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DETERMINING THE BARRIERS TO AND OPPORTUNITIES FOR COMMUNITY
INVOLVEMENT IN MANAGEMENT OF THE NANDA DEVI BIOSPHERE RESERVE,
UTTARAKHAND, INDIA

By

TRISHA SINGH

B.S. Wildlife Ecology, University of Maine, Orono, Maine, 2009

Thesis

Presented in partial fulfillment of the requirements for the degree of

Master of Science

Resource Conservation, Option (International Conservation and Development)

The University of Montana

Missoula, MT

May 2014

Approved by:

Sandy Ross, Dean of The Graduate School

Keith Bosak, Chair

Department of Society and Conservation

Stephen F. Siebert, Committee Member

Department of Forest Management

Matthew McKinney, Committee Member

Center for Natural Resources and Environmental Policy

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Determining the barriers to and opportunities for community involvement in the management of the Nanda Devi Biosphere Reserve, Uttarakhand, India.

Chairperson: Dr. Keith Bosak

ABSTRACT

Today's global political environment places a high value on social equality and economic well-being. In this climate, emphasizing biodiversity conservation over socio-economic development through exclusionary methods of habitat protection has become ethically questioned and politically dangerous. The goal of this research was to understand the barriers and opportunities for local involvement in the management of the Nanda Devi Biosphere Reserve in Uttarakhand, India. We attempted to understand the feasibility of local community involvement in the management of the NDBR from the perspective of policy-making organizations and that of the local communities.

Key findings highlight barriers to community participation at all the stakeholder group levels. We argue that these barriers are introduced first due to the dated and rigid institution and structure within which participation practices are initiated. These barriers present themselves as: the conflicting missions and goals among stakeholders across the various scales; differences in the amount of decision-making power possessed and desired by the various scales; inflexible policies and procedures; and constrained human and monetary resources. Over time these barriers have led to perceptual and attitudinal barriers at all scales that hinder the potential for successful participatory procedures for the future. These barriers arise from the incorrect perceptions of community composition and a superficial understanding of their complex structure; from overlooking historical livelihood strategies when determining participation programs; and finally from the incomplete conceptualization of management organizations by communities. Ultimately these barriers have led to stereotypical "us versus them" polarizations.

Overlooking inter-scalar heterogeneity and community complexities before the development and implementation of participatory programs can lead to unintended and long lasting barriers to the community engagement process. There is an urgent need to review the success of participatory procedures and to refine their process. Findings suggest a need to shift away from the impact reduction focus of income generation activities. A greater variety of opportunities that better incorporate needs of the community, such as skill based youth training or links to sustainable markets for local products, are needed. Ultimately, greater flexibility at the state level of the forest department and decision-making authority at the community level could provide for more innovative problem solving.

ACKNOWLEDGEMENTS

This thesis would not have been possible without the help and support of so many at the University of Montana. First and foremost, I would like to express my very sincere gratitude to my advisor, Dr. Keith Bosak. His advice, guidance and patience were absolutely crucial to my navigation of this uncharted territory of society and conservation. Valuable inputs for my committee members, Dr. Stephen F. Siebert and Dr. Matthew McKinney challenged me to broaden my horizons and made my research that much more exciting.

I am also tremendously thankful for the funding and experience provided by the School of Forestry and Conservation through four semesters of teaching-assistantship positions. Grants provided by the US Forest Service and Soroptimist International of Missoula made data collection and analysis possible.

I would also like to extend my heartfelt thanks to all the participants of this research from UNESCO, the Uttarakhand Forest Department and the villages of Lata and Tolma. I am indebted to all those who helped me gain access to interviewees and to my study sites.

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LIST OF ACRONYMS

BR	Biosphere Reserve
CBC	Community Based Conservation
CBNRM	Community Based Natural Resource Management
GBPI	G. B. Pant Institute
IFD	Indian Forest Department
LC	Local Communities
MAB	Man and Biosphere
MoEF	Ministry of Environment and Forests
NDBR	Nanda Devi Biosphere Reserve
NDNP	Nanda Devi National Park
NTFP	Non-Timber Forest Products
PA	Protected Areas
UFD	Uttarakhand Forest Department
UNESCO	United Nations Education Science and Cultural Organization
VoFNP	Valley of Flowers National Park
WII	Wildlife Institute of India

CHAPTER ONE

INTRODUCTION

1.1 General Introduction

Attitudes towards conservation and community relationships with nature and wildlife vary from culture to culture. These differences are reflected in the different management strategies employed throughout the world. In western countries, state management of protected areas (PA) and top-down control of management actions is the prevalent method of promoting conservation goals. In other countries, communities have practiced traditional means of conservation and wildlife management for centuries (Roe et al., 2000). Today, the conventional method of conserving natural resources is to set up protected areas that either exclude human use entirely or restrict it severely. As Ghate and Ghate (2005, p. 9) aptly states: These areas have been “protected from the people (locals), for the people (global community), by the people (governments)”. This method of conserving plant and animal populations in their natural habitats is considered the cornerstone for biodiversity conservation, as it is expected to reduce anthropogenic pressures on resources within the protected areas (Ewers and Rodrigues, 2008; Narendra et al., 2004). In 2010, there were over 100,000 protected areas conserving about 12% of the earth’s land area (Lele et al., 2010). These protected areas were created to stem the tide of land degradation and to protect biodiversity (Nagendra, 2008).

Amid global and national concerns for India’s disappearing wildlife, the Indian Wildlife Protection Act of 1972 was implemented to protect the country’s remaining endangered species. According to Kothari et al. (1995), the act introduced a provision for protecting important habitats and catalyzed a flurry of protected area designations in India. Their numbers increased fivefold in the last four decades, rising from 131 in 1975 to 496 in 2005, rising still further to 668

in 2013 (Kothari et al., 1995; Coetzer et al., 2014). One of these protected areas was the Nanda Devi National Park (NDNP), which was established in 1982, mimicking the conventional approach to ecological protection by banning human use and presence within its boundaries.

This is not a technique unique to the high mountains of the Indian Himalayas. Around the world, this exclusionary method of biodiversity conservation has been successful in reducing rates of deforestation, preventing species extinction and in conserving land and water resources (Lele et al., 2010). But this success has come at significant social and economic costs to the communities that surround protected areas (Lele et al., 2010; Roe et al., 2000; Nagendra, 2008; Castro and Neilson, 2001; Zoysa and Inoue, 2008). Literature on the success of these exclusionary or fortress-style national parks in protecting biodiversity has been conflicted or mixed at best. As the percentage of habitat placed under protection has increased, so has the debate about whether these parks are achieving the goals that they were created for (Nagendra, 2008; Nagendra et al., 2004). Studies analyzing forest cover change within and around protected areas suggest the rate of land cover change has reduced within parks as compared to land around the protected areas. But there is conflicting evidence about how many parks around the world have experienced this reduced rate of forest conversion (Nagendra, 2008; Porter-Bolland et al., 2011; Bruner et al., 2001).

Lele et al. (2010) and Roe et al. (2000) discuss some disadvantages of the conventional protected area approach. The greatest critique in recent literature is that they are often economically unsustainable and the benefits of conservation do not reach those who bear the greatest cost of reserve creation; namely, the local communities (Roe et al., 2000). This imbalance inevitably leads to conflicts among stakeholders resulting in unintended consequences for both, natural resources and local communities. Deforestation has decreased in some of the

protected areas; while others are still experiencing significant forest declines. At some sites, pressures placed upon communities surrounding the protected areas have simply been shifted to lands outside the protected areas. Ewers and Rodrigues (2008) show that in these areas, loss of access to land within the protected area led to intensified use of land that was still accessible to the community, ultimately precipitating further aggregate land degradation. Most importantly, it is not even clear whether complete exclusion of humans from these parks is necessary for the success of conservation efforts. Lasgorceix and Kothari (2009) analyzed 28 cases of human displacement from protected areas from the 1970s onwards. Resident populations were removed from protected areas in each case in order to reduce disturbance and human pressures, and to ultimately help recover habitat and wildlife populations. Yet, the researchers found a complete absence of empirical data to prove the success of this claim. Many local communities adjacent to protected areas (including those around NDBR) have a long history of co-existence. These communities have provided a source of sustained disturbance for thousands of years in these regions (Ghate and Ghate, 2005). Ecologically, it is not clear what the effect will be of suddenly removing humans as a source of disturbance on these lands. Additionally, formal protection has not been consistent in providing protection to species against illegal activities. For example, the 2002 United Nations Education, Science and Cultural Organization (UNESCO) periodic report produced by the Indian Forest Department confirmed an increase in poaching activity within the NDBR since the park's creation.

Exclusionary strategies for protecting natural resources have also led to the alienation of local communities. In some cases, these potential allies of the conservation effort have turned into its opponents (Lele et al., 2010). The recognition of the disproportionate costs borne by local communities has brought into question, the value and legitimacy of the conventional methods of

conservation (Lele et al., 2010). A growing skepticism of the social and biological benefits from the prevalent management strategies provided a need to experiment with more ethically and socially responsible alternatives. UNESCO's biosphere reserve model, introduced in 1976, embodied this paradigm shift towards the acknowledgement that humans cannot be conceptually separated from their surrounding landscape, especially in places where they depend upon it directly (Berkes, 2003; Coetzer et al., 2014). This changing view of the mechanism with which to achieve conservation embraces the idea that areas of conservation value did not, unequivocally, need to be protected *against* the communities that live around them (Price, 2002). The people-centered biosphere reserve model of conservation explicitly recognized humans and their interests in conservation landscapes (Coetzer et al., 2014). Efforts have been made to incorporate communities into the management of surrounding reserves; however, little success has been observed over the last four decades (Price et al., 2010, Coetzer et al., 2014). The criticisms for this new model, though not as extreme, are still quite similar to those presented for the conventional exclusionary model of achieving biodiversity.

1.2 Context for Research Problem

The purpose of this research is to uncover the barriers to and opportunities for community involvement in the management of the NDBR. This reserve is a United Nations Educational Scientific and Cultural Organization (UNESCO) Man and Biosphere Reserve (MAB) tasked with two goals: promoting biodiversity conservation and facilitating local socio-economic development. All biosphere reserves around the world are part of the World Network of Biosphere Reserves, brought into existence during the UNESCO general conference of 1995 through the adoption of the Statutory Framework for the World Network of Biosphere Reserves (Guiding Principles, UNESCO). Under the guidelines of the 1995 Seville Strategy for Biosphere

Reserves, the Indian Forest Department is expected to manage the NDBR in a way that guarantees its commitment to people-centered conservation and development. (Coetzer et al., 2014, UNESCO, 1996)

In its 2002 periodic report to UNESCO, the forest department mentions limited access to resources despite the large number of responsibilities. Consequently, the current state of knowledge about natural resource recovery within the NDBR is inadequate. Residents of the Chamoli district surrounding the reserve have interacted with this landscape through livelihood activities for centuries. They have thus gained intimate knowledge pertinent to the NDBR's conservation goal. Residents have been rallying for a greater role in the reserve's management to meet their economic needs. At the moment there is no co-operative relationship between relevant entities that are expected to work together to further each other's causes, namely, biodiversity conservation and sustainable economic development. However, developing a participatory process in this region can be difficult; the forest department's alleged indifference to the plight of local communities culminated in the Cheeno-Jhapto Movement in 1998, where locals forcibly entered the closed-off core zone of the NDBR to re-assert their resource rights. This organized rebellion, orchestrated by local proponents of increased access, has widened the rift between management entities and local people. Some members of the local communities have shown an initiative to be more involved with conservation efforts, in the hope that this will lead to economic development. They created the Nanda Devi Development Authority in 2001, which calls for increased local involvement in the park's management activities (McGinley, 2008).

However, tremendous distrust among stakeholders is preventing the formation of a collaborative process, or even satisfactory participation of the communities. Coetzer et al. (2014) identify a cycle of "optimism and disenchantment" that leads to discord between conservation

organizations and community members in biodiversity reserves. Here, community involvement is stated as an important component for the achievement of conservation and sustainable development (Price, 2002; Berke, 2007). The expectation of involvement results in inflated community expectations. But, an inexplicit description of the potential for involvement, coupled with these inflated expectations seems to create conflict among stakeholders in biosphere reserves across the globe (Coetzer et al., 2014). Price et al. (2010) suggest that biodiversity reserves that fail to effectively address participation will inevitably undermine their long-term goals. It is thus important to understand relationships between pertinent stakeholders who will facilitate future cooperation. In the NDBR, if particular challenges to working together can be identified, a process for addressing them can be developed. This thesis attempts to pave a path for the creation of a working group consisting of local communities and conservation entities that will collectively and efficiently solve issues surrounding the NDBR.

1.3 Goals and Objectives of the Study

The goal of this study is to understand the barriers and opportunities for local involvement in the management of the NDBR.

The Objectives of this study are to:

- 1) Understand the feasibility of local involvement in biosphere reserve management from the perspective of policy-makers and reserve managers.
- 2) Understand the feasibility of local involvement in biosphere reserve management from the perspective of local populations living in two case study communities within the reserve.

1.4 Research Questions

In order to meet the above objectives, the following research questions were proposed:

- 1) How do various stakeholder groups perceive the current level and success of local participation in management efforts?
- 2) What is the potential for local involvement in reserve management, as perceived by members of the Forest Department and policy organizations such as UNESCO?
- 3) What is the range of willingness among various managers and policy-makers to change current policies and management regimes to accommodate local participation in reserve management?
- 4) What roles would the local people like to play in reserve management?
- 5) What is the range of willingness among the local people to work with the policy-makers and reserve managers to develop a model for local involvement in reserve management?

1.5 Socio-political History of the Nanda Devi Biosphere Reserve

The Nanda Devi Biosphere Reserve (NDBR) constitutes an area of 5860 Km² in the trans-Himalayan region of India. It is located in the state of Uttarakhand and lies within the districts of Chamoli, Pithoragarh and Bageshwar (Silori, 2001). The biosphere reserve consists of two core zones: the Valley of Flowers National Park (VoFNP) and the Nanda Devi National Park (NDNP), both of which are free of human habitation (Figure 1). Together, the two core zones cover 712 Km², with NDNP being the larger of the two at 625 Km². The buffer zone covers 5148 Km² of the total area of the NDBR.

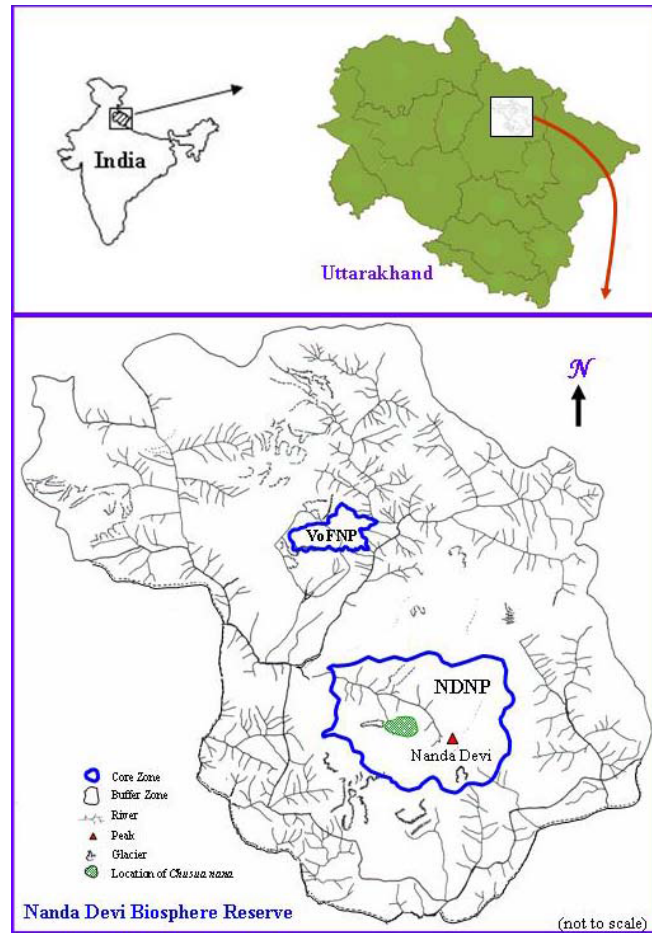


Figure 1: (Top) The location of the NDBR in Uttarakhand, India. (Bottom) Boundaries for the core zones of the VoFP and the NDNP within the larger boundary of the buffer zone that together from the NDBR (Adhikari et al., 2008).

The most prominent feature in the park is India's second highest peak, a mountain sacred to the local Bhotiya community called Nanda Devi. At 7,816 meters tall, it was a popular mountaineering destination for climbers from around the world. Attempts to ascend this peak began as early as 1883. It was finally summited for the first time in 1936 and subsequently became an increasingly popular destination for mountaineering expeditions. The Nanda Devi Sanctuary was created in 1939 in recognition of its scenic beauty, even as the Nanda Devi peak became the second most popular peak in the world for mountaineering expeditions (after Mount

Everest). However, tourism activities within its boundaries remained unregulated, and unsustainable use practices led to wide-scale degradation of park resources.

To provide greater protection and to halt the ongoing degradation from mountaineering, the sanctuary status was upgraded and the NDNP was formed in 1982. NDNP did not have any human inhabitants but upon its creation, all human use activities, including tourism and traditional livelihood activities, were banned from the park (Maikhuri et al., 2000). Then, in 1988, NDNP was re-designated as a biosphere reserve and became part of UNESCO's Man and Biosphere (MAB) program. In 1992, it was also designated as a world heritage site (Silori et al., 2001). NDNP became the core zone of the reserve and protection was expanded outside the national park boundaries to create a buffer zone of the biosphere reserve. This was done without much consultation with the villagers who live within the buffer zone boundary and depended heavily on the land. The buffer zone is considered a reserve forest, allowing for multiple uses including residential areas (Silori et al., 2001), but resource use in this zone is severely restricted.

This form of biodiversity conservation has come at a great socio-cultural and economic cost to local communities. The restrictions placed on grazing, collection of fuel wood, fodder, organic matter and other non-timber forest products (NTFPs) within the buffer zone have led to severe negative impacts on the self-sufficiency of these communities. Bhotiya men in the gateway communities earned a comfortable living as guides and porters for mountaineering expeditions until the park was closed to human activity following degradation of biological resources caused by mountaineering expeditions to Nanda Devi that took place between 1974 and 1982 (Saxena et al., 2002). Restrictions on grazing lands led to over-grazing of areas still available for use and a subsequent reduction in sheep herds. This ultimately reduced local earnings from the traditional sale of wool products.

According to some locals, the closure of NDNP was expected to be temporary, providing nature with enough time to recover before continuing use of the area for recreational and livelihood purposes. The MAB program, in conjunction with the Indian Ministry of Environment and Forests (MoEF) and the World Bank currently provide monetary assistance to replace income generation and development activities, but the distribution of this funding has been insufficient and erratic. In addition, eco-development projects funded by the Forest Department have only assisted fourteen out of forty-seven villages within the reserve to develop micro-projects as compensation for economic loss incurred due to NDBR's creation (Maikhuri et al., 2000; Rao et al., 2000; Bosak, 2008).

These inadequacies have led to conflict between management authorities and local communities. According to Negi and Nautiya (2003, p. 171) the main reason for this conflict is the loss of rights "to use forest resources to which the inhabitants of the buffer zone villages were traditionally entitled" before the area was declared to be a reserve. These tensions escalated in 1998 when disgruntled members of the local communities led a mass protest to occupy the core zone of the NDBR as a symbolic reclamation of access to natural resources. In 2001, these communities in conjunction with local activists and environmental justice organizations, presented the Forest Department with a formalized plan to re-introduce tourism into the NDBR while maintaining conservation goals (Bosak, 2008). However, no concrete implementation actions have been developed since then. Bosak (2008) states that the current conflict is due in part to the different ideas among policy makers and local communities on how the protected resources ought to be managed.

Both Maikhuri et al., (2001) and Rao et al., (2002) are of the opinion that the cumulative economic losses from crop and livestock depredation, severely curtailed tourism and loss of

access to NTFPs may lead to violations of the MAB reserve management prescriptions as people find it increasingly difficult to meet their livelihood needs. It is increasingly recognized that the successful conservation of biological resources within these protected areas depends on the support and favorable attitudes of local communities (Rao et al., 2002), which can be hard to come by if these communities are suffering as a result of the reserve's creation and maintenance.

Furthermore, the health and recovery status of natural resources within the reserve remains unclear. Biodiversity surveys have recorded 17 species of mammals, 114 species of birds, 28 species of butterflies and 793 species of plants, including a number of rare, endangered and endemic species (Silori, 2001). As per the 2002 Periodic Report produced by the Uttaranchal Forest Department, park resources are well protected and recovering both in the core and the buffer zone. The same report confirms that the current status of mammal species is unknown, as a zoological survey was last conducted between 1981-1984. It also acknowledges the insufficient understanding of the effects of increased poaching on the recovery of plant and animal species the park was created to protect. Deficits in funding, manpower and requisite training have been identified as rationales for this gap in research.

1.6 Thesis Structure

This thesis consists of six chapters. Chapter two presents the theoretical and conceptual framework. This chapter also presents a literature review of community involvement techniques to achieve conservation. Chapter three outlines the methodology utilized to develop the research design, sampling design and data analysis. Chapter four consists of a detailed presentation of results obtained from interviews conducted among the local communities of two NDBR villages. Chapter five details results obtained from interviews with UNESCO and the Indian Forest

Department. Finally, chapter six presents a discussion of the barriers and opportunities for community involvement in the management of the NDBR.

CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Theoretical Framework

“The action to conserve biodiversity, particularly through the creation of protected areas, is inherently political” (Adams and Hutton, 2007 p. 147). Thus my study utilizes the political ecology perspective to create a theoretical lens of analysis to determine the feasibility of community involvement in wildlife management of the NDBR. Blaikie and Brookfield (1987, p17) define political ecology as an interdisciplinary field of study that “combines the concerns of ecology and a broadly defined political economy”. This relationship between ecology, politics and the economy (Neumann, 2005) together addresses the constantly changing dialogue between society and land-based resources (Blaikie and Brookfield, 1987). In the Third World, social, political, economic and environmental issues are intertwined, complex, and diverse. Additionally, causes of environmental degradation are not limited solely to direct presence or absence of humans in protected areas. Here, political ecology provides a methodology for understanding the interdependent drivers of continued degradation or inadequate restoration of biological resources within fortress-style protected areas (Neumann, 2005).

It is undeniable that local communities play an integral part in meeting conservation goals, but their role in the conservation process is poorly defined in policy and practice (Bosak, 2008). The resulting conflicts between managers and local people have damaging implications for the goals of rural development and biodiversity conservation. Before one can find solutions on the ground level, however, it is important to identify the actors in the process who possess the power to effect change (Movuh and Schussed, 2012). In the case of the NDBR, it is not sufficient to just identify the powerful players. Actively involving local communities in the process of

conservation, be it through participation or devolution requires deviation from the contemporary top-down process. It requires the volition to affect change, which my research hopes to ascertain by understanding the perceptions of utility and competence of each actor.

It is also recognized that different actors or stakeholders in the management process wield varying levels of influence upon the process (Movuh and Schussed, 2012). To address this I draw from the social constructivist idea of nature to analyze the role of management discourse in the NDBR. This approach does not prioritize human interest over nature; instead, it stresses that their ‘domination or liberation cannot be treated individually’ (Neumann, 2005 p77).

According to Bosak (2008), there is disagreement between the Forest Department and local communities about how the reserve ought to be managed for optimal results. This leads into the politics of knowledge production, which legitimizes certain methods of producing and accumulating knowledge over others (Chambers, 1998). This is a critical evaluation of the production and use of environmental knowledge through the conventional methods of conducting research (Neumann, 2005). In the NDBR, scientific knowledge produced by government-affiliated organizations or international non-profits such as UNESCO is privileged over local knowledge. However, there is no concrete evidence that this taken-for-granted source of scientific knowledge (Neumann, 2005) is more beneficial to conservation efforts than the other. The intention here is not to create a reversal and blindly advocate the importance of local knowledge over that which is produced through conventional scientific methods, but to acknowledge the place of both in making environmental management decisions (Neumann, 2005). My research therefore seeks to examine perceptions of conservation relevant knowledge held by each stakeholder group, roles played by the various actors in making management decisions for the reserve, how these actors view each other’s roles in promoting conservation,

and their differing understandings of conservation needs and actions. This process could shed light on the similarities and differences in the methods of realizing conservation goals and could ultimately pave the path for collaborative action. The goal is to decipher how the various stakeholders define the success and failure of implementing UNESCO's Man and Biosphere program, which the current management discourse is shaped around.

