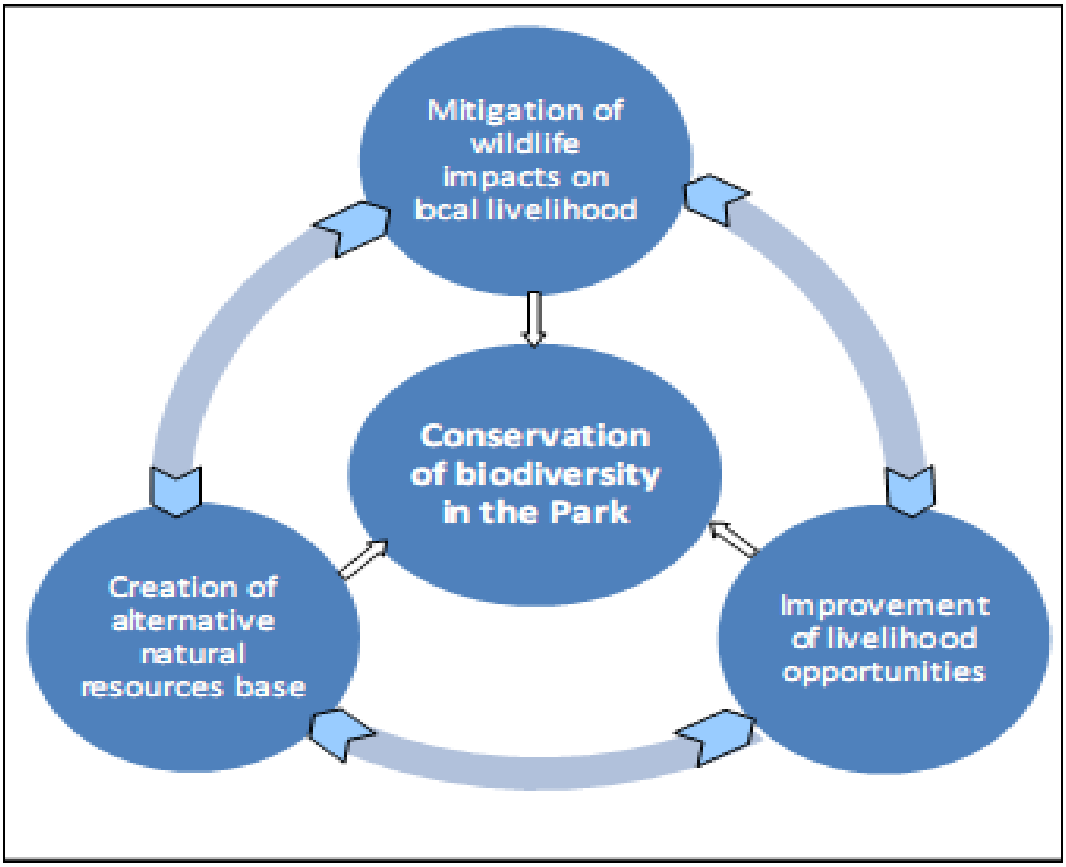
To date, Buffer Zone management mechanisms in Chitwan are governed by the Buffer Zone Management Regulations (1996) and the Buffer Zone Management Guidelines (1998). A management approach based on a three pronged strategy - the creation of an alternative natural resource base outside the park, the improvement of livelihood opportunities and a reduction of wildlife damage - has been adopted (fig. 5.8). A well-structured three-tier community-based institution formed at the Park, unit and village levels facilitate the implementation of conservation and development activities in the BZs (fig. 5.1). To date there are one Buffer Zone Management Committee, 21 User Committees and 1173 User Groups at the park, unit[54] and settlement/hamlet levels respectively.

The BZMC, which consists of 21 UC chairpersons, 3 District Development Committee (DDC) representatives and the Chief Warden of the Park is the main decision making body. The User Committees are vested with responsibilities to implement conservation and development activities including overseeing the UG activities (Paudel *et al*., 2008). Depending upon the population size and intensity of park impacts, the UCs have been

[54] A Unit is a part of a Buffer Zone delinated for the management purpose, with a User Committee in each. In the beginning, Buffer Zone area of Chitwan was divided into 37 Units, which were rearranged into 21 Units in late 2003 in accordance to the Buffer Zone Management Guidelines, 1999.

divided into 4 categories (A-D) and BZ funds are disbursed accordingly with the highest budget to 'A' category UCs.

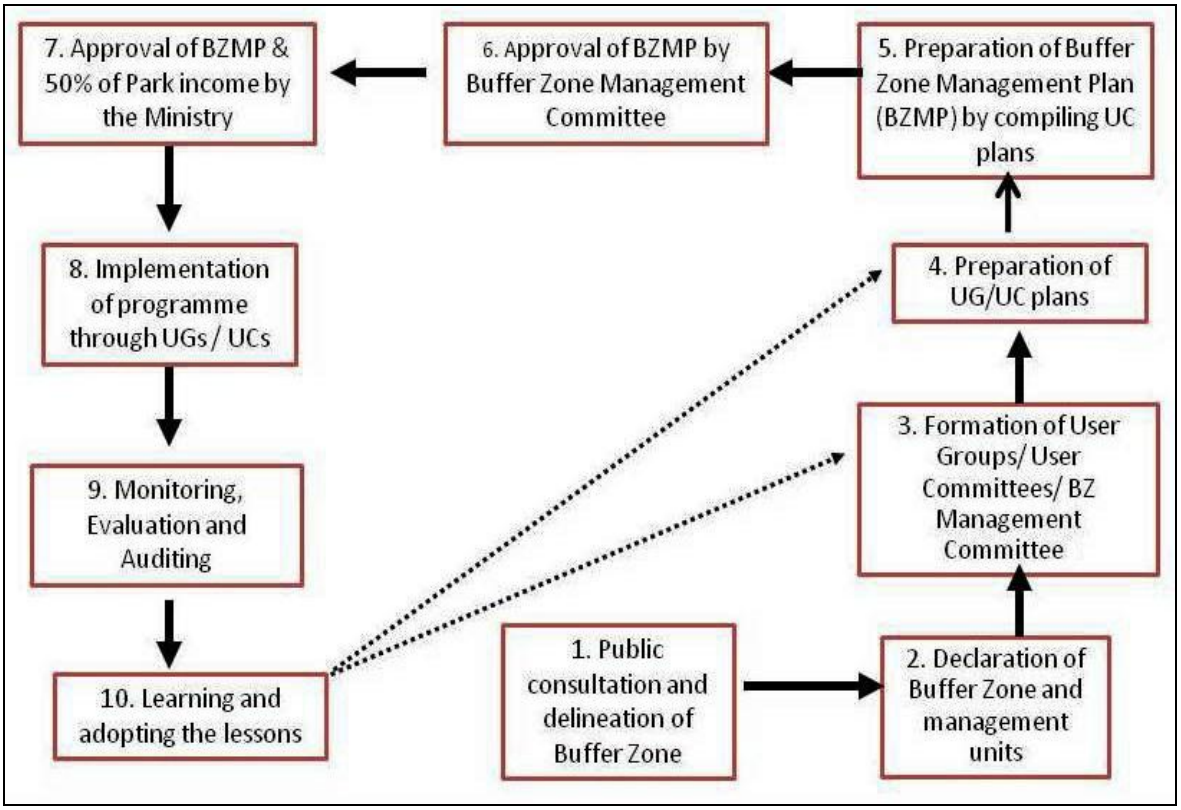
Figure 5.8: Buffer Zone management strategy



(Source: Author, 2010)

The mobilisation of communities for effective Buffer Zone management is grounded in integrated and holistic natural resource management approaches. The principles of equitable development of human, social, financial and environmental capitals have been adopted. Buffer Zone regulations and guidelines prescribe a bottom up and participatory approache for the systematic planning and management of the Buffer Zone programme (fig. 5.9). The policy has also envisioned the need of coordination with other development agencies, by including DDCs and VDCs linked to the BZ area in decision-making processes at the BZMC and UC levels respectively.

Figure 5.9: Buffer Zone management programme planning and management cycle



(Source: Author, 2010)

Broadly, the support to the Buffer Zone can be grouped into social/physical, economic and environmental development themes. The development activities undertaken should, as far as possible, be based on a community consensus that ensures that the needs and voices of women and the poor are equitably considered in the prescribed programme and budget breakdown (table 5.1). To ensure the participation of women in the programme, villagers have been encouraged to form separate female UGs. Furthermore, a mandatory provision of 33% female representation on UCs has been introduced (MOFSC, 1999). The BZ management programme should also include activities targeted to women, poor and indigenous people, mainly *Bote, Musahar* and *Majhi* communities whose livelihood mostly depends on the Park resources. Since the conservation problem is closely associated with poor, illiterate and under privileged rural people, the BZ management programme approaches livelihood issues of the local communities not only as an environmental imperative but also as an issue of social justice.

In addition to community development activities, a Biodiversity Conservation Fund (BCF) has been established to provide short-term small loans to Buffer Zone UGs members for the

establishment of village-based environmentally friendly and conservation supportive enterprises. User Group members have also been encouraged to participate in voluntary saving and credit schemes and also to establish cooperatives to enhance their self-reliance in financial resources required for micro business.

Similarly, in order to improve access to environmental resources, Buffer Zone communities have been mobilised in forestry resource management. A key approach of resource management in the BZs is conservation through sustainable utilisation of natural resources. Community forestry activities have been promoted as an environmental as well as a long-term economic asset for the holistic development of the area. Buffer Zone Management Regulation, 1996 and Buffer Zone Management Guidelines, 1998, allow the park warden to handover Buffer Zone forest to local community groups for the protection and sustainable utilisation of forest products.

The process is as follows: local people can apply to the Park office to acquire local forest areas as community forests, whereupon the park office will assess the forest and other socio-political factors prior to a handover of forest areas to the relevant community groups (HMG/N, 1996; MOFSC, 1999). Any patch of forests can be handed over to a interested community through a tripartite agreement between the Park, UC and forest user group[55].

The local community can also acquire help form the park office to prepare a forestry operational plan. The Operation Plan (OP) once approved by the park will act as a management agreement between the communities and the park authority. The PO, which generally remains valid for five years, specifies the rules for forest management and resource uses. The forest user committees are allowed to fix the price of the forest products by themselves and mobilise forest income in forest management and local development. In general, Buffer Zone Community Forests (BZCFs) are more biodiversity conservation focused and restrictive in resource uses (Jones, 2007) than the other community forests in the country. Usually, habitat improvement and ecotourism activities are prioritised. As the sustainable supply of forest products form Buffer Zone forests is important to reduce

[55] According to Buffer Zone Management Regulation (1996) Buffer Zone forests cannot be handed over directly to local user groups. However, in order to empower local communities over natural resources and to ensure their participation in resource conservation and management, Buffer Zone Management Guidelines, 1998 prescribes handing over of forests to real users through tripartite agreement.

pressure on park, the sale of timber and firewood outside Buffer Zone area has been restricted to maintain the supply of forestry products in the Buffer Zone.

The evidence indicates that in comparison to other countries, Buffer Zone planning and management mechanisms in Nepal are quite sophisticated and at an advanced stage of development (Wells and Brandon, 1992; Ebregt and Greve, 2000; Heinen and Metha, 2000). Buffer Zone management has been basically guided by the principle that developing the natural resource base in Buffer Zones could take the pressure off the protected areas, and that park revenue sharing for community development, economic development and conservation awareness would minimise park-people conflicts (Shah, 2002). The following section assesses the implementation of Buffer Zone programmes in CNP in order to help us understand the application of Buffer Zone management principles and processes in reality.

5.5 Status of BZ management programmes in CNP:

The BZ Management Guidelines suggest implementing Buffer Zone management activities under four broad headings (table 5.1). These activities have been designed to achieve the multiple objectives of Buffer Zone management through a careful integration of the conservation and development priorities of local communities. The CNP data suggests that up to 2007/08 Rs. 248 million has been spent/released to implement these activities. In addition, approximately 13% of the total costs of Buffer Zone programmes were contributed by other development agencies (UNDP, 2004).

The park office, through Buffer Zone UCs, has been mobilizing settlement-based UGs in the implementation of a wide range of activities to develop community-, household- and individual-level livelihood assets (Silwal, 2003). A review by UNDP (2004) revealed that between 1998 and 2003 these UGs had implemented more than 50 different types of activities. Some of the key activities implemented during this period were gabion dam construction, road gravelling, school building construction, irrigation improvements, animal preventive infrastructures (APIs) such as fencing, trenches and animal watch towers; anti-poaching, biogas plant installation, bee keeping, goat farming, training on livestock management and improved farming techniques and study visits (photo 5.4). It was found that rural road improvement was the top priority of UC activity (84%) followed by flood

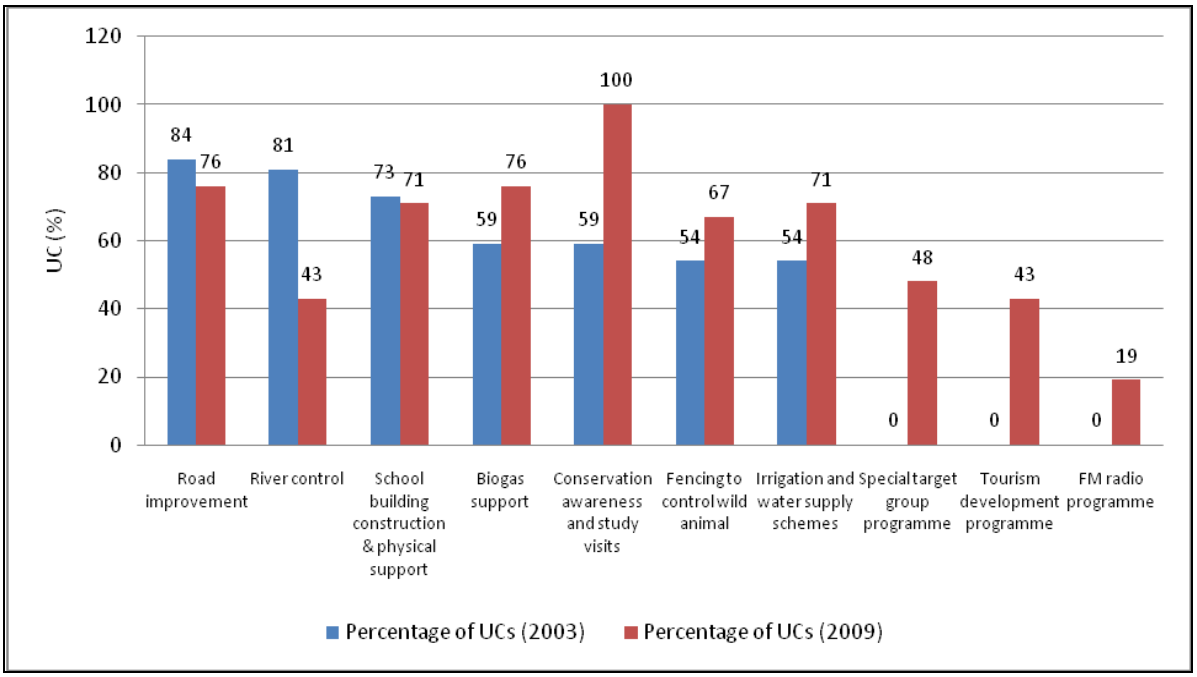
and river bank cutting control (81%), school building construction and educational material support (Budhathoki, 2005b) (also see fig.5.10).

Photo 5.4: Fencing, animal watch towers and bio- gas plants are key infrastructures constructed to reduce wildlife damage

(Photo: Author, 2003)

(Photo: Ganga Nakarmi, 2008)

Figure 5.10: Major activities carried out by UCs



(Field Survey, 2003 and Park Office Record, 2010)

Between 1998 and 2003, approximately Rs 58 million park revenue had been invested in various development programmes, of which 73%, 7%, 6%, 7% and 7% had been spent in community development, resource conservation, income generation training, conservation

awareness and administrative activities respectively. Also, eleven activities absorbed more than 74% of the total Buffer Zone budgets. Flood or river cutting control programme at various places consumed nearly 19% of the total Buffer Zone funds disbursed to UCs. Nearly 50% of the budgets under the heading of 'conservation programme' were used to support the installation of biogas plants. Similarly, more than 60% of the budgets earmarked for conservation awareness and education were spent in study tours (annex 8).

One of the most important activities has been the establishment of community-based BZ institutions. So far, five types of community institutions have been formed to facilitate various activities in the Buffer Zone of CNP. At present, there are 1173 User Groups (UGs) at the settlement level, 21 User Committees (UCs) at the unit level, and 1 BZMC at the park level (DNPWC, 2008; DNPWC, 2009). Similarly, 45 Community Forestry User Groups and 21 cooperatives have been active in managing forestry resources and in mobilizing community savings and Buffer Zone conservation in environmental friendly enterprises respectively. Nearly 90% of the households living in the BZ have been the members of Buffer Zone UGs and engaged in the BZ management programme (UNDP, 2004).

A report suggests that approximately 50% of the total forest area in the Buffer Zone has been identified as potential community forest (UNDP, 2004). To this time (2012), 8,375 ha (approximately 52%) of forest area has been transferred to communities, benefitting approximately 24,000 (approximately 66%) of households (table 5.3). It is also estimated that about 72% of the households in the Buffer Zone will have access to community forests if all the forests identified as potential community forests (i.e. a further 7,838 ha) are handed over to community groups (UNDP, 2004). The somewhat anomalous, increase of a mere 6% of BZ beneficiaries on release of the outstanding 48% of potential community forests is explained by the relatively sparse (or even absence of) forests areas in many parts of the BZs.

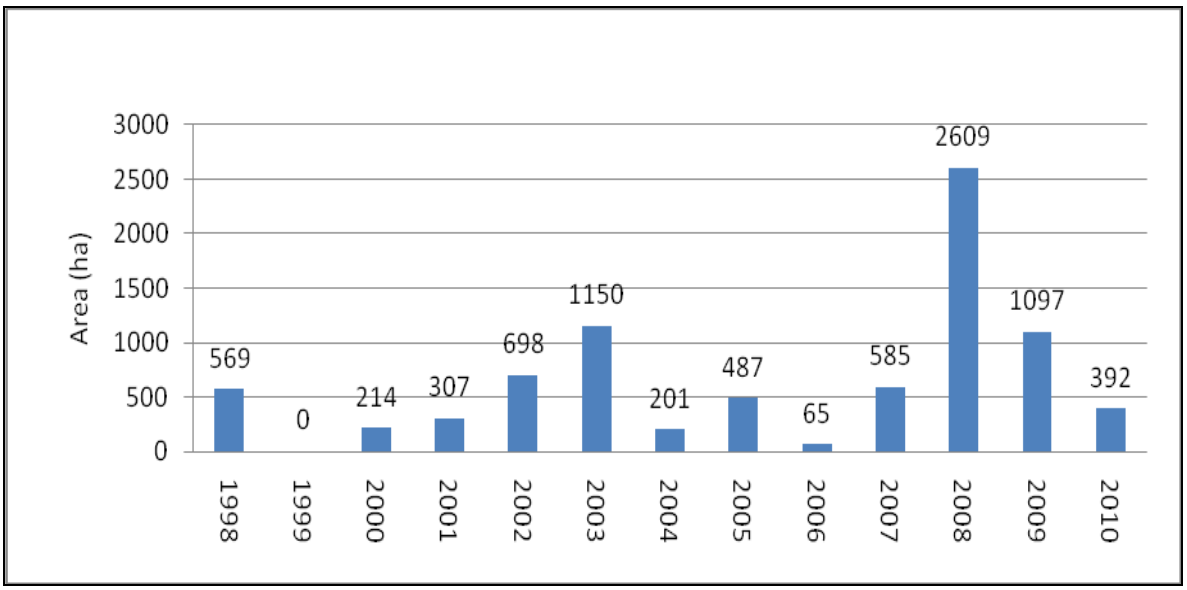
The handing over of forests to local users and the necessary post-handover support have been slow and inadequate up to now. The park has not been able to approve the constitution of 25% of the registered community forests and to renew the operational plans of 40% of the BZCFs previously handed over to community groups. The CF handover process has not been steady and if the current trend (644 ha/yr) continues, it may take at least another 12 years to complete the transfer of all potential community forests to local users (fig. 5.11).

Table 5.3: Status of Buffer Zone Community Forestry in CNP (as of July 2010).

Status	Total
Total forest area in the BZ (ha)	32929
Potential community forest area (ha)	16213
Forest area handed over to Users Groups (ha)	8375
Total households benefited from CF	23789
Total population benefited from CF	127782
Percent of the total forest area identified as potential community forest area	49.23
Percent of total forest area handed over to users groups	25.43
Percent of the potential CF area handed over to users groups	51.65
Percent of total households benefited from CF	65.82
Percent of total population benefited from CF	57.23

(Source: UNDP 2004; Park Office Record, 2010)

Figure 5.11: Trend of CF area hand over in CNP.



(Source: Adopted from Park Office Record, 2010)

Since the late 2000s, the priorities of the communities have undergone some significant changes. Use of local FM radio stations for conservation education and awareness, the implementation of an indigenous people-focused programme (generally known as the Special Target Group Programme), support to anti poaching activities, promotion of tourism and so on are some of the important initiatives adopted by the most recent BZ plans. These changes reflect the influence of the growing problem of rhino poaching in the Park and the ongoing socio-political transformation of the country. The high investment in river control

programmes during the initial years of programme implementation could also be due to the flood problems occurring during that time.

5.6 Summary:

Within about one and half decades, the BZ programme in Chitwan National Park has evolved from a vague concept into a well-established conservation programme. Increasing livelihood opportunity options and reducing livelihood vulnerability and risks are the key strategies adopted while planning and implementing the Buffer Zone programme.

This review indicates that the BZ programme has been struggling with a myriad of difficulties and challenges. The programme has been slow in implementation, leaving large sums of money unused, which could otherwise make substantial impacts on the park-people relationship. The slow rate of programme implementation could pose a question as to whether the programme is fully internalised and institutionalised at the various levels of government even after one and half decades since its implementation. Keeping these issues in mind, the next chapter will assess the institutional, conservation and development outputs of the BZ management programmes which will further widen our knowledge on the scope and status of the BZ programme in Chitwan National Park. Furthermore, the next chapters discuss the social, economic, environmental and institutional impacts of the programme more deeply in order to assess whether the BZ strategy adopted so far could pursue wildlife conservation with a human face to create a socially and ecologically benign landscape beyond the boundaries of the protected areas.

CHAPTER VI BZ MANAGEMENT PROGRAMME: RESULTS AND DISCUSSION

6.1 Introduction:

In the previous chapter, Buffer Zone (BZ) management activities implemented to improve park-people relationship for long - term biodiversity conservation were discussed. This chapter presents whether or not BZ management activities in the CNP have been successful in achieving their desired social, economic and conservation objectives. This chapter is divided into four sections – introduction, result, discussion and summary. Section 6.1 provides a short introduction to the chapter. The result section (6.2) is divided into three sub sections and analyses the data collected through questionnaire surveys at UC, UG and household levels and the responses of other key informants and actors having direct and indirect influence on the BZ management of the CNP. In line with the key research questions, sub sections 6.2.1, 6.2.2 and 6.2.3 present the biodiversity conservation, livelihood, and governance achievements of the BZ programme respectively.

The discussion section (6.3) analyses the research findings and explores stakeholders' perspectives on conservation, livelihood and governance outcomes of the BZ management programme in the CNP. The analysis of the research findings has been mainly focused to derive answers from the key research questions *viz.* a) has the BZ management programme/approach contributed to the biodiversity conservation objective? b) has the BZ management programme contributed to improving the livelihoods of people living in the buffer zone areas? and c) has the BZ management programme contributed to protected area governance?

The last section (6.4) presents a summary of the research findings and analysis to draw together the key findings of the research.

