

# **Buffer Zone Management: A Sociological study of people-resources relation in Chitwan National Park**

**(An Anthropological study of Jagatpur & Bharatpur Buffer Zone User Committees)**

A Thesis Submitted to the Faculties of Humanities and Social Sciences in Partial Fulfillment of the Requirement for the Masters' Degree of Arts in Anthropology

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## Letter of recommendation

This thesis entitled “Buffer Zone Management: A Sociological Study of People-resources Relation in Chitwan National Park; an Anthropological study of Jagatpur & Bharatpur Buffer Zone User Committees” has been prepared by Laxmi Regmi under my supervision. As to My knowledge, this work has not been previously submitted for any other degree. Therefore, I recommend this thesis to be accepted for the partial fulfillment of the Masters of Arts, Faculties of Humanities and Social Sciences for the evaluation committee for its final Formalities.

I wish her all the best.

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## Letter of Approval

The thesis submitted by Miss Laxmi Regmi entitled "Buffer Zone Management: A Sociological Study Of People-resources relation in Chitwan National Park; has been accepted as a partial fulfillment of The requirement for the Masters of Arts, Faculties of Humanities and Social Sciences.

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## DECLARATION

I hereby declare that the work entitled “Buffer Zone Management; ‘A Sociological study of People-resources relation in Chitwan National Park’”. A case study of “Buffer Zone Management; ‘ A Sociological study of People-resources relation in Chitwan National Park’” is my personal project carried out for the partial fulfillment of the requirement for master’s degree in sociology/anthropology at Tribhuvan University, University Campus, Kirtipur. This work is done under the supervision of Prof. Dr. Sandhya Basnet.

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Miss. Laxmi Regmi

## Abstract

Chitwan National Park is among the pioneer in Buffer zone management concept in Nepal. It is a new concept for the people, by the people, and to the people there by justifying the people's participation concept in biodiversity management. The involvement of local community in planning, program execution, implementation, and revenue sharing is the key of buffer zone management concept.

Significant socio cultural change has been observed in buffer zones of Chitwan National Park. From the historical period the simple and subsistence economy has changed to completely market oriented capitalistic society. Everything relating to the marketing of goods and services brought many goodies and bad things. To strengthen the prospects of local population towards biodiversity conservation and minimizing illegal harvesting of resources and selfish distribution of benefit, the concept of buffer zone management has played a vital role in the arena of natural resource management.

The study has conducted in two BZUC of CNP's BZ i.e. In Bharatpur, Barandabhar BZUC and in Jagatpur, kerunga BZUC using key informant interview, participant observation, and focused group discussion. Relevant and available literatures were reviewed and necessary consultation was made with members of related field.

Participation of dis-advantaged group and women in BZUC has not found satisfactory background of individual e.g. wealth, ex-leader or more active personality of the society. Decision making process within BZUC has found democratic. Coordination and communication system with BZUC has found in formal and informal ways as they did regular meeting in their office and informal visit. Record keeping was the main responsibility of its office assistant besides the BZUC members. Mobilization of fund has determined by their approved programs, which, after the co-ordination meeting with BZUC, they purposed transparent and well organized.

Ethnic /caste composition of BZUC has not found properly represented i.e. domination of upper Hindu caste group is common. Representation of lower caste group (i.e. Damai, kami, Sharki) has not found in BZUC even they were in notable number. Proper representation of Aadibashi group (Tharu) has not found in BZUC.

Subsides and revenues from the park to the local communities had led to reduce the conflict. Greenery outside the park has found maintained that made the expansion of the habitat of wildlife's. Pressure on forest product of National Park has reduced. Alternative source of job from skill development trainings and income generating are additional management approaches to reduce park people conflict.