Additionally, it is also important to recognize the differences in biological conservation discourse across scales, for instance, from a global (UNESCO, WWF) institutional scale to a local community scale. Social systems are often organized in a hierarchical manner (Berkes, 2004). Each level of this hierarchy is both, dependent upon and independent of the levels above and below it. Similarly, the various levels share some principles but also operate according to principles that are specific to each level of the hierarchy. These hierarchical differences among stakeholders introduce complexities that make satisfactory community involvement difficult (Berkes, 2004). This highlights the “ideas of [scalar] heterogeneity, inter-scalar connectivity and scale-dependent process” as we think about how conservation needs are perceived and interpreted at the international, national, regional or local scale (Neumann, 2005 p 76). Ultimately, the recognition of a politicized nature can help reconcile the prevalent mechanism aimed at achieving conservation and consequent management policies with the on-the-ground realities.

2.2 Community Involvement in Conservation: A Literature Review

2.2.1 Need for new conservation methods

There is a need to evaluate the effects of current management strategies (Nagendra et al., 2004) for the social and biological benefits they provide. According to Campbell and Mattila, (2003) the search for new methods of conservation is growing due to three main reasons: 1) The concerns associated with resource conservation in developing countries, where exclusionary practices fail to include local communities. This failure could jeopardize conservation success through encroachment of protected lands and illegal resource extraction by locals. The efforts to enforce exclusion could also be more expensive than the alternative of allowing controlled use of resources. 2) On a philosophical level, conventional protection practices arise from the western notion of utilitarianism and romanticism, which, separate people from nature. These ideologies directly contrast with the eastern world's view of human-nature interaction and can threaten local culture, social norms and the traditional methods of survival. 3) The economic impacts through loss of traditional lands that were used for subsistence farming, forest product collection, grazing, etc. are being called to greater attention. Local communities bear a disproportionately larger share of conservation costs due to loss of access to above-mentioned livelihood activities. Protected areas can also amplify inequalities existing in regions where reserves are created (Ghate and Ghate, 2005). The pressures placed on local communities arising from protected area creation are fostering alienation and increasing conflicts that could endanger the preservation of natural habitats (Ghate and Ghate, 2005; Castro and Nelson, 2001).

The aforementioned critiques of the prevalent form of biodiversity conservation have resulted in the development of a number of alternative natural resource protection strategies that incorporate the involvement of local communities as an integral component for successful

conservation initiatives. In the field of wildlife management, researchers sought better predictive capabilities to determine the effects of natural and anthropogenic disturbance on biological systems. This ultimately led to the idea of adaptive impact management, which suggests, “the decision-making process will be enhanced by integrating both the ecological and human dimensions to attain objectives that are important to society” (Enck et. al, 2006). The argument is that natural resources can be better preserved when they are used and valued by people who are dependent upon them (Roe et al. 2000; Ghate and Ghate, 2005; Zoysa and Inoue, 2008).

2.2.2 Shifting trends towards community involvement

The fortress-style conservation effort may have been the most appropriate strategy at one time, and may still be quite relevant in some places. But as the dynamics of human-nature interaction evolve, so must the methods in which conservationists approach them. The 1987 Brundtland Commission Report proposed conservation and development as two sides of the same coin, accelerating the merging narratives of these two fields. Over the last 40 years, conservation organizations have been recognizing the need for development in local communities to offset conservation costs, along with the role they ought to play in conservation efforts (Campbell and Mattila, 2003; Ghate and Ghate, 2005; Berkes and Ross, 2012; Castro and Nielson, 2001; Enck et al., 2006). Berkes (2003) identified three major paradigm shifts in ecology: towards a systems view, towards inclusion of humans in ecosystems, and towards participatory approaches.

Reed (2008) proposes that the theoretical typology of participatory approaches can be differentiated into normative or pragmatic motivations. Normative participation, focusing on the process, suggests that people have a “democratic right to participate in environmental decision-making”. Pragmatist motivations for forwarding local participation view it as a means to an end,

the end being higher quality decisions to achieve conservation. It was the pragmatist approach that was adopted by UNESCO in its initial formulation of the biosphere reserve concept in 1974 (Price, 2002). In this context, while community participation does not have one specific definition, it does have two main objectives: conservation of biodiversity and provision of incentives, usually economic, for the local people (Campbell and Mattila, 2003). In theory, if local communities actively participate in conservation efforts and receive the associated benefits, they will have greater ownership of the conservation initiative. This in turn will lead to reduced conflict and increased support (Campbell and Mattila, 2003; Armitage, 2005; Agarwal and Gibson, 2001) because meaningful involvement through the decision-making and benefit-sharing processes fosters a sense of community empowerment (Castro and Nielson, 2001). Instead of viewing the social and ecological aspects of conservation separately, the movement is towards a confluence of these two strands of literature to cope with the rapidly changing needs of conservation and transforming conditions at the local and community levels (Berkes and Ross, 2012; Enck et al., 2006). Recognizing the importance of community involvement for the long-term success of protected areas, especially given the limitations on state resources, advocacy for community based natural resource management (CBNRM) initiatives has become commonplace (Ghate and Ghate, 2005). Although the calls for community involvement in management are quite prolific, the literature is less specific in providing practical frameworks that describe how communities can be meaningfully engaged in furthering conservation and local socio-economic development goals. The degree to which local communities have been involved has varied from one protected area to another - not just around the world, but also within regions.

These CBNRM techniques differentiate themselves from the exclusionary methods by placing “local community involvement in the center of conservation [efforts] rather than as the

mechanism of achieving it” (Campbell and Mattila, 2003, p. 421). Of late, community based initiatives are being offered as a panacea for conflicts surrounding conservation efforts (Berkes, 2007) based on a few basic assumptions about local communities: 1) Their close connection to and long-term dependence on natural resources will foster sustainable use; 2) they possess intimate knowledge of the land with which they interact through livelihood activities (Agarwal and Gibson, 2001; Armitage, 2005); and 3) they have knowledge of local actors and historical management regimes (Agarwal and Gibson, 2001; Roe et al., 2000) that can inform satisfactory involvement to achieve development while protecting resources.

The Seville Strategy adopted by UNESCO in 1995 emphasizes the importance of biosphere reserves for furthering two goals: conservation and sustainable development of communities living within them (Price, 2010). Today, 610 reserves in 117 countries are managed to achieve these goals, often through some form of community participation effort (Coetzer et al., 2014). As this method is becoming more widely prescribed, it is becoming important to examine the relevance of involving local communities in reserve management and whether this can lead to improvements in achieving the conservation and socio-economic development goals that many of these reserves were created to achieve (Nagendra et al., 2004). Additionally the growing understanding of complexities regarding global and social interactions and environmental conditions necessitate reexamination of participatory techniques in the contemporary context (Roe et al., 2000). This is especially true because the success of these initiatives has been limited so far. This may be because of the assumptions made as a result of overlooking the complexities of community composition, needs, perceptions, property rights, traditional resource use systems, historical livelihood strategies, etc. (Agarwal and Gibson, 2001; Roe et al., 2000; Berks, 2003, 2007; Armitage, 2005, Price, 2002).

2.2.3 Conceptualizing communities

Social systems in conservation are multilevel with various institutions at each level, all the way from the local to the international scale. The complex systems theory in ecology caters to the intricacies of multi-scalar interactions from the individual within a species to the ecosystem level when creating management decisions (Berkes, 2007). Similarly, advocates and practitioners of CBNRM must identify and epitomize social complexities before prescribing interdisciplinary conservation and development actions. Global perceptions on conservation, its importance and the means of achieving conservation goals are often quite different from the local perceptions of these concepts. Yet many CBNRM initiatives are designed based solely on global perspectives, which can alienate local communities even as they are being involved (Berkes 2003, 2007). Agarwal and Gibson (2001, p1) define communities as “complex entities containing individuals differentiated by status, political and economic power, religion and social prestige, and intentions.” Here it is important to identify the social actors in a place-based context and examine the interactions of endogenous and exogenous variables both on a collective and individual scale to design long-term viable solutions (Armitage 2005). Too often, however, CBNRM initiatives make assumptions about three broad aspects of a community: community as a small spatial unit, community as a homogeneous social structure and a community as having shared norms (Armitage, 2005; Berkes 2003, 2007).

Additionally, even though alternatives to the exclusionary method of conservation have been explored, many of them have not been given adequate support from the state or the time and space to function (Lele et al., 2012). Many CBNRM programs are still based on the top-down protected area concepts that aim to reduce local threats to nature by extending benefits or rewards for actions that facilitate conservation goals. This approach circumvents the basic

premise of CBNRM, which requires some degree of devolution and power sharing between the government and local communities in managing natural resources. Ultimately, this may compromise CBNRM's endeavor to improve resource protection by improving access to and control over common resources (Armitage, 2005). This possibility of unintended consequences exemplifies the need for management decisions regarding nationally and internationally significant natural resources to come from communities. Additionally, It is important to recognize the uncertainties regarding socio-political, economic and livelihood activities when considering community involvement (Armitage, 2005). A conceptual change in frameworks for addressing socio-economic systems and building the adaptive capacity along the individual-international continuum may be appropriate for the long-term viability of CBNRM initiatives (Agarwal and Gibson, 2001; Roe et al., 2000; Berks, 2003, 2007; Armitage, 2005).

2.2.4 Costs and benefits of CBNRM initiatives

An analysis of the success of community-based initiatives across the world suggests that in places where communities are included in a meaningful way, the benefits begin outweighing the costs of reserve creation within a short period, even though the costs are quite high (Bajracharya et al., 2005; Hossain and Karim; Appiah, 2001). An evaluation of community-based wildlife management initiatives across the world by Roe et al. (2000) highlights the social, economic and environmental benefits that community-based wildlife management initiatives have provided thus far. Community-based initiatives provide a number of direct and indirect financial and economic benefits to local people. Direct benefits can be seen in the form of sale or lease of hunting rights, which are most popular in African countries. The sale of wildlife, wildlife-related products and revenue brought into the communities through development of tourism activities as part of the CBNRM projects are some additional benefits (Benjaminsen et

al., 2013; Rao et al., 2000; Child, 1996). A number of other economic benefits are more indirect, such as infrastructure development through community development funds, increased employment, institutional development, capacity-building and training activities, diversification of livelihood activities, increased livelihood security, and access to timber and NTFPs (Benjaminsen et al., 2013; Rao et al., 2000; Child, 1996; Bajracharya et al., 2013; 2005; Hossain and Karim; Appiah, 2001; Sekhar, 2003; Salafski, 2001). However, Roe et al., (2000) warn against evaluating economic benefits solely through the evaluation of gross costs, as these numbers may be misleading. Costs of community-based programs can be felt in the form of labor inputs to guard and manage resources, investment in equipment and materials, buy-in of technical expertise, damage to crops and livestock, opportunity cost of land under protection, time investment, and labor investment. Here, it becomes important to analyze how these costs and benefits are distributed within and outside affected communities.

Roe et al., (2000) lump the positive social impacts of CBNRM into three major categories: institutional impacts, impacts on individual, household or community status, and cultural impacts. Institutional development has gone hand in hand with capacity building to help communities manage resources and effectively represent or control interest groups or stakeholders. Additionally, positive alliances between local, national and international groups have developed, along with an increase in positive communication between government entities and local stakeholders. Community status is improved through empowerment, land tenure security and increased representation of rural communities in political avenues. The hands-on involvement of communities facilitates a process of self-determination and the social recognition of often-marginalized groups, especially women. Cultural benefits include recognition of traditional ecological knowledge; recognition of traditional livelihood activities; and increased

validity and use of local knowledge in conservation and management decisions. (Sekhar, 2003; Kothari, 2003; Mossee, 2003; Salafski, 2001).

However, if not conceptualized and implemented properly, community-based conservation efforts can have significant negative social impacts. These programs can lead to increased inter and intra-community disputes if benefits are not distributed evenly. They can also lead to increased conflict between communities and external stakeholders, who, in most cases, hold greater power through their control over funding and governance. The concept of elite capture is quite relevant in this regard (Agarwal and Gibson, 2001). There are embedded social hierarchies within communities that can become amplified based on who, within a community, participates in these programs (Rao et al., 2000). Berkes (2003) suggest this to be a well-known phenomenon where the local elites capture disproportionately higher benefits from development projects, so the efforts that hope to provide benefits to locals end up adding to the inequitable distribution of power and assets. Another cost is the weakening of traditional and local authority, as these efforts may lead to increased rates of resource re-centralization (Benjaminsen et al, 2013; Goldman, 2003).

In spite of the deficiencies in its framework and implementation, there are a number of environmental benefits achieved as a direct result of involving communities in conservation efforts (Rao et al., 2000; Benjaminsen et al., 2013; Porter-Bolland et al., 2011; Bruner et al., 2001; Owens and Owens, 2009). Roe et al. (2000) evaluated a number of community-based wildlife management initiatives around the world and found that wildlife numbers have either increased or stabilized following previous declines. The Annapurna Conservation Area experienced a significant increase in the basal area and tree species diversity, as well as the abundance of certain mammalian species within the reserve, since the introduction of

community-based co-management strategies (Bajracharya et al., 2005). Porter-Bolland et al., (2011) evaluated 40 protected areas and 33 community-managed forests to find that overall, the community-managed forests exhibited lower and less variable annual rates of resource exploitation than the protected forests. In many cases, community-based efforts emphasize protection of ecosystems instead of individual species. This ecosystem approach of habitat protection eventually leads to the protection of a greater number of populations and species. Perhaps the greatest environmental achievements come from education, changed attitudes, and conservation values created towards natural resources among communities, ensuring the long-term protection of these areas (Mehta and Hinen, 2001). According to Bajracharya et al., (2005) this success can most often be attributed to: changing patterns of resource use and behavior among local people, increased community control over resources, increased conservation awareness resulting from environmental awareness, and a strengthening of local institutions such as the Conservation Area Management Committees in Nepal and the Van Panchayats in India.

Weaknesses of CBNRM programs in protecting nature are manifested in the form of a continued increase in poaching, along with unsustainable use of certain forest products. The Annapurna conservation area reports a lack of control over the hunting of commercially valuable wildlife species. Other areas report unsustainable extraction of fuel wood or overgrazing by livestock. These issues arise due to a number of factors: high monetary value of species being poached, lack of funding or power to patrol and monitor protected areas, insufficient resources to sustain livelihood needs of local communities, and a lack of value for wildlife species. However, most of these issues can be dealt with by building flexibility and adaptive capacity into the management strategies created for the protected areas (Shahabuddin and Rao, 2010; Rao et al., 2000).

2.2.5 Barriers to success of CBNRM

One of the greatest barriers to CBNRM's success is an incorrect assumption about the characteristics of communities. Communities in the CBNRM context are often portrayed as simple and small collectives with shared norms. However, overlooking the complex, multi-dimensional composition of communities leads to a failure in anticipating how the intricacies of social, political, cultural and economic interactions influence resource management outcomes. Acknowledgement of and attention to these nested details is critical for creating policies that lead to sustainable and equitable outcomes (Agarwal and Gibson, 2001). A related barrier to success is the presumption that communities have shared understandings and interests, which correspond with resource protection goals. This overlooks community components such as multiple actors, multiple interests, local-level processes, and formal and informal institutional arrangements that may not be overtly visible to outsiders, but could derail CBNRM processes nonetheless. Understanding and incorporating community characteristics into CBNRM programs is crucial to long-term viability of conservation and sustained development (Agarwal and Gibson, 2001; Campbell and Matilla, 2003).

Second, inherent in the idea of CBNRM initiatives is the notion of devolution and shifting at least some management power from the central government or international organizations to local communities (Hossain and Karim; Kothari, 2008). However, communities are often given the responsibility, but not the power of enforcement. Joint Forest Management (JFM) practiced in India is supposedly the world's largest co-management effort (Castro and Nielson, 2001). A closer look into the JFM practices indicates that the efforts are not necessarily as 'joint' as proclaimed. The program's overall structure is still very much top-down, with the state setting the agenda and deciding upon policies that are often disconnected from on-the-

ground needs. In reality, many of these initiatives end up strengthening certain existing hierarchies and increasing re-centralization, ultimately undermining the community-based efforts (Sundar, 2001; Castro and Nielson, 2001; Benjaminsen et al., 2013). Hence, instead of focusing on village-based participation, advocates of CBNRM initiatives need to concentrate on how the “entire system of representative democracy can be transformed to give more power to the people” (Sundar, 2001). Lack of true devolution corresponds with lack of clarity on a legislative level about the role of communities and local participation in CBNRM programs. Developing concrete legal frameworks to empower communities and guide shifting management regimes could help overcome the barriers arising from inadequate decision-making and implementation powers for local communities (Hossain and Karim; Armitage, 2005; Child, 1996; Kothari, 2000).

Finally, a key aspect of co-management or local involvement is the appropriate identification of relevant stakeholders and adequate local participation, because without these, the implementation of a true long-term cooperative management regime is very difficult (Hossain and Karim; Castro and Nielson, 2001). Barriers to participation sometimes result in inequitable benefit sharing (Khadka, 2008), leading to a lack of proper incentives for community members. However, these barriers originating at the ground level can be tackled by investing time in spreading awareness and educating community members about the CBNRM process (Hossain and Karim; Castro and Nielson, 2001). Additional barriers are posed by lack of time and short-term funding cycles for CBNRM projects (Hossain and Karim).

Natural resource management issues are inherently complex. Involving communities in the lengthy process of biodiversity conservation while maintaining socio-economic development goals requires long-term investment by national governments and international organizations. But, before this process can begin, one must thoroughly understand the complexities of the

socio-ecological system in question, as the combination of barriers and incentives for success are location-specific.

CHAPTER THREE

METHODOLOGY

This chapter discusses methods adopted to develop the research design, stakeholder group identification and selection, empirical data collection and data analysis. Within the broad field of political ecology, this research is interested in exploring the social constructions of nature and biodiversity conservation. It also seeks to understand how competing constructions and power differentials might create barriers to community involvement. Thus, this research adopts a multi-scalar approach to understand perceptions and attitudes regarding the perceived current and future relationships between relevant stakeholders of the NDBR. Individual and group interviews were conducted with members of three stakeholder groups. These data were then analyzed with the use of NVIVO to determine emergent patterns that address the research questions stated in section 1.4 of the introduction.

3.1 Research Design

This section begins with a justification for the selection of the qualitative research method and the utilization of the interview method to collect data. It then provides explanations and justifications for the process by which the stakeholder groups were selected to be part of this research. It also explains how selection of respondents was narrowed down within each stakeholder group.

3.1.1 Basic methodology and justification

Due to the exploratory nature of the research objectives, the need for both a nuanced understanding of participants' perceptions and expectations and a generalizable understanding of values (Axinn and Pearce, 2006), this research takes a qualitative instead of quantitative approach to data collection. Within the qualitative realm, an interview rather than survey method

was employed for data collection. This method was chosen for several reasons: first, interviews provide an in-depth and flexible approach to data collection that allow for explorations of relevant issues and meanings. Second, within the constraints of the topic in discussion, interviews allow the interviewees to discuss or emphasize certain matters and opinions that are of greater interest or concern to them. Third, interviews also allow the researcher to probe more deeply and clarify responses in order to uncover issues that are relevant to the research. Finally, interviews can produce rich and context-dependent data that allow the researcher to uncover unexpected issues or perceptions related to the topic. In this case, interviews provide a more appropriate data collection method than survey questionnaires, because they do not impose categorical responses (Denzin & Lincoln, 2007). The primary method of data collection for all three stakeholder groups was through semi-structured interviews with open-ended questions based on interview guides (appendix 1,2,3). Individual and group interviews were employed, though not at all stakeholder group levels. This is discussed in further detail in section 3.2.

3.1.2 Stakeholder group selection

A preliminary literature review suggested the presence of five major stakeholder groups that would impact or be impacted by management strategies of the NDBR. These were: 1) UNESCO, 2) The Indian Forest Service at the central and state level, 3) Natural resource and social research organizations that advise the Forest Department on management issues, such as the Wildlife Institute of India (WII) and the G. B. Pant Institute (GBPI), 4) Communities residing within the biosphere reserve; and 5) Grassroots organizations focused on social and environmental issues in the region. Of these, this research focuses on three stakeholder groups that were deemed to be inseparable from the actions and consequences of decisions surrounding the NDBR.

These stakeholders are:

- 1) UNESCO
- 2) The Uttarakhand State Forest Department (UFD) of the Indian Forest Service (IFS)
- 3) The local communities residing within the NDBR

These stakeholders interact with the reserve on three different scales and with varied perspectives. UNESCO is the global policy-making organization for reserve management that, through its MAB guiding principles, provides the guidelines for biodiversity conservation and socio-economic development of local communities surrounding the NDBR. The Uttarakhand Forest Department (UFD) is the state branch of the National Indian Forest Service (IFS). This is the branch charged with the responsibility of determining strategies and carrying out conservation and local development activities within the NDBR. At present, this stakeholder group exercises ultimate control over natural resource management and community involvement decisions. Finally, the local communities that are impacted by the reserves creation and management; they are expected, by UNESCO and the IFS to cooperate with the UFD in finding and implementing alternate means of earning a livelihood in order to reduce their dependency on natural resources present within the reserve.

Conducting research across these scales is important to determine where there are overlaps in expectations and actions for conservation and development. This will also help to determine: 1) where the disconnects lie in expectations from UNESCO about how local communities are and ought to be involved, versus what the UFD is doing or is capable of doing to involve the community, 2) what the communities expectations are from the UFD versus what the current on-ground reality of involvement is, 3) on the Forest Department level this research will explore what UNESCO mandates expect the UFD to do in order to involve communities

versus actual actions regarding local involvement. Additionally, this research can also help determine the perceived versus actual capability of the Forest Department to carry out the expected actions.

3.1.3 Site selection within stakeholder group

UNESCO: The only UNESCO field office in India is located in New Delhi, India. Interviews with this stakeholder group were held in the Delhi office.

Indian Forest Service: The Indian Forest Service (IFS) is a branch of the Central Government of India under the MoEF. Under the IFS, each Indian state has a state office responsible for the management of its forests and protected areas. There is limited central oversight of each state's management of its natural resources. This study focuses on the UFD, as this is the branch charged with the responsibility of determining strategies and carrying out conservation and local development activities. Within the UFD, interviews were conducted at the state level in the Dehradun office and at the district level in the Joshimath office. The district office is located within close proximity to a number of villages that fall within the reserve, including the two villages where this research was conducted. It deals directly with all issues and initiatives regarding the NDBR; however, approval for all actions must come from the state office.

Local communities: Interviews were conducted in the villages of Lata and Tolma. These two villages lie five kilometers from one another and were selected for a number of reasons. Lata village is the larger of the two, consisting of 80 households compared to Tolma's 16. Villages in this region historically had designated tracts of forest and grazing land, which they could access for livelihood activities. When the reserve was created, Lata village lost a significant amount of their grazing land to the reserve's core zone. Tolma village, in contrast, retained access to most

of their grazing and forested lands. Both villages lost income from mountaineering activities when the reserve was created and tourism within its boundaries was banned. Both villages have received development assistance from the forest department. However, because Tolma was able to maintain access to grazing and forestlands, it is economically better off than the village of Lata. The village of Lata also represents the loudest voice in local requests for greater interaction with reserve management. Consequently, a large range of acceptance for and expectations from the Forest Department between these villages was expected. Conducting research in these villages helped capture a wide spectrum of perceptions held by members of the local communities.

3.2 Sampling Design

3.2.1 Individual and group interviews

All interviews were conducted between May and July of 2013. Paying close attention to basic research goals and questions as identified in the research proposal, an interview guide was developed. As suggested in Patterson and Williams (2002), all interviews began with general and broad lead-in questions designed specifically to help the interviewee feel comfortable and generate discussion. The interview questions were tested at the local community level and then revised for greater clarity and focus. Interviews conducted during the testing phase were excluded from all analyses. All interviews were conducted in person in Hindi or English. These interviews were not recorded in order to help interviewees feel relaxed and encouraged to share more information. Rigorous notes were taken throughout the interview process. To avoid misinterpretation of the information provided, a summary of the notes was read to the interviewee at least once at the end of the interview. Respondents were asked to make

corrections or additions where necessary. Interview notes were typed up soon after each interview to maintain the integrity of the interview content.