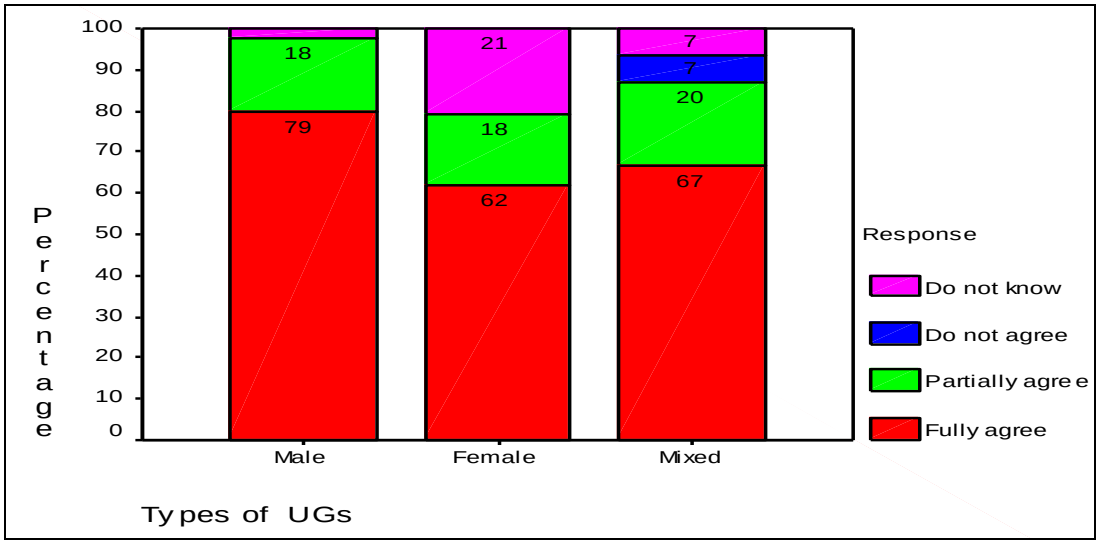
6.2 Research results:

The following sections present conservation, livelihoods and governance outcomes of the BZ management programme in the Chitwan National Park.

6.2.1 BZ management programme and biodiversity conservation:

More than 97% of the UC Presidents (n=36) and 70.5% UGs Presidents (n=62) strongly agreed that the BZ programme helped conserve biodiversity both inside the Park and in the BZ areas. The research data also indicated that female users group (UGs) presidents (61.8%, n=21) were less confident in the effect of the BZ programme on biodiversity conservation in comparison to their male counterparts (79.5%, n=31) (fig. 6.1). Fig 6.1 further suggests that 21% (n= 7) female UG presidents do not know that the BZ programme supports biodiversity conservation.

Figure 6.1: BZ programme supports biodiversity conservation (N=88)



(Source: Field Survey, 2003

The respondents at various levels reported that wildlife poaching, grazing, and firewood collections inside the Park which directly and indirectly affect biodiversity conservation had decreased after the implementation of the BZ management programme. Approximately 46%, 65% and 65% of the UC chairpersons believed that the poaching of wild animals, grazing, and firewood collections in the Park had decreased respectively (table 6.1). However, household level respondents (UG members) reported less reduction in wildlife poaching, grazing and firewood collection in the Park in comparison to their representatives such as UC and UG chairpersons. For example, only approximately 30% UG members or household level respondents (n=142) agreed that poaching of wild animals had decreased after the implementation of the BZ Programme in comparison to approximately 46% UC presidents (n=17) and 50% UG presidents (n=44) respectively (table 6.1).

Table 6.1: Respondents' perception on the status of key biodiversity conservation issues after the implementation of BZ management programme in CNP

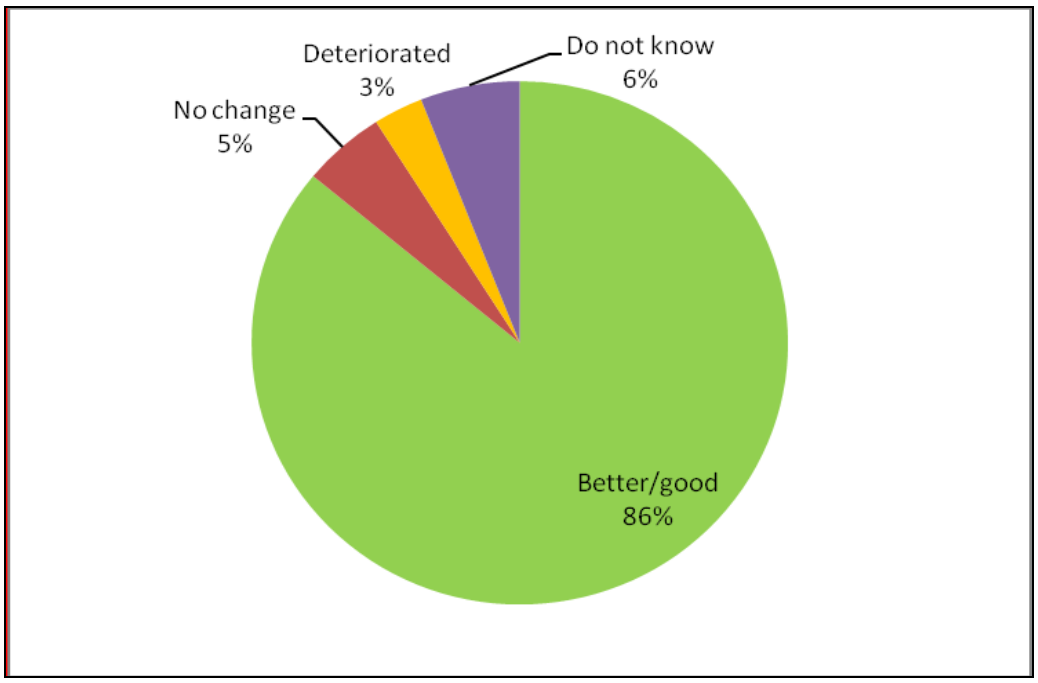
Biodiversity conservation issues	Respondents	Perception of the respondents in percentage				
		Decreased	Increased	No change	No interaction/ incident	No idea
Poaching of wild animals	UC representatives UG representatives UG members	45.9 (17) 50 (44) 29.7 (142)	10.8 (4) 19.3 (17) 10.5 (50)	10.8 (4) 18.2 (16) 7.5 (36)	32.4 (12) 2.3 (2) 5 (24)	- 10.2 (9) 47.1 (225)
Firewood collection inside the park	UC representatives UG representatives UG members	64.9 (24) 61.4 (54) 46.2 (221)	- 4.5 (4) 4.4 (21)	10.8 (4) 17 (15) 12.3 (59)	24.3 (9) 13.6 (12) 18 (86)	- 2.3 (2) 16.5 (79)
Grazing inside the park	UC representatives UG representatives UG members	64.9 (24) 55.7 (49) 37.9 (181)	2.7 (1) 5.7 (5) 4.6 (22)	2.7 (1) 23.9 (21) 10.3 (49)	29.7 (11) 10.2 (9) 21.8 (104)	- 4.5 (4) 23.2(111)

(Source: Field Survey, 2003)

Note: Values in the parentheses are numbers. Total percentage in some columns is not 100% due to some missing values.

Eighty six percent of the UC Presidents (n=32) believed that the condition of forests in the Buffer Zone had improved after the initiation of the BZ management programme (fig .6.2). Some household level respondents (3.3%, n=16) even observed an increase in biodiversity in their locality. A higher percentage of respondents (24%, n=5) living within 1km of the CNP boundary reported increases in biodiversity in their vicinity than those living within 1-3 km (10%, n=11) of the Park. Community perception were confirmed by the fact that many of the BZ community forests (BZCFs), such as Kumroj, Bagmara and Dibeyapuri, which are in the vicinity of the Park, had been found to contain residential populations of endangered species such as rhinoceros, tiger and crocodile (personal observation).

Figure 6.2: Status of BZ forests after the implementation of BZ management programme (N=37)



(*Source: Field Survey, 2003)*

More than 97% UC presidents (n=36%) and 79.5% UG presidents (n=70) reported that the BZ management programme had 'increased their awareness of the importance of biodiversity conservation'. Similarly, approximately 92% of UC presidents (n=34) believed that people's attitudes towards the Park had been more positive after the implementation of the BZ programme. More than 86% of the household level respondents (n=412) also accepted that the BZ programme 'increased their motivation towards biodiversity conservation'. Among them male (89.1% n=212), adult (40-60 age group) (89.2%, n=131), teachers (100%, n=11) and fishing communities (100%, n=7) were found to be comparatively more motivated towards biodiversity conservation than female (85.5%, n=200), respondents from other age groups (< 20 yrs., 20-40 yrs. and >60 yrs.) and occupations (farmers, traders, government employee) respectively (table 6.2). Table 6.2 also reveals that the BZ management programme helped increased motivation of the big farmers and mid income families towards biodiversity conservation than the other respondents.

Table 6.2: Increase in the motivation of local people towards biodiversity conservation after the implementation of the BZ management programme

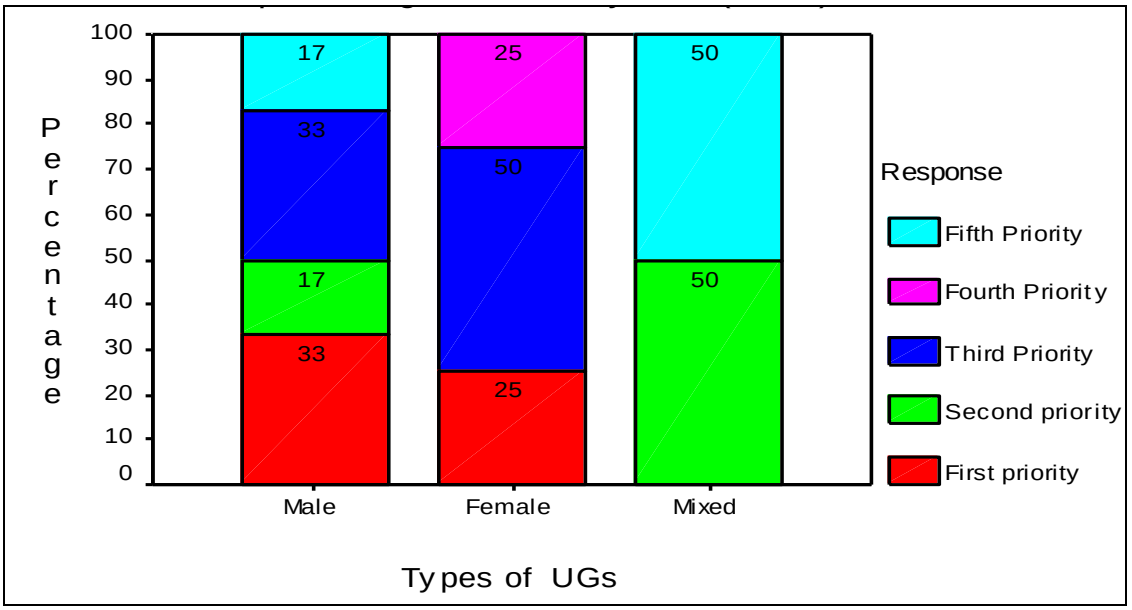
Variables	Respondents	Perception of the respondents							
		Yes		No		Little bit		No idea	
		%	No.	%	No.	%	No.	%	No.
Distance from the Park boundary	< 1 km	87.3	48	7.3	4	1.8	1	3.6	2
	1-3 km	88.1	275	6.7	21	0.6	2	4.4	14
	3-5 km	80.8	42	15.4	8	1.9	1	1.9	1
	>5 km	89.6	43	4.2	2	0	0	6.2	3
Gender	Male	89.1	212	6.7	16	0.4	1	3.8	9
	Female	85.5	200	8.5	20	1.3	3	4.7	11
Age group	<20 yrs	80.0	8	10.0	1	10.0	1	0	0
	20-40 yrs	86.9	238	7.7	21	0.7	2	4.7	13
	41-60 yrs	89.2	132	6.7	10	0.7	1	3.4	5
	>60 yrs	82.3	28	11.8	4	0	0	5.9	2
Main occupation	Farming	87.0	369	8.3	35	0.9	4	3.8	16
	Teaching	100.0	11	0	0	0	0	0	3
	Business	75.0	9	0	0	0	0	25.0	1
	Government job/service	85.7	6	0	0	0	0	14.3	0
	Fishing	100.0	7	0	0	0	0	0	0
Landholding	Landless	90.4	19	4.8	1	0	0	4.8	1
	Squatters	81.9	68	7.3	6	2.4	2	8.4	7
	<1 bigha	88.6	179	7.4	15	0.5	1	3.5	7
	1-3 bigha	87.3	124	8.5	12	0.7	1	3.5	5
	>3 bigha	91.7	22	8.3	2	0	0	0	0
Economic class	Rich	80.0	4	20.0	1	0	0	0	0
	Middle income	89.2	140	8.9	14	0	0	1.9	3
	Low income	88.2	120	5.9	8	0.7	1	5.1	7
	Poor	85.1	148	7.5	13	1.7	3	5.7	10

(Source: Field Survey, 2003)

Nearly half of the UC presidents (48.6%, n=18) also stated that they regularly visit the park office to discuss community forestry and to report on park offences such as the poaching of wild animals and timber smuggling. Research data further suggested that about 40% (n=192) of the community members (UG members) in the sampled villages had been found to be voluntarily contributing to biodiversity conservation activities such as forest patrolling, informing about poaching incidents, rescuing and handing over wild animals found beyond the park boundaries. Among them, 83% of respondents (n=5) whose main occupation is fishing reported that they had been helping park authorities in wildlife protection and/or biodiversity conservation in comparison to farmers (42%, n=170).

More than 51% of the UC presidents (n=19) confirmed that 'increasing conservation awareness' among the BZ residents was the most significant achievement of the BZ management programme. Similarly 51.4% (n=19) and 13.5% (n=5) UC presidents also believed that the most significant outcomes of the BZ management programme were 'generating community support for natural resource management' in the BZ and 'community support in anti-poaching' activities respectively. Furthermore, 33% of the male UGs and 25% of the female UG presidents suggested that wildlife protection and anti-poaching activities respectively should be given first priority in the BZ management programme (fig. 6.3). Research data also revealed that the respondents who expressed a higher priority towards wildlife protection and anti-poaching activities also gave a higher priority to community forestry activities in the BZ. Nonetheless, only about 13.5% of UC chairpersons (n=5) agreed that forest conservation and alternative resource generation activities should be prioritised in comparison to 21.6% (n=8) prioritising wildlife damage control and 27% (n=10) or income generation/skill enhancement activities.

Figure 6.3: UGs priority to wildlife protection/anti-poaching activities (N=88)



(Source: Field Survey, 2003)

6.2.2 BZ management programme and rural livelihood improvement:

The majority of the respondents (91.9%, n=34 at UC level, 70.5%, n=62 at UG level) fully agreed that the BZ management programme would help improve the socio-economic conditions of the BZ communities, and 77.4% (n=370) of the household level respondents expressed their confidence that the BZ programme would help solve their problems. Nearly one third of the UC presidents (32.4%, n=12) agreed that recycling of the park income for local development was the most positive aspect of the BZ programme. Social and economic interests such as the opportunity to save money, to secure a loan (61.7%, n=295) and to be organised in a group for social and community development (27.6%, n=132) had been reported as the main motivation for joining UGs and participating in the BZ programme (table 6.3). Almost all UC (94.6%, n=35) and UG (96.6%, n=85) presidents also believed that a community saving and credit scheme is necessary for an effective BZ programme.

Table 6.3: Reasons behind joining UGs as stated by the BZ residents (N=478)

Reason to join UG	Respondents *	
	No	Percentage
To be organised in group for social and community development	132	27.6
To get better access to forest/ resources	98	20.5
To get benefits from BZ programme such as training, study tours	45	9.4
To save money and get loan	295	61.7

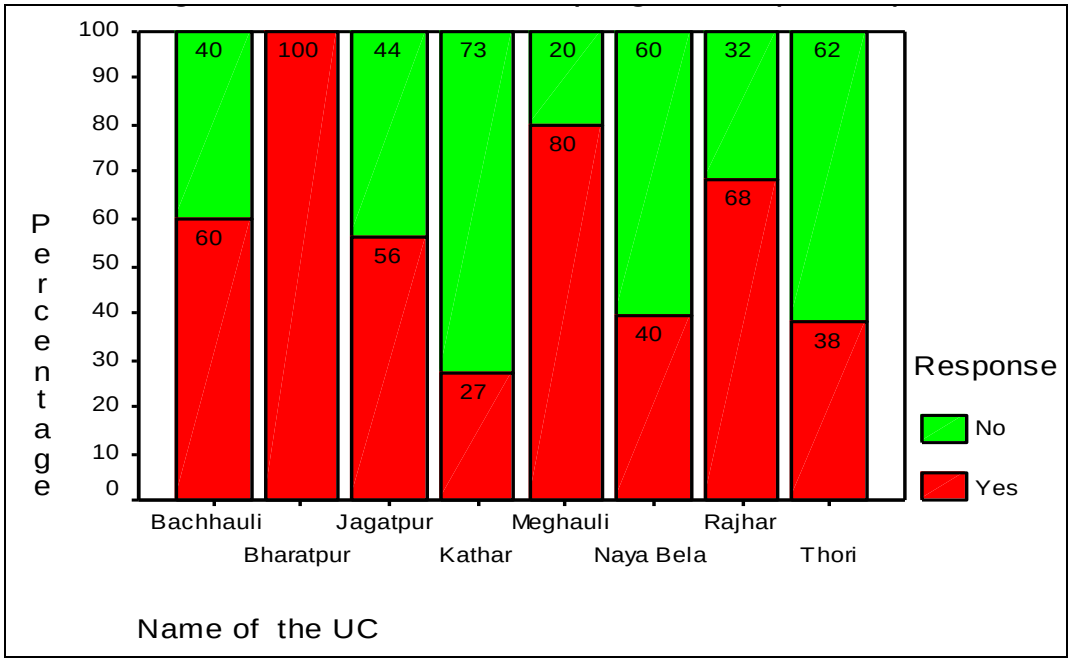
(*There were multiple responses from few respondents). *(Source: Field Survey, 2003)*

The Park office record suggests that between 1997 and 2003 the CNP recycled approximately Rs.58 million in the various BZ management programmes. Out of this total amount Rs.42.64 million (US$523,254 at 07/04/2012) (73.53%) and Rs. 3.45 million (US$42,336) (5.95%) were spent on community development, and income generation and skill enhancement activities respectively (see annex 8).

In total, 39.1% (n=187) of the surveyed households acknowledged receiving some benefits from the BZ management programme. The percentage of the households reported to be benefitted from BZ programme ranged from 100% (n=5) in Bharatpur UC to 27% (n= 17) in Kathar UC (fig.6.4). Household level respondents reported that they had received twelve types of benefits from the BZ management activities which directly and indirectly

contributed to the improvement of their livelihood. Among them, reduction in wildlife damage was accounted by the highest number of respondents (table 6.4). Nevertheless, only 14.2% (n=68), 4.8% (n=23) and 3.8% (n=18) household level respondents acknowledged that the BZ programme was able to address their core livelihood issues such as wildlife depredation, access to forest products and protection of farm land from river cutting respectively. Wildlife depredation, loss of land by park boundary rivers and restriction on the collection of forest products from the Park were reported as the main livelihood constraints of the BZ residents: 66% (n=316), 37% (n=178), 30% (n=144) respectively.

Figure 6.4: Benefits from the BZ management programme perceived by UG Chairpersons (N=478)



(Source: Field survey, 2003)

Thirty three percent (n=29) of the UG presidents stated that all sections of the society had benefitted from BZ management, whilst 27.3% (n=24) of them also believed that the BZ programme had been beneficial to the rich, elites and UC members. Only 13.6% (n=12) UG representatives stated that poor, indigenous people, backward class community had benefitted from the BZ programme (fig. 6.5). Cross tabulation between socio-economic characteristics of the household level respondents and the respondents who stated of receiving benefits from the BZ programme revealed that a higher percentage of male folks,

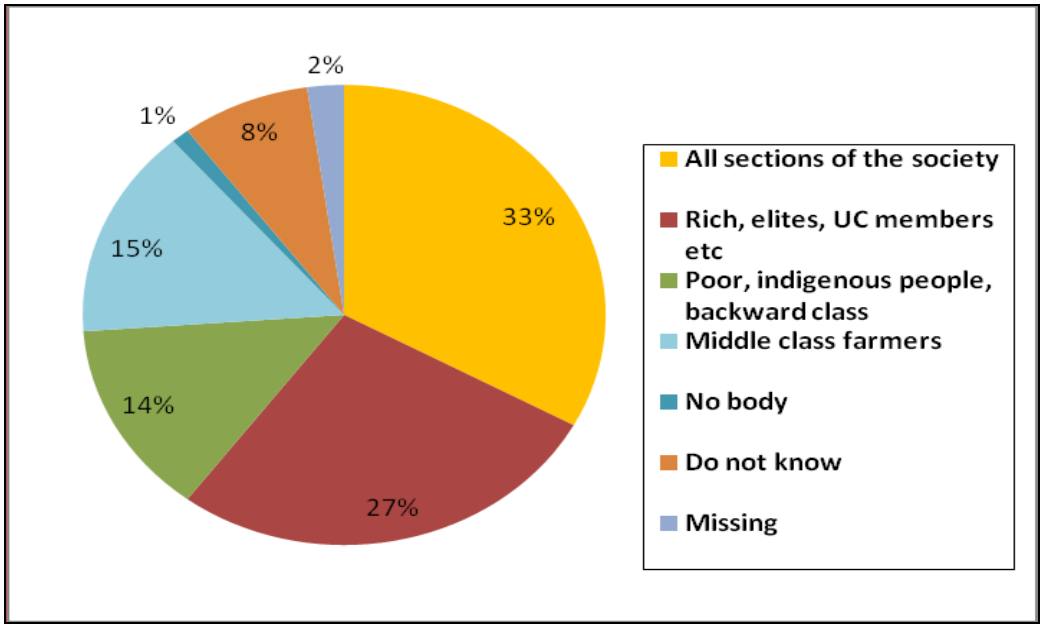
landholder, Newar[56], and household living close to the park had benefited from the BZ programme.

Table 6.4: Benefits of BZ management programme reported by household level respondents (N=478)

Benefits	No. of respondents	Percent
Reduction on wildlife damage	68	14.2
Improvement in road	58	12.1
Improvement in irrigation/ drinking water facilities	48	10.0
Easy and cheap loan	44	9.2
School and education	35	7.3
Easy access to natural resources and forest products from CF	23	4.8
Land protection from river cutting	18	3.8
Trainings and observation tours	10	2.1
Electrification	9	1.8
Alternative energy/bio gas support	4	0.8
Increase in income	2	0.4
Social prestige and empowerment	1	0.2

(Source: Field Survey, 2003)

Figure 6.5: Beneficiaries of the BZ management programme (N=88)

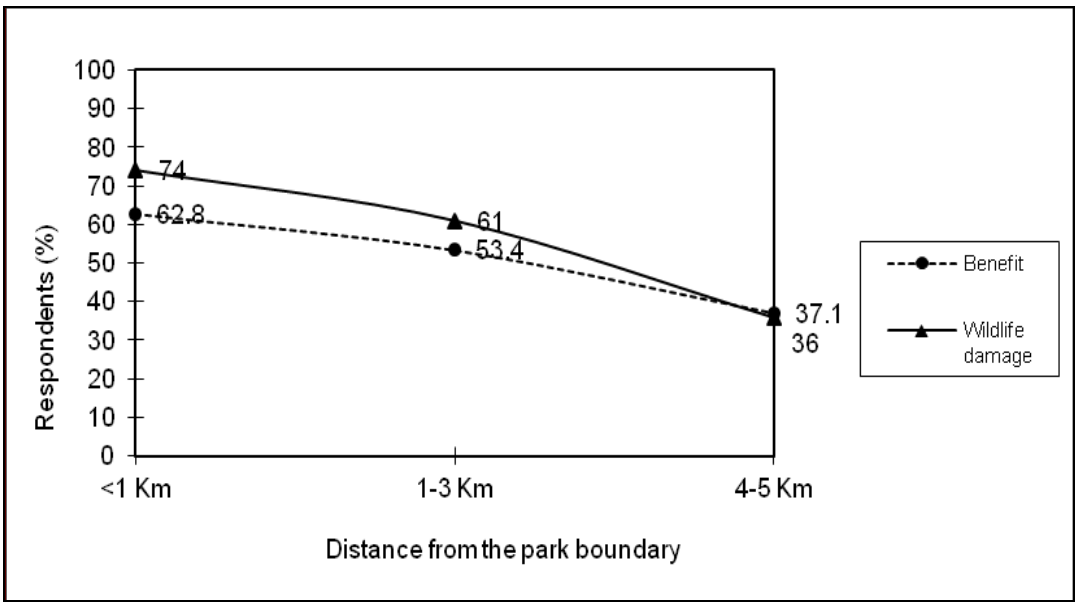


(Field Survey, 2003)

[56] Newars are generally known as business communities and a socially privileged caste.