# Table of Contents

<b>DECLARATION</b> .....	<b>4</b>
<b>LETTER OF RECOMMENDATION</b> .....	<b>2</b>
<b>LETTER OF APPROVAL</b> .....	<b>3</b>
<b>ACKNOWLEDGEMENT</b> .....	<b>4</b>
<b>ABSTRACT</b> .....	<b>6</b>
<b>CHAPTER 1: INTRODUCTION</b> .....	<b>9</b>
1.1 GENERAL INTRODUCTION.....	9
1.2 STATEMENT OF THE PROBLEM.....	10
1.3 OBJECTIVES.....	11
<b>1.4 SIGNIFICANCE OF THE STUDY</b> .....	<b>12</b>
<b>CHAPTER 2: LITERATURE REVIEW</b> .....	<b>13</b>
<b>CHAPTER 3: RESEARCH METHODOLOGY</b> .....	<b>19</b>
3.1 RESEARCH DESIGN.....	19
3.1.1 <i>Study area and the rationale of the selection of the study area.</i> .....	19
3.2 UNIVERSE AND SAMPLING .....	19
3.3 NATURE AND SOURCES OF DATA.....	20
3.4 TOOLS/ TECHNIQUES & DATA COLLECTION .....	20
3.4.1 <i>Key interview</i> .....	20
3.4.2 <i>Observation</i> .....	20
3.4.3 <i>Group Discussion</i> .....	21
3.4.4 <i>Participant Observation</i> .....	21
3.4.5 <i>Reliability and Validity of the data</i> .....	21
3.4.6 <i>Data Analysis and presentation</i> .....	22
3.5 LIMITATION OF THE STUDY .....	22
3.6 SCOPE.....	22
3.7 METHODS AND SAMPLES .....	22
<b>CHAPTER 4:THE SETTING</b> .....	<b>23</b>
4.1 LOCATION AND RELIEF.....	23
4.2 CLIMATE.....	23
4.3 AGRICULTURE.....	23
4.4 FOREST AND RESOURCES .....	24
4.5 DEMOGRAPHY .....	24
4.6 BUFFER ZONE USER COMMITTEES (BZUC) IN CHITWAN NATIONAL PARK .....	24
4.6.1 <i>Kerunga BZUC</i> .....	26
4.6.2 <i>BarandabharBZUC</i> .....	27
<b>CHAPTER 5RESULTS AND DISCUSSION</b> .....	<b>28</b>
5.1 SOCIO-CULTURAL ECONOMIC BACKGROUND OF THE STUDY POPULATION .....	28
5.1.1 <i>Background (Social condition)</i> .....	28
5.1.2 <i>Caste/ ethnic composition of the sampled households</i> .....	29

5.1.3	<i>Family size of Sampled HHs.</i>	30
5.1.4	<i>Educational structure of sampled population</i>	31
5.1.5	<i>Caste and ethnicity structure</i>	32
5.1.6	<i>Religion composition of the sample user Population</i>	33
5.2	ECONOMIC CONDITION	34
5.2.1	<i>Occupational structures</i>	34
5.2.2	<i>Income structure</i>	35
5.2.3	<i>Live stock holding status</i>	36
5.2.4	<i>Land holding patterns</i>	37
6	CONTRIBUTION OF BZUC IN BIO-DIVERSITY CONSERVATION	39
7	HISTORICAL PROCESS OF PEOPLE’S INVOLVEMENT IN PARK MANAGEMENT	40
<b>CHAPTER 8: CONCLUSION AND RECOMMENDATION</b>		<b>43</b>
8.1	SUMMARY	43
9	KEY FINDINGS	44
9	CONCLUSION	45
11	RECOMMENDATIONS	46
<b>BIBLIOGRAPHY AND REFERENCES</b>		<b>48</b>
<b>ACRONYMS</b>		<b>50</b>
<b>ANNEXES</b>		<b>51</b>
ANNEX 1: LIST OF BZUC IN CNP		51
ANNEX 2 QUESTIONNAIRE FOR HOUSEHOLD SURVEY		53

## List of Tables

Table 1: List of BZUC in CNP	25
Table 2: Caste/Ethnic Composition	30
Table 3 Family Size	30
Table 4: Education	31
Table 5: Caste and Ethnicity	33
Table 6: Religious Structure	33
Table 7: Occupational Structure	34
Table 8: Income Sources	35
Table 9: Livestock Holdings	37
Table 10: Land Holding Scenario	37