Individual interviews were held for all three stakeholder groups. At the local community level, the unit of analysis was at the household level. In addition to individual interviews, group interviews were also administered on the local community level in both villages. Based on data from the individual interviews, themes were developed to create questions for group interviews. The group interviews aimed at facilitating a conversation about possible solutions to the issues proposed by members of each community. These solution-driven group interviews were carried out to enrich certain information provided in the individual interviews. Individual interviews were held prior to the group interviews in order to record individual ideas and attitudes before other community members in a group setting influenced them. Additionally, group interviews were held separately for men and women to allow for a comfortable environment for each gender.

3.2.2 Sampling technique

A mix of purposive and snowball sampling helped gain access to potential respondents. The following is an explanation of these techniques separated by stakeholder groups.

UNESCO and UFD: When selecting respondents within these stakeholder groups, a strategy of purposive sampling of key informants (Plowright, 2011) was employed as a first step to gain access. For the FD, not only did this method help gain access to officials who proved difficult to reach, but it also narrowed the search for interviewees outside the UFD district office. This was followed by the utilization of the snowball sampling technique to identify other interview participants (Bosak, 2012). Only one member of UNESCO was interviewed for this research. A number of employees at the UNESCO office were contacted for interviews. They all

pointed to one person in the office who possessed information relevant to this research. No other UNESCO members were approached because the interviewee also stated that no one else within the organization would hold information relevant to the study site, i.e. the NDBR. Within the Uttarakhand Forest department, officials at the state level in the Dehradun office and at the district level in the Joshimath office were included. A total of seven interviews were conducted with the UFD with four interviews at the state level and three at the district level. This allowed the researcher to capture variation in attitudes and perceptions among those who have the decision-making power and those who are responsible primarily for implementation. Here too, a snowball method of sampling was implemented. At the end of each interview, respondents from the UFD were asked to suggest other officers with relevant knowledge.

Local Community level: A combination of purposive sampling of key informants followed by snowball sampling was employed. The researcher lived in the villages while conducting interviews and approached households that were not being represented in the snowball method. Interviews were conducted until the saturation point was reached where additional interviews did not yield new information. The researcher acknowledges that the saturation point was reached only within the context of questions being asked about general attitudes and perceptions. Stratification of each community on basis of aspects such as inter and intra community wealth, resource need, labor availability, level of education etc. would likely provide variations in the range of opinions. However, this research was not conducted at that finer scale. Twenty-six individual interviews were conducted within two local communities. Additionally, four group interviews were also conducted at this level. Villagers were made aware of the group interview time and location at the end of individual interviews. Households that

were not represented in the individual interviews were approached separately with this information to improve representation.

3.3 Data Analysis

Interview transcriptions were created using the Qualitative Data Analysis (QDA) software called NVIVO, version 10.0. The purpose of organizing and coding these data was to develop themes that emerged from the interview process (Strauss and Corbin, 1998). These themes allowed the interviews to be “meaningfully organized, interpreted and presented” (Patterson and Williams, 2002, p 45). Attention was paid to two types of interpretations of data: Emic, i.e. interpretations understood and communicated by the interviewee; and etic, i.e. interpretations that were the researcher’s understanding. During the process of coding, ongoing memos were maintained combining the emic and etic interpretation of the data (warren and Karner, 2010). Chapters 4 & 5 focus on the etic interpretations, while Chapter 6 highlights the emic observations.

Interview data from UNESCO and the UFD were coded together. Interviews for both local communities were coded together as the research aims to gain an understanding of attitudes and perceptions at the overall NDBR community level and not at the village level. Individual and group interviews for both villages were also coded together. The separation in coding between interview data from the policy organizations and the local communities was maintained in order to readily highlight differences and similarities in perceptions and attitudes along the institutional gradient. Interviews were coded into emergent themes and topics of discussion to avoid imposing any additional sideboards to the recorded conversations. Within each theme, variations in responses were coded separately. The emergent themes were then reorganized and presented in the results chapters, highlighting responses relevant to the various research questions. Analyses

presented in the discussion keep the major concepts and theoretical framework of political ecology in mind.

CHAPTER 4

ATTITUDES AND PERCEPTIONS OF THE LOCAL COMMUNITIES

This chapter presents findings of interviews conducted in the villages of Lata and Tolma of the Chamoli District in Uttarakhand. Key findings outline these local communities perspectives on the current level and success of local participation with the forest department. This section also outlines the desired form of engagement the respondents from these communities would like to see.

PART I

4.1 Background Information

This section presents a historic setting for the attitudes and perceptions held by members of the local communities. During the interviews, this information was sought to establish the nature of the conversation that would follow, thus providing the interviewees with a context. First, an account of the traditional use and management of the land now encompassed in the NDBR is presented. This is followed by people's perceptions and attitudes regarding the creation and necessity of The Biosphere Reserve. This information provides important insight into the reasons behind the current discontent with the Forest Department.

4.1.1 Characteristics of respondents

The interviews represent views, perceptions and attitudes of men and women from the villages of Lata and Tolma. Male respondents formed 81% of the sample size for the individual interviews and 54% of the group interviews. While female representation in individual interviews is relatively low, if the total number of males and female participants is considered, the female population has a slightly greater representation at 32%. A total of fifty members of the local communities participated in the research through individual and group interviews.

Table 4.1 Tables showing: (a) sex ratio of respondents by individual interviews; (b) sex ratio of respondents by group interviews; (c) overall male and female representation through individual and group interviews. Conducted in the villages of Lata and Tolma during June 2013.

4.1 (a): n = 26

Village	Males		Female	
	No.	(%)	No.	(%)
Lata	13	76	4	24
Tolma	8	89	1	11
Total	21	81	5	19

4.1 (b): n = 24

Village	Males		Female	
	No.	(%)	No.	(%)
Lata	9	56	7	44
Tolma	4	50	4	50
Total	13	54	11	46

4.1(c): n = 50

Village	Males		Female		Total	
	No.	(%)	No.	(%)	No.	(%)
Lata	22	44	11	22	33	66
Tolma	12	24	5	10	17	34
Total	34	68	16	32	50	

Table 4.2 Distribution of respondent ages by interview strategy

Age Group	Individual		Group		Total
	M	F	M	F	
15 - 24	3	0	1	3	7
25 - 34	8	1	5	3	17
35 - 44	5	2	5	3	15
45 - 54	1	1	1	1	4
55 - 64	1	0	0	1	2
65 - 74	2	1	0	0	3
75 - 84	1	0	1	0	2
Total	21	5	13	11	50

Interviewee ages were organized by sex and grouped into 10-year intervals to facilitate analysis. In Lata, 69% of the males who responded to the individual interviews were below 34 years of age. 54% of these males fell between the ages of 25 to 34 years. In comparison to Lata, a greater percentage of the male respondents from Tolma fell within the 25-34 year age group. Only men under the age of 44 years participated in the male group interview in Lata. There was a

greater representation of ages among female participants in the group interview in Lata. This was also true when comparing the Lata women’s group age range with the women’s group in Tolma. All women were younger than 25 years in the group interview conducted in Tolma. In both villages, at least 60% of all male and female respondents to the individual and group interviews fell below the age of 44 years. The age group between 25 and 44 years saw the greatest representation in participation. The distribution of ages is demonstrated in Table 4.3. This table also shows the relative percentage of representation within the various age groups.

Table 4.3 Age distributions of all participants from local communities by sex

Age group	Male		Female		Total	
	No.	(%)	No.	(%)	No.	(%)
15 - 24	4	12	3	19	7	14
25 - 34	13	38	4	25	17	34
35 - 44	10	29	5	31	15	30
45 - 54	2	6	2	13	4	8
55 - 64	1	3	1	6	2	4
65 - 74	2	6	1	6	3	6
75 - 84	2	6	0	0	2	4
Total	34	68	16	32	50	100

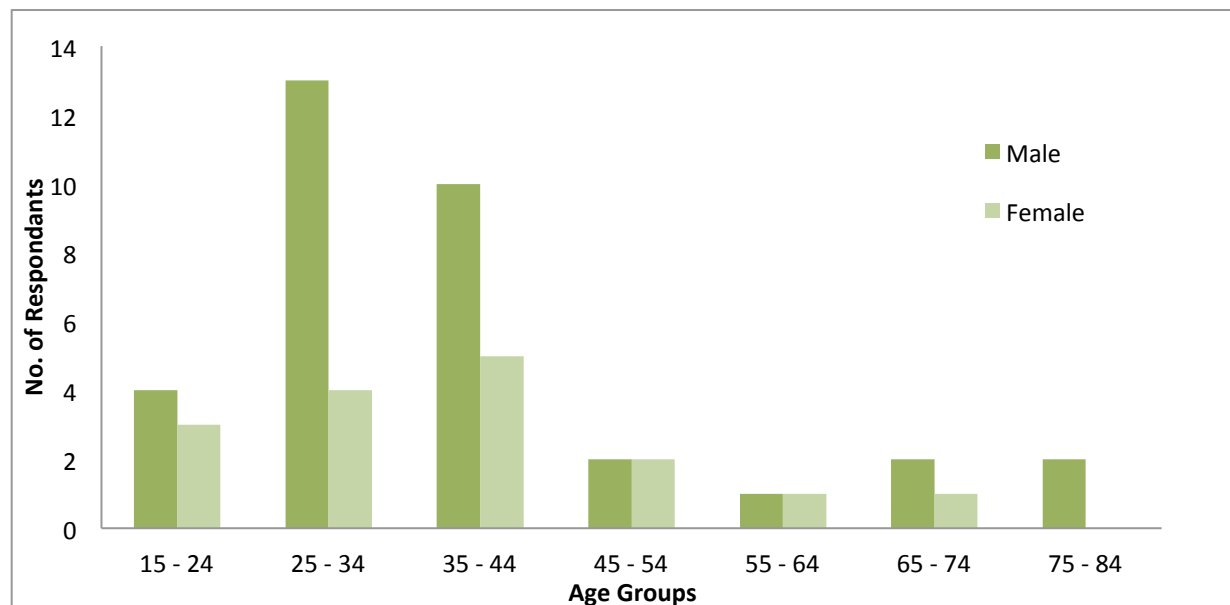


Figure 2: Age distribution of all participants from local communities by sex

4.1.2 Historic relationship with the land encompassed within the NDBR

Discussions about the historic use of lands around the villages of Lata and Tolma suggest that, traditionally, forests and alpine grasslands were primarily utilized to extract timber and NTFPs for subsistence use. Respondents mentioned the collection of timber for building homes and wood for cooking and heating. These products came from forested areas. Herbaceous plants, mostly extracted from grasslands were used as medicine, spices and vegetables. *“We used to just go in and people did different things in that area. Some people used to collect Chipi, Chohara, Jatamasi, and Dhoop to bring back.”* - LA#6. *“We used to graze our sheep, collect medicinal herbs. We used to get certain spices that made our food really delicious. Every once in a while we would get some meat.”* – LA#17. Certain NTFPs, such as mushrooms and medicinal herbs, were also extracted and sold for supplemental income. *“Well, before people used to collect medicinal herbs and sell it for money.”* – LA#2; *“We collected a kind of mushroom called Gucchi. Initially we used to just eat it but ... it was discovered that it had medicinal properties so medicine was made out of it. Then it started being sold to five-star restaurants. It is sold a lot in Himachal Pradesh. We don’t use it as a vegetable any more. It can sell for up to Rs. 10,000 per kilo.”* TA#18. Additionally, land encompassing the NDBR holds religious significance for the residents of Lata and Tolma. The Goddess Nanda Devi is said to reside within the reserve. Interviewees mentioned an annual pilgrimage into the now-restricted area to worship the Nanda Devi peak. The Bramha kamal, a flowering plant of religious significance, was extracted for ceremonial purposes during this annual pilgrimage.

Interviewees often spoke of the utilization of alpine grasslands as grazing pastures for large herds of sheep, goats and cattle owned by their families. They highlighted dual benefits from the maintenance of large herds of sheep. First (and to a lesser extent), these animals served

as a source of meat for personal consumption. Second, wool from the sheep was used to produce products such as shawls, sweaters and rugs for personal use and to be sold to tourists.

For a little over a decade before the NDBR was created, this region was a popular destination for mountaineering. Residents from the villages of Lata and Tolma worked as guides and porters for mountaineering expeditions heading for the summit of the Nanda Devi Mountain. In the short time that it was popular, tourism became a substantial source of income for many households. *“I used to work as a porter – from when I was 17 years old until we couldn’t go into the park. We used to earn Rs. 16 per day back then but that went up to 80 per day, then to 400 per day. Before, we used to sell our woolen products to the foreigners and make good money...before, when kids were sitting idle; they could just get up and go to work as porters. They could earn the money they needed to spend on school and supplies.” – LA #4.*

Most importantly, in the historic context, members of both villages expressed a strong sense of ownership of the forest and grasslands that surround their villages, despite the lack of any legal claim to it. *“The people of the village have been protecting this region since before the forest department was here. These forests are ours. We rely on them.” – LA#1; “These are all our forests. Closed or not. It is not new land. We have been accessing this land for many, many, years.” – LA#8.* The prevalent emotion expressed was that of long-term coexistence and mutual benefit. Villagers had an intimate and direct interaction with this land that provided varied means of livelihood generating activities.

4.1.3 Traditional forms of land use and management before reserve creation

An account of traditional forms of land management suggests the use of land and resources were not heavily restricted or policed. At least half of the interviewees mentioned the absence of any rules. People spoke of being able to access the land as needed without

restrictions. *“No, there was no restriction on how the forest should be used. We got whatever we wanted and sold whatever we wanted.” – TA#20.* A small number of the younger participants, especially those below the age of 35, mentioned a lack of knowledge about rules surrounding traditional practices. *“I don’t know. You should talk to the elder people to find out about that.” – LA#11.* Respondents mentioned that lands surrounding their villages were used for grazing livestock, collection of timber for firewood and building homes. It was also suggested that the older generation i.e. those above the age of 50 also collected a number of NTFPs for consumption as vegetables and medicines.

The most obvious form of management was mentioned in relation to the division of pasturelands according to groups within the village community. *“You can still see the walls. It wasn’t as if anyone could go anywhere. We had areas we went to with our sheep and when the grass there was almost gone we went to another location. I had to take permission from the others if I wanted to graze on their land” –LA#2;* Accounts indicated that grasslands were divided into sections in order to prevent overgrazing in one area and each area was utilized so that it may rejuvenate next season. Some traditional rules of conduct, that indicate an indirect form of management, also emerged. These demonstrate an expectation that everyone accessing resources from the forests or grasslands would abide by certain basic standards of respect for the land. Examples of expected behaviors suggested that these rules were meant to allow successful propagation of the plant species that were being harvested. *“Before? When we took herbs we used to get them according to our needs. For instance, we did not harvest all of them. Say there were 4 heads, then we would take 3 and leave the 4th” – LA#1;* *“Not really. We just told people not to pull anything out by the roots. We would just cut the branches. Things like Churu and Chipi would be harvested after they already had seeds. The forests were not misused.” – LA#13*

People were expected to act respectfully by wearing proper clothing and behaving appropriately so as not to anger their deity, Nanda Devi. *Yes, like we weren't allowed to wear bright clothing up there. You can't dig up whole plants. If you do, then only a few, or else you might anger the gods and goddesses. Our elders had instilled a psychological fear in us. I think it was stricter than the laws enforced by the Forest Department today. We couldn't shout loudly there either.*” - TA#18. There was no mention of rules specific to interactions with the wildlife. Conflicting information was presented about whether or not wild ungulate species were harvested for meat. Some respondents mentioned hunting wild animals for meat. *“Not really. Yes we used to hunt back then but it was just one or two animals to eat.”*- LA#21. Others at the same time mentioned only consuming domestic animals and not harming the wildlife. *“You have heard that we used to hunt some wild animals for food but that didn't happen in my time. I had heard about an Englishman once who was in the forest for the whole winter and came out in April or June. His cave had all sorts of bones. We ate our own sheep and goat.”*- LA#4. Comments suggested that while the predominant interaction with the surrounding land was that of extraction, it was understood that the community depended on prudent extraction. However, these guidelines were only mentioned in relation to the use of grasslands and forest resources. None of the interviewees spoke of any rules of conduct or guidelines in relation to land use for mountaineering.

4.1.4 Perceptions on reason for reserve creation

A discussion about perceptions of the reason for the reserve's creation alluded to some uncertainty regarding how the idea for creating the NDBR came about. While most respondents agreed the reserve was created by the Indian Forest Department, some uncertainty was presented about who pushed for its establishment. Some people held the opinion that the foreign tourists

who came to visit the region pushed for its protection to prevent degradation. Others thought the idea for the reserve's establishment came from researchers. *"This was not just the work of the Indian government. People must have researched this place and decided that they didn't want a lot of environmental disturbance in the region. Maybe that is why they turned this into a protected area."* - TA#18; *"I think the foreigners got the park closed. There was a little bit of trash in the reserve and the wild animals were getting disturbed."* - LA#4.

When asked why the reserve was created, a majority responded by saying that it was established to protect the wild animals. Various suggestions were made for why these animals needed protection. The most common was the need for protection due to increasing disturbance to the animals from the heavy foot traffic brought by mountaineering. Respondents also mentioned the need for protection against hunters, both locals from the Niti valley and those from elsewhere. *"For the wild animals...people said that some people are hunting too much so if we make a national park, more people from outside will come. If we have more animals then more people from outside will come to see them."* - LA#1. A few people specified Nepal as the origin of these outside hunters who were often referred to as poachers. Most people spoke of outsiders as anyone who did not originate from the Niti valley and identified them as a greater threat to wildlife. Others mentioned that protection was put in place for both plants and animals. While it was uncommon, a few respondents stated that the reserve was established to protect biodiversity. All respondents who mentioned biodiversity protection as the premiere purpose for NDBR's existence have been involved with the Forest Department or eco-based tourism in recent years. Some respondents also mentioned the accumulation of trash along the mountaineering path that led up the Nanda Devi peak, though most of these did not state that as a reason for NDBR's establishment. *"The first reason was too many expeditions were taking*

place. There was a lot of trash left behind so they closed the place. Second, before the Chipko Movement, the forest department used to cut all the green trees, and then Chipko happened and the locals wanted to save the forest. So after Chipko, they also thought that we should save the trees. That's why the park was created.” - LA#15. A prominent member of the community provided three succinct reasons that were also uncommon but were referred to indirectly in other interviews as well. “I think there are three reasons: a) People who saw the trash, created it for the protection plants and animals. b) It was created to get funds from places like the World Bank and other national and international agencies. c) India and the US got together and put a nuclear device in the park and then lost it. It is possible that the park was created to hide that device. - LA#14

Ten out of twenty six interviewees stated that they did not know why the NDBR was established. However, a prominent message that emerged from this topic is that, to the community's knowledge, the restriction on entry into the reserve was meant to be temporary. It was also repeatedly asserted that members of the community were assured that reserve establishment would ultimately benefit them. As stated by the interviewees, if the region were given a chance to regenerate for a few years, more tourists could be attracted. This ultimately would provide them with increased employment and a larger market in which to sell their products. *“The forest department told us that it will be good for you...they said that people will get business if the park is closed. They said that we would be able to sell vegetables, woolen products like shawls and rugs.” - LA#8. “When the park was closed, we were told that in 5 years we would make even more money than we did when it was open. There would be more people coming to visit. Now they have made the park and it had just stayed closed...People allowed the park to be made because they thought that it would be better for the coming generation. But it's*

been so many years. We have done everything, we have held hunger strikes and sit-ins but they just don't listen to us." - LA#13. It is important to mention here that while this element of the conversation does not directly address a reason for NDBR's creation, it provides a pertinent introduction to the tone of the relationship between two major stakeholders of the reserve. This particular perception addresses what is potentially the inception point of strained relations between the local community and the forest department.

4.1.5 Attitudes surrounding the necessity of NDBR's establishment

Very few villagers expressed a need for the reserve to have been created. Those who did were all males below the age of thirty-five. *"I think the wildlife population was going down because of outside hunters and I think the government thought to create the park to protect them. They did this so that the forest department could look after them. Because of the closure, their population has increased, especially for the ones that were about to go extinct."* - LA#3. The few that suggested that accumulating trash and wildlife hunting were issues, mentioned that the forest department could have employed less drastic measures to tackle the problem. Suggested alternatives and solutions have been discussed further in section 5.5.

An overwhelming majority denied any necessity for the NDBR's establishment. Justification for this reaction suggested varied degrees of tolerance for wildlife in the present day. Many mentioned that the animals that are said to need protection have persisted in this region for many years and would continue to do so regardless of the reserve's presence. The following quote is synoptic of the general attitude shared by many male interviewees. *"I have a question for the government: this biodiversity that they are protecting, where did it come from? Who brought these plants and animals here? This biodiversity is a result of our protection. It is because of our practices. If they go, we go. Think about it; if the medicinal herbs were to go,*

then we would die of diseases. The government said that the land was theirs and took it from us. They said that the British had passed on this land to them and it had been protected years ago. I want to ask them where they think these plants and animals came from. Did the British bring them here by boat? No! They were always here! - LA#14. It was often mentioned that people did not interact much with wildlife when accessing the forests. Wild animals were usually left alone and were rarely harmed. Many respondents justified the needlessness of the reserve by stating that wildlife may have actually been better off before the reserve's establishment. *"We had so many sheep and goats. We were helping the wildlife because sometimes they would eat our animals. Sometimes we would kill and eat the wildlife. There was a natural balance. Now the leopards must be going hungry because everyone sold off their livestock."* - TA#18. A slightly different range of attitudes emerged when women spoke of the necessity for the reserve's creation. Women younger than thirty-five years of age made suggestions similar to the male respondents by stating the animals did not face dangers from the local community and thus did not need protection. Others, older than this age threshold not only denied the need for the reserve but also the necessity of wildlife in the forests. *"There was no danger to the animals in the first place. There are many more animals now. There is no need for these animals in the forest. They just cause us harm by destroying our crops."* - TA#25. This predominant attitude regarding the needlessness of protection could potentially help to explain one aspect of the lack of support for the forest department and its activities.

4.2 Perceptions of Losses Sustained as a Result of NDBR's Creation

Sections 4.1 and 4.2 present results pertaining to the first research question proposed in this study. These sections present a range of perceptions and attitudes held by interviewees from Lata and Tolma that speak about the current level and success of local participation. Accounts of

losses sustained by the villagers as a result of the NRBR's establishment dominated every conversation. The following is a summary of these perceived losses arranged by the frequency of occurrence. It is important to begin with an account of the losses because the forest department is expected to compensate for losses sustained by the local community as a direct result of the NDBR's creation. The expectation of compensation has created a particular dynamic between the villagers and the forest department, which lends to the current state of discontent expressed by the people. A discussion of the current relations between the forest department and the people of Lata and Tolma is presented in section 4.3.

4.2.1 Direct economic losses

Interviewees spoke most commonly about the losses sustained due to the prohibition on tourism. This manifested itself in two ways: 1) Loss in wages earned as guides and porters; and 2) Loss in income from the sale of woolen products to tourists. *"The greatest loss has been to our economy. Before, many people used to work as porters and guides. We used to be busy the whole time when the trekking and climbing season was open. Now there are barely any tourists."* - LA#2. The ability to work as porters and guides was often referred to as a crucial fallback for members of the community who were unable to procure employment or living wages in other ways. *"So even the most educated people knew that if nothing else worked out they could always work as guides to earn money. They used to earn a lot of money doing this. Now that we don't have that option, people's monetary conditions have become really weak."* - LA#3.

References were also made to the burgeoning trade in woolen products where mountaineers coming to the region to scale the Nanda Devi peak were the primary buyers. *"There was so much business here when we had tourism. Other than as porters, we used to sell woolen products or alcohol or food to the tourists and it was good business."* - LA#8. The inability to collect and sell

plant products was the second most common form of economic loss expressed by the respondents. However, no references were made to indicate the magnitude of this loss.