Although a higher percentage of respondents living close to the park reported benefits from the BZ programme, their perceived loss by wildlife is still higher than the perceived benefits from the BZ programme (fig. 6.6). For example, 74% (n= 41) respondents living within less than 1 km of the park boundary reported loss of property by wild animals in comparison to 62.8% (n=34) reporting benefits from the BZ management programmes. However, a higher percentage of respondents living within 4-5km distance from the park boundary reported benefits from the BZ management programme than that reporting wildlife damage (fig. 6.6).

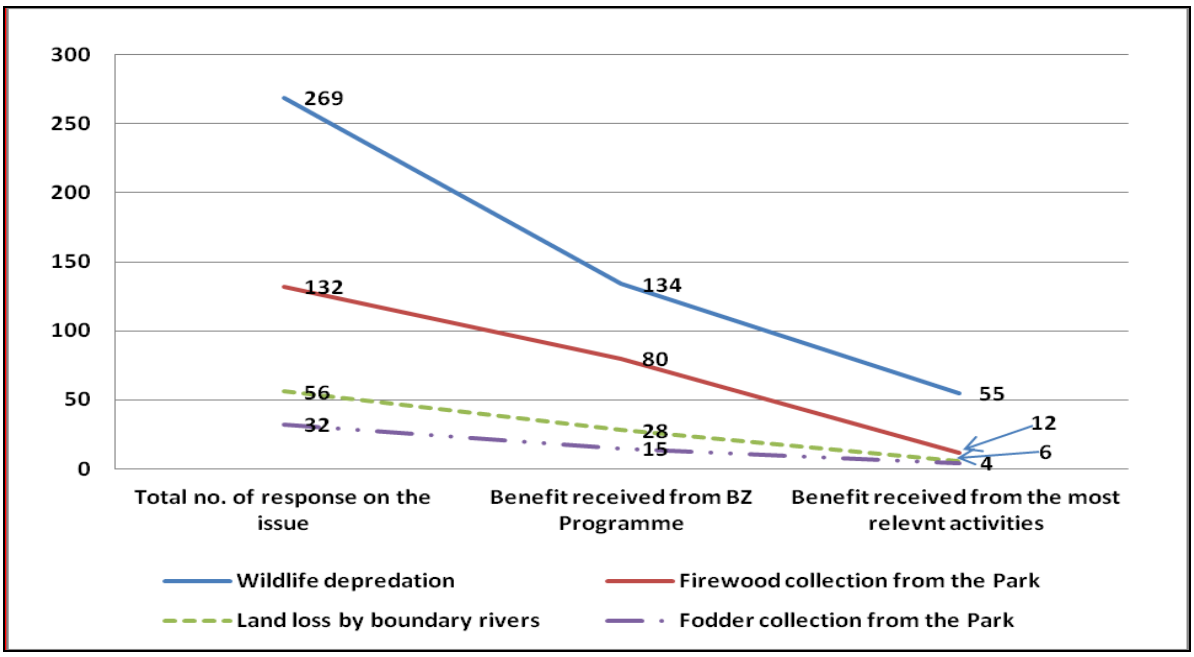
Figure 6.6: Wildlife damage and benefits from BZ programme in relation to distance from the park boundary (%) (N=478)



(Source: Field Survey, 2003)

The research data suggests that only 9% (n=12) of the respondents who admitted collecting firewood and 12.5% (n=4) who collected fodder from the Park reported that BZ community forests improved their access to firewood and fodder respectively (fig. 6.7). Similarly, out of 269 respondents who emphasised the problem of wildlife depredation, only 22.4% (n=55) confirmed that the animal preventive activities (APIs) implemented by the BZ management programme helped reduced wildlife damage. Also only about 11% (n=6) of the respondents who reported the loss of farmland by the park boundary rivers as one of the problems; acknowledged that river control activities implemented by the BZ manageemnt programme had helped protect their land (fig. 6.7).

Figure 6.7: Benefit flow of the BZ management programme as reported by UG members (N=478)



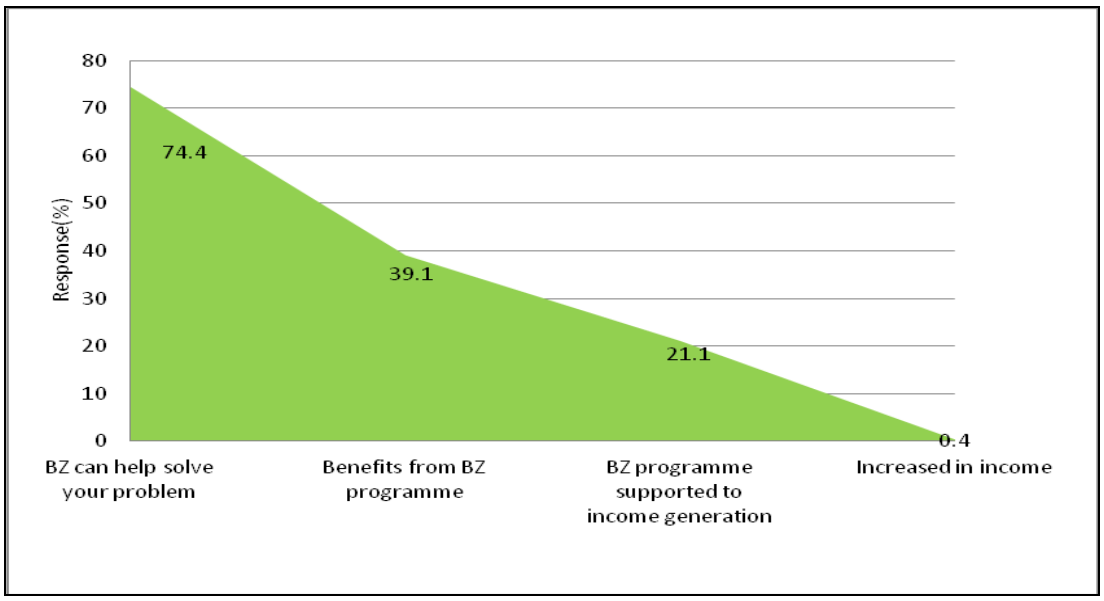
(Source: Field Survey, 2003)

The analysis of four questions put to household level respondents (UG members), viz: "Can the BZ programme help solve your problem? Did you gain any benefits from the BZ programme? Did the BZ programme support any income generation activities? Did income generation activity help increase your income?" revealed that out of 74.4% (n=370) of the respondents who agreed that the BZ programme could help solved their problems only 0.4 % (n=2) of them were actually able to state that they received some tangible economic benefits from the programme (fig. 6.8). Figures 6.7 and 6.8 clearly suggest that the benefit slope of the BZ programme declines very steeply in terms of demonstrable benefit. Moreover, the respondents who stated their main occupation was fishing (1.5%, n=7) and also poor (100%, n=7) did not confirm receiving any benefits from the BZ programme.

Besides insufficient benefits, the BZ communities were found to be well aware of the issue of inequitable flows of benefits from the BZ programme. Nearly 65% of the UG level respondents (n=57) suggested that the programme should give first priority to poor, marginalised and disadvantaged community members in order to maximise the effectiveness of the BZ programme. Likewise, 51.4% (n=19), 45.9% (n= 17) and 21.6% (n=8) of UC presidents opined that while selecting the target groups of the BZ programme, first priority should be given to park-affected communities, economically backward class,

and the park-dependent people respectively. Also, in order to improve the management of the BZ programme, 27% (n=10), 21.6% (n=8), and 13.5% (n=5) of the UC level respondents considered that livelihood-related issues such as income generation/skill enhancement activities, wildlife damage control and compensation, and river cutting and flood control respectively should be prioritised.

Figure 6.8: Benefit slope of BZ management programme (N=478)



(Source: Field Survey, 2003)

Income generation activities (IGAs) and loans, and skill enhancement training were also identified as 'first priority activities' by 27.3%, (n=24) and 20.5%, (n=18) UG level respondents respectively. The field research data also revealed that a higher percentage of female respondents (female UG presidents) gave first priority to IGAs and loans, and skill enhancement training than their male counterparts. Out of 27.3% UGs respondents who stated that the BZ programme should give first priority to IGAs and loan, 50% (n=10), 40% (n=10) and 44% (n=4) were female, male and mixed UGs[57] respectively. Similarly, out of 20.5% UGs respondents who suggested that the BZ programme should give first priority to skill enhancement training, 63% (n= 12), 38% (n= 5) and 50% (n= 1) were female, male and mixed UGs respectively. At the household level also, a higher percentage of female respondents (52.9%, n=36) expressed the need for IGAs and alternative livelihood opportunities than the male respondents (47.1%, n=32).

[57] User Groups (UGs) having both male and female members.

However, only 4.5% (n=4) of UG level respondents (UG presidents) believed that IGAs or loans helped reduce the park-people conflict in comparison to irrigation or water supply schemes (20.5%, n=18) and wildlife damage control schemes such as trench and fence (19.3%, n=17). Similarly, 16.2% (n=6) and 18.9% (n=7) UC presidents reported that compensation and construction of animal damage control infrastructures respectively were the most effective activities in reducing park-people conflicts. Only 8.1% (n=3) UC presidents acknowledged that IGAs were highly effective in reducing park people conflicts in the CNP.

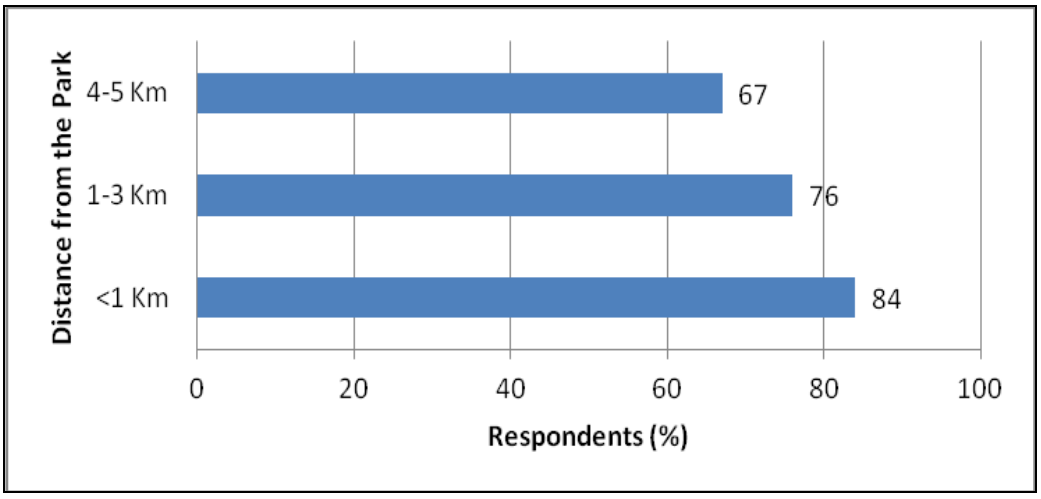
6.2.3 BZ management programme and improvement in protected area governance:

This section discusses the park – people relationship and communities' role and views on the Park and BZ management, and assesses the impacts of the BZ management programme on the governance of the Park and BZ areas of the CNP. The BZ management programme considers that empowerment of the BZ communities, improvement of park-people relationships and good protected area governance are interlinked.

6.2.3.1 Park-people relationship:

The research revealed that the majority of the respondents at all levels (UC Chairpersons: 91.9%, n=34; UG Chairpersons: 84.1%, n=74; UG members or household: 74.7%, n=357) were supportive of the Park. Similarly, 75.9% (n= 183) of the men and 74% (n=174) of the women living in the survey area agreed that the BZ programme had enhanced their positive attitude towards the Park. The research data also indicated that a higher percentage of the respondents living close to the Park boundary were positively inclined towards the Park than the people living further from the Park boundary (fig. 6.9). Approximately 84% (n=46) of household level respondents living in <1km areas expressed a positive perception of the Park compared to 67.3% (n=35) of residents living about 4-5 km distance from the Park boundary. The BZ programme helped enhance a 'positive attitude towards park' of 57.1% (n=4) of the respondents who stated their main occupation was fishing in comparison to 81.8% (n=9) and 76.3% (n=326) of the respondents having teaching and farming occupations respectively.

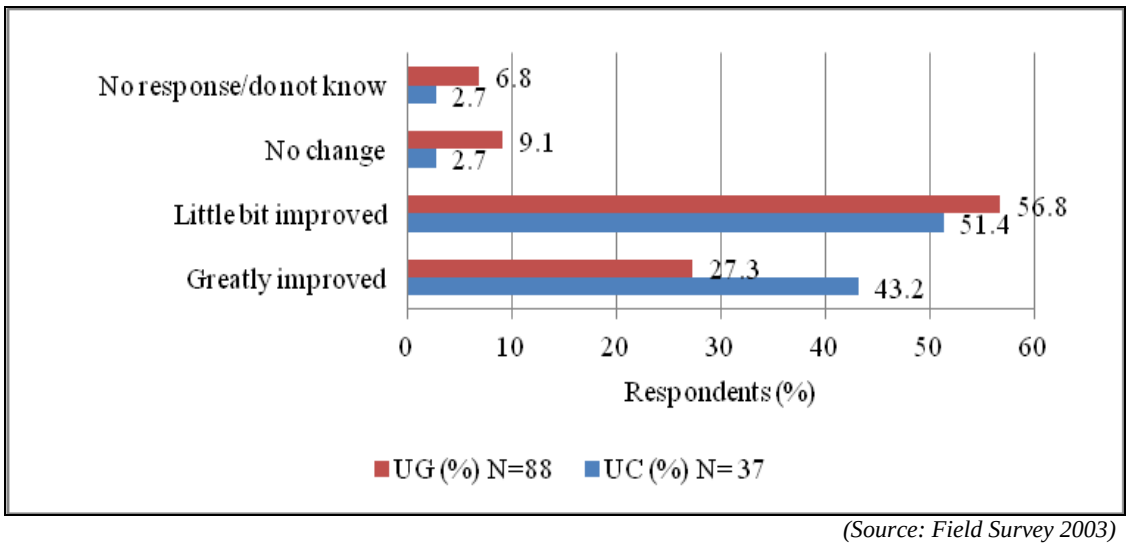
Figure 6.9: Positive attitude of the BZ respondents towards the park (%) (N=478)



(Source: Field Survey, 2003)

Similarly, 94.6 % (n=35) UC and 84.1% (n=74) UG presidents[58] acknowledged that park-people relationships had improved after the implementation of the BZ management programme. However, a majority of the respondents reported only 'slight' improvement (fig. 6.10). Also, more male groups (33.3%, n=13) agreed that the park-people relationship was 'greatly improved' after the implementation of BZ programme than the female group (20.6%, n=7).

Figure 6.10: Change in park-people relationship



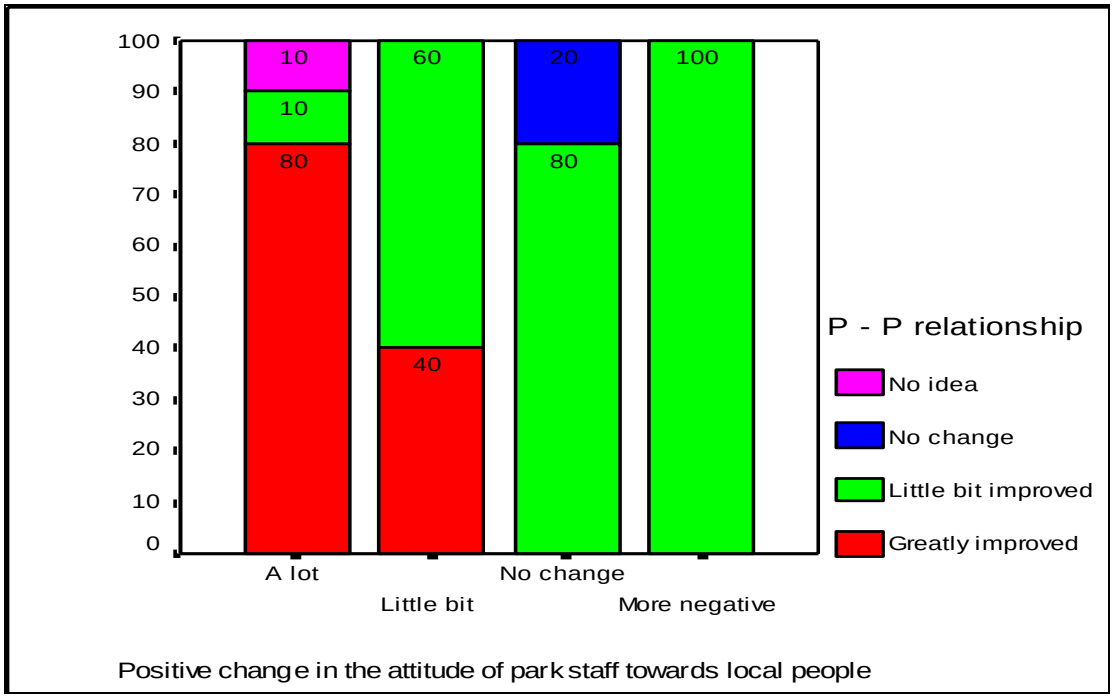
(Source: Field Survey 2003)

[58] President and Chairperson are interchangeably used to denote the head of User Committee or User Group.

In relation to ethnic group, more UG chairpersons belonging to higher castes stated improvement in park-people relationships whereas at the UC level more improvement in park-people relationship after the implementation of the BZ management programme was reported by hill ethnic (*Janajati*) groups such as Gurung, Tamang and indigenous communities such as Tharus, Bote and Mushar.

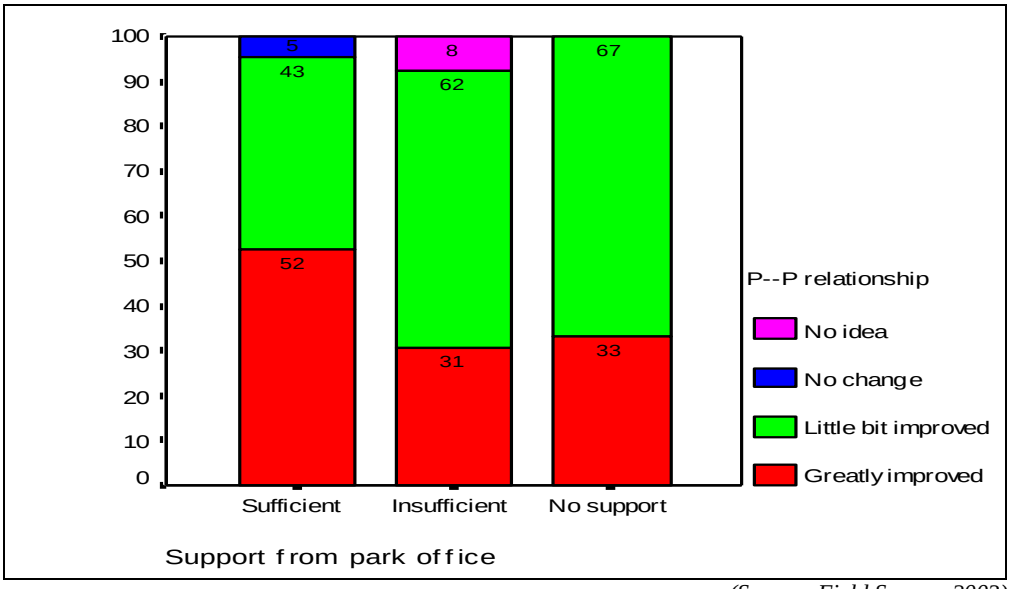
The UC presidents who observed an increase in 'positive change in the attitude of the Park staff towards people' and 'more support from the Park' reported a higher level of improvement in park-people relationship (figs. 6.11 & 6.12). Eighty percent (n=8) of UC presidents who reported 'a lot' of positive change in the attitude of the Park staff towards people also expressed that the park-people relationship had greatly improved in comparison to 40% (n=8) who reported 'a little bit' of improvement in the Park staff's attitude (fig. 6.12). Similarly, 52.4% (n=11) UC president who stated 'sufficient support from the Park office' also reported that park- people relationship had greatly improved in contrast to 30.8% (n=4) who said support from the Park to them was insufficient (fig.6.12).

Figure 6.11: Perception of UC presidents on the improvement of park- people relationship (N=37)



(Source: Field Survey, 2003)

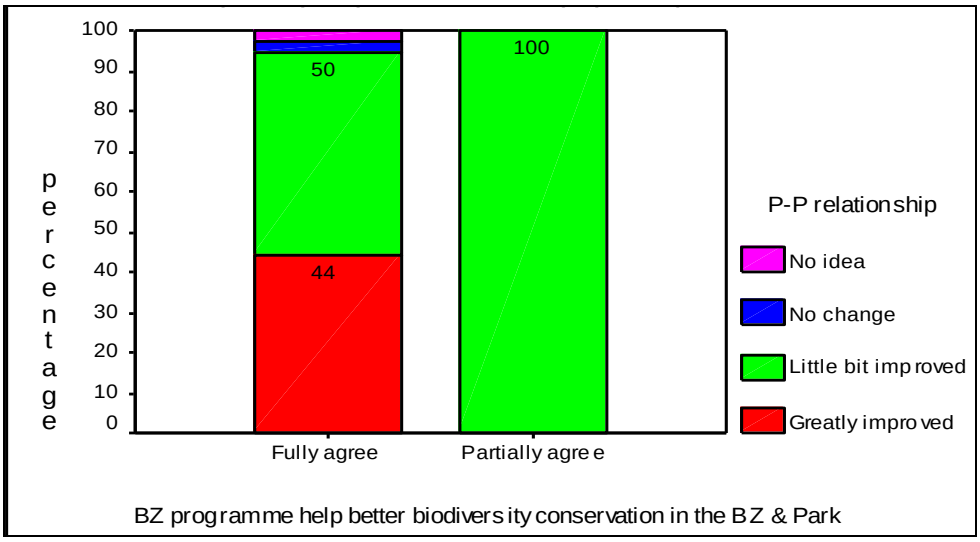
Figure 6.12: Effect of park support to UC on the improvement of park- people relationship (N=37)



(Source: Field Survey, 2003)

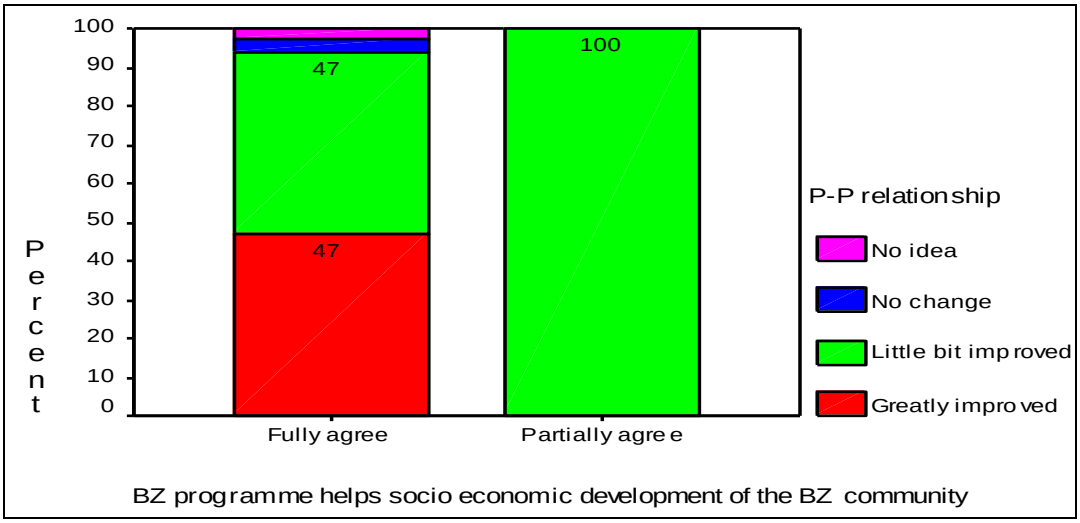
The research also revealed that the respondents who believed that the BZ management programme would help improve biodiversity conservation and the socio-economy of local people had also acknowledged more improvement in park-people relationships (figs. 6.13 & 6.14). Moreover, when asked 'what is the most positive aspect of the BZ programme', 48.6% (n=18) of the UC presidents stated that the BZ programme 'linked people with conservation and helped improve people and park relationships'.