## CHAPTER 1: INTRODUCTION

### 1.1 General Introduction

Nepal is rich in natural resources despite of having small fraction of the world (Majupuria & Kumar, 1998). Chitwan National Park is established to preserve Nepal's low land ecosystem and became the pioneer in protected area network in Nepal. After 101 years (1973) of world's first national park: The Yellowstone National Park in USA the concept of protected area of National Park management had launched in Nepal (PPP, 1999) through its establishment. The park has its stretch over three district of Nepalese low land: the Terai viz. Chitwan, Nawalparasi, and Parsa (CNP , 2010). It was established in 1973 along with the enactment of the National parks and wildlife Conservation Act, 1973 ([www.dnpwc.gov.np](http://www.dnpwc.gov.np)) and it was declared as one of the world Heritage sites in 1984 (CNP Brochure, 2010). The Geographically the park is stretches between 27° 13' to 27 ° 42' 21" North latitudes and 83 ° 22' 30" to 84 ° 58' 30" East longitudes covering a total area of 932 sq.kms.

Despite of a monumental legacy in conservation history, not only in Chitwan but in all other protected areas has suffered from the incipient conflict between local people and park management (Upreti, 1991 cited in Adhikari, 1998). The strict rules and regulations have restrained access on natural resource use and assumed to violate their traditional rights on these resources. Besides the poor access, the host population has other adverse impact of protected area management and they have to witness no compensation for their lost benefits (Upreti, 1985). Restriction imposed on free access of local communities for subsistence forest product after establishment of the park was the main source of conflict between people and park management (PPP, 1999) in chitwan.

It has realized that natural resources cannot be 'looked away' from the surrounding population (Nepal & Weber, 1994). The declaration of the world congress on National parks held in Bali in 1982, laid stress on programs with revenue sharing, local participation and complementary development schemes adjacent to protected zones for the people who love on the perimeters of them (Norman, 1985). The fourth amendment 1993 of National Parks and Wildlife Conservation Act 1973 and promulgation of Buffer zone regulation, 1996 has

empowered the government to declare Buffer Zones surrounding the protected areas. A Buffer Zone would consist of government forests and private lands including settlements (Sharma: 1998) which have close interaction and frequent conflict between human and wildlife. As a product of this legal basis the Buffer Zone of Chitwan National Park was declared in 1997 to participate local population in conservation of the park and its resources covering a sum of 750 sq.kms areas (CNP Brochure, 2010). The zone includes private lands & forest area outside the park of 5 districts and 34 VDCs as well as some area of 2 municipalities. The Buffer zones includes 36 Buffer Zone Users Committees (BZUC) (16 from Chitwan; 15 from Nawalparasi; 2 from Parsa & 1 from Makawanpur District). Now, the major challenges of protection conservation and the management of BZ area of National Park is how to conserve and management of BZ Forest and make local people is participate on it. So, an understanding of the people participationis in BZ Management and contribution of BZUC in Bio-diversity conservation.

## **1.2 Statement of the problem**

The government of Nepal has declared the impact zones of a particular protected area as Buffer Zone. The government, users themselves, donor agencies, and facilitator community had spent their crucial time in forming users committees as a step to have institutional development. A number of user committees (36 in Chitwan case) were formed to assist the park authority to carry out conservation works and facilitate in resource mobilization under the legal provision of Buffer Zone Regulation, 2052 (VS). Government has initiated to formulate these user committees and sometimes they also took help from other NGOs and other organizations. These committees had worked as mediator between the protected area as well as Buffer Zone council and user groups for the implementation of rules and regulation and economic investment. In this ground, institutional development for their sustained operation has its vital importance in managing their territory thereby creating a solid space to work with by researchers to understand how do they functions, how these groups maintains socio-economic development as well as to protect natural environment or assist in bio diversity conservation. On the other side careful planning is necessary for unbiased benefit sharing as well as to avoid negative side effects of Buffer Zone management. It is obvious that without adequate planning of BZ management and proper institutionalization, neither the good things can be expect nor the proper functioning has realized. Thus, understanding their

strengths and weaknesses are essential to put an applicable recommendation the study on institutional development process is necessary.

Although the Buffer Zone programme has lunched only a few years ago in Nepal but it has successful programme to protect forest in the short period in chitwan. It hasplay a vital role to socio development of society as well as economic development and socio development. In this context it is necessary to analysis of their socio economic development of BZ area. For this study is conducted in Chitwan District Bharatpur (8,9) Barandabhar BZ user Committee and JagatpurVDC ward no 1 Kerunga BZ user committee. It has located at the southern part of chitwan district. Barandabhar BZ user committee's user groups fulfill their much basic need from the BZ forest such as fuel wood for cooking and heating. Fodder for livestock, timber for house etc. thus, the BZ forest hasbecome as indispensable part of their livelihood, economy and which has beenproviding them several natural resources for their daily activities.