The village of Lata lost access to the majority of its grazing lands when the reserve was created. The village of Tolma maintained access to most, but was unable to access some of its lands. However, interviewees from Tolma did not mention that this loss was something that inconveniences them today. *“Each village has fixed bhugiyals where they used to graze their sheep. Our grazing land is now in the Nanda Devi National Park.”* - TA#19; *“Things have only been bad since the park has closed. We used to take our cows and goats up there to graze but that can’t happen anymore, so we had to sell all our animals.”* - LA#8. Large herds of sheep were maintained primarily to obtain wool from which products such as rugs, shawls and sweaters were made. Thus, the creation of the reserve not only caused the loss of the market where wool products could be sold, but also the resources from which wool was obtained.

4.2.2 Indirect economic losses

A number of indirect economic losses were addressed throughout the interviews. A majority of these indicated a change in how resources were procured to fulfill needs before and after the reserve was established. Here, the inability to access herbs for medicinal and consumption purposes was repeated most often. *“We used to get medicinal herbs like Pharan, Chipi, Katuki, Joru. But now we are not allowed to go into the grasslands where they grow. We can’t grow them because these herbs grow at a height. The grasslands are at 16,000 feet and our Van Panchayat forests are at 9000 feet.”* - LA#13. It was also mentioned that timber, once sold in the market and used to build homes and ploughs, is no longer as accessible as it used to be.

Many respondents also attributed cattle depredation and crop damage inflicted by wild animals to the presence of the NDBR and the associated protection provided to wildlife. One

interviewee made the observation that while the rate of losses incurred due to wildlife may not have increased, the repercussions of these losses are more pronounced today. This, he stated, is because villagers own fewer animals and farm on fewer fields, and thus have a smaller buffer to absorb losses. *“We feel the damage more because the size of our fields is decreasing. In the past we used to have farms all the way up to the forest. There were inner fields, middle fields and outer fields. The animals used to be satiated from the fields close to the forest. There used to be more bears back then but they never used to come to the village”* - LA#16. It was also mentioned that villagers had greater power to protect their farms and animals from wildlife before restrictions on harassment were put in place by the forest department.

PART II

Section 4.3 and 4.4 present an account of the state of current forms and attitudes surrounding ways in which people from Lata and Tolma interact with the forest department. Section 4.3 discusses the current context of this interaction. It was common for respondents to mention feelings of dissatisfaction when referring to the current types of interaction with the forest department. Thus, section 4.4 presents explanations for the various rationales that address the reasons for strained relationships.

4.3 Current Interaction with the Forest Department

Interview responses suggest that current interaction between the forest department and residents of Lata and Tolma is top-down. Responses by the local communities suggest a one-way interaction. The forest department plays the role of provider by providing employment, supplemental resources and compensation. The local communities presented perceptions of themselves as recipients lacking the power to sway any aspect of the interaction. This idea is developed further in section 5.3 and in the discussion section.

4.3.1 Supplemental resource

The villages of Lata and Tolma are two among forty-seven villages of the Chamoli district that receive certain resources from the forest department on an annual basis. This resource provision is aimed at reducing the local community's dependence upon the forests to fulfill their livelihood requirements. The villages are provided with wool, liquid petroleum gas (LPG) cylinders, solar panels and solar-powered lanterns. *"Sometimes they give us things like the solar panels, lanterns and wool. We use the wool to make rugs and shawls. They give 14-15 kilogram to the Gram Sabha and then that is distributed among people."* - TA#25. Not all supplemental resources are provided to all villages every year. Accounts of this distribution suggest the villages receive one or few of these items in limited quantities annually. Interviewees mention that the forest department has not remained consistent in providing the supplemental resources in recent years.

While infrequent, some funding has also been made available for small projects such as building permanent toilets and setting up a wool-carding machine. As the resources provided cannot be made available for all residents of a village at the same time, it is the responsibility of each village to determine how the resources ought to be distributed fairly among the residents. The governing authority of each village is provided with the supplemental resources, which are then distributed among village residents. *"They also give things like wool or money for wool. Right now they are giving us lanterns and gas cylinders. They give a few of these items and then it is up to the villagers to decide who gets the items."* - LA#12. The village of Tolma, with only 16 households, draws names out of a hat for fair distribution. The village of Lata, with 80 households, mentioned facing trouble in determining which 4-5 families ought to receive these resources in a particular year.

4.3.2 Employment

Aside from supplemental resource provision, the forest department also provides employment opportunities to members of the community. A discussion about the type of employment suggests the bulk of the work is on a temporary basis through construction projects. While few people mentioned working for the forest department themselves, almost all provided a list of the work that someone from the village had done for the forest department. Respondents mentioned working on various temporary manual labor projects. These include: building and maintaining hiking trails, check dams, guard posts and planting trees. *“People work on small projects like building roads and check dams right now. People help the forest department in other ways too. Like when there is a fire, the villagers go into the forest with them to put it out. If they have expeditions then it is usually people from the village who go in as porters.”- LA#12.* It was not explicitly mentioned who determines the necessity of projects, but interviewees mentioned that projects were provided as funding became available to the forest department. This construction work is provided via contracts where a fixed amount of funding is made available to complete a project. This contract may be provided to the entire village via the village head (Sarpanch), the village woman’s group (Mahila Mandal Dal) or the community forest group (Van Pachayat). The contract can also be provided to one member of the village who is then responsible to hire the labor. However, it was suggested the individual supplied with the contract from the forest department is not obligated to hire workers from their village or even other residents of the NDBR.

Other temporary employment includes local accompaniment of department guards as guides and porters on excursions into the core zone of the reserve, and assisting the forest department in extinguishing forest fires. *“Yes, a lot. Say if there is a forest fire, they come to us*

for help. In fact, I even got burnt one time putting out a fire. ” - LA#16. Some respondents also mentioned knowing one or two boys who had worked for the forest department as guards at local check posts (chaukis). Only one male interviewee mentioned working with the forest department on a more permanent basis, on a UNESCO Livelihood Development project. *“I already work with the forest department. I work on UNESCO's Livelihood Development project with them. We work on projects that improve livelihood by providing training. We took some women to the Himachal Institute to provide them with training on how to grow medicinal herbs but the problem is that no one does it at home.” - LA#9*

4.3.3 Compensation

Compensation is provided for injuries inflicted on humans and livestock by wildlife. Only one respondent mentioned a family member having been injured in a bear attack. According to this interviewee, he was compensated for a portion of the cost incurred by his family for the treatment. Compensation was mentioned most often in relation to losses sustained due to attacks on livestock, provided certain requirements of the claim process are met. *“Yes, why should I lie. They gave me proper compensation. They gave me the market price for both the animals. ” - LA#17.* Respondents were not aware of any reimbursement available for crops damaged by wildlife.

4.4 Rationale for Strained Relations with the Forest Department

When discussing the current relations between the forest department and members of Lata and Tolma, the emerging tone of responses suggested a feeling of lack of options and sway to direct this interaction. Responses suggest a strong feeling of lack of control over the type, amount and frequency with which employment and resources are received. This was expressed through rationales provided for dissatisfaction with every aspect of the existing interaction. These range

from dissatisfaction with the current state of job and supplemental resource provision to a general sense of ambivalence about the forest department's trustworthiness. The attitudes and perceptions discussed below provide some understanding for the current nature of stressors in the relationship between the forest department and members of Lata and Tolma.

4.4.1 Employment provision

Conversations about the community's discontent suggest that relationships between the forest department and the communities became strained soon after the establishment of the NDNP in 1972. Most common responses indicated that initial displeasure with the forest department could be attributed to the community's perceptions about two things: 1) timeline of restriction on access to land and 2) provision of economic activities to supersede the economic and opportunity costs of the NDBR's creation. A number of respondents mentioned that, at the time of initial closure, it was expected that the area would re-open for tourism within five years. *"We have been duped...we were told it would only be closed for five years. We gave them permission to make the park. They just asked us to sign stuff. Then later we found out that what we were told no longer stood. The park was made permanent."* - LA#17. Many respondents from Lata spoke of signing over their rights to access land encompassed within the reserve, with the expectation that the arrangement would be temporary. Today, respondents (especially from the village of Lata) are of the opinion that they were misled into relinquishing access to their lands. In conjunction with this issue, it was also often mentioned that people were led to believe that no changes in the economic standard and earning potential would be experienced as a result of the reserve's creation. The forest department was expected to provide employment opportunities and a market for products that were sold to tourists. *"When the park was being created we were told that we would be given employment. We were supposed to work as guards for the forest*

department. They don't give us any employment. They won't give us any work.” - LA#6; “They had told us that they would provide long-term jobs to some boys from the village but the park has been here for over 30 years and there is not even a single boy here who works with the forest department.” - LA#M. In fact, community members assert that they expected an increase in monetary income resulting from an increase in tourism after the reserve was created. It was explained that the trash cleanup and vegetation restoration of the degraded habitat would attract tourists in greater numbers. “They told us that if more tourists come to visit the area then there will be more employment. Someone can be a shopkeeper, someone can be a watchman, someone can be a porter for the tourists, someone can be a cook on a trekking group.” - LA#1.

Expectations for employment with the forest department have changed little in the thirty years since the reserve's creation. Today, discontent regarding employment arises from the sporadic and insufficient nature of its provision. Even though comments clearly stated that only the male population from the villages would work with the forest department, both males and females expressed dissatisfaction over the type and amount of work. *“The villages just hope for a constant stream of employment through the forest department like sometimes they can give us check dams, roads, water. Then, people can be happy. The wild animals will get protection and the park will stay; but for the last 4-5 years, there has been no work in the village.” - LA#1.* A few older males noted that work such as building and trail construction provided to them was not appropriate for the unskilled young or the old and physically weak. Vexation was expressed over the process by which contracts for projects were given out. It was suggested that the lack of mandates on who ought to be hired for the jobs led to the employment of people other than the residents of the village, in order to cut costs. *“They give contracts to people but we have no idea how they choose who to give the contract to. They just pick the person who will do the cheapest*

work. “- LA#M; “Dhan Singh ji is working with them. The forest department has given him a contract to make a hut in Dharansi. But Dhan Singh ji does not hire people from the village. He has hired Nepalis. No one from the village works for him. I don’t know why.”- LA#6.

Additionally, these projects employ very few people for a short amount of time. Finally, comments also suggest a decrease in contract work being provided in the recent years adding to strained relations.

4.4.2 Access to lands and resources

The area encompassed within the reserve consists of forested land and grasslands. Most interviewees did not differentiate between the two habitat types and referred to the entire region as *forests*. Nonetheless, it is important to differentiate between the two for the purpose of this research. This is because a discussion of loss of access indicated that each habitat type was accessed for different types of resources. Additionally, the inability to access resources confined to grasslands was protested at a disproportionately higher rate. “*Since the closure of the core zone, we haven’t been able to access any of the herbs from the forests..No, they don’t grow in forests. They grow in the bhugiyals (grasslands) and that is the place where we can’t go.*”- LA#3. As mentioned in section 5.0.2, the forests traditionally provided firewood and timber for sale and construction. It was disclosed that sufficient amounts of these resources could be extracted from the designated Van Panchayat forests for personal use. Van Panchayat forests are separate from the NDBR and are governed by independent village committees, but the forest department possesses final decision-making authority. Respondents expressed their disapproval of the restriction placed by the forest department on sale of these products for profit. “*Lakhs and lakhs (hundreds of thousands) of rupees are being wasted in the Tolma Van Panchayat forests because so many dried trees are lying on the ground but the forest department does not allow us*

to use them.”- TA#18.

Interviewees from the village of Lata most often expressed anger over their inability to access their grasslands. This was primarily due to the recent surge in the extraction and sale of *Cordyceps sinensis*. This fungus species is sold in the black market in China at a tremendous profit and has become a prominent source of income in the Chamoli district.

However, since residents of Lata no longer have access to their own grasslands where the fungus is found, they have had to fight with neighboring villages for access to grasslands claimed by those villages. Interviewees from Lata blame the forest department for its recent squabbles with other villages. It was suggested that the forest department was to blame for the recently soured relations among villages that have historically co-existed peacefully. Responses suggest that this particular issue has heightened Lata’s disapproval of the forest department. *“When the park was created, our village suffered the most. No one else was affected. We lost all our grazing lands to the park. People from all the other villages go to their own grasslands to collect kira jari (Cordyceps) and we don’t have our own grasslands to go to... Most of us sit at home. We get some money from kira jari these days but we have to fight with other villages to access that land. We were the ones that lost our grasslands to the park and the entire valley gets benefits from the forest department.”- LA#W.* The discontinued collection and sale of other profitable herbs was mentioned but not pursued in discussions. The Bramha Kamal, a flower collected from the core zone of the reserve every spring for religious purposes, was mentioned separately a few times. Interestingly, a young male respondent related the flower collection to an act of defiance against the forest department’s authority, despite the ability to receive permits for its collection. *“It doesn’t matter what the forest department says, it doesn’t matter what the government says, we will go in to collect the Bramha Kamal flower no matter what.”- LA#15.* This attitude suggests a

general disapproval of the forest department regardless of the issue in question, which could indicate an important barrier to the community's willingness to work with the forest department in the future.

4.4.3 Livelihood improvement initiatives

Compensation: A discussion of compensation for livestock depredation and crop damage presented two major reasons that add to the strained relations between the community and the forest department. First, it was suggested, though subtly, that the forest department is concerned more for the protection of the reserve's wildlife than it is over losses sustained by the people.

"The forest department is raising leopards, it's raising grape vines, it's raising bears, and people are being harmed. All the apples from our trees are gone." - LA#17. Second, the existing compensation process was criticized for being extremely convoluted and inadequate.

Respondents expressed dismay over the sizable destruction of crops by bears, boars, macaques and langurs. *"The forest department does not pay any attention. All our apple trees have been destroyed. We used to sell at least two tons of apples from here. Now, we don't even have enough to eat ourselves."* - TA#26. It was commonly stated that no reimbursement process existed for damage to crops. Only one person mentioned having knowledge of the forest department's new scheme that was launched in November of 2012. This scheme provides compensation for losses incurred due to crop damage inflicted by wildlife. When asked about compensation, a majority of respondents began by stating that they were not given any compensation for livestock depredation.

Some explained that while compensation for livestock depredation is provided, the timeline to file a report with the forest department was said to be unrealistic and nearly impossible to adhere to. *"But even for cattle, they say that a herder has to be present with the*

cattle at the time that the animal is attacked. If the herder is not with the cattle then they won't give us compensation. Sometimes people don't have the time to go with their cattle. And it is really difficult for us to report the attack within 24 hours. Then they ask us to bring pictures. Where are we supposed to bring pictures from? They don't give us cameras to use. It costs us so much money to get to the office to report the damage and then we have to go back again and again with the papers and stuff. ” - TA#W. Even when the paper work is successfully filed, the amount reimbursed was said to be largely insufficient. Interviewees also expressed uncertainty about the time it would take to receive the money. It was suggested that villagers would have to wait anywhere from two to five years to receive compensation. Though all respondents spoke of financial losses due to livestock depredation, interestingly enough, few mentioned ever having filed the paperwork to receive compensation. It was also noted that knowledge of the procedure to file paperwork with the forest department was limited to a small number within each village. The following table presents a record of reimbursements made by the forest department to individuals' from Lata and Tolma between 1998 and 2012. This information was obtained from the forest department office located in Joshmath, Chamoli district, Uttarakhand.

Table 4.4 Number of Reimbursements made for cattle depredation by the forest department to individuals from Lata and Tolma between 1998 and 2012.

Year	Lata	Tolma
1998	1	0
1999	5	0
2000	4	2
2001	18	2
2002	16	10
2003	8	2
2004	22	5
2005	5	2
2006	7	0
2007	10	1
2008	5	0
2009	0	0
2010	0	0

2011	2	0
2012	3	0
Total	106	24

Supplemental resource provision: The following table presents a record of supplemental resources distributed by the forest department to the villages of Lata and Tolma between 2001 and 2012. Data for LPG gas cylinders, solar panels and solar lanterns are provided in the number of items distributed. Villages received either solar lanterns or solar panels or a combination of the two each year. The data on solar products provided below represents the total number, because information on the number of the individual solar items was not available. Data were also unavailable for cylinders and solar products distributed in 2001 and 2002. Finally, wool was distributed in processed form and weighted in quintals. 1 quintal = 100 kilograms. This information was obtained from the forest department office located in Joshimath, district of Chamoli, Uttarakhand.

Table 4.5: Supplemental resources distributed by the forest department to individuals from Lata and Tolma between 2001 and 2012.

Supplemental Resources						
Year	LPG Gas cylinders		Solar lanterns or panels		Wool (in quintal)	
	Lata	Tolma	Lata	Tolma	Lata	Tolma
2001					7.28	5.96
2002					4.01	3.44
2003	3	3	2	3	0.00	0.00
2004	0	0	4	0	6.75	8.67
2005	0	0	8	3	0.00	0.00
2006	3	1	3	1	3.44	2.96
2007	0	0	0	0	7.30	4.30
2008	0	0	5	1	8.00	4.30
2009	10	5	5	1	5.03	4.33
2010	4	3	2	0	6.00	2.00
2011	8	3	8	3	4.00	2.00
Total	28	15	37	12	51.81	37.96

The benefits of supplemental resource provision were not immediately apparent based on the interview responses. Many stated that supplemental resources provided are helpful. However, almost all interviewees outlined issues with some aspect of the program that ultimately produced attitudes and perceptions antithetical to those intended by the forest department. Dissatisfaction was most frequently associated with the process by which the supplemental resources are provided and their quantity. The types and patterns of supplemental resources distributed by the forest department are mentioned in Section 4.3.1. Disgruntlement was more prominent among responses from Lata than from Tolma and can be attributed to village's larger size. *"What will a few kilograms of wool or a couple lanterns do for such a large village? If anything it causes conflict in the village. This is not a good system. If they want to give us something then they should give it to the whole village all at once. They don't have to keep giving every year. That way at least people won't fight amongst themselves. They should stop this process of giving one or two every year. If you are giving lanterns, then just give it to the whole village in one go and then don't give anything to that village for 2-3 years."* - LA#3. On average, three to five of any given product are provided in a given year. Residents are presented with the quandary of distributing them fairly. It was mentioned that each year the small number or amount of these resources was creating conflict among villagers due to perceived unfairness of distribution. Additionally, people were unhappy with the lack of follow-up after products are made available. The process to refill LPG gas cylinders was described as inconvenient and often unaffordable. The inability to access facilities to repair damaged products has reportedly led to the accumulation of junk. Comments suggest an expectation from the forest department to assume responsibility to maintain resources that it provides. *"They have installed a wool carding machine. But if anything breaks on it or anything has to be done, that money has to come from*

the Van Panchayat funds. The carding machine was Rs. 5 lakhs. It broke last year and we had to spend 4 lakhs to fix the machine... One thing that is certain is that none of the work that the forest department is doing is good. They can say all they want that they do this and that for the village but if it does not work for us then there is no use.” - LA#M. Overall, while the act of providing resources was appreciated and welcomed, there was less approval for the actual resources. Comments suggested that this was because more often than not, the supplemental resources did not actually address the larger needs of the village or even the family that received the benefit of the resource.

4.4.4 General attitude regarding the forest department

Reliability and trustworthiness: Interviewees spoke of the Forest Department’s lack of concern for the people’s plight and rights. This, it was expressed, was apparent to people through the department’s indifferent attitude, non-responsiveness and lack of follow-up to concerns expressed by locals. *“When their forest is on fire, then how do they find time to come to us for help? They have the power to do something. If cows and goats get into the plantation, they don’t bother to do anything about it. They arrive here with their guns to protect the monkeys and don’t care even a little bit about the people.”* - LA#M. This perception was reinforced by the perceived hypocrisy of restrictions on natural resource use by local communities in comparison to allowances made for national, state and private development projects. *“The Forest department is distributing LPG cylinders so that we don’t create pollution by burning wood to cook food. It has giving us lanterns so that we don’t scrape off tree bark. That is pollution! But when they bring huge machines here to build roads and dams and blast everything! That is not pollution. Why this double standard? Villagers burning wood are causing pollution but 1000-ton blasting is not pollution for them.”* -LA#14.

Interviewee attitudes suggest a predominant lack of trust for the forest department. It was very common for people to speculate on the forest department's actions, indicating a widespread perception of rampant corruption. Statements made addressed the perceived mismanagement of funds available to the department for socio-economic development of villages within the NDBR. Examples referred to provisions ranging from skill development training, contract-based work, and reimbursement for cattle depredation. *"But the forest department always keeps a percentage of the money even before it comes to the people. Even the Forest Department guard does not get a big cut of the money. Usually most of the money is embezzled by the top officials."* - LA#9; *"It was supposed to be one month of class and then one month of field course. It has been one year since the lecture part of the course and there has been no field training. They just say that the funding ran out. But they just eat the money."* - LA#15. The following is an example repeated by interviewees to validate their beliefs on the subject of corruption. The quote refers to a contract given to the village of Lata to build a trail from their village to a location at the edge of the core zone of the reserve. *"Yes, that money comes in, but they are not honest. Sometimes they will actually have a budget for Rs. 2 lakhs but they will only give us a contract for 80,000. I don't mind them taking their cut, but the level of dishonesty is too big. How can you work with them under these conditions?"* - LA#4. The general feeling of distrust expressed towards the forest department's actions and intentions were expressed in reference to almost all forms of interactions with the forest department. This posits a significant barrier for successful future interaction between the local community and the forest department, but could also be the low-hanging fruit of opportunity by way of improving communication between the two stakeholders.

Competence and utility of the forest department: Though many believed that wild animal populations had increased as a result of the reserve's presence, doubts regarding the role played

by the forest department in this success were recurrent. Almost everyone noted the long distance between the forest guard stations and the location of the park. Many questioned the impact forest officials could have from guard posts located along the road, many kilometers away from the area where the wildlife reside. Respondents held the belief that in order to protect the reserve, the forest department officials must spend considerably more time in the reserve than they do in their offices. Here, concerns regarding the capability of department officials to traverse the steep terrain of the reserve emerged. Some even questioned the FD's knowledge about the region and its wildlife to effectively conduct the task of conservation. *"Nothing. They don't do anything. I don't want to say bad things about them but if you think about it, their guard stations are in one place and they are somewhere else. The work that they should do, they don't. They should be patrolling the forest but they don't. They fill out the papers saying that they have completed patrolling in certain places but in reality they don't do the work."* - LA#9. *"Now this expedition is coming in June to look for animals... my fear is that they are coming now and they won't see many animals. You can see more animals in March, April, September, October and November. After that the animals leave and go into higher altitudes to colder places. They will come here [at the wrong time] and won't be able to see many animals and then they will think that there is nothing here."* - LA#15.

The notion of the forest department's incompetence was followed by the conviction that not only was it not doing what is necessary to protect the park, but also that it was the local people who do their work for them. Interviewees were conscious of the department's reliance on the local community as their eyes and ears to protect the park. Examples of village members putting out forest fires and informing the department of suspicious activities were cited to illustrate the point. *"Even today, we are the people protecting the forest. What is the forest*

department doing? It's not like they have fenced in the area and they live in it. If something illegal happens, we are the ones who inform them about the activity. We are the ones having to look after the forest and they sit there and take credit.”- TA#18. Some interviewees spoke of understanding the importance of these natural areas and the personal consequences of misusing them. They alluded to the FD's unwarranted policing of local communities as unsuccessful in keeping wrongdoers, often poachers, from harming the region. One respondent noted that even today, the protection or destruction of the region lay in the hands of the people and not the forest department. *“It is all up to the villagers. They could save the forest or they could destroy it. The people of this village have just as much right to this land as the forest department does. If the villages work hard we could save the forest. What is it to the officials? They come here for a day or two and then leave. The people of the village have more rights on the land.”- LA#9.* Thus, despite the community's disapproval of the reserve's existence, their assessment of the forest department endeavors highlights their perceptual acuity to actions that would facilitate conservation.

Part III

4.5 Ways in Which the Local Communities Would Like to Interact with the Forest Department

This section reports information provided by interviewees on how the communities of Lata and Tolma would like to interact with the forest department in socio-economic development and conservation activities. It is recognized that the two communities show some divergence in opinions given the inherent difference between communities, differences in household needs and access to resources, differential economic impact of reserve creation etc. However many common topics emerged through the interviews and are discussed below. First, accounts

suggesting changes in their relationships with their surrounding landscape are presented. This discussion of shifts in livelihood activities provides a prelude to the expected changes in the nature of involvement currently afforded to the people by the forest department.