Figure 6.13: Effect of biodiversity conservation on park-people relationship (N=37)



(Source: Field Survey, 2003)

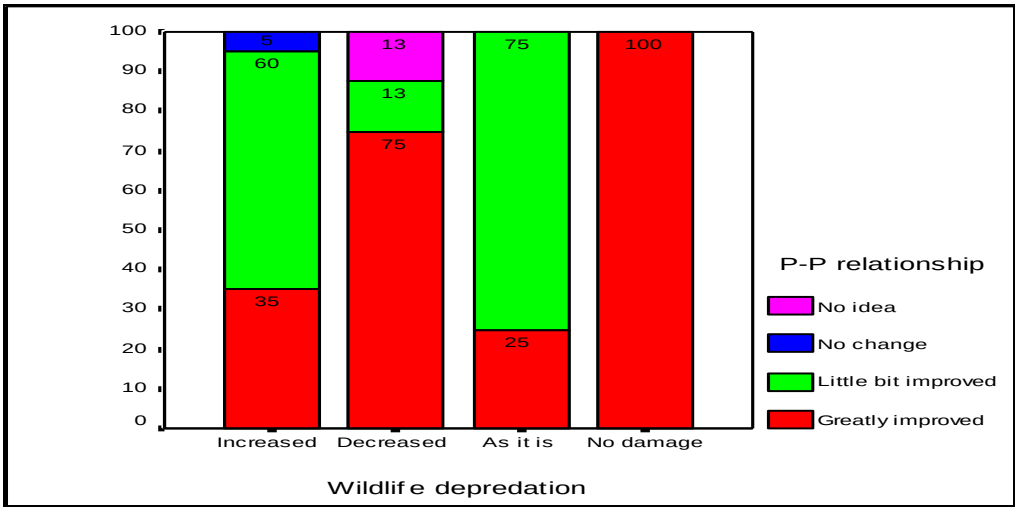
Figure 6.14: Effect of Socio-economic development activities in park-people relationship (N=37)



(Source: Field Survey, 2003)

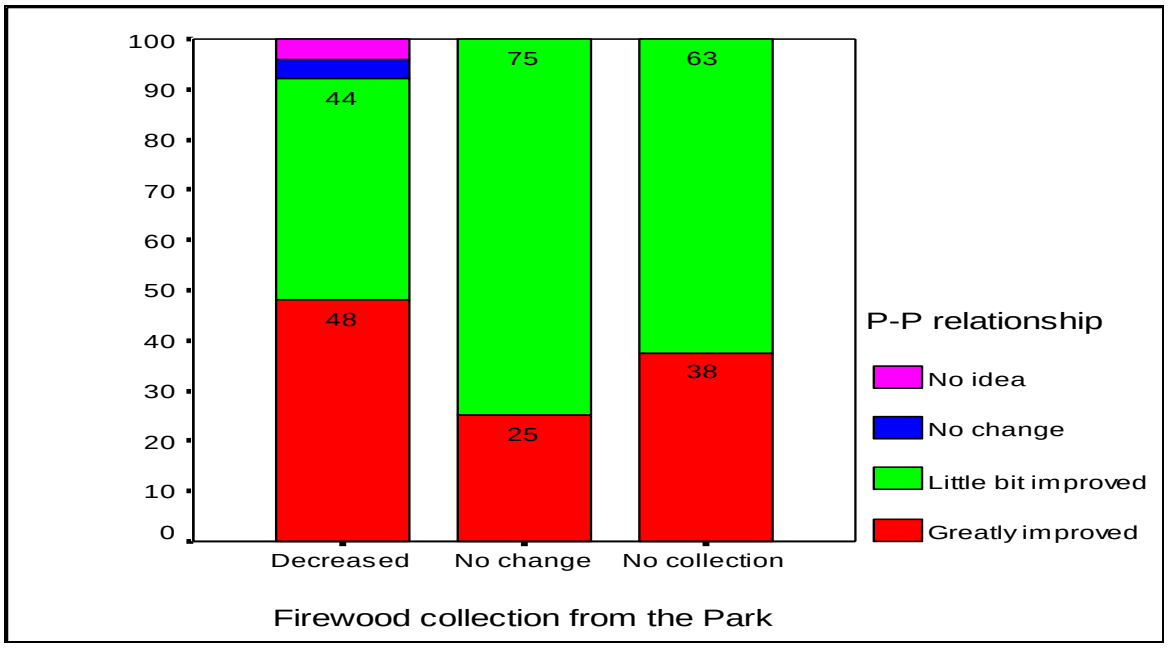
The decrease in wildlife depredation and dependency on firewood positively contributed to the improvement of park-people relationships (figs. 6.15 & 6.16). Seventy percent (n= 6) of the respondents who believed that wildlife depredation had decreased also agreed that park-people relationships were greatly improved in comparison to 35% (n=7) who said wildlife depredation had increased and 25% (n=2) who said that the depredation was the same as before. The field data also indicate that the BZ residents who receive no damage from wildlife (fig.6.15) and have no dependency on park resources (fig. 6.16) would inevitably be more positive towards the Park.

Figure 6.15: Effect of wildlife depredation on park- people relationship (N=37)



(Source: Field Survey, 2003)

Figure 6.16: Effect of firewood collection on park-people relationship (N=37)



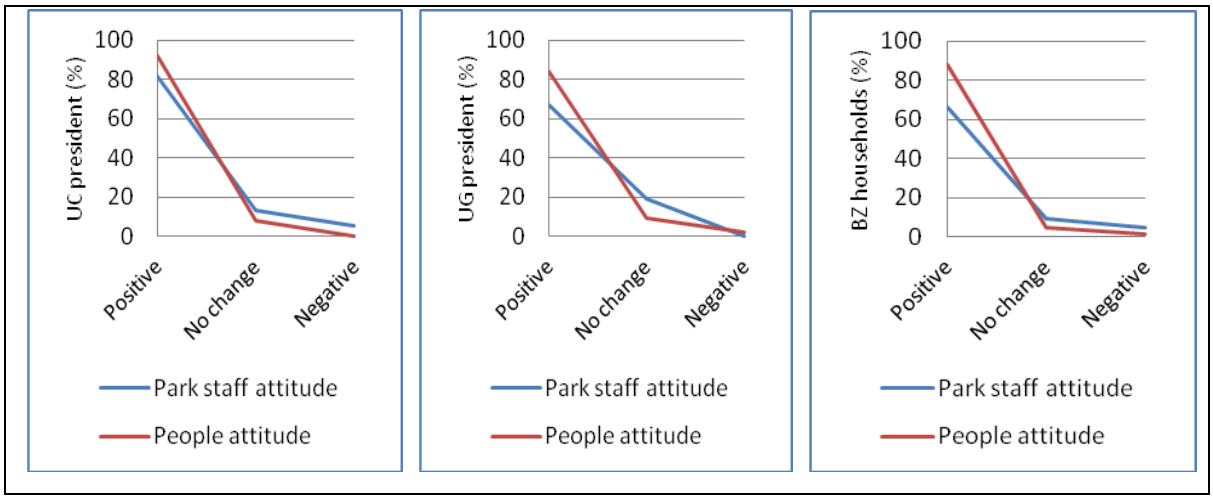
(Source: Field Survey, 2003)

An improvement in park-people relationships (greatly improved - 42%, n= 15 and slightly improved -53%, n= 19) was acknowledged by the respondents who agreed that their conservation awareness level had increased after becoming UC president. Similarly, 50% (n=15) who said their social prestige increased after becoming UC president also acknowledged more improvement in park-people relationship in comparison to 17% (n=1) who said no change in their social prestige. Besides, UG office bearers (president/secretary) who regularly visited their UC offices and had close contacts with park officials expressed a significant improvement in park-people relationships. The field data at the household level further revealed that a higher percentage of respondents (80%, n=268) who expressed their satisfaction with the functioning of UC/UG/FUGC were seen to express a positive attitude towards the Park in comparison to who said they were partially satisfied (43%, n=10).

Most of the respondents at all levels agreed that people's attitudes towards park staff and the park staff's attitudes towards people had improved considerably after the implementation of the BZ management programme (fig. 6.17). Field data suggested that 81.1% (n=30) of UC presidents, 67.1% (n= 59) of UG presidents and 66.1% (n= 316) of UG members or household level respondents acknowledged that the park staff's attitude towards people had improved after the implementation of the BZ management programme. A higher percentage of female UGs (72.7%, n=24) reported improvements in staff attitude

compared to male UGs (61%, n=24). Similarly, a higher percentage of people living within < 1km (72.7%, n=40) from the park boundary reported an improvement in the attitude of park staff towards locals than people living within 1-3 km (65.4%, n=206).

Figure 6.17: Response of UC, UG and HH levels respondents on the attitude of people on park and attitude of park staff on people

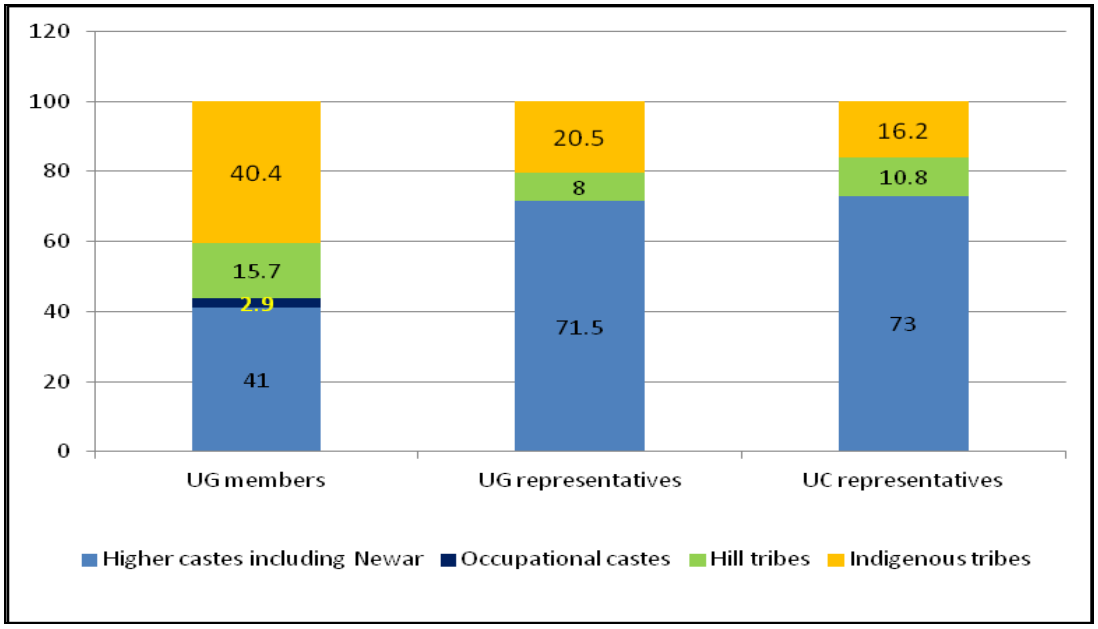


(Source: Field Survey, 2003)

6.2.3.2 Governance and community empowerment:

The BZ management regulation and guidelines clearly spell out the formation of community organizations in order to implement conservation and development activities in the BZ. During the time of the field research there were 37 UCs and more than 1100 UGs in the CNP. The field data revealed that 83.8% (n= 30) of the UC and approximately 79.5% (n=70) of the UG representatives were from higher castes and belonging to hill migrants (fig. 6.18). Similarly, 73% (n=27) of the BZ Management Committee (BZMC) members were from higher castes, despite representing no more than 41% of the UG membership. Out of 37 BZMC members, only 16% (n=6) were from indigenous communities, and there was no female representation. Altogether there were 475 BZUC members of which 51, 98 and 81 members were female, indigenous and hill ethnic tribes respectively. In fact 46% (n= 17), 30% (n=11) and 22% (n=8) of the UCs had no members representing female, indigenous and ethnic hill tribes respectively.

Figure 6.18: Percentage of ethnic compositions of UG members, UG representatives and UC representatives.



(Source: Field Survey, 2003)

The research data and the Park records suggest that the BZMC has been completely male dominated since the formation of the first committee in 1998. Ethnic compositions have also been consistently skewed towards higher castes and hill tribes. To date, 71%, 19%, 5% and 5% of BZMC members represent Brahmin/Chetteri, Tharus, hill ethnic tribes (*jnajatis*) and Dalit caset/ethnic groups respectively (table 6.5).

Table 6.5: Ethnic composition of BZMC

Cast/ethnic group	BZMC members					
	1998		2003[59]		2009	
	Number	Percent	Number	Percent	Number	Percent
Brahmin/Chhettri	24	65	15	72	15	71
Newar	3	8	1	0	0	0
Tharu/other indigenous tribes	4	19	4	14	4	19
Hill ethnic tribes	6	8	1	14	1	5
Dalit (untouchable)	0	0	0	0	1	5
Total	37	100	21	100	21	100

(Source: Field Survey, 2003 & 2009)

[59] The new BZMC with 21 members was formed in the late 2003 many months after the completion of the field survey.

Survey data also revealed that irrespective of ethnic and gender differences, most of BZMC members or UC chairpersons were found to be fairly educated, economically better off, and affiliated to various political parties (box 6.1). More than 81% BZMC members are farmers.

Box 6.1: Socio economic characteristics of the BZMC members/UC Chairpersons

- 91% of BZMC Chairpersons are between 20-60 yrs
- More than two thirds own 1-3 bighas of farmland
- Main occupation of more than 81% of BZMC members is farming
- 81% have up to high school level education
- About 54% are actively involved in party politics and 49% held various positions in VDCs in the past.

(Source: Field Survey, 2003)

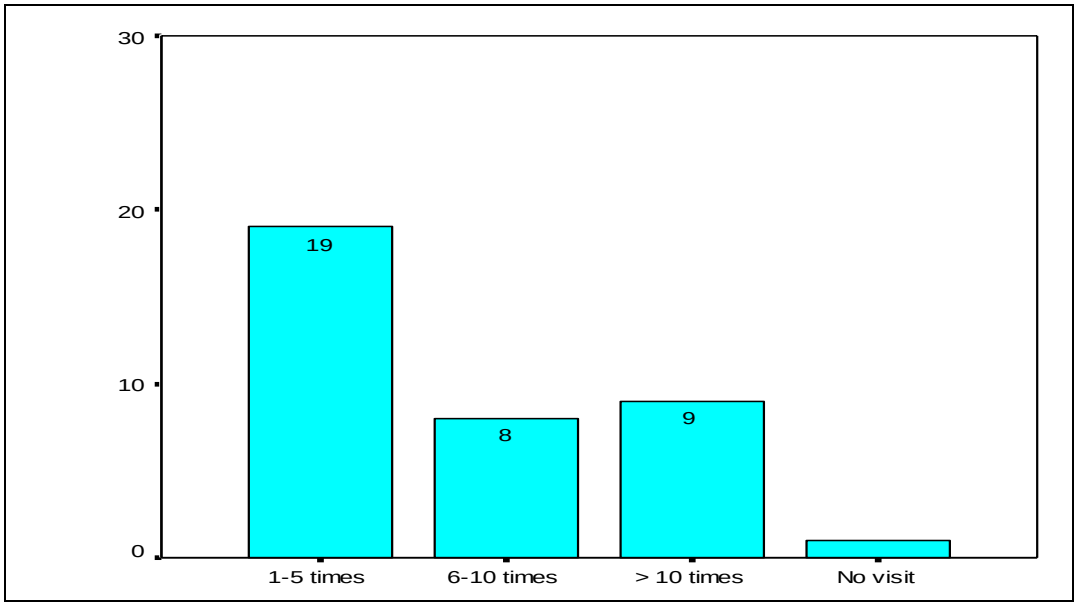
Almost all UC presidents were reported to be elected by consensus. The BZMC record revealed that all UC chairpersons (BZMC members) regularly attended BZMC meetings. Almost everybody (92%, n= 34) also reported that BZMC meetings were held in a democratic manner and that there were no restriction to the expression of views. Approximately 92% (n=34) of the UC presidents allocate at least one week every month (some spend the entire month) to UC activities. Although it is a voluntary job, the position provides high social benefits. More than 83% (n=30) respondents said that their social prestige had increased after becoming the President of User Committee.

Before joining UCs, nearly 50% of the UC presidents were elected members of the VDCs. Among UC presidents, 27% (n=10), 5.4% (n= 2) and 16.2% (n=6) were former VDC chairpersons, vice chairperson and ward chairperson/member respectively. Similarly, 26.1% (n= 23) of the UG presidents/ secretaries were also found to be affiliated to NGOs and 17% (n=15) of them had served in various positions of the local elected bodies. Respondents both at the UC and UG levels acknowledged that after the involvement in the BZ programme, their understanding in participatory development approaches and the capacity to handle community problems were enhanced (table 6.6). Moreover, a higher percentage of female UG presidents (82.4%, n=28) reported that their social status had increased than did their male counterparts (71.8%, n=28). More than 64% (n=57) UG chairpersons reported that they had received leadership and community mobilisation training from the Park office, and more than 80% (n=386) of household level respondents agreed that the BZ programme increased their confidence in community based approaches. Nonetheless,

almost all (99.8%, n=477) of the UG members/household level respondents did not acknowledge that they were empowered or that their social status was improved by involvement in the BZ programme, and more than 70% (n=336) of them even reported to be unaware of Park and BZ management policies.

More than 75% (n=28) UC presidents believed that park staff had the capacity to implement the BZ management programme effectively. However, the visits to UC offices by various staff to support BZ management activities were reported to be quite low and irregular. More than half (51.4% n=19) UC presidents stated that annually park staff visited 1- 6 times to UC offices (fig. 6.19)

Figure 6.19: Park staff annual visit to UC office



(Source: Field Survey 2003)

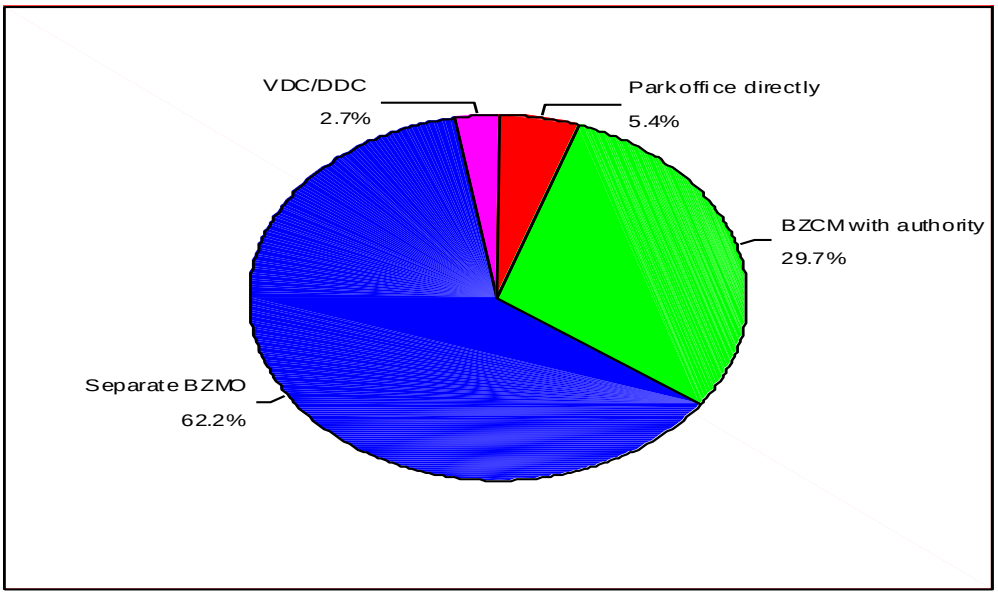
Nearly two thirds of the UC level respondents (62.2%, n=23) suggested that a separate BZ Management Office would be the best appropriate institution for the better implementation of the BZ management programme. Furthermore, 29.7% (n=11) of them were found to be in favour of establishing a fully empowered and autonomous BZMC (fig.6.20), and 91.9% (n= 34) of the UC level respondents stated that the existing UC and BZMC should be adequately empowered to achieve the desired objectives of the BZ management programme. About 95% (n=35) of the UC presidents also demanded that the BZMC should also have a role in the park management decision making process.

Table 6.6: Features of socio-political empowerment as perceived by UC and UG leaders

Elements of empowerment	Respondents			
	UC presidents		UG presidents	
	Number	Percentage	Number	Percentage
Belief in participatory development and democratic norms and values strengthened	35	94.6	74	84.1
Social prestige increased	30	81.1	66	75
Capacity to handle people and conflicts enhanced	36	97.3	75	85.2
Leadership capacity and quality improved	31	83.8	70	79.5

(Source: Field Survey, 2003)

Figure 6.20: Best appropriate institution for the better management of BZ management programme (N=37)



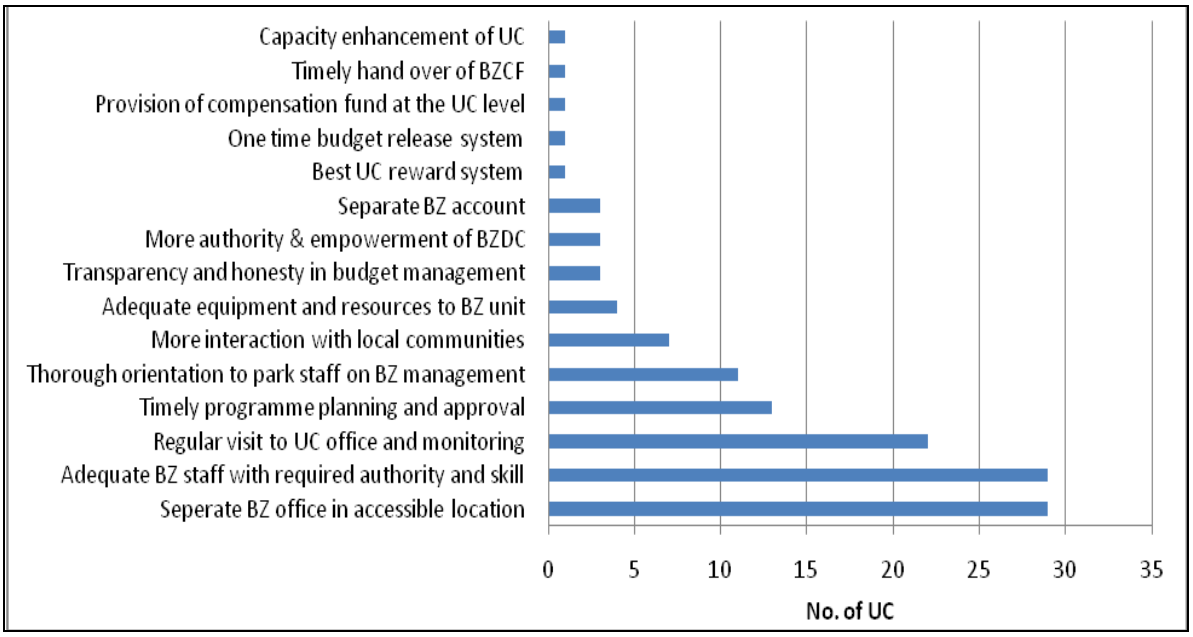
(Source: Field Survey, 2003)

The figure 6.21 further presents the alternative suggestions proposed by the UC level respondents for the effective management and governance of the BZ programme. The majority of the UC presidents believed that a separate BZ office in an accessible location (n=29), adequate BZ staff with the required authority and skill (n=29) and regular support to UCs (n=22) were crucial for the effective management of the BZ programme. Similarly, the three main suggestions to improve the management and governance of the BZ programme made by the UG presidents were:

i) regular park staff visit and public interaction (33%, n=29)
ii) change in staff attitude/pro people programme approach (29.5%, n=26), and
iii) conservation awareness activities (19.3%, n=17)

Moreover, the maximum number of household level respondents (25.5%, n=122) also suggested the need of regular support from the Park office for the better management of the BZ programme.

Figure 6.21: Suggestions for the improvement of BZ management (UC, N=37)



(Source: Field Survey, 2003)

Correspondingly, more than 62% (n=23) of UC representative also suggested restructuring the existing BZMC to allow for the greater participation of wider stakeholders in the BZ management and decision making processes. About 57% (n= 21) and 51.4% (n=19) of the respondents recommended the inclusion of an NGO such as the (King Mahendra) National Trust for Nature Conservation (KMTNC is now changed to NTNC) and hotel representatives in the BZMC (table 6.7). Although the important role of women and indigenous people in conservation and development activities was recognised by 97.3% (n=36) of the UC level respondents, very few (5.4%, n=2) of them suggested the inclusion of women and indigenous representatives in BZMC.