This study particularly dedicated to draw inferences about the socio- economic condition of theChitwan National Park Buffer Zone and finding out their contribution of in biodiversity conservation. In addition, the recommendations put forwarded on this regard have their vital application for strengthening their development process in future. Similarly, successful implementation of conservation works along with socio-economic development the conclusions from this study may guide to a targeted direction. Therefore, the project has its vital importance in this matter.

This study tries to look the answer of the following questions

- 1 what is the socio/economic condition of the BZ forest user groups? Does this condition relate with other community forest?
- 2 Do the BZ user groups household dependent on the BZ forest Resources? If so, what is the level of dependency?
- 3 What are the sources of income of BZ forest User group?
- 4 What is the condition of BZ forest user committee's contribution on Bio-diversity conservation?

### **1.3Objectives**

The General Objectives of the research is to find out that -

- ) To assess the Buffer Zone management and socio economic change.

The specific objectives of the research is to find out that-

- ) To know the socio-economic background of the users in the study area.
- ) To describe the reciprocal contribution of Buffer Zone users committees in Bio-diversity conservation.

### **1.4 Significance of the study**

This study on contribution of BZ and its user households has its own important. This study has evaluated the socio-economic condition of BZ user's households, mainly based on caste and ethnic groups, and their land holdings, livestock's patterns, patterns of resources from BZ forest area. This research therefore will contribute to better understanding in the linkage between caste and ethnic groups, and Buffer Zone forest resources and this study will help to know the contribution of people on the biodiversity conservation in Buffer Zone area. This study will also help to make policy for BZ user groups and its committee development activities, for extension BZ management in successful way, for similar field workers and agencies who want to work in the field of BZ management activities and its utilization. On the other side, this study also helpful for the management of BZ activities, many more development activities and many more related fields.

## CHAPTER 2: LITERATURE REVIEW

Kottak (1999) writes in his article “The New Ecological Anthropology” that the new ecological anthropology blends that theory and analysis with political awareness and policy concerns and it attempts to understand and devise culturally informed solution to such problems/issues as environmental degradation environmental racism and the role of media, NGO, and environmental hazards in stimulating ecological awareness and action. He says if traditional resources and products are to be destroying, removed, or placed of limits, they need to be replacing with culturally appropriate and satisfactory alternatives. He points out the external regulation as main source of problem when it replaces the native system.

In the topic ‘Bio-diversity conservation’ he argues that only giving stress on wild flora and fauna conservation, ignoring native welfare will be dis-appropriate policy. He suggests that one vexing role for applied ecological anthropology is to devise socially sensitive and culturally appropriate strategy for Bio-diversity Conservation. He further says conservation policy can benefit from use of a flexible ‘learning process’ model rather than a rigid ‘blue print’ strategy. Local cooperation and participation is the key things upon which conservation depends on. He further clears that reasons to conserve should be explained in terms that make sense to local people.

Giving examples of four protected areas of Madagascar, he says that the size and characteristics of affected groups varied with type of human ecological adaption, from region to region and even within the reserves and other protected areas. He suggests, “Analysis of social forms should not be subordinate to approaches that emphasize the environment at the expense of society and culture and ecology over anthropology. People must come first. Cultural anthropologists need to remember the primacy of society and culture in their analysis and not be dazzled by ecological data.

At last he concludes that such intervention philosophy as “learning a better ways”. “Increasing technical know-how” “conserving bio-diversity” or “making the world safe for democracy” does not make great importance to local people. People want to improve yields in a rice field. Amass resources for ceremony, get a child through school, or be able to pay taxes. Thus, while launching the Bio-diversity conservation program in a more effective manner the local/natives should be compensated in their socio-cultural ways.