4.5.1 Changing landscape of livelihood generation

As demonstrated in section 4.0, historically, residents of Lata and Tolma derived many different uses from the forests and grasslands surrounding their villages. Interviews conducted for this research suggests that people's relationship with these lands has changed since the NDBR's creation. *"People complain all the time that they lost all these things when the park was created. But tell me this. Who is actually even working as a herder anymore? Who's still doing jobs that requires physical labor? Everyone wants an easy pay day."*-TA#18. Two overarching reasons were offered for this change: 1) The community's adaptation to the restrictions placed upon access to land and resources, and 2) A generational shift in livelihood generation activities introduced through education and modernization. As an example of adaptation, it was mentioned that after the reserve's creation, the tree line encroached closer to farmlands and villages. According to the interviewees, this reduction in distance led to an increase in instances of wildlife entering farms and villages to access food. Over time, activities such as beekeeping and farming became less profitable due to prolonged losses. Ultimately, some traditional activities such as beekeeping were abandoned entirely while farming decreased drastically. *"But, we are ourselves using less land now. There are sections of our own farmland that we could access, but we don't. Animals for too long have destroyed our crops. It is not worth it to put in the effort anymore."*- TA#20. In citing other changes, interviewees spoke of obtaining medication and food items from the market. It was said that the availability of electricity and electric and gas stoves had reduced people's dependence on wood. Additionally, the use of cement for building

homes had negated much of the use for timber. *In general fewer and fewer people are farming. I think it is better for everyone if they can find the herbs easily. I think the trend for this generation everywhere is that they want to do less and earn more and that is what people think here too. We also used to collect wood to make homes before but today people use cement instead.*” - LA#2.

These and other changes were attributed more often to cultural shifts in today’s youth than to adaptation. Respondents, both young and old, mentioned the current generation’s lack of interest in earning a living as was done at the time of NDBR’s establishment. *“No, the boys these days don’t want to do what our parents were doing. They don’t really want to be porters or guides.”* - TA#W. Most men under the age of 35 often mentioned a general desire to hold well-paid jobs instead of working as manual labors or farmers. A few respondents mentioned their inability to utilize farmland available to them due to a shortage of people who can work for them. Changes in these land use patterns were attributed to the growing importance and accessibility to higher education followed by outmigration to cities for jobs. This is especially because respondents stated that it was almost impossible to get the desired sort of stable, full time, paid employment while living in the villages. *“It has reduced a lot now. I don’t spend much time here so I don’t know much. There aren’t any schools here so I’ve stayed away from the village since 6th class. After school, the girls just come back and the boys come back to prepare for some exam or the other. Some people come back to farm but I don’t know of many people who have come back.”* - TA#23. Data collected for this research are unable to identify whether any of these changes in land use were already taking place at the time of NDBR’s creation. Thus it is not possible to discern how assistance provided by the forest department was received in the past or how long the currently felt dissatisfaction has persisted. Nevertheless, interviews do suggest a current mismatch in the way the forest department is engaging the community and how they

would like to be involved.

4.6 Desired Forms of Engagement with the Forest Department

4.6.1 Income generation

Interviewees were asked in general how they would like to interact with the forest department; an overwhelming majority presented an inclination for long-term income generation activities. This desire was expressed more strongly in Lata than in Tolma. There were noticeable differences in how men and women asked to work with the forest department. It was suggested that only men would or could hold direct employment positions with the forest department, as women did not usually work outside the home. This distinction in the type of involvement for males versus females is highlighted in further detail by addressing the role each gender would play within the suggested income generation activities.

Tourism: Expanding the scope of nature-based tourism was by far the most common suggestion made when people spoke of the possibility of working with the forest department. Once again, this suggestion came more often from Lata than from Tolma. Many respondents made the general suggestion of allowing access to the core zone of the reserve. While most of these respondents did not provide specifics on how they would like to see tourism develop, they held the belief that it would be the main way to improve the village's economic status. "*If tourism is revived here then it is possible that the village can re-build a comfortable life like our fathers'. It may not bring in the kind of money that used to come here but at least it will mean that 10 boys can earn enough for their families. They could be working as guides or something to earn money*" - LA#10. Here it is important to note the past successful experience with tourism is the reason for the current demand for its regeneration. Nevertheless, respondents did not speak of working as porters on mountaineering expeditions to the summit of the Nanda Devi Mountain,

which was the major form of tourism related employment in the core zone of the NDBR, before the designation. Respondents spoke of wanting to play the role of business owners and tour operators.

A handful of the interviewees provided detailed explanations for exactly how tourism could be established and promoted in this region. *“The forest department should advertise about the Nanda Devi peak. They can put up boards about the wildlife here or display informative signs about the medicinal herbs found here.”* - LA#1. In conjunction, respondents made it a point to propose how the Forest Department could ensure that revenue from tourism would come straight to the people. *“The FD will have to advertise about this area. We will have to make a committee to make sure that business comes to the people of the village. If companies from outside bring the people then they stay outside this area. We can also tax the outside companies.”* - TA#21

Inclusion of landscapes both within and outside the biosphere reserve were suggested. Most respondents who spoke of tourism proposed infrastructure development to entice tourists and enhance their experience. *“The forest department could help us set up some sort of tourism agency through which the tourists could plan their trips. A ropeway would cut the trip from Lata to lata kharak from 2 days to 1 day. That would save people money on supplies and food.”* - LA#3. The forest department, through funding provision, could also facilitate the development of homestays and make it easier for tourists to access landscape features. A few of the younger men suggested introduction of training programs to learn skills such as mountaineering and guiding wildlife viewing tours. *“People go to places specially to see the Himalayan Monal and the Chukkar. If our boys are trained properly and know where the snow leopards are or the other animals are then that will be so good. The forest department can help the village set up a*

company so that the business comes straight to us. Make NDBR famous like Corbett is for tigers.
”- LA#15.

To protect the landscape from degradation, suggestions were made on how the forest department could oversee the tourism operation and restrict the number of people allowed to enter the core zone at once. A registration system for guides, establishment of trash collection points and observing the leave-no-trace policy would, it was suggested, keep past mistakes from repeating. *“Before, porters were cutting wood in the forest to cook food and keep warm, but today we have kerosene oil and stoves which can be used instead of cutting wood from the forest. Before, there used to be 10-12 porters with the expeditions, but now we could make it so only 3-4 porters go in. We can make horse trails up to Dharansi. That way we can take more animals and fewer people. Wildlife will not be disturbed as much by sheep or horses as they would be from a huge party of people. A lot can be done.”*- LA#2. These were all suggestions made by male respondents for their involvement in tourism. As a rule, comments suggested that people were open to the forest department’s involvement in tourism, but only in a limited capacity. The department’s assistance was requested to fund infrastructure development, provide training and ensure a respectful use of the landscape. Control over tourism activities and all related revenue would be directly in the hands of the people.

Other income generation activities: Some respondents did entertain the idea of assisting the FD with the tasks it currently conducts. Male respondents expressed interest in working as forest guards whose job it is to patrol the reserve. *“They can do more re-forestation projects around the village. They should take boys from the village with them on patrolling operations. They get so much money for patrolling but I don’t know where it is spent. The unemployed should be given a chance... If they employed boys from the village, then at least those boys*

would work hard. The guards that they employ can't go up to Dharansi but on the same salary our boys can reach the same place easily ” - LA#9. These respondents advocated that they were well-suited for forest guard positions because they held college degrees. They also implied that they could better accomplish the associated tasks. *“They can train locals to be guards. No need to give them a salary for the full year, just for the 5-6 months and then maybe give half salary during the winter. We also have the knowledge of the land. We know how to get to places and we have the stamina to get there. The forest department officials are from other places and have trouble getting up to Lathi Karak.”*- LA#16. A few stated being able to help the forest department with its conservation efforts if they were offered appropriate training. However, people were not clear on what these tasks would be. *“I guess we could look after the animals by making sure that no one messes with them. We don't have to do anything for the animals. They take care of themselves.”*- LA#6. Most people just made a general request of employment with the FD, regardless of its nature. The emphasis here was placed on the capable, college-educated yet jobless young men who need some sort of employment to earn money.

A difference was noted in the stated flexibility and the kind of work the younger generation was willing to do. Respondents older than the age of 45 usually welcomed any type of work with the forest department, blue-collar or manual labor, as long as it provided some income. *“We have so many boys who are educated and just sitting at home. It would be best if they employed some of these boys and girls. They will do whatever the forest department needs them to do. We are not asking them to assign the post of the DFO. Just a simple job will do. They can train the boys and find out what the boys are capable of doing and place them accordingly.”*- LA#W. The younger generation, however, hoped to be a bit more selective in what they are offered and the jobs they were willing to take. They placed an importance on the

provision of well-paying jobs. *“They could come to us and tell us what work has to be done and then let us decide whether it would be better to give it to a contractor or to the village in case the whole village wants to get together and do the work. They can’t come to us with an unreasonable budget and expect us to do a lot more work.”* - LA#M; *“There are so many boys here who are sitting at home with B.A., B.S., PhD degrees. There is so much competition and no posts. Of course we want to work with them but the people need training. The posts should also be paid according to today’s rates. A good post would be one that paid up Rs. 15,000-20,000.”* - LA#3.

Despite the detailed plans, it was interesting to note that in most of the comments, the onus was on the forest department to initiate the employment process. It was mentioned that asking the department for jobs produced no results, as the department rarely had any positions available. Thus respondents felt that when positions became available, the forest department ought to approach the communities with offers.

Establishment of cottage industries: Other suggestions show a desire to establish cottage industries for income generation. These suggestions came mostly from women and it was implicit in most comments that women would conduct tasks related to the cottage industry. The forest department’s assistance was requested to obtain training and machinery to convert local goods into marketable commodities. The forest department’s help in gaining access to markets was cited as most crucial for the success of this endeavor. Many interviewees mentioned the abundant production of apricots. Both the flesh and seed of this fruit are used to make products, which the locals believe can be sold. Women mentioned having received training from the forest department to create these products but not being able to sell them. This was said to be a problem that negated any benefits from the training received. *“They have come here and given us training many times. They have trained us on how to make jams and chutneys from the apricots that grow*

in the village. But there is no market so what is the use of making jam? They just give us training but don't do anything after that. They don't do anything to connect us to the market. If they would tell us that they need a certain amount of jams or chutneys from us then the women could make the product." - LA#W. Other items suggested for sale were wool products along with processed and packaged medicinal herbs grown in nurseries. Requests were made for the establishment of nurseries for medicinal herbs with reference to a failed attempt in the past.

In essence, comments suggest that the forest department need only improve the current programs for involving women to assuage their economic concerns. Conversely, preferences for engagement presented by men indicated a need to redefine many of the employment opportunities provided by the department today.

4.6.2 Access to land and resources

Access to land was requested for two major reasons: 1) for tourism purposes as discussed above and 2) for the extraction for herbs, *Cordyceps sinensis* in particular, to be sold for profit. Only a few respondents, mostly women of all ages, requested access to herbs so that they might be used for household purposes. It was commonly believed that the herbs needed by the villages could not be grown properly or with great success in agricultural fields or in the Van Panchayat forest that the villages have access to. This, it was stated, was due to the obligatory relationship of these herbs with grasslands, which were said to have different altitudinal and soil characteristics that facilitate herb growth. *"Yes, we could grow the herbs here but that does not happen. They don't grow here. We planted some herbs here one time but they didn't grow. Plants that grow at 3800 meters will not grow here... We should be allowed access into the forest. This way we can collect kira jari from our own area. We don't have to fight with other villages to collect from their land. "* - LA#1. Only one respondent stated an interest in grazing

sheep again. Most people explicitly stated that they would not use land in the same way as their parents did, even if they were given access to it.

4.6.3 Livelihood improvement initiatives

Supplemental resource provision: The inadequacies of the current supplemental resource provision were highlighted quite often during the interviews. Interviewees expressed a necessity to change the type and quantity of supplemental resources provided to them. Almost all members of Lata suggested that all households of the village be given a certain supplemental recourse during the same year and then not be given anything for a few years. For a larger village like Lata, many suggested at least increasing the quantity that was given every year. *“They have given one solar panel to each household. I think they give one each to 5-10 families one year and then another 5-10 families another year. These things help us but they have to be done properly. I think they gave the panels to everyone one year but you can’t see many of them anymore because the panels stopped working at some point and haven’t been repaired. It may be better to give employment to one person from the village.”* - LA#2. In addition, though not mentioned directly, many expected the FD to assume responsibility for fixing or assisting in fixing the malfunctioning equipment distributed by them. The younger men mentioned a need to change how those funds are spent altogether. It was suggested that for the past decade more and more families are either leaving the village by the time their children turn nine years of age or that families are sending children to stay with extended families in nearby cities for better education. *“I think most people can get most things that they need. What we need most is proper education. People have to send their kids to different towns for education. The whole village is starting to empty out. What is the point of giving wool and lanterns when there will be no villagers left? Instead of spending money on these things they can spend it on education. Start a new school,*

improve the existing government schools, and get better teachers. ” - LA#M. This highlights the need to re-assess the supplemental resource distribution to ensure the products distributed are congruent with people’s needs.

Compensation: All respondents requested a re-evaluation of the process by which livestock depredation has to be reported to the forest department. They also requested prompt and comparable compensation for losses incurred not just to livestock but also to their crops. *“There is compensation but it is not complete. If people do get money, it is not enough to cover the cost of losses sustained. For instance today an Oxen costs Rs. 10,000 in the market. How useful is it to get Rs. 4000 or 5000 from the forest if an animal dies. It is not enough money to buy a new animal. ” - LA#10.* The most urgent request was made for re-imburement for losses sustained due to damages to horticulture crops like apple and apricot trees.

4.6.4 Community’s role in taking greater initiative

This was an opinion held by a minority, but one that was repeated by the male population of both villages. Respondents suggested that people are getting used to receiving goods and services free of cost from the government without having to do much in exchange. This was also suggested to be the reason why these goods and services were not respected nor their use optimized. A lack of initiative was sometimes stated as an aspect contributing to the community’s poverty, rather than just the lack of opportunities. *We took some women to the Himachal Institute to provide them with training on how to grow medicinal herbs but the problem is that no one does it at home. Everyone thinks that our wives did all this training but we weren’t given any money so how are we supposed to plant the herbs. I have called meetings many times but everyone talks about earning wages. How are they supposed to earn money if they don’t invest the time or effort? - LA#9.* Additionally a few respondents, both young and old,

spoke of the current generation's want to earn more money by doing less work. It was mostly men older than 45 years of age who said that a change in attitude would be needed for things to change for the better in the valley. *"The fault is with the people. All the educated people who are unemployed here don't want to work as forest guards. They want some big post with the forest department. I went to the department once to secure employment for a boy from this village. They said [yes, but asked that the boy should not be the kind who drinks a lot or picks fights]. So, I could not recommend the boy any more because he had all those faults."* - TA#M. In this context, products and jobs provided by the forest department were viewed as handouts that were detrimental to the work ethic and moral fabric of the community. The forest department's assistance was still requested for socio-economic support, but in a way that would facilitate accountability from the people.

4.7 Summary

In summary, these interviews suggest the local community holds an overall negative attitude towards the UFD and the existence of the reserve due to the restrictions placed on access to and use of the land. The UFD was expected to offset the sustained economic losses by providing socio-economic development activities. However, the community views the department's development efforts as inconsistent and inadequate. More recently, these efforts have also been deemed inappropriate due to people's changing relationship with the land. These perceived inadequacies of the department's efforts and the persistent and disproportionate economic burden felt by the community have led to strained relations with the UFD.

The data presented above highlight certain sizable barriers to meaningful participation by the local communities: 1) Tremendous distrust of the UFD has led to a notion among the interviewees that working with the forest department to improve their economic condition would

be incredibly difficult, if not impossible. 2) This belief is compounded by the UFD's perceived apathy towards the plight of the people and the perception of rampant corruption among FD officials and the consequent embezzlement of funds intended for community development. 3) Disconnect between the kinds of livelihood opportunities offered to community versus the kind of employment deemed necessary. 4) A history of top-down, parliamentary approach to conservation, which does not place importance on local input in decision-making and program development or take note of the heterogeneous nature of communities and their needs.

Despite these barriers, there may be opportunities for the community to interact with the forest department by: 1) Identifying needs of the majority and providing feedback to the UFD through existing channels of co-management such as Joint Forest Management committees. 2) Obtaining education necessary to join the IFS or UFD. As per the interviewees, people are already attaining a high school and college education although often not in subjects that would qualify them for employment with the forest department. 3) Taking advantage of the reimbursement schemes for crop damage and cattle depredation. 4) Appointing village level representatives responsible for gathering up-to-date information on FD programs and schemes relevant to communities.

These barriers and opportunities will be developed in much greater detail in chapter six. However ultimately, much of the initiative to effect positive change in local socio-economic development and improve relation with the local community must be taken by the forest department.

CHAPTER 5

ATTITUDES AND PERCEPTIONS OF THE POLICY ORGANIZATIONS

This chapter presents findings of interviews conducted with the stakeholder groups identified as the policy-making organizations (PMO), namely: UNESCO and the UFD. Key findings outline PMO perspectives on the current level and success of local participation with the local communities. This chapter also outlines perceptions on potential for future involvement of the local community in reserve management activities. Sections 5.1 and 5.2 present PMO perceptions and attitudes regarding the purpose behind the establishment of the NDBR and the current approach to its management. Sections 5.3 and 5.4 present information regarding the current form of interaction between the PMO and the local community of the NDBR along with their perceptions of these interactions. Finally, sections 5.5 and 5.6 speak to the need for management of the NDBR according to UNESCO and PMO and how these organizations expect to interact with local communities of the NDBR in the future.

PART I

5.1 Background Information

This section begins by presenting a frame of reference to the attitudes and perceptions held by the forest department about current and future involvement with the local community. During the interviews, questions were asked to establish the motivation behind the establishment of this reserve as a UNESCO MAB reserve. Interviewee knowledge and perception regarding the establishment and necessity of the reserve are presented below. This is followed by an account of the current management strategies employed in the core and buffer zone of the reserve in section 5.2. This information helps illustrate which issues the managers pay greater attention to and how they view their role in facilitating socio-economic development of the community. This section

will provide an important context to how the UFD currently interacts with locals while acting as a prologue to attitudes and perceptions that speak to possibilities for future involvement of the community with the department.

5.1.1 Characteristics of respondents

Interviews were conducted with one member of UNESCO and 7 officers of the UFD. A conversation with the UNESCO official suggested a very limited involvement of the organization in forest department affairs. Direct interaction with the local communities within the NDBR is even less frequent. The nature of this interaction is discussed in sections to follow.

Within the UFD, four interviews were conducted with at the Uttarakhand state level with regional administrators in the Dehradun office. Three interviews were conducted with officers employed at the UFD Chamoli District office located in Joshimath. Those in the Dehradun offices were at higher administrative positions than interviewees at the district office in Joshimath. One of the interviewees at the Dehradun office had previously worked at the Joshimath office and had interacted with the NDBR communities on a one-on-one basis. The other interviewees had only interacted with issues surrounding the NDBR on a policy and budgetary level although they were quite familiar the pertinent actions and issues. Interviewees from the Joshimath office are responsible for the day-to-day management of the NDBR. All together UFD interviewees represent a range of experiences having worked with the department between five and thirty-five years.

5.1.2 Perceptions of reasons for NDBR's creation

A discussion with policy organizations about the reason and necessity of the NDBR illustrated the area was first given protection for the conservation of its flora and fauna. It was

commonly suggested that the protected area was later converted into a biodiversity reserve to avoid conflict with communities.

Biodiversity Conservation: The region encompassed within the reserve was stated to have two qualities that warranted protection: 1) a high alpine habitat and 2) biodiversity richness.

“The reserve was created for the protection of the flora and fauna of the region. It is a rich but fragile ecosystem so we thought that it should be protected.”- 1D. It was stated that the relatively low human density of the region made it amenable for protection. In addition to the ecological reasons, respondents also cited the rapid habitat destruction caused by trash build up and overuse of resources as reasons for the park’s creation. This resource misuse was attributed to mountaineering expeditions and cited as the catalyst for the protection process. *“The place was misused when tourism was happening here. People were really disrespectful. It should have been a feeling of community sharing and people talked about that but take a look at what was done to that pristine environment and tell me that people were not misusing it.”- 2D.* The ever-increasing popularity of mountaineering to the peak of the Nanda Devi mountain incited fears of irreversible ecological damage. This concern for the biological resources brought upon the ban on mountaineering and complete exclusion of humans from a 625 Km² area now designated as the core zone of the reserve. It was suggested that this exclusion was aimed at providing ample time for nature to recover from the sustained damage.

Incorporation of local communities into the conservation initiative: It was most commonly suggested that the protected area was provided a UNESCO MAB reserve designation to avoid and to diffuse conflict with the local communities, which would be inevitable if the area had remained a fortress-style park. *“People have a complex relationship with the land here. We didn’t want to create a big controversy by creating just the park. There were a lot of*

demonstrations and the situation had to be diffused; So, we created the biosphere reserve.” - 2D.

Another reason mentioned was the growing recognition of the complex relationship between land and the people who were dependent on its resources. It was becoming apparent that livelihood activities would continue to depend upon the resources that the UFD hoped to protect unless alternatives were sought. Consequently, it was stated that the establishment of a biosphere reserve was perceived as a way to reduce people’s dependence on the land. This management technique was also said to provide the UFD with greater control on the direction and speed of development in the region. *“The biosphere reserve was created because we needed to build a corridor to integrate villages and livelihoods in a way so that it is amicable to conservation, because earlier people used to use some of the land in the core zone.” - 3D.*

Finally, a few of the upper level UFD officers and the UNESCO representative spoke of the importance of acknowledging the cost of conservation borne by communities that surround the protected area. The buffer zone was said to provide a tempering effect on the impact felt due to the loss of access to the core zone. It was mentioned that the success of biological conservation efforts go hand-in-hand with satisfactory fulfillment of livelihood needs of the local communities. *“Unless you develop the area as a whole, conservation won’t work... The aim is to control the speed and direction of development while still providing for livelihood activities for the local people...all sites must fulfill the criteria of linking humans with ecosystem, not exclude them. They are part and parcel of the ecosystem...buffer areas provide a buffering mechanism for the community’s needs.” - 1U.* Here, it was suggested that the aim of a biodiversity reserve is to reconcile the seemingly disparate motivations and consequences of conservation and development. It was only the UNESCO official who mentioned the benefit that came from being

part of a global community of conservation that can be accessed for knowledge, expertise and financial assistance when necessary.

5.2 Current Form of Management of NDBR

The following is a discussion of roles played by UNESCO and the UFD in the management of the NDBR. Conversations with policy organizations suggest minimal interaction between UNESCO and managers of the NDBR. This section also highlights the markedly different management strategies for the core and buffer zone of the reserve.

5.2.1 Role of UNESCO in management

UNESCO provides statutory guidelines that must be followed by the forest department when determining management strategies for the NDBR. It was mentioned that a failure to adhere to these guidelines could result in the de-listing of the reserve from the World Man and Biosphere Reserve Network (WBRN). *“Similarly if a biosphere reserve doesn’t follow the statutory requirements then they will be removed as biosphere reserve. All the biosphere reserves form a world network of biosphere reserve and they are supposed to fulfill the broad requirements which are regulated by the International Coordination Council.”- IU.* The Indian field office of UNESCO does not play an active role in the management of the NDBR. As per the interviewee, the organization is contacted by the FD if there is a need for funding or expertise. Direct interaction between these two stakeholders is usually limited to extreme issues in conservation or conflict management. *“To be honest UNESCO is not supposed to interact much. Every country is sovereign. The day-to-day micro management, we are not involved in. Unless our attention is drawn for something, usually bad, if there is a need they call us.”* It was also mentioned that the organization was unable to provide any regular financial assistance to the NDBR due to its small budget. In the past UNESCO, in collaboration with the UFD, has

conducted short-term awareness projects in the buffer zone of the NDBR. However it was suggested that these projects are always temporary and only conducted when monies become available.

5.2.2 Role of the forest department

The district office of the UFD is responsible for the implementation of all management actions while the budget for these actions is approved at the state level. There are three designated zones that comprise the NDBR; these are: the core zone, the buffer zone and the transition zone. Interviewees only spoke of management strategies employed in the core and buffer zone of the reserve.