Table 6.7: Respondents view on restructuring of BZMC

	Total no of respondents ((N=37)	
	Yes	
Name of the Institution	N	Percent
More DDC representatives	3	8.1%
NGO representatives such as KMTNC	21	56.8%
Hotel representative	19	51.4%
District Forest Office	6	16.2%
Army representative	4	10.8%
Conservation professionals	4	10.8%
VDC representatives	3	8.1%
CDO and police representatives	3	8.0%
Cenrtal representative	4	10.8%
Representatives from indigneous community and women	2	5.4%

(Source: Field survey, 2003)

More than half of the UC presidents (51.4%, n=19) expressed their unhappiness at the existing criteria of allocating park revenue to UCs. Moreover, 51%.4 (n=19) of them suggested that park impact should be the main criteria for the allocation of funds to the various units of the BZ. Similarly, 54.1% (n=20) of the UC level respondents suggested that more than 50% of the park incomes should be allocated for BZ management. Nevertheless, 67.5% (n=25) and 55.7% (n=21) of the UC presidents also expressed their willingness to share 5-10% of the BZ funds for park management activities and to establish a central level BZ Management Fund[60] to support BZ programmes around less lucrative parks respectively.

[60]It was reported that DNPWC has been seeking governmental approval to allocate some portion of the proceeds of the high income parks for the newly proposed 'Sister Park Programme' designed to support Buffer Zone management activities in the low income parks (personal communication-Narendra Pradhan, Chief Warden CNP, July 2010).

Nearly one quarter of the UC level respondents (n=9) acknowledged that the establishment of community based conservation institutions, and the promotion of a collective development and conservation attitude among local people was one of the most positive aspects of the BZ programme. However, some management overlaps between BZ institutions and local bodies were also reported. During the field survey 81.1% (n=30) of the UC level respondents stated that there were overlaps and contradictions between the resource governance (Buffer Zone Act) and the political governance policies (Local Self Governance Act) of the government in relation to authority over the use of natural resources in the BZ. Correspondingly, 56.8 % (n=21) of the UC presidents also recognised the existence of some level of overlap and competition between UCs and VDCs in programme implementation in the BZ areas. However, 86.5% (n=32) of UC level respondents believed that VDCs were positive towards UC activities. Moreover, despite some contradictions and competition between UCs and VDCs, more than 62% (n=23) UC chairpersons reported that they received some support (material and financial) from VDC/DDC to implement UC activities.

One of the key informants suggested implementing the BZ programme through the DDCs to avoid the problems of competition and coordination between BZ institutions and local government agencies. He said: "*...yes, there are contradictions. Park Act and Local Self Governance (LSG) Act should go hand in hand. Political governance affects all other systems including BZ management (conservation governance*[61]*). There is no coordination between UC and VDC in resource utilization, and programme and budget planning. In most of the cases, VDC and UC are going parallel. BZ programme could be implemented through DDC. UC should consult VDC in programme planning and budgeting" (*personal communication- Bishnu Ghimire, former DDC President, Chitwan, April 2003). However, another key informant argues that implementation of BZ programmes through local bodies such as DDC or VDC would render it a political tool rather than a conservation tool (personal communication- Giridhari Chaudhari, tourism entrepreneur, May 2003).

In order to ensure coordination and support from VDCs, most of the UC presidents (86.5%) had suggested the inclusion of a VDC representative as an ex-officio member in the UC management committee. The majorities of the UC presidents reported that they had been inviting their VDC chairmen to UC meetings. Field data revealed that 91.9% (n=32) of UCs

[61] Added by the author

had invited VDC representatives to their meetings. Similarly, 83.8% (n=31) UC presidents also reported that they were invited by the respective VDCs during their annual planning meetings. Furthermore, it was also suggested that conflicting provisions of Local Self Governance Act and National Park and Wildlife Conservation Act need to be revised for the better coordination and integration of the BZ management and local development programme *(*Bishnu Ghimire, former DDC President, Chitwan, personal communication April 2003).

6.3 Analysis:

The successes of conservation programmes based on integrated conservation and development approaches have been contentious and conditional (McShane and Well, 2004). As elsewhere, the BZ management programme of Nepal is also not free from debate and discussion. However, this research reveals that Nepal's BZ programme was far more innovative and progressive than integrated conservation and development approaches generally adopted in other parts of the world (see Mahanty, 2002; Dembe, 2006; Kaltenborn *et al., 2008;* Roe *et al*., 2009). Literature review in the previous chapters indicates that most of the BZ management programmes in other parts of the world concentrate mainly on community outreach activities, hand outs, some economic incentives in order to compensate for wildlife depredation and on educating people on the importance of wildlife conservation, whereas the BZ management programme in Nepal has attempted to adopt a holistic and integrated approach by embracing economic, ecological and institutional instruments and incentives required for creating conducive social and ecological space beyond the protected area boundary. Sharing park benefits for community development is one of the strategies adopted to create the social environment in which people in fringe areas feel they are a part of protected area management. Similarly, BZ community forestry has been promoted in order to maintain and enhance natural landscapes outside protected areas through a sustainable use approach. Conservation through sustainable utilisation of resource has been a key strategy in managing natural resources outside the Park. Besides, the main strength of the BZ programme in Nepal seems to be a well-formulated policy framework and the networks of well-structured community institutions for its implementation. Community-based institutions help decentralised conservation activities and empower local people to take environmentally sound land and resource use decisions. It

also helps improve conservation governance and expand conservation constituencies beyond the boundaries of protected area.

The research suggests that the BZ programme in CNP has been successful in demonstrating some positive results in addressing livelihood, governance and conservation issues together. The following sections will analysis the research results in detail.

6.3.1 BZ management programme and biodiversity conservation:

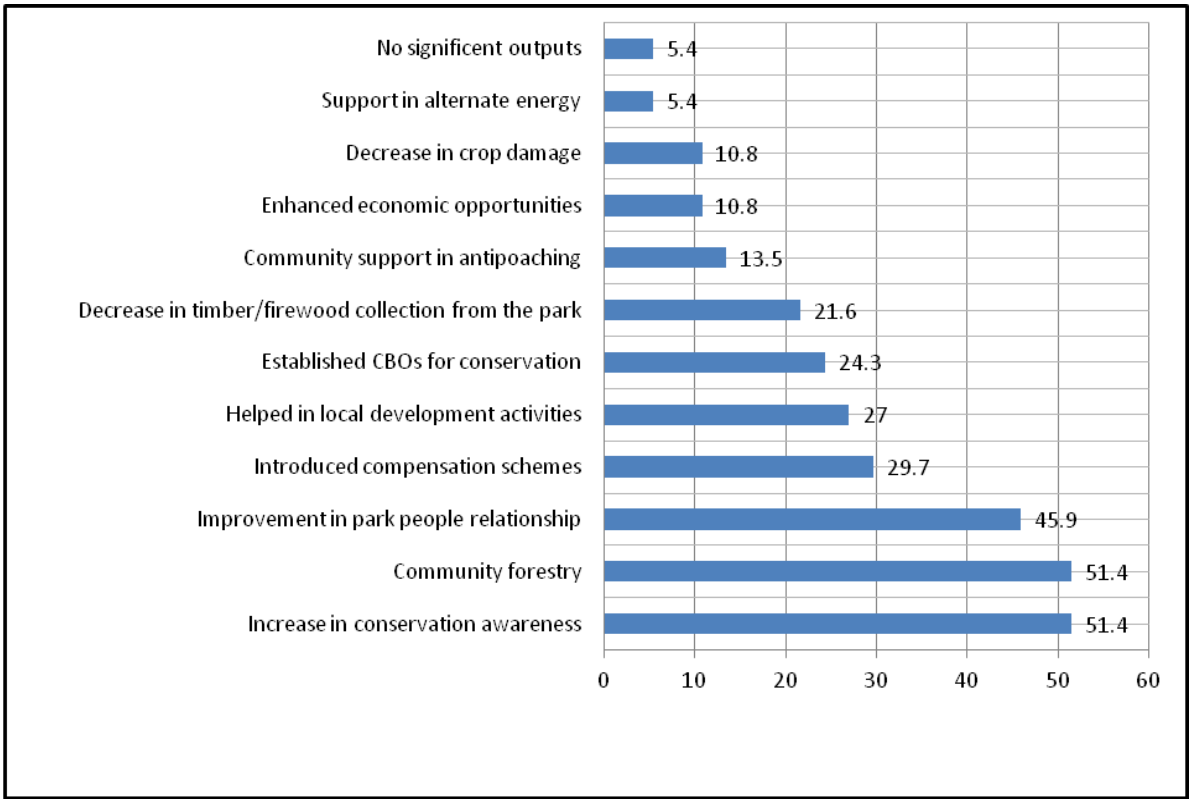
This research results indicate that the achievement of conservation objectives through the BZ management programme appears possible. Unlike traditional BZ programmes which are mostly limited to providing economic benefits to local people (Wells and Brandon, 1991), this programme appears to approach the livelihood and conservation issues and their linkages in a more holistic and balanced way. The BZ management programme implemented in the CNP since 1996 has been contributing to conservation outcomes from three directions. Firstly, by supporting community development activities to reduce the 'effects of the Park' on the livelihoods of the BZ residents; secondly, by developing forestry resources base in the BZ to reduce 'dependency of local people on Park resources'; and thirdly, by 'increasing conservation awareness' of local communities on the need and importance of national park and biodiversity conservation.

The analysis of figure 6.22 clearly indicates that the top three significant achievements of the BZ management programme, *viz.* an increase in conservation awareness, community forestry and improvement in park-people relationships are directly supportive to the biodiversity conservation of the Park and BZ areas. In fact some positive conservation outcomes of similar community-based conservation programmes were also reported from the other protected areas of Nepal (Bajracharya, 2003; Gurung, 2006).

The research results indicate that recycling of park revenues to BZ management programmes can help people understand that the Park is not a liability but an important asset for local development. The study also proves that support to local people through BZ management activities can help enhance positive local attitudes towards protected areas leading to improvements in park-people relationships. Household level data analysis suggests a clear correlation between positive attitudes towards the Park and motivation of

BZ residents towards biodiversity conservation (r=.24, P=.000). Similar studies carried out in African protected areas had also shown that sharing modest sums of tourism revenue with local communities, combined with community development, can help improve relationships between park authorities and local communities (Gillingham and Lee, 1999; Archabald and Naughton-Treves, 2001; Bwalya, 2002; Holmes, 2003; Blomley *et al.*, 2010). Moreover, the BZ fund can also play an instrumental role to mobilise local elites to strengthen protected area management (Paudel *et al.*, 2008).

Figure 6.22: The significant achievements of BZ management programme as perceived by UC presidents (%)



(Source: Field Survey, 2003)

The improvement in park-people relationships means less confrontation with park staff, decreased illegal activities, greater cooperation in rescuing and handing over of orphan and injured wild animals, improved protection of forests and cooperation in anti-poaching activities, and better attendance at park-people meetings (Archabald and Naughton-Treves, 2001). Such cooperation from the BZ communities would create situations conducive towards promoting immediate and long term objectives for protected area management.

Previous studies had also suggested that local people's attitude towards the CNP was positive (Sharma, 1991; Nepal and Weber, 1993). The crux of the issue has been how to translate the positive attitude of local people into a productive park-people partnership for the protection of park resources in general and wildlife protection in particular. The research results indicate that park support to community development can help enhance people's positive attitude, but does not clearly demonstrate clear links to establishing a tangible park-people relationship. This suggests that whilst economic incentives may help change people's attitude towards conservation and they may accept and appreciate the importance of the park, this does not mean they will necessarily be equally supportive of wildlife protection, where they believe it to be harmful to them. The continued problem of poaching, particularly rhinoceros in Chitwan, indicates that the positive attitude of people towards the Park and its wildlife is insufficient in protecting endangered wildlife species whose body parts are in high demand in the international markets. Not only in Nepal, but elsewhere also, translating the positive attitudes of people into good conservation practices, particularly for the protection of wild animals, has always been very difficult to achieve (Barrow *et al.*, 2000; Archabald and Naughton Treves, 2001, Dembe, 2006). The park authorities in Chitwan acknowledge that the control of poaching has been difficult. Nonetheless, unlike in the past, local communities pass on information of poaching at the earliest possible opportunity (personal communication, Bed Parsad Dhaka, Assistant Warden, 2003) making anti-poaching activities more effective.

The missing link between the attitude of people, that of park staff and the level of community support to wildlife protection is an important concern to many conservationists and casts a shadow over conservation strategies based on benefit sharing with local communities (Terborgh, 2000). However, banking on people's positive attitude towards wildlife conservation and protection requires greater effort and innovative strategies. This is only possible when the benefits to communities of wildlife conservation start to outweigh the costs of living with them (Metcalfe, 1994). Elsewhere it was suggested that community cooperation and participation in conservation is largely linked to the flow of socio-economic benefits from conservation activities (Songorwa, 1999). Furthermore, Agrawal and Gupta (2005) suggest that more benefits to households from forests increase the likelihood of participation of local communities in participatory conservation programmes.

The conservation and development of forestry resources in the BZ has been a key strategy of the BZ management programme in CNP and one of the main strengths of the BZ management programme of Nepal. Besides recycling revenue in community development activities, the BZ management programme through BZ community forestry activities provides certain levels of resource rights to BZ communities. Moreover, forestry resources management activities in the BZ have been implemented with the aim of increasing the availability of the forestry resource base, restoring wildlife habitat, generating income for community development and ultimately contributing to biodiversity conservation. Additionally, conservation activities in the BZ have been implemented to directly or indirectly help reduce dependency of people on park resources and to improve conservation of biodiversity in the Park.

The BZ management programme promotes community empowerment as a key to better management of environmental assets in the BZ. The forest areas close to settlements and required for local subsistence uses have been handed over to local communities as BZ Community Forests (BZCF). Management responsibilities for BZ forest have been handed over to local people, which helped develop a sense of ownership over resources and secured their access, encouraging people to invest in the conservation of resources (Budhathoki, 2006).

Sustainable management of forestry resources in the BZ would help reduce the dependency of local people in park resources and thereby reducing park-people conflicts. The analysis of UC level responses indicated a clear positive correlation between a decrease in firewood collection from the Park and the better management of community forest in the buffer zone ($r = .490$, $p < 0.003$). Approximately 22% of the UC presidents stated that a decrease in timber and firewood collection from the Park was one of the significant achievements of the BZ management programme towards reducing park-people conflicts. Similarly, 30% of them agreed that community forestry was one of the most effective activities of the BZ manageemnt programme in minimizing park-people conflicts.

The field observation suggests that local people have a clear understanding of the benefits from community forests, which outweigh the costs of managing them. It was also observed that the female UGs gave higher priority to forest and fodder management activities than male counterparts. Motivation towards community forestry has been mainly due to the

strong desire of the BZ residents to create an alternative forestry resource base to reduce dependency on the Park for basic forestry resources and to avoid conflict with park staff (personal observation). The research has revealed that in some areas more than 30% households participated in the BZ programme simply to gain an easy and legitimate access to forestry resources.

Similarly, the ecotourism potential of the Park adjoining community forests has been well recognised by local people as an important source of additional income. For example, the Bagmara Community Forest (215ha) situated in Shauraha village generates approximately Rs 70 0000 annually from ecotourism activities, which has been a regular source for various local development activities in the village (personal communication: Bishnu Prasad Aryal, April 2010)

Community forestry management in the BZ has been constrained by a deficiency in the policy and institutional capacity of the Park. Park staffs are not only inadequate in numbers but also lack the necessary skills to facilitate community forestry activities in the BZ. Necessary implementation guidelines are also lacking (Upadhaya, 2006).The government BZ forestry policy is restrictive in forest resources use and discretionary in power sharing between local people and the park warden (Nagendra *et al*., 2005). The ultimate management powers of community forests are vested on the park warden. Jana (2009) argues that BZCFs do not hold the autonomous status that community forests beyond the PAs enjoy. Such policy and institutional shortcomings have been affecting the implementation of community forestry activities in the BZ. Inefficiencies in community forestry management would restrict the flow of the wide range of conservation and livelihood benefits to local communities required for the conservation of the Park's biodiversity.

6.3.2 BZ management and enhancement of livelihood opportunities:

The BZ management programme in Chitwan approaches livelihood improvement issues of the local people as a means to achieve conservation objectives. A policy of linking conservation benefits (park income) to the socio-economic development of the 'park-affected' communities has been adopted to address livelihood challenges faced by the BZ communities. As elsewhere, a park income - sharing scheme at the local level has been

taken as an attempt to redress the inequities of wildlife conservation that directly affect rural resource users (Barrow *et al*., 2000).

In CNP, the BZ programme portfolios have been developed to help reduce livelihood vulnerability and threats as well as to enhance the livelihood capabilities of the BZ residents. Activities such as fencing and trenching along the Park boundary, flood control and so on, have been designed to reduce the damage of livelihood assets by wildlife and park-bordering rivers. Similarly, various community development activities related to agricultural and livestock, education and health, skill enhancement and micro enterprise, alternative energy development and so on, have been implemented to improve the existing rural livelihood practices as well as to create new livelihood opportunities and options. The four Cs, *viz*., community planning (participatory and bottom-up planning), community implementation, community cost sharing, and coordination and collaboration with other development agencies for resource mobilisation form the four fundamental building blocks of the BZ programme implementation (fig. 6.23). The Park record suggests that 36.16% and 12.60% of the total expenditure of the BZ management programme has been contributed by the communities and other development agencies such as VDC, DDC, district level government agencies and NGOs respectively (annex 8).

Figure 6.23: Four Cs-fundamental building blocks of the BZ management programme

(Source: Author, 2010)

On average, between 1997/98 to 2002/03, the Park office annually recycled approx. Rs. 0.97 million of its income for the BZ management programme, out of which in total 73.53% (Rs. 42637086) and 5.95% (Rs. 3453022) were spent in community development, and income generation and skill enhancement activities respectively (annex 8). This result suggests that these investments have been successful in making some impacts on the livelihood of BZ residents. Previous studies also confirmed that the BZ management programme has been to some extent successful in improving socio-economic conditions of the BZ communities, particularly with regard to rural infrastructure (UNDP, 2004; Paudel *et al*., 2008).

However, it is an irony that despite spending Rs.58 million, the livelihood outcomes of the BZ management programme seems minimal. The study revealed that not more than 14% of the sampled households agreed that they had received some economic benefits from the BZ programme. This suggests that the gap between perceived benefit and actual benefit from the BZ programme is very wide and falls badly short in fulfilling the expectation of BZ communities and in making adequate livelihood impacts.

Additionally, a close observation of the expenditure of the BZ management programme also revealed that on average investment per household per year between 1997/98 and 2002/03 was calculated to be just Rs. 269 (approx. US$ 4/yr/hh during that time). The calculation of BZ expenditure during the last 11 years (1997/98 – 2007/08) would also suggests only approx. Rs 570/yr/hh (approx. US$ 8) (DNPWC, 2009). This indicates that not only are the majority of BZ households still not receiving benefits from the programme, but that the investment at the household level is actually meagre too. Furthermore, rich people and males have been gaining more benefits from the programme than poor households and females respectively. Also, the park-resource dependent communities, particularly fishing communities (photo 6.1) had reported zero or minimal benefits from the programme. This seems obvious since most of the BZ funds had been invested in road, irrigation, floods control and in minimising wildlife depredation, benefiting mainly farming communities.

The field survey also revealed that the majority of the households (70%, n=58) who did not join UGs were found to be poor and lower income households. Similarly, out of 84 sampled households who were not BZ UG memebrs, 47.6%, (n=40) households were belonged to local indigenous communities such as *Bote, Tharu, Mushar, Darai, Kumal,*

Parja. In corroboration of this finding, another study further argued that a large number of extremely poor and socio-economically deprived ethnic communities were still excluded from the BZ programme (UNDP, 2004).

Photo 6.1: Fishing communities: the least benefitted social group from the BZ management programme

(Photo: Author, 2003)

It was also reported that damage from wildlife was higher than the benefit from the BZ programme and the gap between perceived benefits and loss was more in the areas closer to the Park boundary (fig.6.6). The finding of this research revealed that a decrease in wildlife depredation affects the attitude of people towards the Park and made a positive contribution to the perceived improvement in park-people relationships (χ^2=11.693, P=0.05, df 9). In contrast, people who were more affected by rhino were also found to be more negative to rhinos (Gurung, 2004) and in high crop depredation areas local people were found to be indifferent to rhino poaching as this helps to reduce crop depredation (personal observation). A similar attitude of local farmers who experienced crop and livestock losses to wildlife was observed in many African national parks (Songorwa *et al.*, 2000).

The results of this research suggest that the communities which are most affected by the Park and dependent on park resources have not been adequately benefitting from the BZ management programme. This could be a reason why large sections of the BZ communities are indifferent to wildlife protection. Field survey data also indicated the involvement of nearly one third of the lower income and one quarter of the poor households in illegal activities such as stealing forest resources from the Park. It can be argued that inequitable and inadequate distribution of park benefits would hinder the expected behavioural change among the BZ communities. This emphasises the importance of effective and judicious sharing of park benefits with them. Furthermore, a better flow of conservation benefits is fuindamental for the establishment of strong linkages between the park, local people and wildlife protection.

Breaking social boundaries for the equitable distribution of conservation benefits may be harder than breaking physical boundaries to expand conservation benefits outside the Park. Although linking community level projects to individual behaviour towards animal protection will always be problematic (Barrow *et al.*, 2000), inadequate and inequitable flow of conservation benefits might be one of the reasons why the majority of the people remained indifferent towards wildlife protection despite their positive attitude towards the Park. Effective implementation of appropriate programmes through appropriate institutional arrangements would be required to help transfer the positive attitude of BZ communities into positive conservation actions. There is a need to ensure that the benefits of ICD strategies are targeted and captured by those who pay the high conservation costs (Blomley *et al.,* 2010).

This discussion clearly indicates that there is a great need to expand and ensure benefits of the BZ programme in order to make tangible impacts on conservation and poverty. Better livelihood and conservation impacts can be achieved by ensuring equitable distribution of park benefits to the 'most park dependent' and 'most park affected' communities through the implementation of effective activities such as community forestry, wildlife damage control and compensation, alternative energy and so on. Since the costs and benefits of conservation within and between the communities living in different parts of the BZ are unevenly distributed, activities benefitting the community as a whole and reducing personal affectedness (Gurung, 2004) would be required to improve the park-people relationship and achieve conservation objectives. Also, programme interventions hoping to create

alternatives should reach the poorest sections of the community, in order to reduce their dependency on protected forests (Sato, 1998). Paudel (2005) suggests that indigenous and park resource dependent people in Chitwan are in fact willing to contribute to the conservation of the Park if their basic livelihood needs are assured. Experience from Periyar Tiger Reserve in India also suggests that even the poachers can be turned into gamekeepers, if they are properly organized and the benefits from the park are assured (Kutty and Nair, 2005). A greater availability of alternative economic opportunities will deter local poachers and would-be poachers from being involved (Poudyal, 2005). All these suggest that the very survival of many protected areas will depend on ensuring greater and more equitable benefits to people (McNeely & Schutyser, 2003). However, according to Agrawal & Perrin (2009) good governance is required to ensure equity in benefit distribution.

6.3.3 BZ mamagement programme and improvement in protected area (PA) governance:

Literature review in the previous chapters and the findings of this research strongly suggest that the generation of public support and the participation of local people are fundamental to successful conservation. Public participation in conservation can be generated when people are properly mobilised and organized into institutional networks. It is generally accepted that the development of community based institutions in the BZ is one of the most important achievements of the BZ management programme in Chitwan. The research findings revealed that the institutional processes in the BZ were well established and functioning smoothly. The reformation of the BZMC at a regular interval of five years as stipulated by the BZ management regulation and guidelines can be taken as a testimony of the maturity of the BZ management programme in Chitwan.

Furthermore, the community institutions designed for BZ management seem well structured. The formation processes of these institutions are also found to be quite participatory and democratic. The current BZMC is the third successive committee since 1999, and has elected for the first time its President from a lower (occupational) caste. Smooth transformation of leadership at different layers of the BZ institutions (UG/UC/BZMC) suggests that BZ governance systems have been functioning well and progressing democratically. Moreover, the change in UC and BZMC leadership every four years also indicates that there is no dearth of ‘community champions’ to take over the responsibility of BZ management in Chitwan National Park. The flow of leadership

between local elected bodies and BZ institutions may help broaden and bolster participatory development and democratic governance at the rural level.

However, concern had also been expressed on the growing politicisation of the BZ institutions. Some critics argue that the BZMC elections had been taking place on political lines but without a political flag and election symbol (personal communication: Bishnu Ghimire, former DDC president, 2003), and minimising political influence in the BZ programme would be a major challenge in the future (personal communication: Naraya Dhakal, BCN, 2003). Nevertheless, the growing interests of local people and the active participation of political elites can also be considered a testimony of community acceptance of the programme. The high interests of people in the programme could be one of the reasons for minimum disruption of the BZ management programme by the Maoists during their 10 year long insurgency (1996-2006).

Local communities consider the BZ management programme as a best available opportunity to access additional resources for local development activities (pers. obs.). Moreover, BZ institutions have been slowly turning into a platform for park-people interaction and a potential means to promote conservation agendas at the community level. Most of the BZ residents now first visit either the UG (63.3%, n=303) or UC (10.7%, n=51) offices to report park related problems. The Park office has also been using these institutions to channel various park services such as the distribution of permits for annual grass cutting and for other forest products. Referring to UC presidents, Dr. T. M. Maskey, former DG of the DNPWC once said: "*now we have 37 wardens to look after the Park*". Similarly, one of the park wardens remarked: *"...now we have easy access to people to discuss conservation issue. We go to UC/UG directly to discuss park-people issues... In case of conflict, local people try to explain to others about the benefits of the Park*" (Bed Prasad Dhakal, Assistant Warden; personal communication, April, 2003).

This clearly indicates that after the implementation of the BZ management programme, the attitude of park staff towards people and community institutions has been warm and positive. The park authorities have been using BZ community leaders as a bridge between the local people and the Park and the BZ community institutions as platforms to pursue conservation objectives (photo 6.2). This confirms that the BZ management programme in CNP has been fairly successful in turning a situation from conflict to co-operation and co-

existence. The improvement in park-people relationship in CNP was also suggested by other studies (Kothari *et al*. 2000; UNDP, 2004). Although, complete resolution of conflicts may take time, the incidences of confrontation have diminished in CNP since initiation of the BZ management programme (personal observation). However, it is also pertinent to note that at all levels (UC, UG and HH), the improvement of people's attitude towards the Park is perceived by them to be greater than that of park staff towards them (fig 6.17). This may suggest that people are more optimistic about the BZ management programme than are the park staff in respect to achieving their objectives.

Photo 6.2: BZMC members holding meeting to discuss BZ programme

(Photo: Author, 2003)

The literature review suggests that outside Nepal, well-structured and well functioning community institutions for BZ management would be difficult to find. Moreover, the research results indicate that if properly mobilised and empowered, these institutions can be instrumental in achieving the long-term conservation objectives of the Park. However, a close analysis of management and governance outcomes of the BZ management programme suggests that effectiveness of the BZ institutions seemed constrained by the absence of adequate inclusiveness and broad stakeholder representation, inadequate authority, and management capacity. Various other studies also suggest that community based conservation initiatives generally fall short of the rhetoric (Shackleton *et al*., 2002; Spiteri and Nepal, 2005).

The BZ organisations have been controlled by males, higher castes and hill migrants. The ethnic composition trend of the last three BZMC reveals that inclusiveness in the BZ governance structure seems challenging as the domination of higher castes continues to be very high. Control of programme by elites and politically influential individuals or interest groups have been affecting the proper delivery of programmes and an equitable sharing of benefits among communities. Despite having coverage of 87% households in nearly 90% settlements, the programme has not been successful in including a large numbers of poor and marginalised people (UNDP, 2004). Additionally, it was also reported that many UGs previously formed had not been fully active as grassroots level community institutions as envisioned in the BZ Management Guidelines (personal communication Hema Bhusal, Buffer Zone Support Unit, CNP; Aug 2010).

Some critics argue that BZ policies have been generally blind on the social heterogeneity and unequal power relationship currently existing within the BZ society (Paudel, 2005). According to one study, the BZ management programme in Chitwan has reinforced the existing social inequality by affecting negatively the poor, socially disadvantaged groups such as *Bote, Majhi*, lower caste (*dalit*) and women (Gurung *et al.,* 2008). This attracts arguments from critics that the present policy not only limits the power and responsibilities of local communities and their institutions (Paudyal, 2001) but is also insensitive to social justice despite being claimed as participatory in conservation discourse (Gurung *et al*., 2008). A study in Uganda also found that local people extract more benefits from non-community based conservation (CBC) parks than parks with CBC programme (Mugisha, 2002) indicating that a community-based approach might impose park protection regulations more strictly, affecting the livelihood of the most park resources-dependent communities more severely than the other sections of the society.

Field survey revealed that the institutional development and the capacity enhancement of BZ institutions had not been going at the same pace. Despite the high enthusiasm and commitment towards BZ management, less than 50% UC (n=17) chairpersons reported a thorough knowledge and familiarity with the BZ management regulation and guidelines. In the case of UGs, the figure goes further down to 5.7 % (n=5). Less than one quarter (21.6%, n=19) of UG presidents had received any orientation on national and BZ policies and programmes. The field survey also suggests that 64.3% (n=54) of non-UG members had no knowledge of the BZ management programme. A proper understanding of policy and

programme procedures is fundamental to ensure proper implementation of the programme and for its effective outcomes.

More than 78% UC (n=29) of chairpersons suggested that skilled staff and adequate authority were needed for the better management of BZ management programmes. Similarly, nearly 60% of UC (n=22) chairpersons avowed that regular support and monitoring from the Park was needed to improve programme management and delivery. The research results revealed that the park officials' visits to UC offices had been few and far between.

There is a general belief that leadership and community mobilisation training are needed for the improvement of institutional capacity of the User Groups. Furthermore, out of six UC presidents (BZMC members) who attended the focus group discussion in May 2010, five (83.3%) UC chairpersons stated that lack of autonomy and limited power to BZMC had been one of the main constraints for effective management of the BZ management programme in Chitwan. It was argued that the Park had been just using BZMC and BZUCs to offload some of its difficulties and to extend their power far beyond the Park border.

The low institutional capacity of the BZ institutions has also been reflected by the low spending of the allocated fund. As of June 2008, only 29.2 % of the total released fund had been spent in BZ activities. Since the last few years, new instalments have not been released to UCs due to the huge surplus of unused funds (personal communication- Narendra Man Babu Pradhan, Chief Warden, CNP; Aug 2010).

It was also observed that the funds available for development activities directly implemented by the BZ users have been decreasing. In recent years many new initiatives such as sister park support fund, anti poaching activities, tourism facility development inside the Park, wildlife victim relief fund, conservation awards and so on, have been introduced under the direct management responsibility of the park office, which has brought a large sum of money under its direct control. The budget plan proposed by the Park for 2010/11 reveals that the park office would directly spend more that 55% of the total BZ funds. Furthermore, the park office holds a large portion of the budget in the guise of the BZ management support activities.

The control of the Park office over the BZ fund was identified as one of the top five limitations of the BZ management programme by almost all UC chairpersons (N=6) who participated in the focus group discussion in May 2009. Despite the substantial budget allocated for administration and logistical support to UCs and UGs, more than one third UC chairpersons stated that the support from the park office was insufficient. Human resource constraints of protected area offices have been suggested as a reason for the difficulty in managing and monitoring the BZ development programme (UNDP, 2004). However, the issue of autonomy to BZMC has been argued by the UC presidents as a main cause of the slow implementation of the BZ management programme and limited effective use of the available fund.

Most of the VDC and DDC representatives opined that BZ activities should be implemented through the DDC and VDCs. However, experience of community forestry programmes suggests that forestry resources management through local political bodies would not be a feasible means of achieving resource conservation objectives (HMG/MOFSC, 1988a). Similarly, experience of the CAMPFIRE programme in Zimbabwe suggests that the distribution of conservation benefits to local communities would be generally problematic through district councils (Roe *et al.*, 2000). These political institutions have often been shown to retain more funds for them than allowed by law, creating resource constraints for community projects (Balint and Mashinya, 2008). Rao, (2003) advised that inadequate mechanisms to ensure benefits from protected areas to local communities would limit their motivation in conservation, and thus rather than direct implementation of the BZ programme by local bodies, a strong mechanism of coordination is preferred.

All UC level respondents and key informants expressed their confidence that implementation of BZ management activities in coordination and integration with VDC and DDC programmes would be a more effective way to address park-people issues than implementing the programme in isolation. The survey data also indicates that a synergy between the BZ institutions and local government institutions would be instrumental in making BZ programme more effective at the site and landscape level. Another study further suggests that coordination and co-operation between BZ institutions and the VDC/DDC will help increase the efficiency of both institutions (UNDP, 2004).

Furthermore, inter-agency collaboration is a very important mechanism in securing resources as well as ensuring the programme's sustainability. The current research findings indicate the need of reformation of existing institutional structures to allow roles for more stakeholders. The representation of the VDC in UC and the representation of tourism entrepreneurs and the NTNC (a national NGO active in the conservation of biodiversity in CNP since early 1980s) in BZMC have been considered essential. The introduction of key stakeholders in the BZMC can help improve BZ governance. An appropriate governance structure will help increase ownership and promote wider recognition of the programme, and ensure its smooth implementation and resource coordination. It will encourage stakeholders to collaborate with each other to achieve common conservation goals while satisfying their own needs. Elsewhere also it is suggested that the governance of landscapes outside protected areas typically demands the coordination or control of activities undertaken by a variety of actors across a wide spectrum of space, society, and economy (Wilkie *et al.*, 2008).

Since institutional barriers remain at the heart of conservation challenges (Myers, 2002; Ried, 2002), a proper governance structure is vital to mobilise wider constituencies for biodiversity conservation (Sandker *et al.*, 2009). However, this research reveals that partnership arrangements for conservation under the BZ management programme appear to be narrowly conceived. Although 109 groups having various interests in CNP were identified (DNPWC/PPP, 1998), most of them have not been included in the existing management and governance structure of the BZ. The government's BZ policy only recognises the Park and local communities as two important stakeholders for the management of BZ area. Accordingly, the BZMC has been designed to consist of park staff and representatives of community groups, and although representatives of the district development committee (DDC) covered by the BZ area are included in the BZMC, so far their participation has been largely symbolic and limited to attending BZMC meetings. It has been argued that DDC representatives are not very keen on attending the meeting of BZDC as they have very little say in the decision making process (UNDP, 2004). With some exceptions, most of the BZ management activities have been implemented in isolation without or with limited coordination with local level institutions such as VDC and DDC and other government line agencies.

The evidence also indicates that BZ institutions have not been fully empowered to assert their roles and mobilise resources. Currently the real power of BZ management is concentrated to a large extent in the hands of park wardens (Heinen & Metha, 2000; Paudyal, 2001). The BZMC largely acts as an advisory body to the warden to mobilise park revenue in the BZ programme. Since the park warden has the authority to dissolve the users committee, most of the BZMC members show their loyalty to the park warden rather than to BZ communities (Paudel *et al.,* 2008). They generally avoid dispute with the warden in order to maintain a smooth flow of funds for their community development activities (personal observation).

Additionally, park policy still denies the involvement of community institutions in the overall management of the protected area (both park and BZ). The Park and its BZ as a 'one management unit' concept suggested by the CNP Management Plan (DNPWC, 2001b) has been limited to the physical/ecological context only, and does not extend to the governance and management contexts as required. The BZ management programme has been basically used as a strategy to 'buy local favour' to further fortress the park. Elsewhere also it was observed that the BZ concept had helped to enable park authorities to expand the Park's jurisdiction over a wider landscape under the guise of a participatory conservation programme (Neumann, 1997). It is ironical that park policy favours the expansion of conservation opportunities beyond the park boundary but does not accept the role of other stakeholders active in the BZ areas. As the country has just started practising an 'incentive based conservation approach' departing from the 'enforcement approach' of the past, it probably might take few more years to appreciate a new 'empowerment approach' in protected area management by the park authorities in Nepal.

The dilemma for authorities is that they both need and fear people's participation (Pretty, 2002). So far, park authorities are ready to redistribute park income rather than to redistribute park resources and management powers with local people. It has not been accepted yet that sharing park management power with local communities will enlarge conservation constituencies leading to ensuring a better park-people relationship. A similar attitude has been observed among community leaders. They advocate the participation of poor, marginalised people and women in programme implementation but not in decision making processes. The results of this research however suggest that by empowering and giving a conservation role to local communities, particularly indigenous people, this would

help improve community goodwill towards park management. Furthermore, it can be argued that "*levelling power relations"* (Whande *et al.,* 2003:14) between and within actors at different levels would help improve the effectiveness of BZ management. A good conservation policy must take into account not only the wellbeing of local communities but also their meaningful participation.

At present, BZ institutions are generally caught between the growing demand for services from the local communities, and the unwillingness of park authorities to devolve the authority and resources necessary to deliver better services at the local level. Critics argue that a BZ management model based on a charitable and compensatory approach may not be sufficient to ensure sustainable management of biodiversity. The measures, which were limited to address subsistence needs rather than strategic needs of the communities, fell short in gaining public support for conservation. There may be a need for more community empowerment in both uses of resources and decision-making processes (Neumann, 1997; Brown, 1998; Colchester, 2000; Heinen, & Metha, 2000; Kellert *et al.,* 2000; Agrawal & Ostrom, 2001; Brechin *et al.,* 2002; Hayes, 2009; Lele *et al.,* 2010). A study suggests that given the opportunity local communities introduce more conservation rules and implement them more effectively than do the protected area agencies, leading to better resource conservation outcomes (Hayes, 2009). Empowrment of local communities improve conservation.

On the contrary, a lack of proper devolution of power will lead to the failure or underperformance of community based resource management approaches (Murphree, 2006). It has been argued that the basic needs approach may show some conservation results in the short term but generally seems less predictable for long term effects (Hough and Sherpa, 1989). Moreover, sharing benefits without any conservation responsibilities would encourage communities to be merely opportunists and passive beneficiaries. In the absence of proper linkages, there is a danger that BZ communities could consider the new funding supply as nothing more than a government handout raising undue expectation without any tangible contribution to park protection (Martin, 1998). Mitchell *et al*. (2005) suggest that protected areas must forge linkages with people based on equity, linked to rights and responsibilities if they are to continue to be important for biodiversity conservation.

The empowerment and inclusion issues of the BZ institutions are also linked to reorganisation of park institutions and reorientation of the park staff. The research results indicate that DNPWC and park level institutions are grossly unprepared to undertake the most promising but challenging conservation initiative of the government. Inadequate capacity at the park level in programme planning, monitoring and fund disbursement has been identified as one of the main constraints for the effective implementation of the BZ management programme. The orientation and motivation of park staff for a participatory approach and for working with the local communities is essential for the successful implementation of a people-oriented conservation programme (Budhathoki, 2006). Elsewhere it was reported that the commitment of park staff towards participatory conservation was vital for the success of community based conservation initiatives (Barrow and Fabricius, 2002; Gurung, 2006).

Since local people are highly positive towards the Park, the success in mobilisation of people for the benefit of CNP largely rests on the attitude and ability of the park staff. Nonetheless, promotion of participatory conservation programmes through naive devolution and decentralisation processes without considering deep-rooted social inequity would further marginalise poor and socially disadvantaged people. Neither conservation nor livelihood goals can be achieved by mere devolution or an administrative off-loading of responsibilities (Hoole and Berkes, 2010). There is a need for significant investment in building up local institutional capacity (Bradshaw, 2003; Swidersk, 2008), as local stakeholders can undertake conservation action effectively only when they have the adequate incentive, capacity and resources (Salasfaky and Wollenberg, 2000). Similarly, effective conservation education activities would be necessary to make an effective link between distribution of park benefits and biodiversity conservation.

The effectiveness of the community based conservation initiatives would be affected by unfavourable policy and institutional environment (Songorwa, 1999; Wells *et al*., 1999; Hughes and Flintan, 2001; Uniyal and Zacharias, 2001; Mahanty, 2002; Singh and Sharma, 2004). Thus, the issue of inclusion, equity and empowerment seems quite prominent for the success of the BZ management programme. Creating an environment for the participation of different actors and stakeholders is fundamental to the success of the BZ management programme. Since existing policy provisions designed to increase participation of women and disadvantaged groups seem insufficient, new provisions are needed to make BZ

institutions more inclusive at all levels. Agrawal and Perrin, (2009) suggest that a "*higher level of inclusion requires significant outreach and openness on the part of the institutions to meet the variable needs of the different social group".*

Although any conservation programme alone cannot address structural problems of the society (Brandon, 1998), at least there should be adequate understanding of the structural issues of exclusion among conservationists while formulating policies and implementing the conservation programmes (Gurung *et al.,* 2008). A proper understanding of trends of political economy, and how these forces may constrain, or enable conservation seems crucial for effective protected area planning and management (Lele *et al.,* 2010). Elsewhere it was suggested that government actions and policy measures, rather than the amount of available resources would make more critical influence on the successful functioning of natural resources management institutions (Agrawal & Perrin, 2009).

6.4 Summary

Findings of this research indicate that the BZ management programme has been well accepted by both local communities and park staff as a best available strategy to reduce park-people conflicts and to achieve the multidimensional objectives of park management. There is an increased awareness among local people that the BZ programme has created opportunities for sharing park benefits as well as improved access to BZ forest resources. Both park staff and community leaders acknowledged that the BZ management programme has significantly helped in changing the park-people relationship from one of conflict to one of cooperation. The recycling of park income to local development helped link 'people' to the management of the park and 'conservation' to broader mainstream development. The BZ management seems effective in expanding partnerships in conservation with broadening conservation constituencies and good conservation governance.

Community forestry and alternative energy projects such as biogas implemented by the programme have helped reduce the dependency of people on critical park resources. The status of BZ forests and biodiversity has improved after the handing over of forests to local communities. Local people feel that the BZ management programme helped empower them and increase their social prestige. In essence, the BZ management programme can make promising impacts on the livelihoods of the BZ communities and biodiversity conservation

of the Park. It can make a conservation programme more "*holistic and real"* (Bajimaya, 2005:31).

The research findings also suggest that there are numerous challenges and shortcomings to make the BZ management programme really effective in addressing complex issues affecting park protection and sustainable biodiversity conservation. BZ benefits are as yet not enough to seriously influence behavioural change among the buffer residents. Most of the BZ institutions are not inclusive and have been largely controlled by higher castes males. Benefit distribution is heavily skewed towards rich and big farmers. Most of the BZ funds are used in rural infrastructure having no or little impact on core park-people issues such as wildlife depredation and dependency on park resources. The inadequate capacity of the government at both park and departmental levels has been hindering the effective implementation of the BZ programme. The BZ institutions generally function under the discretion of the park warden. BZ communities have access to resources but not control over them. In most of the cases, BZ activities have been implemented in isolation and largely depend on the fund available from the park. Yet no effective coordination mechanism exists between park warden, other government agencies and local political bodies to bring synergy to conservation activities.

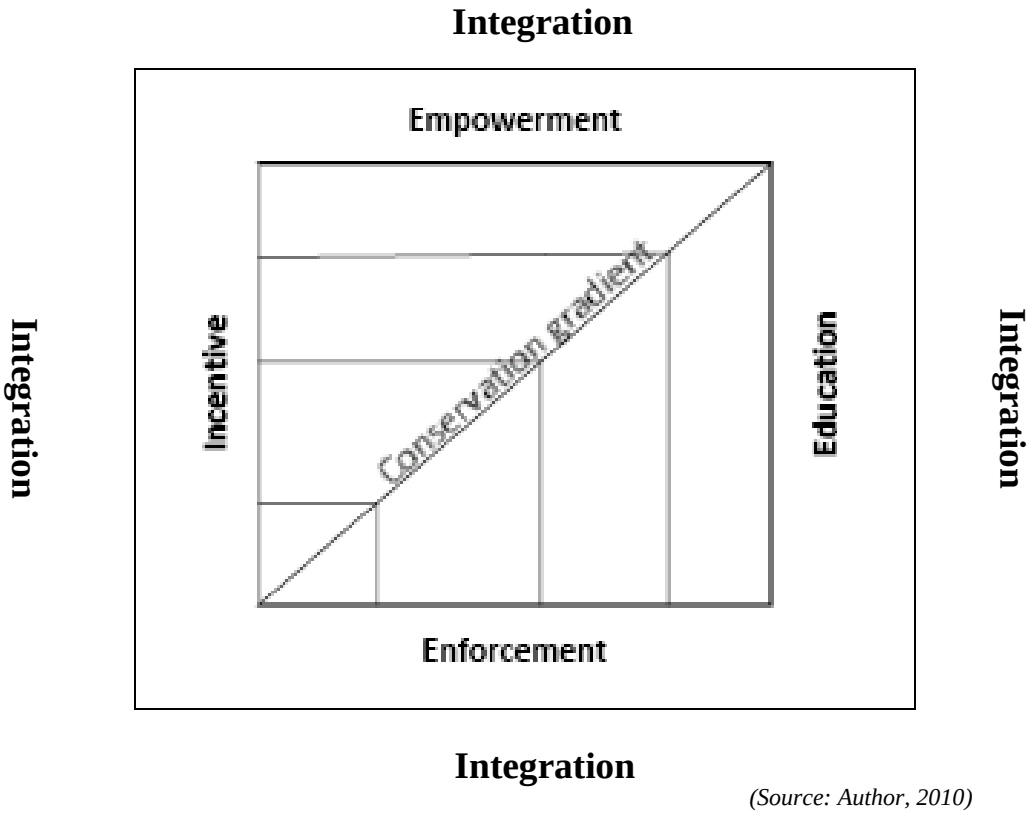
These all lead to arguments that there are inconsistencies between the vision of the BZ management programme and its policies and practices. A pragmatic policy alone is not sufficient to make BZ management programmes successful. This study suggests that a progressive and pro-people conservation policy needs pro-active mechanisms and committed institutions for its successful implementation. For community-based programmes to make headway, inbuilt strategies to improve and enhance the capacity of both the park and community institutions are required.

The BZ programme can only make real conservation and livelihood impacts when it is effectively implemented, and its policies are adequately improved. The success of a BZ policy and management strategy would largely rest on a careful integration of conservation and development priorities of the communities living in the landscape. This research also proposes that 'community empowerment' must be present as a key component of community development if economic support is to make an effective contribution to broaden conservation constituencies for a tangible park-people partnership for biodiversity

conservation. Moreover, judicious links between economic and environmental objectives help turn conservation programmes from a conflicting to a common agenda and from action based on mere legal mandates to a legitimate action supported by all concerned actors and stakeholders.

Furthermore, programmes designed to link communities with conservation through benefit sharing mechanisms will only be successful in creating a landscape of coexistence if economic incentives, institutional empowerment, law enforcement and integration to wider land use planning issues are well integrated in conservation policy and strategy (fig. 6.24). In other words, the level of conservation outcomes of any community-based conservation will be largely determined by the level of integration of five elements - incentive, education, empowerment, enforcement and integration (IEEEI) in its conservation policies and programmes. The BZ management programme currently implemented has some but not all of these elements. In particular, current BZ policy is quite ignorant of the importance of community empowerment and integration of BZ activities into wider land use and development planning for long-term biodiversity conservation.

Figure 6.24: Five key dimensions of successful conservation strategy



(Source: Author, 2010)

These challenges clearly suggest that both management and governance mechanisms need careful realignments to achieve holistic and integrated outcomes from the BZ management programme. It can be argued that a thorough overhaul of current policies and implementation mechanisms are required to improve the effectiveness of the BZ programme and to demonstrate BZ management as a viable conservation governance strategy to expand conservation into areas beyond park boundaries for a greater stability of the Park. The socio-economic and bio-physical situations of a developing country demands that a protected areas management approach should shift from focusing only on the management of protected areas to managing actors and factors which affect protected areas (Ravnborg, 2009). Experts suggest that incentives and institutional arrangements which encourage landscape-wide compatible land uses adjacent to protected areas may be more important for conserving species within protected areas than simply stimulating local economic development to offset community pressure at the park level (Newmark and Hough, 2000). Furthermore, conservation agencies need to focus on internal dynamics, external threats and the interactions between the two while managing protected areas (Luck, 2007). Based on the research findings of the BZ management in CNP, the next chapter will present some practical recommendations for the expansion of social and ecological landscapes for long-term conservation.

CHAPTER VII CONCLUSION AND RECOMMENDATIONS

"With political will and adequate resources, biodiversity loss can be reduced or reversed"

(Butchart *et al*., 2010:3).

This chapter presents the conclusion of the study and provides some practical recommendations useful to improve Buffer Zone (BZ) management policies and practices in particular and wider conservation governance in general.