Core Zone: All interviewees indicated the overarching strategy in this zone to be that of minimal intervention. The common belief was in letting nature take its course and allowing for habitat regeneration in the absence of human modification. *“The best management is to just not go into the protected area. People are just the face of management.”* - 1D. Here, the only roles played by the UFD were said to be those of constant patrolling to protect the resources within the core zone along with occasional monitoring to verify the ecological health of the region. *“Our job is protection only. We monitor movement of people and movement on trade routes to make sure nothing illegal is happening.”* - 4D. Patrolling various locations within and around the core zone to look for signs of poachers was said to be the most frequently conducted task by officials in the Joshimath district office of the UFD. Poaching was also stated to be nearly non-existent especially in recent years. *“There is no problem with poaching. It is down to zero now. We have trap cameras now that we can put where we suspect there could be poachers. We have secret informants from the village who tell us about any activity too.”* - 3J. Regular monitoring for certain key species of concern has been attempted although the frequency and extent of these

endeavors was said to be constrained by funding availability. It was interesting to note that UNESCO estimates for frequency of wildlife surveys were at least twice as high as those presented by certain UFD officials. *“We monitor to make sure that animals are doing okay. Animal censuses are done as often as possible some happen once a year, on bi-annual basis, some are once every 5 years. The forest department does this for key species. We have camera traps that are monitored every month and the data is compiled annually. WII does this.”* - 1U. It was suggested that periodic monitoring to assess the status of flora and fauna within the core zone took place at least once every decade. Some respondents also mentioned the recent use of trap cameras to monitor areas with suspected poaching activity and to monitor the movement of certain target species such as the snow leopard.

Buffer zone: Respondents suggested that all management and intervention activities were performed in the buffer zone of the reserve. An overwhelming majority suggested that the central management goal of the buffer zone aimed at reducing anthropogenic pressures on the core zone. It was mentioned that all activities conducted by the UFD in this region to provide alternative livelihood opportunities strove to facilitate a reduction in local dependence on natural resources *“The buffer zone is managed so that pressure on the core zone can be reduced. This is why the area is managed as a MAB reserve. We work on providing livelihoods to help transition lifestyles in a way that protection of flora and fauna can be possible. Sometimes this works and other times it does not.”* - 3D. The following quote provides a representative perception of what the respondents stated their role to be as UFD officials. *Primarily the task of the forest department to protect the biodiversity of the area. Secondly, we focus on habitat management and improvement. Thirdly, we cater to the needs of the locals and make sure that their lives are not having an impact on the reserve. We support the locals as a facilitator and provide them with*

opportunities to continue to earn money while we work on reducing the impacts that they have on resources in the park.” - 4D. Respondents did not speak of community members’ excessive use of natural resources however their responses did suggest that: 1) dependence of the local community on surrounding natural resources places pressure on these resources and 2) the management strategies employed in the buffer zone have been successful in reducing pressure on the core zone. *“Now there isn’t as much pressure on the land so we don’t have to do too much. Because we give people things like solar light and gas and wool so that they don’t have to use the land.”- 4D.* Here the emphasis was on providing alternatives to firewood used for cooking and heating in households. This, it was suggested was done through the distribution of Liquid Petroleum Gas (LPG) cylinders, solar lanterns, solar panels and electric cookers.

Finally, though it was suggested that management actions in this zone included both humans and natural resource management, most respondents only spoke of the socio-economic interventions conducted annually by the UFD. At least one official stated the absence of specific ecological goals for the core or the buffer zone due to which long-term natural resource management plans cannot be prepared. Only two interviewees provided examples of natural resource management. These indicated initiatives for habitat restoration by planting native vegetation and conducting habitat improvement activities for wildlife. *“We get to see scat and foot prints and get to know what animals are around. If we get to know that there are Kastura in one place, we collect and put out some grass there for them to eat. We also divert water sometimes so that it is easily accessible to the animals. Now that there are less sheep and goats in the meadows, the wild deer have food to eat.”- 3J.* Across the board, UFD respondents viewed biodiversity conservation as their primary responsibility in relation to the NDBR. Human intervention in natural processes was reported to be unnecessary in achieving conservation goals.

Conservation was suggested to be achieved by protecting the core zone from poaching and facilitating the communities' resource use transition away from dependence on surrounding areas that lie within the NDBR.

PART II

The following two sections build upon the previously presented discussion on the perceived roles played by UNESCO and the UFD in the management of the NDBR. These perceptions directly manifest into actions that determine current level of local community involvement with the conservation of the NDBR. Section 5.3 describes how the local community currently fits into the management of the reserve by presenting the current form of interaction as discussed by interviewees from UNESCO and the UFD. This is followed by section 5.4, which explores perceptions and attitudes towards current relations with the local community. These help set the stage for sections 5.5 and 5.6 where policy organization perceptions and attitudes towards future involvement of the local communities with NDBR management are presented.

5.3 Current Official Interaction with the Local Community

Conversations suggest that in an official capacity the UFD, specifically the Joshimath district office, interacts with members of the local community for the following reasons: 1) When discussing and implementing matters concerning the Van Panchayat forests, 2) During the compensation process for livestock depredation by wildlife, 3) When determining and distributing supplemental resources and employment opportunities and 4) When mediating disputes among villages related to land access for the extraction of *Cordyceps sinensis*.

Respondents primarily discuss their interaction with community members in relation to employment, supplemental resource and compensation provision. These are discussed below.

5.3.1 Livelihood improvement activities

Respondents suggested interaction with communities to be quite common as most of the UFD's work was said to be confined to the buffer zone. When asked about their interaction with the local communities many respondents spoke of the UFD programs that provide alternative livelihood opportunities in order to reduce dependence on natural resources. *"We try to do things that will reduce this pressure. We give them gas so that they use that instead of green wood. They collect some herbs and we tell them to grow others so that they don't have to get so much from the forest. We have given them seeds sometimes too. We have also helped them set up a nursery in the past."* - 3J. Most importantly, the department members spoke in terms of interactions with all 47 villages that comprise the buffer zone community. Cited examples referred to reserve wide projects and programs. When speaking of livelihood provision some respondents mentioned employing community members on check dam construction projects, as guides on UFD patrol trips, and as informants for fire and poaching. Most respondents also enumerated that when making decisions on how development funds are to be spent, the department confers with the community through eco development committees (EDC). *"We make eco development committees which is a body of the local people that meets with forest department officials to help protect the protected area and forest boundaries etc."* - 1D.

Respondents mentioned the facilitation of eco-tourism development by providing funding to improve facilities within villages and to develop home-stays. The provision of tourism related skill development training to community youth was also mentioned. *"We have provided training to some 230 youths in the region so far. It is important to train them in conservation."* - 2D. Most often when respondents spoke of eco-tourism development, they spoke of tourism in the Hemkund valley and not the Niti valley. The Hemkund Valley cuts through the Valley of

Flowers National Park, which is the NDBR's second core zone. It receives thousands of religious tourists on an annual basis requiring the department to focus its attention in that region. One interviewee specified that while the budget allotted for the buffer zone is meant for both conservation and socio-economic development activities, at least 75% of this funding is spent on community related activities. *"Right now 75% of the money goes to the people to gain their confidence. There are 44 villages. We create an annual plan of operation for the money that we get. We sit with the village head and ask him what the people want. They have to give me options. The demand comes from the village then the plan goes to the district head of the Panchayats for his/her approval."* - 1J. It should be mentioned that this description of budget allocation includes compensation for crop damage and livestock depredation by wildlife as well.

5.3.2 Compensation

Here, the greatest attention was paid to speaking about the recently modified rates and categories for compensation. According to interviewees, the revised compensation rates introduced in November of 2012 are not only competitive with market values but are also one of the highest in the nation. This new revision also includes an addition to provide compensation for crops destroyed by wild animals. Respondents noted that compensation for damage to crops was not provided before the 2012 revision. *"As for compensation the processes is lengthy but we do give money to the people in case their animals are harmed by wild animals. We didn't use to have the compensation for damage to crop but that has changed now. Now we have to provide a sizable amount of money to people if their crops are destroyed by wild animals."* - 4D In the case of livestock depredation it was stated repeatedly that sufficient compensation is provided only when it could be proven that the animal was killed or attached by a wild animal and if all the proper guidelines for filing a claim were followed. *"There is some conflict with leopards and*

bears but we reimburse the people. Yes, but we can't reimburse them if the body of the animal is missing." - 2J. A few respondents mentioned the reimbursement process to be lengthy though all steps of the process were considered necessary. The validation process of the claim was said to be critical to avoiding fraudulent claims, which had been noticed in the past. The majority also mentioned that the new adjustments allow for faster reimbursement due to an increase in the minimum funding made available to the Joshimath office for such purposes.

5.4 Perceptions and Attitudes Regarding Local Community within NDBR

This section first discusses themes emerging from the interviews that speak of the forest department's perception of their interactions and relations with the local communities. In this context, both, the perceived areas of successful and unsuccessful interactions with the local communities are presented below.

5.4.1 Perceptions of successful interactions with the community

A perception of positive interaction was associated with livelihood improvement provisions initiated by the UFD. It was interesting to note that respondents did not speak of specifically measuring the socio-economic impacts of UFD programs discussed in section 5.3. Rather, their positive reception by the community was implied as a linear extrapolation of two actions: First, by stating that the local communities dictate what products and services they receive from the UFD. Second, a positive relationship was assumed due to the communities' readiness to help the UFD whenever assistance was required. *"These are our forests and we have to save them. The people of the villages are helpful and have always been helpful. They work with us. Our relationship with them is good. Sometimes there are some problems but they help us usually."* - 3J. The successful ecotourism initiative with villagers of the Hemkund Valley in the NDBR was cited most often to demonstrate a positive relationship with the community. *They*

have been planning development programs like the eco development program, which is very successful, like in the Hemkund valley. Through these programs they have also successfully provided some 39 villages alternatives to natural resource dependence.” – 1U. When asked about their relationship with the local communities, most respondents began by stating a general positive relationship though the above stated were the only few areas where the perception of a positive relationship with the local communities was expressed.

5.4.2 Perceived factors leading to strained relations

When discussing relationships with local communities, all interviewees acknowledged strained relations with respect to certain aspects of their interaction. Most readily noticeable was a dichotomy in the perception of issues that were expressed as the primary source of disagreement. This difference in accounts and impressions was noticed at the two scales of operation within the UFD i.e. at the district and state level of management.

Human-Wildlife Conflict: Officers at the district office referred primarily to human-wildlife conflict as the reason that engenders strained relations. According to the interviewees, these issues included livestock depredation, crop damage and attacks on residents of the NDBR. *“I think the biggest problem is because of conflict with wildlife. They ask for an electric fence. But that process is too expensive” - 2J.* Disagreeable sentiments arising from these conflicts were reportedly compounded by two contributing factors: first, the inadequacies in the amount and time taken to provide reimbursements and second, the department’s inability to effectively reduce the conflict or the resulting damages incurred by community members. *“We have permission to kill problem animals but we can’t usually kill them because they can smell well. They don’t come out when we are there. We just fire shots in the air to scare them away from the village. I don’t know if that technique works because the pigs do come back” - 3J.*

Tourism inside the core zone: Officers at the state level on the other hand chiefly attributed strained relations to the community's unwavering position on access to land specifically in relation to tourism. It was suggested that the disagreement has resulted from the communities requesting for expansion of tourism within the core zone of the reserve, which as per the UFD is meant to be free of human presence. Here, respondents emphasized this to be the demand from a few villages and not the voice of the NDBR community as a whole. Two interviewees spoke specifically of the role played by the village of Lata in driving the agenda of increased tourism. *"Since the time we closed the park, every now and then there has been a tussle between park and the people. After the 2001 Cheeno-Jhpto we negotiated with the people of Lata and opened up 9 km of trails. But there were still problems with Lata because we were negotiating to include other villages too. They didn't want that. They wanted all the tourists to go from their village. It is really hard to please the people."* - 3D. However, members of both UNESCO and the UFD stated there to be an exaggerated portrayal of the magnitude of the disagreement due to imbalanced media coverage or due to alleged political motivations of certain actors among the some of the local communities of the NDBR. *"There is a lot of negative propaganda about the park, which has to be handled regularly. Some of these are real problems and some are just part of a political tussle for power. Sometimes it is the same people creating trouble. They just like power and want to push some agenda even if everyone does not want that."* - 3D.

Lack of decision-making power: Respondents expected both the above-mentioned stressors to persist into the future. This was due to a perceived limitation in the UFD's ability to control or influence factors that lead to discontentment. *"It is hard to reduce the conflict. There are so many open food dumps that attract bears. It is so easy for the animals to get food from*

these dumps so they are attracted to them. We can't shoot every animal that gets used to human food this way. Plus we have a rifle shortage"- 1J. In particular, comments suggested a growing weariness of the unchanging dialogue regarding tourism within the core zone of the reserve. Many respondents mentioned their lack of legal authority to implement the requested expansion in the area available for tourism. *"It won't help the people to be angry with us for closing the area. They can take the fight up with the Prime Minister"- 2D; "We need to act with policy. We cannot just do as we please. "- 3D.* It was stated that decisions to change land use policy would have to be made at the national level, where, the state level officials held limited sway.

5.4.3 General attitude regarding interaction with community

The general attitude regarding the current nature of interaction with the community exuded an air of malaise. It was noticed that while evaluating dealings with the community, the respondents would inevitably question the true persisting impacts of the reserve's creation on the community. While the loss of some land was acknowledged, it was suggested that the inaccessible section of the reserve i.e. the core zone was quite small in comparison the area still available to the people for use. *"There are 79,000 hectares of the reserve land. This includes the core and the buffer area. People use the buffer area. They also have 1,32,000 hectares of Van Panchayat forests. Why are people so angry?"- 1J; "It is human propensity to want what is denied to them. This is such a small piece of land. So much of it was not even used. We only have a few small pockets of land that we are trying to protect."- 2D.* Respondents also mentioned noticing a general disregard for products and services offered to the NDBR community. A few respondents cited examples of the failed attempt at setting up a nursery. It was stated that all herb seedlings provided to certain villages failed because people were unwilling to assume the responsibility of caring for them.

It was commonly perceived that the community's unwillingness to take initiative also hindered their successful integration into the socio-economic development programs. *"We hired a motivator with the hope that they could get together as a community and identify their needs. But it never really worked. We heard that the people just complained about their problems but didn't offer any solutions. They have to figure out how they can be helped because when someone else comes up with a solution, they have so many problems with them."* - 1D. Additionally, some respondents held the opinion that the younger generation was interested neither in carrying on with the traditional livelihood generation activities nor in those offered to them by the UFD. *"I don't think people are really interested in grazing anymore. Many of them have transferred grazing rights either to other villages or to the government."* - 4D. This was in part attributed to an underlying cultural shift that prioritizes: 1) higher education for which residents of these villages are migrating away and moving to nearby towns and cities and 2) increasing importance of monetary income generation over the traditional practice of sustainable use. The transference of rights mentioned above was presented as one interviewee's perspective and no corresponding documentation was offered to support this claim.

For two of the interviewees this second shift was corroborated by the shortened time period within which herbs are collected. It was not mentioned whether or not these herbs were sold for profit. However interviewees stated the length of the herb collection season to historically last until the end of September. Of late, however, no herbs are left for collection past the month of June. Partial blame for this change was attributed to the collection and sale of fungal cordyceps (Kira jari). The collection of Cordyceps, it was stated, is not physically demanding and fetches large sums of money for a month or two of collection work. *"The boys today are just different too. They don't want to do the work that we have. Kira Jari has been both*

a boon and curse here. People are desperate for money and selling kira jari gives them the money that they want. They can get a lot of money in just a few months but most people don't save the money. They buy things like expensive cars when we don't even have proper roads here. People have a bad attitude about the money because they get it so easily. Let's see what happens when all the Kira Jari is gone." - 1J. It was suggested that in many cases community members are largely unavailable to work on UFD initiated projects during the summer months, as they prioritize the collection of cordyceps.

A few respondents addressed a demand by the community to assume some management responsibility in return for an expansion in tourism. However, comments suggested a general lack of confidence in a community's ability to sustainably manage the NDBR in perpetuity. *They want to manage the land themselves but how can we give all the management rights to the people? They could overuse the resources. There is also so much corruption and bribes and then there is this idea of short-term market gain.*" - 4D. This was attributed to people's changing priorities as well as issues of corruption brought to the department's attention in handling construction project funds provided to villages. Some respondents spoke of hearing complaints from community members regarding improper distribution of development funds once they were handed over to communities. Complaints suggested that development funds meant for an entire village were being largely kept by those members of a community who acted as the primary contactor for the projects. Thus, evidence of corruption within the community, the recent shift in community attitudes along with the prior evidence of perceived misuse of this land added to the UFD's pessimistic attitudes towards members of these communities.

PART III

Section 5.5 presents a discussion of the perceived management needs to fulfill the conservation and socio-economic development goals of the NDBR. These needs provide a context for UNESCO and UFD attitudes and perceptions regarding future interactions with communities within the reserve. These are detailed in section 5.6.

5.5 Perceived Needs for Improved Management of the NDBR

This section discusses the perceived management needs and deficiencies in fulfilling the dual goal of socio-economic development and biodiversity conservation of the NDBR.

5.5.1 Biodiversity conservation

Here the greatest barriers to meeting the reserve's conservation goals mentioned were: 1) issues related to effective and sufficient monitoring of natural resources and 2) inadequate current research upon which to base management decisions. The tough terrain and cold climate were suggested to be the first layer of barriers in monitoring the status of organisms within the reserve. Insufficient use of modern ecological monitoring techniques and technology was another. Respondents also stressed on scanty access to proper cold weather hiking and camping gear needed to conduct the requisite monitoring. The shortage of equipment was attributed to a shortage in funding. *"We have okay number of people in the department. We need more money for our needs too. We have to do patrols for the security of the park. We need fuel and vehicles and proper clothing for the trips into the park. We don't have everything to do what we need to."* - 2J. Respondents did not mention the need for more training for the UFD staff and mentioned that most research activity was assumed by government affiliated organizations such as the WII and the GBPI that specialize in conducting social and ecological research. Ecologically, the introduction of invasive species due to ever-increasing tourism was mentioned

as an issue that the department did not have a full understanding of. This was usually mentioned to be a problem in the VoFNP. *“There is a flower in the Valley of Flowers, can’t remember the name but it dominates everything. People say this one species is dominating everything because of stoppage of cattle going into the area. But the officers at the forest department say that this species has come in because of the all people who come there for tourism.”- 1U.* Finally, research was also said to be required for monitoring the effect of climate change in the mountainous habitats of the NDBR. Interviewees spoke of changing wildlife migration patterns and uncertainty regarding the impact of climate change on biodiversity to be issued impeding appropriate planning for conservation action. *“The other area that challenges us is species movement that is effected by climate change. They are changing their migration patterns. This uncertainty is affecting biodiversity. Some species are moving up and others coming down. Migration of biodiversity due to Climate Change has to be monitored. We need long term monitoring stations that will give us good data and will be really good for management.”- 1D”*

5.5.2 Interaction with the community

Both UNESCO and the UFD identified deficiencies in the department’s interaction with and incorporation of the local communities. These were linked most often the deficiencies inherent in the culture of the organization, which was said to be rigid in its top down approach to conservation. *“We have to be more open and receptive to working with the people. The current pyramids are so closed.”- 2D.* This rigidity, it was said, is then manifested in the training of the officers and the methods adopted to carry out the task of socio-economic development. *“The conflict is still there because of cultural issues in the UFD as well. The forest department was not open to livelihood projects for a very long time. I had to motivate the forest people to include*

livelihood projects. And even then there are no guidelines on how to do it properly. We have to learn lessons one project at a time because the same things don't work everywhere.” - 3D.

Many respondents recognized a need to gain better understanding of appropriate ways in which to interact with the community and using this understanding to better train the forest department officers. *“The fault is that they are straight and simple people. They do what they are asked to do and that is it. Plus, there is definitely a difference between the villagers and our boys because they are local but not for the villagers. We have to learn how to really help the community. We need to be able to blend in even more.”*- 2D. To this end, one interviewee mentioned a dilemma concerning the deeper cultural impacts of socio-economic development interventions on the local community, warning against pushing development just for the sake of it. In addition, a few respondents suggested that the issue was not just in understanding how to interact with community members or what development activities are appropriate but also the extent to which certain land use practices ought to be allowed to continue. *“You saw the beautiful oak forests? Did you notice something? There is no regeneration. How can they say that grazing has no impact? That beautiful patch of forest will die in the next hundred years because the cows and goats eat all the new shoots.”*- 1J. In light of pressures from entities such as the Indian Mountaineering Foundation and prolific of hydro-electric projects, this perplexity of land degradation was mentioned with regards to the varying opinions held among stakeholders in determining the appropriate land use practices. Ultimately, interviewees spoke of certain fundamental bureaucratic issues that stymie management efforts. *“Ultimately policies, plans, documents can be made but dedicated people cannot be.”*- 4D. More specifically, a few respondents mentioned the Joshimath district office to be a stepping-stone for most officers leading to a fast turnover rates and a lack of continuity in the leadership. In general a need for

enthusiastic, hardworking managers and offices who are vested in understanding and solving all issues surrounding the NDBR.

5.6 Perceived potential for future interaction with the local community of the NDBR

When asked about ways in which local communities could be involved with the UFD, most respondents spoke of how the forest department could improve relations with the local community. This, it was mentioned, could be accomplished by improving upon their current forms of interactions i.e. the provision of employment, supplemental resources and compensation. The following suggestions mostly represent the opinions of three UFD officers from the state office and one officer from the district office. Recommendations from UNESCO concentrated on the discussion of improving general interaction with the communities. Other interviewees also provided suggestions though in less frequency.

5.6.1 Tourism

A number of interviewees made recommendations for the development of tourism but stated that this would not impact the economic status of the community in the anticipated manner. Respondent's perceived the community to have unrealistic expectations regarding the potential benefits of tourism development in the NDNP core zone. *"The people living around the biosphere reserves cannot financially compare themselves with people living around other biosphere reserves or even with what their parents used to earn. Even if the park is open to the people today they will not be rich, I'm telling you. Things have changed a lot. Tourism is very different today."* - 4D. One respondent suggested this misconception to be a product of an inappropriate presumption that villages around the NDNP will experience benefits similar to those seen by villages around the VoFNP core zone of the NDBR. *"Ecotourism on the 11 trails that we already have opened into the park is very low. I wonder why the success of the Valley of*

Flowers is not replicated on these trails too. But very different kinds of people come to these two places. People usually on the valley of flower trails are going to Hemkund Sahib for pilgrimage. That guarantees lots of visitors. NDNP is adventure tourism” - 4D.

Despite these issues, it was mentioned that while it might not be possible to develop tourism in the way that is being demanded in the NDNP, there were other ways for its development that could provide benefits. Many suggested assisting villages such as Lata and Reni in branding their historical and cultural value to take advantage of the existing opportunities in this region for small-scale eco-tourism development. All respondents suggested developing more home-stay opportunities. Provision of skill development training in guiding, mountaineering and search and rescue operations were also mentioned often. In addition, the development of educational tourism was suggested by one officer to attract researchers and students interested in learning about the ecology of the region. *“We can promote the attributes of the region. There is also a possibility to develop a sort of climate change tourism for students to learn about the changes that are happening. There can be educational tourism for young people from around the world because this is a place where the changes will be so visible.” - 3D.*

Ultimately, successful tourism was perceived to be a possibility at a small scale provided that there is a mechanism for local accountability and close supervision from the department.

5.6.2 Development of cottage industry

Empowering the communities: One respondent highlighted a pressing need to change the ways in which communities are currently provided assistance. In their opinion the provision of goods, free of cost, has lead a vicious cycle of expectations for more such services. It was also suggested that these services are neither fully appreciated by the recipients, nor are they sustainable in the long run. *“The forest department and the government have a bad habit of*

giving handouts. Handouts change people because they get things for free and don't care about them. Now people ask for more and more free things but where will the government get the money for all this from?" - 2D. Instead, it was mentioned that the UFD ought to work with members in developing community level micro-plans that address specific needs voiced by villages and provide subsidies for desired livelihood generation activities. *"I think one solution is the development of micro plans. These plans should be developed by the people and funded by the government. It doesn't have to be anything specific it can be something to do with the use of the forest or for social development or anything." - 4D.* This would not only take local needs into account but also introduce a system of accountability among the recipients.