7.1 Conclusion:

This case study of the BZ management programme in CNP clearly indicates that the current BZ management approach based on park revenue sharing for community development has been successful in developing positive attitudes among local people towards the Park. There is also evidence of improvement in the condition of forests and biodiversity in the BZ and a decrease in pressure inside the Park for basic forestry resources. To some extent, the BZ communities also feel empowered by the BZ management programme. Findings of this research clearly indicate that BZ management programme has the potential to make tangible impacts on conservation, local livelihoods and governance. If issues such as inclusion, equity, empowerment and integration are properly incorporated in the policy and programmes of the BZ management, the strategy adopted in Chitwan could be promoted as a viable model for the sustainable management of protected areas situated in the human dominated landscape. Recent establishment of the Bankey National Park together with its BZ proves that the BZ concept has been fully accepted by the government of Nepal as a viable strategy for long-term park management and sustainable biodiversity conservation.

Although the chances of achieving conservation objectives through the BZ management programme seem quite promising, there are also challenges to turn the 'positive attitude' of the local people into 'positive actions' necessary for the long-term conservation of biodiversity and park protection. The existing BZ management approach is suitable to improve the attitude and actions of local people 'dependent on' and 'affected by' the protected areas. However, the BZ management activities seem insufficient to address conservation threats, which are not directly linked to the subsistence livelihood practices of

the BZ communities and originating far from the park boundaries. Issues such as poaching[62] and pollution by industries and urban sprawls outside BZ areas would need additional mechanisms to address them effectively.

Strong law enforcement and wider collaboration would be required to control the poaching of endangered animals like rhinos and tigers, activities largely driven by greed rather than subsistence needs and under the influence of outsiders far away from the BZ. It is generally believed that in the short run anti poaching activities are more effective in protecting wild animals than community development activities (Martin, 1998), as community infrastructure projects do not change the incentives necessary for conservation (Shyamsundar *et al*., 2005). A study in Uganda also suggests that generally people choose to obey rather than violate the laws when the park laws are strictly enforced (Mugisha, 2002). Rule enforcement is vital to achieve long-term improvement of forest conditions (Gibson *et al.,* 2005) whether it is by communities or by government agencies.

Conservation practitioners should recognise the limitations of the BZ concept and try to use additional instruments to make the programme more effective in achieving conservation and development objectives. Incentives and benefits from the Park and BZs to the local residents will not be sufficient to translate the 'positive feelings' of local people into positive conservation practices. Their positive action can be ensured only when larger socio-economic issues are addressed by influencing development policies and programmes at the various levels of the government. Besides incentives and alternatives, the integration of BZ activities with regional land use planning and economic development programmes would be necessary to achieve tangible and long term conservation and socio-economic outcomes from the BZ management programme. There seems to be a need for both protective and participatory approaches to ensure conservation and livelihood outcomes and reduce conservation threats. Community based conservation can complement enforcement but cannot replace it (Roe *et al.,* 2000) and the role of central government and the need for strictly protected areas will always remain vital to sustainable conservation (Lockwood and Kothari, 2006).

[62] In Nepali context poaching generally denotes killing of endangered and protected species mainly for commercial purpose.

It can be fairly concluded that existing incentives and institutional arrangements are necessary but not sufficient to address the present and potential challenges of CNP in particular and protected area management in Nepal in general. Protected areas will be successful in achieving conservation objectives only when the key five elements namely incentive, empowerment, education, enforcement and integration (IEEEI) are properly included in their management strategy. Moreover, any conservation strategy will always be incomplete where any of these five elements is lacking. In the absence of any one of these, any conservation programme will have to compromise some of its social or conservation outcomes resulting ultimately in an unsustainable situation. Incentive is central, but empowerment is necessary to make the conservation incentives effective and equitable. Similarly, education is prerequisite to make people understand about the importance of conservation whereas the need for law enforcement will remain critical to minimise activities detrimental to biodiversity conservation.

Conservation based on the IEEEI strategy can be pursued only through an appropriate policy and governance mechanism free from bureaucratic entrapment. The restructuring of the park institution, re-orientation of park staff, empowerment of local communities and redistribution of authorities within and beyond park organisations would be vital for the effective implementation of this strategy.

However, the bottom-line of any change in conservation governance should be the empowerment of local communities by devolving conservation authority to local levels and making local people more accountable for their rights and responsibilities. Decentralisation and empowerment must be more than token (Stevens, 1997) and greater public participation in conservation should not be a privilege granted at the discretion of decision-makers (HMG/MOFSC, 2002). The rights, roles, responsibilities and resources (4Rs) should be bundled together while empowering the people. It has been evident that true partnership between park and park-adjoining communities for biodiversity cannot be achieved without having strong (self-reliant, self-governing and self-functioning) social organization.

Expansion of conservation constituencies and empowering local communities are crucial to ensure the success of conservation programmes. Thus, the future of conservation in Nepal in the changing socio-political context of the country depends on how quickly and smoothly the institutional and policy reforms will take place to make conservation more inclusive and

empowering, how effectively the conservation objective will be integrated into broader development plans and programmes, and how much protected areas could contribute to poverty alleviation. Integrated conservation and development programmes such as the BZ management programme can only achieve its integrated conservation objectives when they are also supported by appropriate integrated conservation and development 'policies' and 'institutional' initiatives (Barber *et al*., 2005).There is enough opportunity to further strengthen and expand conservation endeavours in Nepal if conservation programmes based on the IEEEI strategy is meaningfully applied. By adopting the IEEIE strategy, Nepal can not only achieve it long-term biodiversity conservation objectives but also could provide a viable conservation model applicable to many developing countries.

7.2 Recommendations:

Based on the research findings and the conclusion of the study, the following sections will provide some important recommendations for effective management of the BZ management programme and wider conservation governance issues of Nepal.

7.2.1 Inclusion and empowerment of BZ institutions:

The BZ management programme has been successful in establishing a network of community institutions and in mobilising a large number of local communities in conservation and community development activities. However, there is a need to improve the governance of these institutions by making them more inclusive and empowered. Since the BZMC is the main community institution responsible for mobilising park resources for BZ management, proper representation of different sections of the society would be critical to ensure equitable distribution of park benefits among communities and thereby increasing their motivation in long term park protection and biodiversity conservation. It is recommended to revise existing BZ regulation and guidelines to ensure representation of women and most park dependent communities such as *Bote, Majhi, Mushehar* and *Chepangs* and others in the BZMC and UCs.

Equitable representation cannot alone resolve the problems of exclusion unless those who represent can influence policy decisions through direct and active participation (UNDP, 2009). Communities' access to the BZ management decision making process can be improved by devolving and decentralising authorities and responsibilities to the community

institutions at appropriate levels based on the principle of subsidiarity. Empowering people is a primary path to ensuring biodiversity conservation and equity in conservation benefits sharing.

In the context of BZ management, the empowerment issue should not be limited to empowerment of community institutions only. The devolution and decentralisation of management authorities within and between the different layers of the government institutions would also be equally vital to implement a BZ programme smoothly. The existing BZ policies promote highly bureaucratic and centralised decision-making processes. Key powers such as approval of BZ funds and management plans still lie at the ministry level. Similarly, at the park level all powers related to BZ management are vested in the park warden. The heavy concentration of functional power in BZ management in the hands of one member of staff has been making the BZ programme extremely difficult to manage and hindering the smooth flow of conservation benefits to local communities. One UC chairperson eloquently describes the problem in this way: "*we have to go to the Park office many times to get a signature of the Chief Warden. No other staff will take any responsibility, saying they have no authority. If you have no other problem to face, better take the responsibility of UC president"*. It is recommended that the fund allocation and plan approval authorities should be devolved to the Park and BZMC levels. Similarly, the park office should give enough roles to the assistant wardens responsible for the management of different sectors[63] and make them also responsible for the coordination of the BZ management programme in their respective sectors. Furthermore, improvement in existing cumbersome BZ management practices requires policy as well as institutional re-structuring.

7.2.2 Institutional restructuring and policy reform:

Institutional restructuring and policy reforms seem fundamental to ensure inclusiveness and empowerment of BZ communities in the management of BZ programmes, and to improve programme effectiveness and equity in benefit sharing. It is recommended to expand the existing BZMC by incorporating community representatives and important stakeholders such as representatives of local tourism entrepreneurs, conservation NGO such as NTNC, and Park protection unit (table 7.1). Expansion of these agencies would help enhance

[63] Chitwan National Park has been divided into four sectors namely Sauraha Sector, Kasara Sector, Amaltari Sector, and Bagahi Sector each headed by an Assistant Warden.

coordination and synergy in programme implementation, and also ensure ownership of the programme.

Table 7.1: Proposed composition of BZMC

Existing BZMC	No	Proposed BZMC	No
Park Warden	1	Park Warden	1
UC Presidents	21	UC Presidents	21
DDC representatives of the districts covered by the BZ	4	DDC representatives of the districts covered by the BZ	4
		Women representative	1
		Representatives of the most park dependent communities/marginalised groups	1 1
		Representative of tourism entrepreneurs or hotels	
		Representative of the Park Protection unit (army)	1
		Representative of NGOs active in conservation activities in the park and BZ	1
Total	26		31

(Source: Author, 2010)

The effectiveness of the programme can be further enhanced by decentralising BZ management responsibilities to the sector level. In each management sector, a BZMC sub-committee can be formed for the planning and implementation of BZ activities at the sector level. Moreover, considering the scale of operation and vastness of the area, strengthening of park institutions at the sector level will be crucial for the effective implementation of BZ programme in Chitwan.

Similarly, representatives of women, ethnic and marginalised groups and local VDCs should be included to make User Committees (UCs) adequately inclusive and representational. Beyond this, conservation agencies at the Park and central levels should also be restructured for the effective implementation of the BZ programme. It is recommended to establish a fully fledged BZ Management Division at the central level and a BZ Management Unit within the park office to facilitate BZ activities at the centre and field levels respectively. Since the BZ programme has to deal with complex and multidimensional issues, the government units responsible for the management of the BZ should have a multi-disciplinary team properly trained in social and biological sciences. A fully empowered office with well-trained staff can properly mobilise local communities to

implement the BZ programme and work effectively with other agencies to integrate it into wider resource use and development planning. Furthermore, expanding conservation space would not be possible without expanding institutional mandates and networks.

Since conservation issues are complex and multidimensional, a multi stakeholder institutional approach would be required. Instead of trying to adopt technical fixes, new policy and institutional arrangements need to address the fundamental inequalities in power, legitimacy and influence of the various actors (Paudel *et al*., 2008). Some form of Conservation Board at the Park level and a Nature Conservation Authority at the centre, with fair representation of government, private sector, local communities, district authorities and nongovernmental conservation agencies should be explored to broaden conservation constituencies. These organisations would be broad-based agencies with adequate autonomy and a democratic working culture.

7.2.3 Identification and implementation of effective programme:

Identification of the intensity of park-people interactions and the activities effective to address park-people interface issues are vital to achieve the desired objectives of the BZ management programme. Based on the level of park-people interactions, a matrix could be developed to design activities which are most effective to help reduce impacts of park on people and dependency of people on park resources (table 7.2).

Since the BZ society is highly diverse, the socio-economic dimension should not be neglected while planning and implementing BZ management programmes. For example, in order to reduce the livelihood impacts imposed by the park, most of the farmers prefer wildlife damage control activities and compensation, whereas poor and fishing communities who possess no or little farmland demand better access to park resources. Although the Park affects both communities, their survival strategies are clearly different.

Table 7.2: Most effective Buffer Zone management activities in relation to park-people interaction

Park-people interaction	Low dependent area	Medium dependent area	High dependent area
Low affected area	➢ Income generation activities ➢ Compensation	➢ Alternative energy programme e.g biogas ➢ Income generation activities ➢ Compensation	➢ Alternative resource development including community forestry ➢ Alternative energy programme e.g biogas ➢ Income generation activities ➢ Compensation
Medium affected area	➢ Compensation ➢ Income generation activities	➢ Wildlife damage control and compensation ➢ Alternative energy programme e.g biogas ➢ Alternative farming and improved livestock management ➢ Income generation activities	➢ Compensation ➢ Alternative resource development including community forestry ➢ Alternative energy programme e.g biogas ➢ Alternative farming and improved livestock management ➢ Income generation activities
High affected area	➢ Wildlife damage control and compensation ➢ Alternative farming ➢ Income generation activities ➢ Ecotourism	➢ Wildlife damage control and compensation ➢ Alternative energy programme e.g biogas ➢ Alternative farming and improved livestock management ➢ Income generation activities ➢ Ecotourism	➢ Wildlife damage control and compensation ➢ Alternative resource development including community forestry ➢ Alternative energy programme e.g biogas ➢ Alternative farming and improved livestock management ➢ Income generation activities ➢ Ecotourism

(Source: Author, 2010)

The above park-people interface matrix can also be used to identify most priority areas for the mobilisation of the BZ fund and implementation of BZ management activities. By assigning 1, 2 and 3 scores to low, medium and high levels of interactions respectively, an

interface score can be calculated. Depending upon the intensity of park impacts and levels of dependency of local people on park resources, the different BZ areas might be assigned scores between 1 and 9 (table 7.3). The areas receiving a higher score would suggest a high intensity of park-people conflicts and thus can be identified as a first priority area for interventions.

Table 7.3: Park-people interface score matrix

Impact level ↑	High	3	6	9
	Medium	2	4	6
	Low	1	2	3
		Low	Medium	High
	Dependence level →			

(Score: Low=1, Medium=2, High=3). *(Source: Author, 2010)*

Based on the scores, the priority areas for the implementation of BZ management activities would be in the following order:

Priority	Buffer Zone area	Score
I	Highly affected as well as highly dependent area	9
II	Medium affected but highly dependent area and, medium dependent but highly affected area	6
III	Medium affected as well as medium dependent area	4
IV	Low affected but highly dependent area and, highly affected but low dependent area	3
V	Medium affected but low dependent area and, low affected but medium dependent area	2
IV	Low affected as well as low dependent area	1

(Source: Author, 2010)

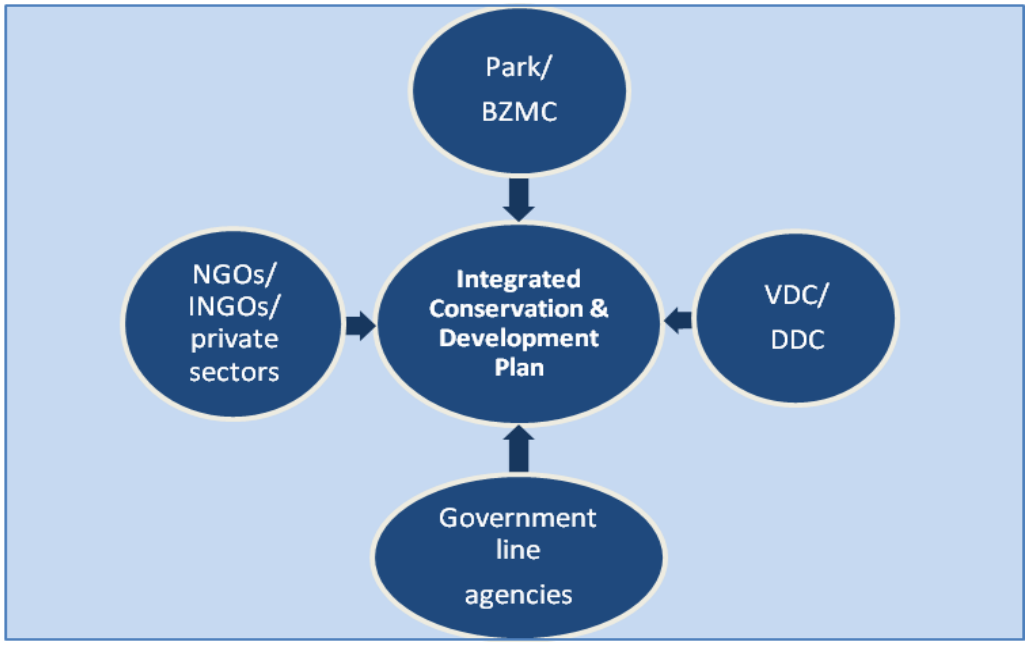
7.2.4 Integration of BZ programme in wider development plans:

The integration of the BZ programme into wider socio-economic planning is necessary since many conservation problems transcend BZ boundaries and fall beyond the jurisdictions of the Park authorities. Mainstreaming biodiversity into other economic sectors is critical to deal with the drivers of biodiversity loss (MEA, 2005b). The limited incentives and benefits which the Park can provide to local communities would not be sufficient to

change communities' behaviours crucial to long-term biodiversity conservation. Success of the BZ programme thus largely depends on the capacity of the Park to influence other development agencies and their actions in the Park and BZ areas.

The Park office together with the BZMC should engage actively in district and village level development planning to leverage more resource in the development of BZ areas as well as to prevent development projects detrimental to long-term biodiversity conservation. Similarly, the integration of biodiversity objectives into other economic sectors can be possible only when the Park and its BZ are managed by embracing the spirit of managing protected areas not in isolation but as networks or landscapes. The lasting impact of the integration of the BZ management programmes with broader development and inter-sectoral planning can be achieved when it occurs at a very local level. For this, the Park and BZMC can work together with the DDCs and VDCs to develop an integrated development and conservation plan at the UC level in which all agencies working in the area will earmark their resources and will follow the plan while implementing their activities (fig. 7.1). This process can be up scaled to prepare similar plans for whole BZ areas.

Figure 7.1: Integrated area development plan

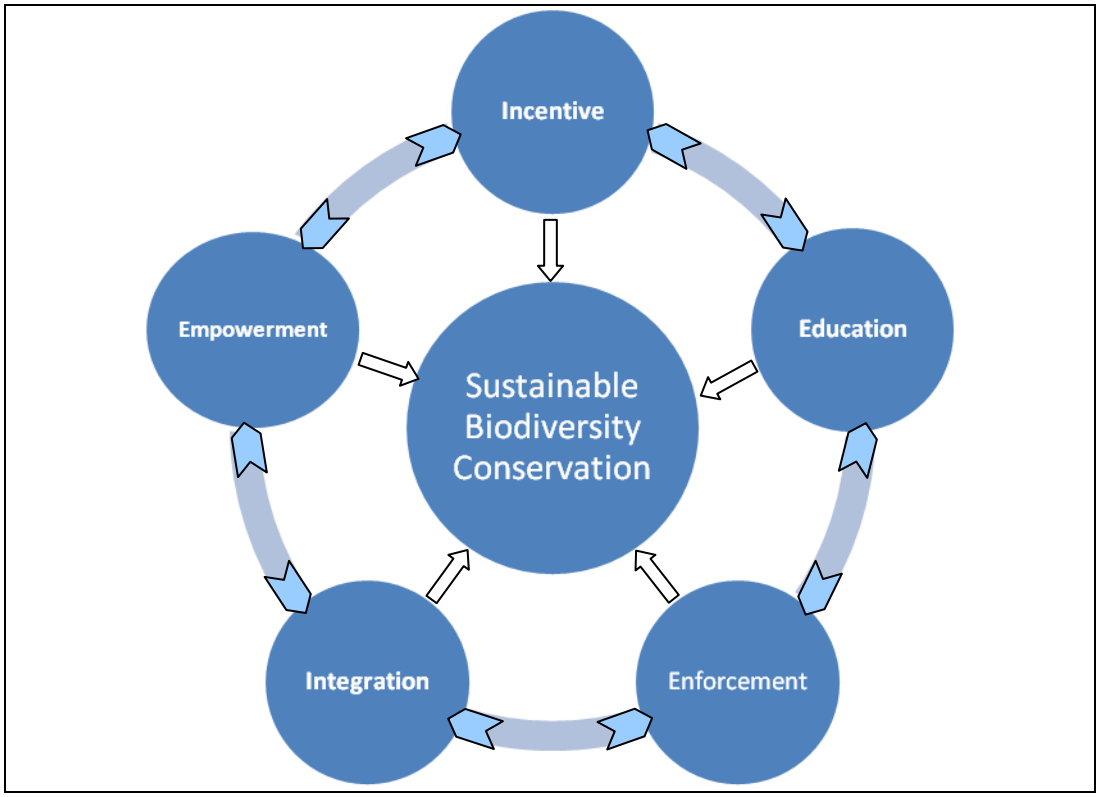


(Source: Author, 2010)

In summary, it can be recommended that any park management strategy seeking to make tangible impacts on conservation, livelihoods, and governance should have five elements

viz. incentive, empowerment, education, integration and enforcement, and appropriate policy and institutional frameworks to pursue them in an integrated way (fig.7.2).

Figure 7.2: Sustainable biodiversity conservation model for Nepal



(Source: Author, 2010)

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ANNEXES

ANNEX: 1

Protected Areas of Nepal as of 2009

S. No	Name of the Protected Areas	Year of designation	Area (Sq Km)	Remarks
	National Parks			
1.	Chitwan National Park	1973	932	Inscribed as World Heritage Site in 1984)
2.	Langtang National Park	1976	1710	
3.	Rara National Park	1976	106	
4.	Sagarmatha National Park	1976	1148	Inscribed as World Heritage Site in 1979)
5.	Shey-phoksundo National Park	1984	3555	
6.	Khaptad National Park	1984	225	
7.	Bardia National Park	1988	968	From 1969-1976 – Hunting Reserve, 1976- 88- Wildlife Reserve, 1988 – National Park
8.	Makalu-Barun National Park	1991	1500	
9.	Shivapuri-Nagarjun National Park	2002	159	
	Total		**10303**	
	Wildlife Reserves			
1.	Suklaphanta Wildlife Reserve	1976	305	
2.	Koshi Tappu Wildlife Reserve	1976	175	Decleared as Ramsar Site in 1987
3.	Parsa Wildlife Reserve	1984	499	
	Total		**979**	
	Hunting Reserve			
1.	Dhorpatan Hunting Reserve	1987	1325	
	Total		**1325**	
	Conservation Area			
1.	Annapurna Conservation Area	1992	7629	ACAP – project stared in 1986 and in 1992 declared as Conservation Area
2.	Kanchanjunga Conservation Area	1997	2035	Kanchanjunga – project started in 1998, and in 1997 declared as Conservation Area

3.	Manasulu Conservation Area	1998	1663	Manaslu – project started in 1997 and in 1999 declared as Conservation Area
	Total		**11327**	
	Buffer Zones			
1.	Chitwan National Park	1996	750	
2.	Bardia National Park	1996	328	
3.	Langtang National Park	1998	420	
4.	Sheyphoksundo National Park	1998	1349	
5.	Makalu Barun National Park	1999	830	
6.	Sagarmatha National Park	2002	275	
7.	Suklaphanta Wildlife Reserve	2004	243.5	
8.	Koshi Tappu Wildlife Reserve	2004	173	
9.	Parsa Wildlife Reserve	2005	298.17	
10.	Rara National Park	2006	198	
11.	Khaptad National Park	2006	216	
	Total		**5079.67**	
	Grand Total		**29013.67**	

(Source: DNPWC, 2009; Gurung, 2006)

ANNEX: 2

Major Acts, Regulations and Guidelines Related to Biodiversity Conservation in Nepal

Acts	
1.	Aquatic Animals Protection Act (1961)
2.	National Parks and Wildlife Conservation Act (1973)
3.	Plant Protection Act (1973)
4.	Tourism Act (1977)
5.	Soil and Watershed Conservation Act (1982)
6.	King Mahendra Trust for Nature Conservation Act (1983), amended as National Trust for Nature Conservation Act (2007)
7.	Seed Act (1989)
8.	Pesticide Act (1992)
9.	Forest Act (1993)
10.	Environment Protection Act (1996)
11.	Livestock Health and Livestock Service Act (1998)
12.	Water Resources Act (1993)
13.	Local Self-Governance Act (1999)
Regulations	
1.	National Parks and Wildlife Conservation Regulations (1974)
2.	Royal Chitwan National Park Regulations (1974)
3.	Himalayan National Parks Regulations (1979)
4.	Royal Bardia National Park Regulations (1995)
5.	Forest Regulations (1995)
6.	Environment Protection Regulations (1997)
7.	Buffer Zone Regulations (1996)
8	Conservation Area Governmental Management Regulation, (2000)
9.	Conservation Area Management Regulation (1997)
10.	Kanchenjungha Conservation Area Management Regulation (2007)
Guidelines and Manuals	
1.	Community Forestry Guidelines (2002)
2.	Buffer Zone Management Guidelines (1999)
3.	Leasehold Forestry Guidelines (2002)
4.	Collaborative Forest Management Guidelines (2004)
5.	Environment Impact Assessment Review Guidelines (2002)
6.	Initial Environment Examination Manual, (2004)
7	Biosafely Guidelines, (2005)

(Source: Adopted from GON/MOFSC, 2009).

ANNEX: 3

Distribution of Protected Sites and Altitudinal and Phytogeographic Regions

Highlands–West	**Area (core and BZ) (Sq Km)**	**Highlands–Centre**	**Area (core and BZ) (Sq Km)**	**Highlands–East**	**Area (core and BZ) (Sq Km)**	**Total Area (Sq Km)**
Shey-Phoksundo National Park	4904	Annapurna Conservation Area	7629	Sagarmatha NP	1423	
		Manaslu Conservation Area	1663	Kanchenjunga Conservation Area	2035	
		Langtang National Park	2130	Makalu Barun National Park	2330	
Sub total	4904		11422		5788	22114
Mid-hill West		**Mid - hill Centre**		**Mid- hill East**		
Khaptad National Park	441	Shivapuri – Nagarjun National Park	159			
Rara National Park[64]	304					
Dhorpatan Hunting Reserve[65]	1325					
Sub total	2070		159		-	2214
Tarai and Siwaliks–West		**Tarai and Siwaliks–Centre**		**Tarai and Siwaliks–East**		
Bardia National Park	1296	Chitwan National Park	1682	Koshi Tappu Wildlife Reserve	348	
Suklaphanta Wildlife Reserve	548.5	Parsa Wildlife Reserve	797.17			
Sub total	1844.5		2479.17		348	4671.67
Grand total	**8818.5**		**14060.17**			**28999.67**

(Source: Adopted from GON/MOFSC, 2009; DNPWC,2009).

[64] Some report includes the park in high mountain zone.
[65] Same as above.

ANNEX: 4

List of PAs in the Proposed Federal States of Nepal

S.No	Name of the proposed state	Name of the PAs	No of PAs	Remarks
1	Khapad	Khapad National Park Shuklaphanta Wildlife Reserve	2	
2	Lumbini – Adwadh – Thaurwan	Bardia National Park	1	
3	Karnali	Rara National Park	1	Part of Shey Phoksundo National Park may fall in this state
4	Jadan	Shey Phoksundo National Park	1	
5	Magarat	Dhorpatan Hunting Reserve	1	
6	Tamuwan	Annapurna Conservation Area Manaslu Conservation Area	2	
7	Narayani Region	Chitwan National Park	1	
8	Tamsaling	Langtang National Park	1	Part of Manaslu Conservation Area may fall in this state
9	Newa	Shivpuri – Nagarjun National Park	1	
10	Mithila, Bhojpura and Koch Madhes	Parsa Wildlife Reserve, Koshi Tappu Wildlife Reserve	2	
11	Sunkoshi		0	No PAs in this state
12	Sherpa	Sagarmatha National Park Makalu Barun National Park	2	
13	Kirata		0	No PAs in this state
14	Limbuwan	Kanchenjunga Conservation Area	1	
Total			16	

(Source: Author, 2010)

ANNEX: 5

Questionnaire Designed for Users Committee (UC) Level Survey

A. General information:

1. Name of the VDC/Municipality:
2. No of wards:
3. Name of the UC:
4. Year of UC formation:
5. No of UC members:
6. No of women members in the UC:
7. No of UC members from indigenous ethnic groups (*Tharu, Bote, Mushers* etc):
8. No of UC members from ethnic and disadvantaged group (*Tamang, Magar, Gurung, Damai, Kami* etc):

B. UC functioning, programme planning and management:

1. Do you have fixed date for UC meeting?

2. Do you fix meeting agendas and circulate to the members well in time?

3. Do everybody get adequate opportunity to express their views?

4. Do you give women members a special priority to express their views?

5. Please mention four main agendas frequently occurred in the meetings
   a)
   b)
   c)

6. How do you prepare your annual programme?

7. Does park fund priority activities selected by the UC?
   - ❑ Always
   - ❑ Sometimes

- ❑ Never

8. On an average, how often do you visit to park office?

9. What are the main reasons of park office visit?
   a.
   b.
   c.
   d.

10. On an average, how often park authority do visit UC office?

11. How many times the following park staff visit to UC annually?
    - ❑ Chief warden
    - ❑ Warden
    - ❑ Rangers
    - ❑ Game scouts
    - ❑ Project staff

12. To whom do you contact? (1 – most frequently, 2 – occasionally, 3- rarely, 4-never)
    - ❑ Chief warden
    - ❑ Warden
    - ❑ Rangers
    - ❑ Game scouts
    - ❑ Administrative staff
    - ❑ Project staff
    - ❑ Mention if any

13. Do you get sufficient support /facilitation from park/project staff?
    - ❑ Sufficient
    - ❑ Insufficient
    - ❑ Do not get any support

14. Who usually does monitoring and evaluation of the programme?

15. Have you had opportunity to read BZ Regulations and Guidelines?
    - ❑ Thoroughly
    - ❑ Simple review
    - ❑ Not read yet

16. Do you think existing BZ boundary is appropriate/adequate?

17. Are you satisfied with the size of the UC based on political boundary?

If not satisfied what are the reasons:
a)
b)
c)

C. Financial status:

1. Please list down the name of agencies, which support UC activities:
a)
b)
c)
d)
e)
f)

D. Linkage between UC and VDC programme:

1. Do you invite VDC/DDC representatives in UC meetings?

2. Does VDC invite UC representative in their annual planning meetings?

3. Do you get any support (fund) from VDC in UC activities?

4. Do you think UC programmes have been reflected/incorporated in VDC programme and vice versa?

5. In your opinion, what is the general assessment of VDC on UC activities?

6. Did you observe any overlap in the jurisdictions and authorities of UC and VDC after the enactment of the Local Self Governance Act? If yes, please specify
a)
b)
c)

7. Have you ever noticed any overlap and competitions between UC and VDC in programme implementation?

8. Do you have any conflict over natural resources use and management with VDC? If yes, please specify the name of the resources

9. In your view, how could VDC and UC work without any overlap and competitions?
a)
b)
c)
d)

10. How frequently do you attend BZDC meeting?

11. Do you receive meeting agenda of BZDC in advance?

12. Do you get adequate opportunity to express your views in the BZDC meeting?

13. On an average, how much time do you spend in a month for UC work?

14. What type of trainings do you think necessary to enhance UC management capacity?
a)
b)
c)
15. Please list down UC/UG representatives who got elected in the last local (VDC/DDC) election:

No	Position	Remarks

16. How did you become the chairperson of this committee?

17. Do you also hold any political post?

Political parties	Position	Year	Remarks
Nepali congress			
UML			
Nepali congress (D)			
RPP			
Any others			

18. Did you work as a VDC/DDC representative in last 10 year?

Name of the Position Year

19. Are you affiliated with any NGO? If yes, please name of the NGO-……..

20. What type of trainings/orientations did you receive so far?
a)
b)

c)

21. Are you more aware on the importance of conservation of biodiversity now?

22. Did your involvement in UC improve your leadership capacity and quality?

23. Do you feel now more comfortable to handle people and conflicts?

24. What types of conflicts do you face? (1 – regularly, 2-occasionaly, 3 –rarely, 4- never)

25. Did your belief in participatory and democratic norms and values strengthened?

26. Do you feel, your social status has been increased?

27. Was there any change in UC leadership?

- Yes
- No
- Attempted

If yes/attempted what was the reason…….

28. To which age group do you belong?

- Less than 20
- 20 –40 years
- 41 – 60 years
- More than 60

29. To which ethnic group do you belong?

- Brahmin/Chettri/
- Newar
- Gurung/Tamang/Magar
- Tharu/Bote/Musher
- Damai/kami/Sarki

30. Which category best describes your land holding size? (1 bigha = 0.68 ha approx.)

- Landless
- Less than 1 bigha
- 1-3 bigha
- More than 3 bigha

31. What is the highest level of education you have attainted?

No Schooling	Primary (1-5)	Lower Secondary (6-7)	Secondary (8-10)	S.L.C. & Equivalent	Certificate Level & Equivalent	Graduate	Post Graduate	Others	Level Not Stated

- Illiterate
- Can just read and write (Just literate)
- Primary

- School Leaving Certificate (SLC)
- Graduate

E. Information on forestry resources:

1. Please provide the following information if you have forest area?

Name of the forests	Location	Approx area (ha)	Management regime (Gvt/CF)	Condition of the forests	Important wildlife	Remarks

2. Status of Community forests

Name	Location	Approx area (ha)	User hh	Status			Condition of the forests	Remarks
				Handed over (year)	On the process of handover	Under Ad hoc management		

3. Condition of forests after the initiation of BZ programme-

- Better
- No change
- Deteriorating
- No idea

What is the interrelationship between UC and FUGC in forest management and benefit distribution?

F. Park-people interface:

1. What are the major issues of park-people conflicts in your area?

a)
b)
c)
c)

2. What are the five greatest threats to long-term survival of the park?

a)
b)
c)
d)
e)

3. Do you agree the park has been well managed?

- ❑ Fully agree
- ❑ Partially agree
- ❑ No idea
- ❑ Disagree

4. Do you agree Buffer Zone programme would help better biodiversity conservation in the park and BZ?

5. Do you agree Buffer Zone programme would help socio economic development of the BZ communities?

6. Please lists out main positive aspects of BZ policy and programme

a)
b)
c)
d)
e) don't know

7. What are the major benefits local communities have received from the BZ progarmme?

a)
b)
c)
d)
f) do not know

8. Have you noticed any change in People's attitude towards Park after the implementation of BZ programme.

- ❑ Positive
- ❑ No change
- ❑ Negative
- ❑ No idea

9. In your view, after the implementation of BZ programme in your area:

a) Poaching incidents have been:

- ❑ Decreased
- ❑ Increased
- ❑ No change
- ❑ No idea

b) Grazing inside the park has been:

- ❑ Decreased,
- ❑ Increased
- ❑ No change
- ❑ No idea

c) Firewood collection from the park has been:
- ❑ Decreased,
- ❑ Increased
- ❑ No change
- ❑ No idea

d) Crop damage by wildlife has been
- ❑ Decreased
- ❑ Increased
- ❑ No change
- ❑ No idea

e) The loss of life and property by wild animals has been:
- ❑ Decreased
- ❑ Increased
- ❑ No change
- ❑ No idea

f) Relationship with protection staff
- ❑ Improved
- ❑ Worsened than before
- ❑ No change
- ❑ No idea

10. Have you experienced any positive change in the attitude of park staff towards local people?
- ❑ A lot
- ❑ Little
- ❑ No change
- ❑ Negative
- ❑ No idea

11. Do you think present BZ policy sufficiently empowers local communities to implement BZ programme

12. Who have been benefiting most from BZ development programme? (rank from 1- 5, 1 is the most benefited one and 5 the least)

13. Who should be the primary target of BZ programme? (rank for 1 to 4, 1 as the first priority and 4 as the least)

14. Please specify, which activity should get main priority (rank from 1- 5, Higher number means low priority)

15. In your opinion, park-people relationship has been improved after the implementation of the BZ programme?

- ❑ Greatly improved
- ❑ Little bit improved
- ❑ No change
- ❑ Worsened
- ❑ No idea

16. Please specify few examples of public support in conservation if any

a)
b)
c)

17. Please suggest what percentage of the park income should be allocated for BZ ?

18. Are you satisfied with the existing criteria of allocating park revenue to UCs?

19. Please suggest your criteria of allocating park revenue if any

a)
b)
c)

20. Do you support a portion of BZ fund should be allocated to park management activities?

- ❑ Yes
- ❑ No
- ❑ No idea

If yes please specify (%) ……

21. Do you support a portion of park income should go to 'Central BZ Development Fund' so that it could be channelised to other low-income park

- ❑ Yes
- ❑ No
- ❑ No idea

If please specify (%)……

22. Do you think existing Park institution is capable to address the growing challenges of long-term management of Royal Chitwan National Park?

23. Do you think there should be some institutional restructuring of the park for the better implementation of BZ progarmme?

24. Which of the following institutions would be appropriate for the better management of BZ programme

- ❑ Park office
- ❑ BZDC with more autonomy and power
- ❑ A separate Buffer Zone Development Office
- ❑ DFO,
- ❑ DDC/VDC
- ❑ Through NGO such as KMTNC
- ❑ Other suggestion if any

25. Do you agree that the role of women and indigenous people in conservation and development activities is very important?

- ❑ Fully agree
- ❑ Partially agree
- ❑ Do not agree
- ❑ No idea

26. Do you see the necessity of adequate representation of women and indigenous communities in the UC and BZDC?

- ❑ Yes
- ❑ No
- ❑ No idea

If yes, how could their participation be ensured/increased?

a)

b)

c)

27. Do you think UC and BZDC should be empowered more for better management of BZ?

28. Do you think BZDC should also have say (involvement) in park management?

29. Do you think present composition of BZDC is sufficient for effective management of Buffer Zone?

- ❑ Sufficient
- ❑ Not sufficient
- ❑ No idea

30. If not sufficient, who other should be included in the Buffer Zone Development Committee

- ❑ More representatives from DDC
- ❑ Major NGO representatives
- ❑ Tourism entrepreneurs or hotel representatives
- ❑ DFO
- ❑ All of them
- ❑ Any others as you see appropriate

31. What is your view about the current size of the BZDC?

96. In your opinion, what would be an appropriate size of the BZDC? Please specify the number

32. Are you satisfied with existing UG and UC formation processes?

33. Do you believe addition of VDC representative in the UC will help better functioning of UC?

34. Do you think, the formation of male and female UGs at the settlement level is necessary for better management of Buffer Zone programme?

35. In your opinion, community saving scheme is necessary in Buffer Zone programme?

36. Do you think, community saving scheme should be properly institutilised in the Buffer Zone programme to develop financial sustainability of the UC and UGs?

37. Do you agree existing Park staff has capacity to implement BZ progaramme effectively?

38. In your experience, what are the priority activities of park authority in the BZ ? (list down from most to the least)
a)
b)
c)
d)
e)

39. What should park office improve in their management for the better implementation of Buffer Zone programme? (list down from most to the least)
a)
b)
c)

40. What changes would you recommend in the park and BZ policies for the better role and responsibilities of the BZ communities? (list down from most to the least)
a)
b)
c)
d)

41. In the last 6 years, what are the significant achievements of BZ programme towards resolving park-people conflicts? (list down from most to the least)
a)
b)
c)
d)

42. Please list down the most successful activities, which you think have been proved effective in resolving park-people conflicts? (list down from most to the least)
a)

b)
c)
d)

43. What are the major impacts of BZ programme in biodiversity conservation (both inside the park and BZ)? (list down from most to the least)
a)
b)
c)
d)

Thank you very much
Name of the Interviewer:
Date:
Time:
Location:

Note: i) More or less similar questionnaires were administered to UG chairpersons

ii) Questionnair for household level survey is not included here and can be available upon request.

ANNEX: 6

Format for the Collection of Users Committee (UC) Level Data

Name of the UC: ……

A. General information:

1. No of households:

2. Total population:

   Male:
   Female:
   Indigeneous:

3. No of UGs :
   Male:…..
   Female:…..
   Mixed:….

4. No of households in UGs:

B. UC functioning, programme planning and management:

1. No of UC meeting held since its formation: ……..

2. The frequency of the meeting ……

3. The attendance of UC members in the meeting:

Year	Months												Total	Remarks
	1	2	3	4	5	6	7	8	9	10	11	12		
2002														
2001														
2000														
1999														
1998														

4. Fixed date for UC meeting?
   - ❑ Yes
   - ❑ No

5. Fixing of meeting agendas and circulation to the members well in time?

- ❑ Yes
- ❑ No

6. Maintaining meeting minutes?

- ❑ Regularly
- ❑ Maintain when important decisions were made
- ❑ Do not maintain

7. Four main agendas frequently occurred in the meetings

d)
e)
f)

8. UC minute to Park office/BZDC?

- ❑ Regularly
- ❑ Only when important decision were made
- ❑ Occasionally
- ❑ Never

9. UC profile/database

- ❑ Yes
- ❑ No
- ❑ Under preparation

10. UC plan prepared

- ❑ Yes
- ❑ No
- ❑ Under preparation

If yes, year of plan prepared:……

If the UC plan approved by the warden, year of approval: ……..

11. Major activities identified in the plan

a)
b)
c)
d)
e)

12. Annual work plan prepared

- ❑ Regularly
- ❑ As and when required
- ❑ Not prepared

If not why

a)
b)

c)

13. Annual programme prepared?

- ❑ Just compiled the activities already decided by the park office
- ❑ Prepared with the facilitation of Park/project staff
- ❑ By organizing open discussion among UG members
- ❑ Through simple discussion among UC members only
- ❑ Just compiling the UG work plans as received from them
- ❑ As per annual breakdown from 5 years UC plan
- ❑ Please specify if any

14. List of five activities:

UC's priority activities (2002)					
Park's supported activities (2002)					

15. Major activities carried out in last five years

Year	Activities	Unit	Location	Expenditure (Rs)				Remarks
				Park	Community	Others	Total	
2002 1 2 3 4								
2001 1 2 3 4								
2000 1 2 3 4 Year								
1999 1 2 3 4								

1998 1 2 3 4								

16. Average community contribution in BZ development activities?
    - ❑ Less than 10 percent
    - ❑ 10 and 20 percent
    - ❑ 21 to 30 percent
    - ❑ 31 to 40 percent
    - ❑ More than 40 percent

    The nature of contribution:
    - ❑ Cash (…….%)
    - ❑ Labour (……%)

17. Nonitoring and evaluation of the programme carried out by?
    - ❑ Park staff
    - ❑ BZDC
    - ❑ UC members
    - ❑ Jointly by all above three
    - ❑ Park and BZDC
    - ❑ Park and UC members
    - ❑ UC members and BZDC
    - ❑ No system established yet
    - ❑ Independent consultant
    - ❑ Any other

18. Buffer Zone regulation and guidelines in the office
    - ❑ Yes
    - ❑ No

19. UC chairperson received orientation/training on BZ regulation/guidelines?
    - ❑ Yes
    - ❑ No

C. Financial status:

1. Name of agencies, which support UC activities:

a)
b)
c)
d)
e)

f)

2. Fund received from Park and other agencies (PPP/PCP, KMTNC etc) in last 5 years:

Year	Fund received (Rs)							Remarks
	Park	PPP/PCP	KMTNC	DDC/VDC	Community Forests	Others	Total	
2002								
2001								
2000								
1999								
1998								
Total								

3. Total UG Savings (Rs):
   Male:
   Female:
   Mixed:

4. Total fund received as of Dec 2002: Rs…….

5. Expenditure by the end of Dec 2002: Rs……

6. Balance: Rs…….

7. Annual audit conducted:
   - ❑ Yes
   - ❑ No
   - ❑ Will be done very soon.

D. Linkage between UC and VDC programme:

1. Coordination with VDC in programme planning and management?
   - ❑ Excellent
   - ❑ Good
   - ❑ Normal
   - ❑ No coordination

2. UC programmes reflected/incorporated in VDC programme and vice versa?
   - ❑ Yes
   - ❑ No
   - ❑ Some time

3. Any overlap and competitions between UC and VDC in programme implementation?
   - ❑ A lot
   - ❑ Sometimes
   - ❑ No

4. Meeting agenda of BZDC received in advance?

- ❑ Always
- ❑ Occasionally
- ❑ Rarely
- ❑ Never

5. BZDC meeting minutes received?

- ❑ Always
- ❑ Occasionally
- ❑ Rarely
- ❑ Never

E. Information on forestry resources:

1. Production of forestry products from CF:

Year	Firewood (Kg)	Fodder (Kg)	Timber (Cft)	NWFP	Tourism Fee (Rs)	Remarks
2002						
2001						
2000						
1999						
1998						
Total						

F. Park-people interface:

1. Change after BZ programme check evidences on poaching, grazing, firewood, animal damage etc.

2. Main beneficiaries from BZ development programme? (rank from 1- 5, 1 is the most benefited one and 5 the least)

- ❑ Women,
- ❑ Indigenous community,
- ❑ Elites and educated,
- ❑ Politically connected people,
- ❑ Specify if any

Thank you very much

Name of the Interviewer:
Date:
Time:
Location:

ANNEX: 7

UC Ranking Criteria

Proximate to Park:
High- close to main park office such as park headquarters/sub headquarters
Moderate- close to Park field offices but far from Headquarters
Low- Far from both HQs and field offices

Level of investment:
High – UC which receives on an average more than Rs 500 000 annually
Moderate – UC which receives maximum Rs 300 000 annually
Low – UC which receive maximum Rs. 200 0000 annually

Level of park-people conflict:
High - UC with high level of wildlife depredation, grazing, poaching incidents
Moderate – UC with moderate level of wildlife depredation, grazing, poaching incidents
Low – Low level of wildlife depredation, grazing, poaching incidents

Indigenous population:
High – UC having more than 50 % indigenous population
Moderate – UC having 26- 49%
Low – UC having up to 25%

Level of tourism activities:
High – UC having entry gate, very good tourism facilities and visited by more than 50% of tourists
Medium – UC having entry gate, some tourism facilities and visited by limited number of tourists
Low – UC have no entry gate and tourism facilities with hardly any tourist

UC category
High – A category UC, which covers whole VDC or at least more than 7 wards.
Moderate – B category UC, which covers 5-7 wards of the VDC
Low – C category UC, which covers less than 5 wards of the VDC

ANNEX: 8

Investment in CNP BZ Programme (1997/98-2002/03)

Programme portfolio	BZ support	%	Community contribution*	%	Other support*	%	Total	Total percent
Community development	42637086	51.53	30346198	36.68	9750383	11.78	82733667	73.10
Percent	73.53		74.16		68.36		73.10	
Conservation activities	4006796	22.00	9838242	54.03	4366000	23.97	18211038	16.10
Percent	6.91		24.04		30.61		16.10	
Income generation and skill	3453022	91.14	317694	8.39	17871	0.47	3788587	3.35
Percent	5.95		0.77		0.12		3.34	
Conservation education/ Awareness	3840758	87.59	416810	9.50	127455	2.91	4385023	3.87
Percent	6.62		1.01		0.89		3.87	
Administration	4051281	3.58						3.58
Percent	6.99						3.58	
Total	**57988943**	**51.24**	**40918944**	**36.16**	**14261709**	**12.60**	**113169596**	**100**

(Source: Adopted with modification from UNDP 2004)

Note: Although information on community contribution and other supports are quite important, data are not used in the discussion due to risk of over estimation associated with these figure.

ANNEX: 9

Article Published by Author on Oryx Based on Literature Reviews and Some of the PhD Field Survey Data

Oryx Vol 38 No 3 July 2004

Linking communities with conservation in developing countries: buffer zone management initiatives in Nepal

Prabhu Budhathoki

Abstract Sustained and effective biodiversity conservation in a developing country such as Nepal is faced with the increasing pressure that the growing population exerts on the country's natural resources. Nepal has adopted a community-based approach to conservation management, including sharing of revenues from protected areas with local people living in the buffer zones around protected areas . The aim is to mitigate conflicts. This paper discusses the evolution of conservation policy for buffer zones in Nepal. The strengths and weaknesses of buffer zone policy are analysed, and the efforts to put policy into practice are examined and discussed. The analysis of buffer zone initiatives reveals that there are inconsistencies between the vision of the programme and its policies and practices. For better integration of conservation and development objectives, empowerment and equity in benefit sharing and gender issues need to be adequately incorporated in buffer zone policy and programme implementation.

Keywords Community-based conservation, biodiversity, buffer zone, Nepal, protected areas.

ANNEX 10

Article of Author Published in PARKS Vol. 13 No2 Based on Secondary Literature and Some of the PhDField Research Data

parks

A Category V Protected Landscape approach to buffer zone management in Nepal

PRABHU BUDHATHOKI

One of the pressing challenges resource managers have been facing all over the world is conflict with local communities in resource management. Buffer zone concepts have been adopted as a strategy to address these issues making a good balance between the long-term objectives of protected areas and immediate needs of the people living in and adjacent to these areas. Although the application of the buffer zone concept is quite new, it has been emerging as a viable strategy in linking ecological and economic objectives. This paper presents an overview of biodiversity conservation paradigms and emergence of buffer zone initiatives in Nepal. It also describes strategies and approaches adopted to translate the buffer zone concept into practice. The buffer zone management programme of Nepal has been adopting a Category V Protected Landscape approach to biodiversity conservation, sustainable human development and community development based on principles of community mobilisation and self-reliance. The innovative experiences of Nepal in buffer zone management can be useful in other countries interested in pursuing a Category V Protected Landscape approach.