Development of cottage industry: Here too respondents mostly spoke of improving existing provisions to the community. Emphasis was laid on creating opportunities for community members by providing training in proper methods of caring for nurseries to grow marketable crops. *"Another problem is that people don't know how to properly take care of the plants. That is something we can teach them." - 2D.* In addition, officers mentioned the possibility of providing training to teach community members about the process of value addition and marketing. *"For example the people here can grow organic Rajma beans. We can work with them to teach them about value addition and marketing." - 4D.* Interviewees mentioned the possibility of providing assistance in setting up small processing plants to further assist with transformation of local products into marketable goods. Some officers spoke specifically of enlisting the help of local non-profit organizations in achieving these goals. They also mentioned greater involvement of women for improved success.

5.6.3 Employment provision

Employment with the Forest Department: Respondents frequently stated that they could not see how communities could be provided with additional employment with the UFD. This was attributed most often to the perception that the department had sufficient employees to carry out its affairs. This opinion was especially pronounced at the lower ranks of the UFD *“I don't see the need for locals to be present in the management. We train our foresters for that. I don't think there is a shortage of funds. We have all the people that we need to manage that area effectively.”*- 1D; *“No, I don't think that the people can really help us. Right now we have enough staff to take care of our own affairs.”*- 3J. Some respondents could not envision collaboration with the local communities in any way. *“Not much more in the form of collaboration can be done. We already provide projects to the people. Maybe the forest department can pay to train some of the boys as guards but I can't see how they can help us.”*- 2J. On the other hand, two respondents addressed the possibility of employing community members to conduct tasks for the UFD with the goal of improving awareness and acceptance of the conservation initiative. *“The local boys can definitely be trained to do monitoring work. The UFD can engage them to help collect data because we can't do everything. The villages can become a model for habitat improvement. The local people have knowledge about the place but work has to be done scientifically.”*- 4D. It was enumerated that this could be possible provided that the community members were given proper training to carry out tasks in a systematic manner.

5.6.3 Strengthening public involvement

Most generally a number of respondents mentioned the necessity of strengthening involvement of communities. This was said to be a two-fold task of maintaining local

participation in current endeavors as well as expanding participation. Most respondents suggested the necessity to change how community participation projects are funded. Emphasis was laid on funding annual long-term projects that communities can rely upon. *“Don't think that these people don't have the political power to do what they need to. The problem is in the implementation. Projects are constantly started and then stopped in the middle. Sometimes the fault is on the government's side where the funding runs out or something else happens. But other times the problem is on the local side where people just lose interest.”*- 3D. To help people maintain an interest, respondents spoke to the departments need to reduce barriers to communication between the local communities and the forest department. Additionally, one respondent spoke of facilitating processes by which the locals and the UFD could work together. Almost all respondents spoke of a need to inculcate a sense of pride and belonging towards the NDBR suggesting that this might help boost participation. *“Similarly, they must feel proud. They should not feel like the people who are living outside the protected areas. Local people hardly feel any pride. How can we restore their pride in that site is a major challenge.”*- 1U.

Respondents spoke of noticing an absence in the communities' sense of ownership for the land while mentioning that such sentiments were important for people to have. *“The local participation is still not there. There is a lack of ownership for the land among the people.... Having pride for the park is very important. NDBR is the pride of the locals or it should be.”*- 4D. One solution offered was the introduction of educational programs to inform local communities of the ecological uniqueness and importance of the habitat protected within the NDBR. *“We thought let them become the ambassadors for these places and we introduced an annual scheme for education. The scholarship program gave very little money but it was very effective. A third party did the evaluation and among all the interventions this was very*

appreciated by the people. We want to carry out these sorts of initiatives.”- IU. This, it was suggested would help the residents of the region become the voice for its protection.

5.7 Summary

In summary, it was commonly suggested that the NDNP was created for biodiversity conservation and the protected area was later converted into a biosphere reserve to avoid conflict with the communities. Interviewees from UNESCO and the UFD acknowledged strained relations with respect to certain aspects of interaction with the communities. The general attitude regarding the current nature of interaction exuded an air of malaise and the UFD expressed a lack of power to effectively handle or reduce conflicts. Some respondents questioned the true persisting impacts of the reserve’s creation on the communities suggesting a limited possibility for their future involvement in department affairs. Others recognized a deficiency in public participation and the need to employ different and new strategies to improve community involvement.

The data presented above have highlighted certain barriers to meaningful involvement of the local community by the Forest Department: 1) The view of local communities as negatively impacting the protected area leading to the belief that the NDBR needed protection from the locals in order for the conservation efforts to succeed. 2) The opinion that the younger generation is not interested in the carrying on with the traditional livelihood generation activities or even those offered to them by the UFD. 3) The perception that a lack of specialized training meant that communities could not help the UFD in meeting the department’s goals. 4) The UFD’s perception of its limited ability to mediate issues that are causing strained relations.

Despite these barriers, there are opportunities for the UFD to interact with local communities to effect positive change by: 1) Acting upon the acknowledgement that the current forms of community involvement may not be the most efficient or appropriate. 2) Training officials to understand the complexities of engaging communities, in assessing community needs and in appropriately interacting with them before, during and after project implementation. 3) Guaranteeing sustained funding for projects that include assessment of their impacts on the communities. 4) Creating channels of communication that prioritize transparency about the UFD's capacity and ability to incorporate and facilitate participation.

These barriers and opportunities will be developed in much greater detail in chapter six. Ultimately, much of the initiatives that have the potential to effect positive change in local socio-economic development, and improve relations, require changes at the institutional level.

CHAPTER SIX

DISCUSSION AND RECCOMENDATIONS

The objective of this study was to understand the feasibility of local community involvement in the management of the NDBR from the perspective of policy-making organizations as well as from the perspective of the local communities that reside within the reserve. The feasibility of local involvement is discussed in this chapter through a discussion of the barriers to and opportunities for involvement that were uncovered during the interview process. The analysis of benefits and opportunities will provide insight into factors fueling the prolonged strained relations between three stakeholder groups of the NDBR at a fine scale and across the hierarchical social systems that engage with various aspects of this reserve. These barriers are presented in sections 6.1 and 6.2. Data from interviews also allowed for identification of opportunities to improve upon the current participatory processes. These are presented in section 6.3. The barriers and opportunities have been conceptualized using the theoretical framework of political ecology and contextualized with the help of the community participation and conflict resolution literature. This section also presents scale dependent, process based recommendations that may assist in tackling barriers and converting opportunities into actionable programs.

6.1 Discussion of Barriers to Community Involvement

The social constructivist idea of nature highlights the complex relationship between people and nature and suggests the two cannot be conceptualized as opposites (Bosak, 2008). While it does not prioritize human interest over nature, it does stress that the “domination or liberation [of either] cannot be treated individually” (Neumann, 2005, p. 77). As the impact of protected area creation on livelihood activities of surrounding communities was understood, an effort was made to link livelihood and conservation objectives (Ghate and Ghate, 2005; Castro and Neilson,

2003). UNESCO MAB reserves were created around the world to offset the cost of protected area establishment on local communities by incorporating the cause of socio-economic development into the modern conservation effort. While the MAB initiative recognizes the importance of engaging with communities, it fails to identify and address social complexities that are important for achieving the form of interdisciplinary conservation and development actions that the program advocates. Despite four decades of this increasingly popular rhetoric, barriers introduced by: 1) institutional and structural impediments and 2) deleterious attitudes and perceptions among stakeholders have presented obstacles for effective collaborative or participatory procedures (Wondolleck and Yaffee, 2000; Baral and Stern, 2011; Coetzer et al., 2014).

6.1.1 Structural and institutional barriers

A number of barriers identified from the NDBR case study point to impediments in satisfactory participation because of the institutional structure within which these practices are initiated. Oulette (2005) describes structural barriers as the set of formal or informal rules that regulate the whole system of stakeholder interactions. In the NDBR these structural barriers can be found at all the three stakeholder group scales included in this study. Henceforth, for the sake of convenience, these three group scales, namely, UNESCO, the UFD and the local communities are referred to as 'scales' when referred to collectively. As per the political ecology framework these differences at the various scales highlight the importance of acknowledging scalar heterogeneity, inter-scalar connectivity and scale-dependent process (Neumann, 2005) when operating from a global to local scale. Differences at the various scales also highlight that along with understanding scalar variability, it must be recognized that it is ultimately individuals within scales that hold the power to effect change. According to Movuh and Schussed (2012), before

on-the-ground solutions can be found, it is important to identify actors in the conservation and participation process who possess the power to effect change. The concept of biosphere reserves aims at linking global and national conservation goals with local socio-economic development goals. Nevertheless, few efforts have been successful in systematically defining the nature of this link or measuring the success of related programs (Salafsky and Wollenberg, 2000, McShane et al., 2011).

Conflicting missions and goals: Extrapolating on the idea of scalar heterogeneity, it can be said that while these scales may have shared principles, they also operate according to principles specific to their own scale (Berkes, 2003). As per the interviews, none of the three scales were satisfied with the current participatory procedures. The barrier here may be because of an over emphasis on the shared principles of development and conservation among the scales while not enough attention is paid to principles specific to each scale that present challenges to collaboration. Global perceptions and thus motivations of conservation and the means for achieving associated goals are quite different than local perceptions of these concepts. Yet many community involvement initiatives, including those in the NDBR, are conceptualized exclusively at the global or national scale (Berkes, 2007). In this regard barriers to successful participation are introduced because of differing missions and goals at the different scales.

One mission of the UNESCO MAB reserves is to promote a transition towards socially accountable conservation and the aligned goal is to promote ecologically sustainable development (Coetzer et al., 2014). The UFD describes its primary mission as biodiversity conservation and resulting goal as the reduction of anthropogenic pressures on the natural resources within the core zone. This research cannot speak to the general missions and goals of the local communities however interviewees often spoke of a desire to engage in reliable income

generation activities that promote a comfortable lifestyle. Acting upon their missions and goals the UFD is attempting to reduce dependence of communities on natural resources by providing alternative livelihood generation activities that centralize impact reduction. Simultaneously, while the UFD recognized a need to modify ways in which the communities are currently involved, their suggestions mostly spoke of improvements in the current forms of involvement so as to maintain alignment with their global and national goals. The local communities on the other hand views most of the UFD initiated livelihood improvement programs to be outdated, irrelevant and insufficient for meeting their needs. Most importantly, acting upon their missions and goals, some local communities are proposing an increased dependence of local natural resources by way of nature based tourism for economic improvement. This mismatch in missions and goals of the various stakeholders leads to a lack of incentives for the communities to successfully participate in UFD initiatives. It also highlights an important mismatch in how these stakeholders conceptualize nature and strategies for its conservation (Neumann, 2005; Bosak, 2008). Citing illegal extraction of protected resources as an issue, certain communities are proposing increased access to the closed-off territories. This, according to them will not only lend a hand in the government's efforts to deterring poachers but would also help the communities economically. At the same time that the communities, by way of nature based tourism and commercial sale of natural resources, are aiming to increase their dependence on natural resources, UNESCO and the UFD are introducing initiatives to reduce any dependence by citing over use of protected resources. This local demand for an increase in access is only in relation to amount of decrease in use since tourism was discontinued in the NDNP. While communities have historically been dependent upon this land, their form of dependence is changing. In the historical context resource extraction was driven by subsistence needs especially

due to their remote location, lack of connectivity and a paucity of access to markets. Today with the development of an extensive road system, communities no longer need to rely solely upon local resources for subsistence. Interviewees spoke of wanting to extract herbs for sale in the international market and accessing the core zone for tourism. These differences have led to the current mismatch in stakeholder missions and goals. In their analysis of interest and power, Movuh and Schusser (2012) suggest that governance processes and outcomes of such conservation and development initiatives depend on the interest of the powerful external stakeholders. Throughout the interviews, the dominant rhetoric presented by UNESCO and the UFD was that of community involvement and livelihood improvement. Yet, in practice, initiatives do not satisfactorily represent the needs of these communities, which are thought, perhaps incorrectly, to compromise the ultimate mission of a biosphere reserve.

Lack of opportunities or incentives: Another barrier presented is the difference in the amount of decision-making power possessed and desired by the various scales. The idea behind participatory procedures is the involvement of communities in the decision-making and benefit-sharing process to foster a greater sense of ownership and community empowerment (Castro and Neilson, 2001; Armitage, 2005). In reality, many initiatives have been shown to weaken local authority, strengthen the existing hierarchies and increase re-centralization (Sundar, 2001; Goldman, 2003). The conventional prioritization of knowledge production mechanisms (Neumann, 2005) reinforces the top-down paternalistic process where “agencies listen to public concerns and generate decisions based on their sense of science and public interest” (Wondolleck and Yaffee, 2000). This was demonstrated only too well in the suggested forms of tourism development that may benefit communities. Where the NDBR communities are looking for participation opportunities that allow for greater self-determination, the UFD sees a need for

greater oversight. While both stakeholders presented the development of tourism as a potential solution for the present friction, the scale of decision-making authority of the different levels were perceived quite differently. As per the local communities, the department's role ought to be limited to that of a facilitator in helping communities develop the necessary businesses and infrastructure that are not currently available. The UFD and UNESCO on the other hand suggested the improvement of current facilities and increasing scrutiny of the tourism process to ensure that no harm comes to natural resources as a result of this activity. This mismatch in process for achieving development and conservation acts as a barrier to participation at both the national or state and the local scale.

Inflexible policies and procedures: This barrier originating from the lack of decision-making power was also expressed by the UFD. Different actors or stakeholders in the management process wield varying levels of influence upon the process (Movuh and Schussed, 2012). Administrative constraints introduced by bureaucratic hierarchies and procedures are said to impede many in their collaborative efforts (Wondolleck and Yaffee, 2000). In the NDBR, the barrier to promoting participation in order to influence strained relations was felt by the UFD due to its limited authority to change the structure within which participatory programs are shaped. Officers identified the need to modify the current intervention programs but spoke of the need to act with policy suggesting their role to be limited to enforcement. A clear example of this was seen when the newly updated categories for compensation were discussed. While the previously missing category of crop damage inflicted by wildlife now qualifies as grounds for compensation, this national policy change does not include langurs in the definition of wildlife or horticultural crops such as apricot trees in the definition of qualifying crops. Although the UFD recognizes damage inflicted to apple and apricot trees by the langurs as a major problem that is

causing strained relations, it has no power to make the requisite changes to this new definition. This, once again, highlights the importance of understanding location specific aspects of inter-scalar connectivity and dependence in achieving participation that is satisfactory to all scales. Castro and Nielson (2002) discuss the harm done to the participatory procedures due to insufficient power sharing between the central government and the local communities. This research demonstrates that the problem of being handed responsibility but not the necessary power of enforcement is a problem not just among the various stakeholder scales but also within them.

Constrained resources: Barriers to facilitating successful participation arising from limits on resources were discussed at all scales. Resources here refer to funding, time and labor. All three resource constrains were felt at all scales to some extent. However the different scales emphasized different resources as their primary limiting factor. For UNESCO, it was the availability of funding. Severe funding constrains result in short-term funding cycles and improper follow through of projects. This becomes an important barrier for a community's willingness to participate as it adds to the cycle of "optimism and disenchantment" and causes discord between conservation organizations and communities (Coetzer et al., 2014). Additionally, the lack of funding also means few efforts have been made to evaluate the success of the biosphere reserve concept (Price, 2002). UNESCO corroborated this shortcoming despite it's perceived importance.

For the local communities, manpower was a major barrier to participation. Unable to fulfill livelihood needs in their villages, many local respondents spoke of out-migration of the working-age youth to towns and cities for education and jobs. Opportunities provided by the UFD are often labor intensive, thus hindering the participation of the non-working age groups.

6.1.2 Barriers due to attitudes and perceptions

Many of the above stated institutional and structural barriers over time have led to barriers that hinder the potential for successful participatory procedures for the future. Attitudes and perceptions held by each stakeholder group level determine: 1) how they engage with one another at present and 2) their willingness to work with one another in participatory initiatives in the future. Wondolleck and Yaffee (2000) suggest that attitudes and perceptions held by individuals and groups can lead to lack of trust and stereotypical “us versus them” polarizations.

Improper conceptualization of communities: First and foremost, barriers to successful participatory initiatives in the NDBR are due to incomplete or incorrect perceptions of community composition and a superficial understanding of their complex structure. Fallacious perceptions lead to incorrect assumptions about the *biosphere reserve* communities as a small spatial unit and as having a homogeneous social structure and shared norms (Armitage, 2005). These assumptions are then manifested into inadequate participation initiative design and implementation. It must be noted here that this research only includes two NDBR communities. It did not specifically investigate intra community structure and variations in attitudes and perceptions due to socio-economic variations at the household level. Within each community, there are differences in social status, resource availability, economic needs, interests, education etc. and thus differences in attitudes and perceptions. These analyses do not present ideas held by either community as a whole. They only discuss common themes that emerged through interviews.

For the NDBR communities, UFD programs resulting from the above stated assumptions have resulted in inter and intra-community disputes. These disputes, perceived by the communities to be caused as a direct result of UFD interventions, have internally impacted the

communities' attitudes regarding future participation with the UFD. The NDBR's establishment impacted different villages within this reserve differently. Of the 47 villages that comprise the NDBR community, only Lata and Tolma lost access to sections of land that were incorporated into the core zone. Even between these two villages, loss of access to land and revenue from tourism was inequitable with the village of Lata bearing the brunt of the costs. Livelihood improvement opportunities initiated by the UFD are distributed equally (according the Forest Service District Forest Officer) among the NDBR communities as a whole and paucity in funding heavily dilutes their potential benefits for each village. These imbalances in losses sustained and remunerations received have led to inter-community disputes especially in relation to land access for *cordyceps sinensis* extraction.

It is known that embedded social hierarchies within a community can become amplified based on who, within the community, participates in development programs (Rao et al., 2000). However the UFD's inability to account for these differences has led to intra-community disputes resulting from inequitable distribution of assets (Berkes, 2003). This was highlighted via examples of inequitable supplemental resource and employment distribution within the two villages included in the study. Manifestation of such imbalances can be explained through the concept of elite capture (Agarwal and Gibson, 2001) where those who hold greater power and influence within the NDBR communities have captured a greater proportion of the benefits from UFD initiated programs. These deficiencies were identified by villagers from Lata and fuel its residents' continued discontent with the UFD.

Incomplete conceptualization of communities: Additionally, barriers to participation also arise when inappropriate perceptions cause complexities of community composition, needs, traditional resource use systems and historical livelihood strategies to be over looked (Agarwal

and Gibson, 2001; Roe et al., 2000, Armitage, 2005). This leads to formulation of inappropriate participatory interventions. Coetzer et al., (2014) reviewed the effectiveness of the UNESCO biosphere reserve strategy. Their evaluation found limited success of reserves in achieving one or both goals of conservation and sustainable development. Also widespread, was the lack of success of these biosphere reserve sites where reserve authorities failed to properly consider different stakeholders in the decision making and project design process. Political ecologists relate such a lack of consideration in part to the politics of knowledge production where certain methods and means of knowledge production and accumulation are prioritized over others (Chambers, 1998). As stated by the UFD and UNESCO, information upon which to base social and ecological management strategies, is provided by the international and national scientific community. Local community members were not viewed to hold knowledge that could be utilized for improved management and thus were not involved in the decision making of the participation process design. Prioritization of one knowledge production mechanism over another also presented a barrier in future opportunities for interaction.

The barrier in community involvement arising from the discrediting or dismissal of local knowledge could also be attributed to what is referred to as the political economy of ignorance (Dove, 1983). The argument is that the assumption of the lack of appropriate knowledge among local communities is based, not on empirical fact, but on widely accepted myths that can and have often been dispelled with a little probing. However, their continued perpetuation could suggest that these myths are constructed and perpetuated by certain groups or classes, often the social, political or economic elite, to justify their (often unfair) management or policy decisions (Dove, 1983). It is important for the FD to recognize that more often than not, scientific knowledge produced through the accepted means of knowledge production is produced with the

assistance of local community members. Members of both NDBR communities are hired during scientific ecological expeditions into the core zone because of their familiarity with and knowledge of the landscape. Similarly, all sociological studies draw conclusions based on interactions with local communities. Dismissal of local knowledge for managerial convenience could explain why participation projects have a low success rate. This also explains why suggestions for future involvement by the policy organizations did not match with the desired forms of involvement expressed by the communities.

Improper conceptualization of the UFD and UNESCO: Just as policy organization perceptions have inappropriately conceptualized communities, so have communities developed incorrect perceptions regarding UNESCO and UFD. Improper communication between the UFD and the communities has led to incorrect perceptions of the influence and power possessed by the UFD to affect change. The UFD was quite often perceived to have greater authority than it does. As discussed in section 6.1.1 under inflexible policies and processes, policy framework under which the FD operates is rigid and restrictive. Thus while the UFD manages the biosphere reserve, it does not have as much authority as is locally perceived. From the community perspective, it was not the lack of power but government apathy towards the plight of people that was perceived to be reason why community needs were not met despite the many promises.

Additionally a lack of transparency in UFD operations has also led to incorrect community perceptions regarding available funding. This was demonstrated in community perceptions of funding availability and funding misappropriations. These perceptions have bred unfavorable attitudes towards the reliability and trustworthiness of the UFD and the department's ability to beneficially involve the communities in participatory procedures. From the government organizations' perspective the lack of appropriate power and resources stem from structural and

institutional deficiencies as discussed in section 6.2.1. However, a lack of transparency and open communication between the UFD and local communities about these issues has translated into improper perceptions and thus attitudes among communities about what the UFD is capable of achieving. This research cannot speak to the trustworthiness of UFD, as we did not look into resource allocation and its appropriateness. However if, as believed by the UFD officials, the communities are incorrect in their perception of the UFD's capabilities then transparency, a conscious effort to re-build trust and UFD competence in engaging communities may have a positive impact on community perceptions.

Mistrust: This presented an important barrier in current and future participation. Institutional, structural and conceptual barriers have led to development and maintenance interventions that are not positively received by the communities. Moreover certain aspects of these interventions, as per community accounts and literature (Maukhuri et al., 2001; Price et al., Lasgorciex and Kothari, 2009) have actually negatively impacted communities. The resulting lack of incentive and consequent slack in participation has led to unfavorable perceptions held by the UFD that assume disinterest and economic needlessness of development interventions. Additionally, perceptions of changing community priorities towards monetary economies adds to the UFD's mistrust of the local's ability to sustainably utilize resources of the reserve.

6.2 Conceptualizing barriers and opportunities in broader mechanistic frameworks

For all the barriers, research has shown that where properly conceptualized, developed and implemented, participatory procedures can prove quite beneficial in promoting biodiversity conservation and socio-economic development (Hossain and Karim; Bajracharya et al., 2005). However, for costs of protected areas creation to be overpowered by benefits, three overarching mechanisms, identified by this research and corroborated by literature, must be taken into

account: 1) developing location-specific participatory processes that reach across multiple scales; 2) clearly assessing and identifying the role of local communities and ensuring appropriate participation based on actual need, not platitude; 3) identifying and developing sustainable livelihoods and land use practices that reflect the local culture, contemporary social, economic and political realities as well as conservation needs.

In their analysis of the effectiveness of the Biosphere Reserve model, Coetzer et al. (2014) found barriers that impede the successful realization of conservation and/or socio-economic development but noted that the concept of biosphere reserves itself was built on a sound framework. Since their popularization as a contemporary conservation tool about four decades ago, participatory procedures have come a long way; though success is still illusive. This is because the link between conservation and livelihoods is still an indirect one (Salafsky and Wollenberg, 2000; Baral and Stern, 2011). This indirect link exists because the BR concept assumed the pragmatist typology or the means-to-an-end view of stakeholder involvement where conservation remains the only end goal, as discussed by Reed's (2008) theoretical typology of participatory approaches and discusses in section 2.2.2 of the literature review.

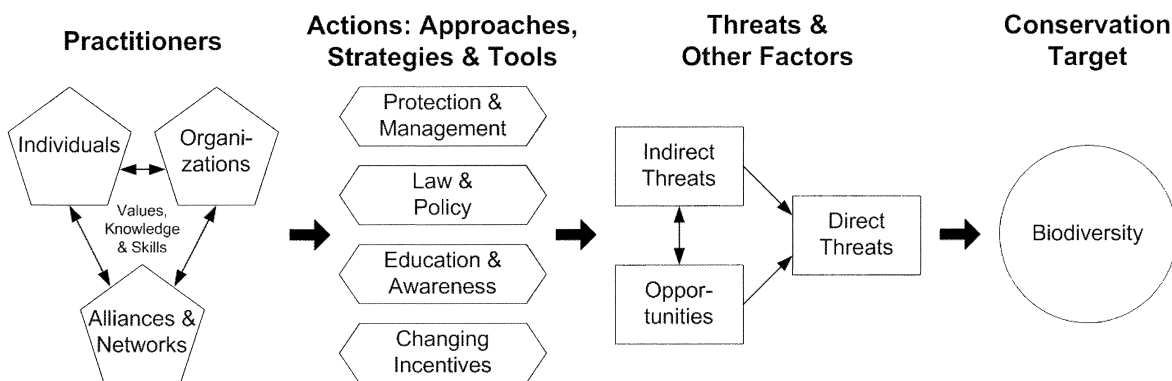


Figure 3: Generalized model of a conservation process as shown in Salafsky et al. (2002)

The buffer zone management strategies of the BR, including those of the NDBR, promote participation of local communities by providing alternatives to livelihood practices that are suggested to threaten local biodiversity. The emphasis is on providing economic incentives without appropriate consideration of the biophysical environment or the social and economic relevance of interventions to the communities (Spiteri and Nepalz, 2006). As seen in the NDBR, this approach to linking livelihoods and conservation becomes problematic to enforce and maintain because it is not directly linked to conservation behavior (Salafsky and Wollenberg, 2000). Communities either continue to illegally access resources in the core zone or other lucrative economic activities create incentives for expanding the buffer zone into the core zone (Mascia and Pailler, 2011). Both these undesirable activities hold true in the NDBR.

Identification of these shortcomings has led to the attempts at redefining the participatory procedure. Reed et al. (2008) outline the progress of stakeholder participatory approaches over the decades, describing the current phase as one that emphasizes critical analysis and a growing “consensus over best practices”. They term this the “post-participation” phase. These best practices prioritize the normative typology of participation. Most BRs are being created in developing nations where livelihoods are still directly linked to the lands that surround them. Thus the “post-participation” phase recognizes a singular role, played by local communities in assuring the success of long-term conservation goals. This view then emphasizes the importance of bottom-up processes by proposing the creation of direct links between livelihoods and conservation in a way that these activities depend upon the persistence of biodiversity. Here, a movement away from the mere incorporation of communities to the development and utilization of CBNRM strategies where appropriate, becomes quite pertinent.

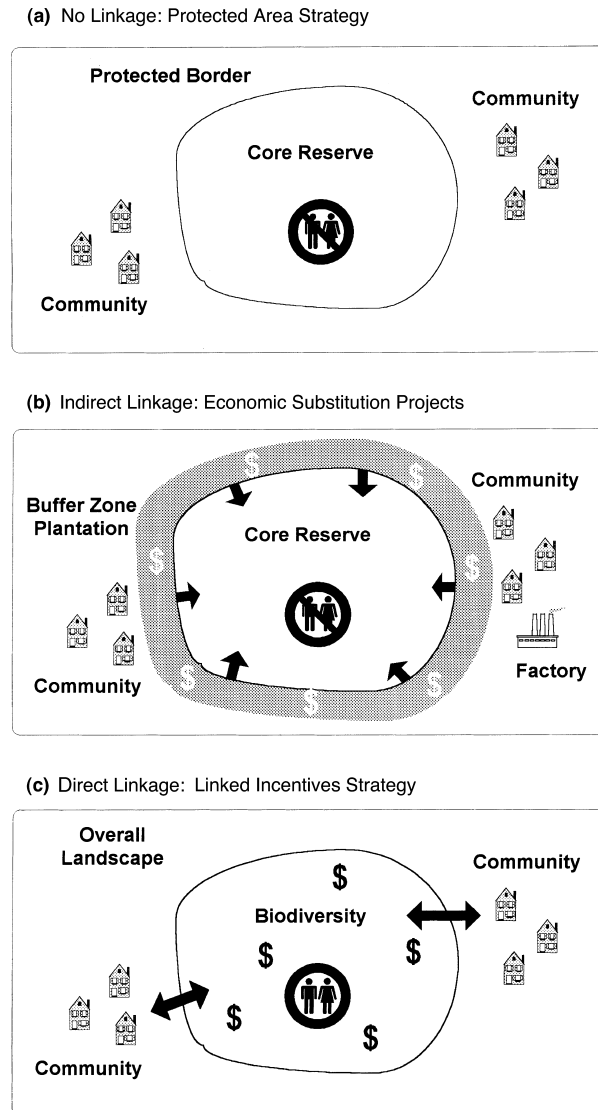


Figure 4: A trend towards linking conservation and development culminating in interdependent livelihood and conservation goals as shown in Salfsky and Wolleenberg (2000)

Additionally, as discussed above, the process of developing a successful participation process is made difficult due to the involvement of multiple stakeholders, with multiple motivations, operating within multiple paradigms with diverse and unequal resources and power. Thus, while the mandate for equitable conservation is prescribed at a global scale, the process for realizing this solution must take place at a local and regional scale. Berkes (2004) proposes cross-scale conservation strategies by creating horizontal and vertical linkages between

social and ecological systems. Vertical linkages operate across scales linking management organizations, development organizations, conservation communities etc. A horizontal linkage promotes linking communities directly with conservation for instance through CBNRM.

Opportunities resulting from these strategies will guarantee that the resulting livelihoods will “drive conservation rather than simply be compatible with it” (Salafsky and Wollenberg, 2000)

6.3 Opportunities and Recommendations

Despite the structural, institutional and attitudinal barriers to successful participation that this research has uncovered, there are a number of opportunities that can help improve the involvement process of communities and mend relations between stakeholders of the NDBR.

These opportunities are appropriate not just for the NDBR but also other biosphere reserves and protected areas within India and other parts of the world that face the dilemma of balancing social justice and conservation needs.

Reform and change in Indian Forest Department: The evolution of protected area management tools and approaches are critical to biodiversity conservation and the provision of socio economic benefits (Oli et al., 2013). It was frequently expressed by FD officials that while they are expected to involve local communities in the conservation effort, they do not have any context or understanding of how to successfully accomplish this mandate. As expressed by forest department officials, their training is rigid, institutionalized and limited to preparing them for implementing the exclusionary style of conservation. However, if the field of conservation is moving from preclusion to inclusion, then, so must the education and training of those tasked by the government to manage our PAs. This presents an opportunity for better management of not just the NDBR but also all other PAs within the country.

Though this sort of an institutional change may take time, there are ways to bridge the gap by collaborating with organizations that already deal in the realm of CBNRM. These organizations can hold sensitization trainings for the FD in community engagement. To adequately deal with modern conservation and to fulfill the UNESCO MAB mandates these officers require training in environmental law, conservation biology and sociology. Recognizing their lack in ecological training, FD personnel, rely heavily upon institutes such as the WII to conduct ecological research that informs conservation measures. Similarly, the FD must institutionalize collaboration with research and action based organizations that specialize in sociology and community engagement. It is important to base community engagement on sound research, because as this research demonstrates, improperly engaging communities can have long term damaging implications that span generations (Oli et al., 2013). More importantly, improving intra community and agency trust through meaningful community engagement leads to successful community participation in conservation programs (Baral and Stern, 2011).

Understanding impact of historic land use practices on local ecology: In places such as the NDBR historic livelihoods and land used practices have shaped surrounding landscapes for the centuries. Long-term practices such as livestock grazing may have impacted the abundance and distribution of flora and fauna (Brown and Kothari, 2011). A thorough understanding of the local ecology and whether or not it may have been shaped by anthropogenic disturbances is necessary. Siebert and Belskey (2014) suggest that international conservation initiatives regularly overlook the role of historic anthropogenic disturbance regimes in creating and maintaining biodiversity. The argument is certainly not to maintain historic practices especially where doing so goes against conservation efforts. However, if the goal is to conserve present biodiversity and anthropogenic use may have positively impacted this biodiversity, then it may

worthwhile to understand and build on the historic anthropogenic disturbance regimes to meet conservation goals. In the case of the NDBR then, it may mean allowing appropriate resource use and extraction in areas where previously such practices existed but we banned or curtailed after the creation of the reserve.

Where efforts are made to include local communities in conservation, the emphasis is on introducing new livelihood practices instead of building upon historic ones (Siebert and Belsky, 2014). As discussed in sections 4.4 and 5.4, all stakeholders had negative experiences with the current state of local participation. Building upon historic practices to develop participation programs where appropriate may provide an opportunity for better participation; project buy in and ownership from the local perspective. This may help to inform conservation actions, as the landscape will undoubtedly change after historic anthropogenic disturbances are abruptly discontinued. Members of the NDBR communities spoke of forests encroaching into lands that were cultivated and grazed three decades earlier. Thus, from the conservation perspective, understanding the ecological impact of discontinuing or altering historic practices presents an opportunity to implement ecologically appropriate management decisions.

Understanding community complexities: The predominant argument today is that natural resources can be better preserved when they are used and valued by those who are dependent upon them (Roe et al. 2000; Campbell and Mattila, (2003); Ghate and Ghate, 2005; Zoysa and Inoue, 2008; Berkes and Ross, 2012). The complex systems theory in ecology caters to the intricacies of multi-scalar interactions from the individual within a species to the ecosystem level when creating management decisions (Berkes, 2007). Similarly, it is important for advocates and practitioners of community engagement to identify and epitomize social complexities before prescribing interdisciplinary conservation and development actions. In the NDBR, doing so

presents an opportunity to fairly distribute benefits of FD initiatives and reduce the related inter and intra community disputes.

Along with understanding inter and intra community differences as a whole it is also important to understand the complexities of participation based on gender. While this research was unable to do so, we do recognize that it is important to understand the practical, social and cultural constraints faced by women in order to successfully involve them the in the conservation process (Mosse, 1995). In the NDBR communities of Lata and Tolma, women largely held either indifferent or negative attitudes towards conservation. Though the FD officials mentioned that both men and women were being involved in the community engagement process, research demonstrates that it is important to check assumptions about women's accessibility to and their representation in programs (Mosse, 1995). Here lies an opportunity for the FD to empower marginalized sections of communities, spreading the conservation message, earning greater support from the community while ensuring reduced negative impacts of conservation initiatives.

Consulting communities early in the process: Today, in the case of the NDBR, understanding the current discontentment among the forty-seven communities in the historical context of reserve creation is quite important. The UNESCO Seville Strategy (SS) that aims to ensure equitable cost distribution of protected areas or biosphere reserve creation was not adopted until 1995. The NDNP was created in 1982 and communities were not consulted during the process of its creation. Negative impacts felt by members of the NDBR communities at the time of reserve establishment continue to have a ripple effect on relations between the Indian Forest Department and the local communities today. Coetzer et al. (2014) found the UNESCO participatory procedures to be the least successful in reserves that were created before the adoption of the SS. This knowledge serves as a cautionary tale and as an opportunity for the

successful establishment of protected areas in the future. Stakeholder participation needs to be institutionalized in the process of reserve creation. Additionally, where appropriate, participation needs to be initiated as early as possible, for instance, in the concept development and the planning phase (Reed, 2008). This would help in creating programs most relevant to members of the various communities. While this is a time consuming process to initiate and maintain, it provides the best chance for community wide buy-in. Retrospectively, for the NDBR, this could have helped in creating reserve boundaries that distributed cost to the communities in a more equitable manner.

Continued consultation: The UNESCO SS of 1995 recognizes the importance of decadal periodic review to assess the status of biological resources in order to stay on target with conservation goals. A framework for conducting this periodic review already exists. This presents an opportunity to include decadal reviews of the participatory interventions as well. This research found that perceptions of outdated UFD interventions acted as an important barrier to participation from the community perspective. From the FD perspective the barrier was because officers believed they were facing criticism despite implementing programs created upon the suggestion of communities. While this may be the case, community needs have changed since the programs were designed in the 1980s'. Thus the opportunity for improvement is available not just at the global level but also at the national and state administrative level. Funding is already appropriated for livelihood improvement opportunities. Periodic reviews to monitor the progress of the participatory procedure will ensure appropriate use of scarce resources. The process of understanding community complexities, involving them early in the participation design process and ensuring continues consultation with community members has another big advantage. It will ensure the identification and development of viable livelihoods that reflect contemporary and

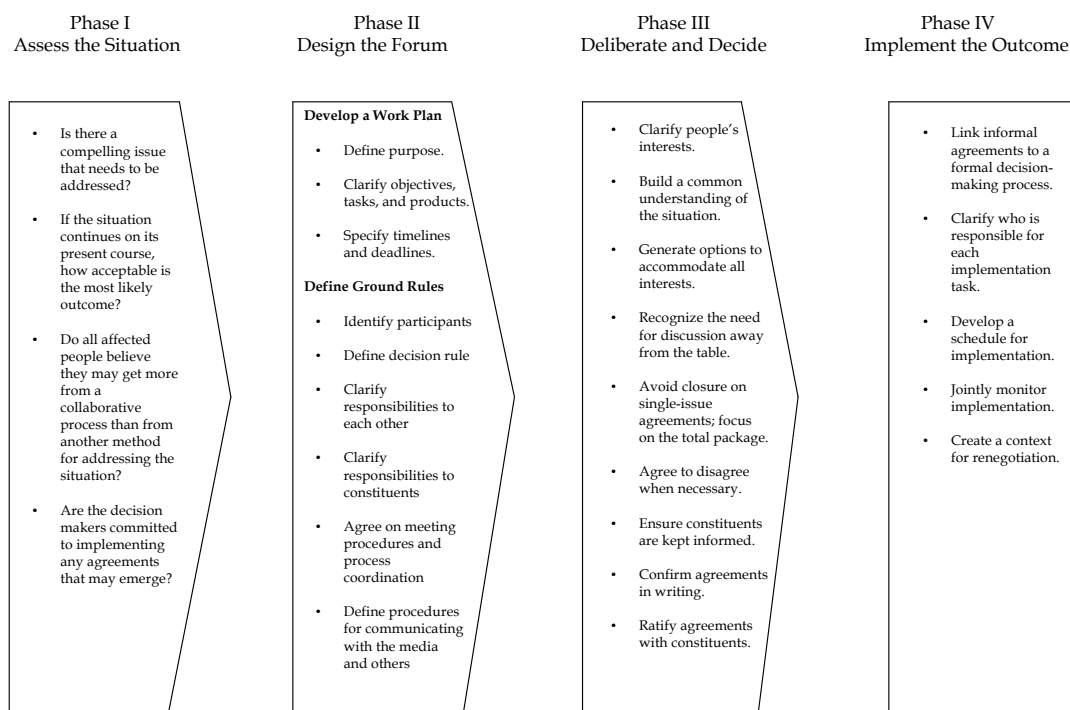
dynamic political, economic, social, cultural and environmental realities. Doing this will also provide an opportunity for the local communities to provide input in the decision making process and give them access to the global and national scales. Such an advance in cross-scale or vertical connectivity will ultimately contribute to a much-needed change in the current power dynamic as well.

Strategic analysis of conflict: Interviews with the UFD suggested an awareness of strained relations. This awareness in itself presents an opportunity for action. Susskind and Thomas-Lamer (2005) highlight a number of advantages derived from the practice of conflict assessment. Though this research did not specifically assess conflicts, an assessment of the barriers helped identify the relevant stakeholders and map their interests. Similar assessments could help the UFD to obtain information for scoping areas of agreement and disagreement. Such an assessment also provides an opportunity to build relationships, or in the case of the NDBR, to mend them. Perhaps the most important benefit of conflict analysis is the resulting understanding of not just the cursory disagreements but also the underlying conflicts that drive them. On the surface, the current disagreement among stakeholders seems to revolve around access to resources. This research however, uncovered entrenched negative perceptions regarding the UFD's usefulness, trustworthiness and reliability. Such perceptions lead to damaging skepticism that impacts all aspects of the UFD and individual community interactions. Here, a solution could be as simple as developing appropriate channels of communication. Though, developing effective forms of communications is not a simple task, it is one that can be addressed by the state office without having to wait for policy changes or a paradigm shifts that seem to be a prerequisite for many of the long-term solutions. Overlooking the importance of

conflict assessment can thus lead to inappropriate solutions that further damage relations, as can be seen in the NDBR.

Clarifying responsibilities and expectations: Another process-based solution recommendation is adapted from the phases for public dialogue presented in Figure 5. Phase II of this dialogue sequence refers to the development of a work plan and defining ground rules. The UFD initiates various livelihood opportunities for the NDBR communities. However, a lack of clear communication regarding the role and responsibility of each stakeholder in implementing and maintaining these programs has led to unfavorable attitudes on both sides. For instance, officers of the UFD questioned the true need for these interventions when a nursery project failed due to perceived neglect on the part of the communities. Conversely, some supplemental resources provided by the UFD are considered by the communities more to be a burden than help owing to expectation that the UFD ought to maintain these items. These unrequited expectations suggest a lack of communication in clearly defining the objectives, project timelines, associated tasks etc. Additionally, the absence of ground rules for individual and shared responsibilities leads to souring engagements that could otherwise be beneficial for one or both stakeholders.

Phases of Public Dialogue



Prepared by the Public Policy Research Institute, The University of Montana (October 2003)

Figure 5: The phases of public dialogue as tools for stakeholder engagement.

Capacity building: An important opportunity for the UNESCO and the Indian Forest Department at the national level to improve participatory procedures and thus relations in the NDBR is to build capacity. Many in the UFD recognized the department's shortcoming in their ability to interact or deal with the local communities. Ideas such as "stakeholder collaboration" and "equal seats at the table" are not completely compatible with the Indian culture and social structure. Power differentials are quite clear within the Indian society and impact the way stakeholders with varied access to power and privilege interact with one another. Thus it becomes important to provide relevant training to all participants in the process if a collaborative process is to be successful. Another important aspect of capacity building, where appropriate, is

to employ members from local communities to help close the communication gap between these stakeholders. This presents an important opportunity for a direct and relatable link to the communities voices.

Stakeholder empowerment: Ultimately, Reed (2008) discusses the importance of the philosophy of empowerment, equity, trust and learning, for the success of participatory procedures. According to the authors, participant empowerment takes two forms: 1) ensuring that participants possess the true decision making power and 2) ensuring that participants have the technical capacity to engage in participation. The lack of this second form of empowerment at the UFD scale demonstrated a feeling of helplessness in their ability to tackle issues causing discontentment in the NDBR even where opportunities exist. Similarly, an absolute lack of true empowerment at the community level has harbored a feeling of helplessness to affect change even in small processes and has thus garnered a sense of apathy. These issues become important to be flagged at the start of a participatory process in order to give the process a fair chance.

6.4 Conclusion

There are still wide gaps between CBNRM rhetoric and practice (Benjamenson et al., 2013). There is no question that the success of conservation, in part, depends upon the cooperation of and collaboration with communities that surround and depend upon these natural resources. This research once again demonstrates what is already prominent in the community engagement literature; that communities even within a relatively small geographic area have different characteristics. This very individual nature of communities makes their involvement in landscape wide conservation initiatives very challenging. Conservation efforts are complicated even further by the involvement of multiple stakeholders at multiple scales with multiple missions and goals. However, appropriate scale based rapid assessment of conservation and community engagement

efforts are not only possible but can help in improving or updating current efforts. There is a tremendous need to provide community engagement training to individuals and organizations tasked to fulfill the requirement of modern conservation.

Ultimately, a conceptual change in frameworks for addressing socio-ecological systems and building adaptive capacity along the individual-international continuum is necessary for the long-term viability of CBNRM initiatives (Agarwal and Gibson, 2001; Roe et al., 2000; Berks, 2003, 2007; Armitage, 2005). Successful natural resource management today requires clear policies, functioning laws, accountable governments, properly trained conservation officials, an engaged and informed populous and the collaboration spirit. There is a need for at least some degree of power transfer from the central and state governments to the local communities (Benjamenson et al., 2013) if we want to sincerely engage them in the conservation process.

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Appendix 1: Questionnaire for the Individual interviews held with residents of the villages of Lata and Tolma that lie within the buffer zone of the Nanda Devi Biosphere Reserve.

Village: _____

Age: _____

Sex: _____

1. In your opinion why was the Nanda Devi Park created?
2. Did the creation of the park affect people in any way? If yes, then in what way?
3. Did you traditionally do anything to manage forests: flora, fauna
4. In your opinion what is the role of the forest department in this area?
5. Do you or have you ever worked with the forest department? In what capacity?
6. Has the closure served its purpose? Has it been good or bad or neutral for the flora/fauna?
7. How would you manage the forest? How would locals want to be involved in: wildlife management, forest/meadow management, poaching, conflict management and tourism?
8. Can locals and the forest department work together to manage the forests so it is beneficial to both?
9. How should the forest department work with the locals? What would you like to gain from the management of this region? For e.g. income, health, non-timber forest products, tourism?
10. Why do you think people don't currently work more with the forest department?

Appendix 2: Questionnaire for the group interviews held with residents of the villages of Lata and Tolma that lie within the buffer zone of the NDBR.

Group sex: _____

Number of participants: _____

Age of participants _____

Village: _____

1. According to you what is the forest departments' responsibility towards the people of this village?
2. Is it helpful for you to receive items such as gas cylinders, wool and lanterns that the forest department provides? If yes, then in what way? If no, then why?
3. Should the money spent on providing these items be spent in a different way? In what way?
4. What about the other ways in which the department works with people, for example job provision? Are those helpful? In what way?
5. If no, then what can the government do instead that will be helpful for the people?
6. The way you utilized the forest before, do you think the current generation wants to utilize the forest in the same way? Or can they even use the resources in the same way?
7. Can herbs found in high pastures be grown anywhere else? i.e. on land anywhere outside the protected forest?
8. How does the current generation use or want to use forest resources?
9. What can you or the people of this village do in order to get what is needed from the forest department?

Appendix 3: Questionnaire for the Individual interviews held with the Indian Forest

Department in the state and district administrative offices of the NDBR.

Designation: _____

Department: _____

Years of experience: _____

1. Why was the Nanda Devi Biosphere Reserve created?
2. What are the forest department's overall duties to manage and protect the biosphere reserve?
3. What does it mean for a reserve to be a man and biosphere (MAB) reserve?
4. What does the forest department currently do to monitor and manage the core and buffer zone: wildlife; forest/ meadows; human-wildlife conflict: crop damage and livestock depredation; poaching; and tourism?
5. Do you know if the local communities traditionally did anything to manage forest resources namely the flora and fauna in order to maintain continued use? If yes, then how?
6. Has the closure served its purpose? What are the challenges faced by the forest department in successfully managing the reserve?
7. Does the forest department recruit or work with the local communities to manage or protect the reserve?
8. What do you think of the current relationship between the forest department and the local communities?
9. How do you think local communities can be involved in working with the forest department to manage: wildlife/ forest/ meadows; poaching; human-wildlife conflict: crop damage and livestock depredation; Tourism.

Appendix 4: Questionnaire for the Individual interviews held with UNESCO at the New Delhi administrative offices.

Designation: _____

Department: _____

Years of experience: _____

1. Why was the NDBR created? What was UNESCO's role in its creation?
2. What does it mean for a reserve to be a MAB reserve?
3. What is UNESCO's role in NDBR's management?
4. What is the benefit of having a UNESCO designation?
5. Do you know if the local communities traditionally did anything to manage the forests and meadows? If so then what did they do?
6. What are the forest department's overall duties to manage and protect the reserve?
7. How does UNESCO interact with the forest department in NDBR's management?
8. How does UNESCO or the forest department assess whether they programs they have introduced are working or not?
9. How are the following currently managed: wildlife, forests and meadows, human-wildlife conflict, poaching and tourism?
10. What are the challenges faced by UNESCO and/or the forest department in successfully managing the reserve?
11. How are the local communities currently involved under the UNESCO MAB program?
How has the involvement been received by the local community?
12. What is the current relationship of UNESCO, the forest department and the local communities? Can local communities be involved in management action?

13. How do you think the local communities can be involved in working with the forest department in the management of: wildlife, forests and meadows, human-wildlife conflict, poaching and tourism?
14. Could management responsibilities be shared with the locals to reduce the burden on the Forest Department?