Upreti (1985) in his work “park people interference in Nepal: problem and new directions” observes that after the declaration of parks and reserves many people (surrounding of parks/ reserves) have been legally restrained from using their rational rights to resources (fuel wood, timber, fodder, grass etc.). He points out the human-wildlife interaction especially: encounters between man and wildlife, loss of livestock to predators; fishing and hunting; antipathy towards parks and reserves; and tourism as the resource of conflict between park and people. He suggests some new directions in addressing and alleviating park people conflict in the region, which includes: access to park resources: facility of movement through parks and reserves; economic initiatives; local participation in decision making; conservation education; and management of the total landscapes in the region. He says if the local communities do not embrace the conservation ethic and if they always remain hostile to parks and reserves, it is senseless to think that law enforcement alone cannot protect Natural Resources.

Sherpa (1985) in his work “Management issues in Nepal’s National park,” suggests trained staff; park protection units: incentives schemes: infrastructure development; logistics; tourism policy and management as requirements in managing the protected areas of Nepal. Besides, He gives stress on local support. He observes low level of local support for the establishment of National Parks and Reserves in Nepal. He says conservation often means restricting people’s use of local resources. Such as timber and grazing land, while they are struggling to fulfill their basic needs. He further says unless the local people understand and support the park concept & recognize the relationship between park protection & their long-range interests, the destruction of forest, wildlife, and aesthetic values will continue. He suggests (as Kottak, 1999) for flexible rules and regulations, conservation education, fulfillment of public need and involvement of local people in decision making for the betterment of park management.

Majupuria and Kumar (1998), in their work “World life National park and Reserves of Nepal” sketch out the introduction about wild life: National Park, Reserves and Conservation areas of Nepal. They state the loss of habitat overgrazing of pasture land by domestic animals and poaching have caused the decline of many wild animals and the notion of earlier days. ‘Natural Resources such as forest and its wild denizens are inexhaustible resources’ was a wrong notion. Therefore realizing the seriousness of great pressure on the land and on its limited natural resources, The government of Nepal urgently felt the need for establishing protected wildlife areas to protect the endangered species of wild flora and fauna in the

struggle of existence when human beings outwield them. They point out that there are several problems facing development and management of wildlife in Nepal. Which are completely different from those of other developed countries. Therefore, in Nepal, adopting the western model of conservation is not possible. Local people cannot be very isolated from the richness of the Resources. They say 'development and conservation' traditional and modernity' are none other than two faces of the same coin.

Sharma (1998), in his article "Role of protected areas in preservation of Bio-diversity" Sketches out the brief history of Nepal toward establishment of National Park, and policies and strategies related to protect areas. He mainly talks about the theoretical layout of Buffer Zone concept. He talks about impact Buffer Zone concept that the provision of Buffer Zone in the act is in line with the impact Buffer Zone concept espoused for by Sharma (1991), and Sharma & Sharma (1992). The impact Buffer Zone concept call for strict control of Park Forest adjacent to the park and it mandates to produce natural resources on public and private properties outside the park by intensifying the land use, both forestry as well as agriculture. The goal is to mobilize a community development program that strengthens the subsistence pattern of the local people and stabilizes the pressure on the hand at its maximum sustainable level. The long term strategy in the impact Buffer Zone management is to make the surrounding areas self – sufficient in resources such as firewood and fodder. The impact Buffer Zone concept tries to address the factor of imbalance demand and supply situation.

He suggests that, for conservation program to be successful in developing countries, planners have to take special care in balancing people's needs with conservation priorities. He concluded that Nepal is undergoing a major shift in policy from traditional 'Fortress' style park in which 'setting aside' areas is considered the best approach for conservation, to a holistic approach in which local people are taken as equal partners in Conservation efforts and shareholders for protected area benefits.

Messerschmidt (1985), in this article "local participation in park resource planning and management" says that local communities often possess profound knowledge of their ecosystem. Thus the cultivation of human resources, that is, of the cultural knowledge and social system of the local people, is one of the wisest investments park developers can make. Government should clearly understand and appreciate the human dimension. He gives four broad classes of resources viz. non-renewable (physical minerals fossils fuels). Continuing (physical: gravity, solar, energy). Renewable (biological: water, flora and fauna) and extrinsic

(socio-cultural). He gives emphasis in extrinsic resource and in peoples' participation in park planning and management. He points out need of conservation education first, in community for the betterment of park conservation. He says local groups can participate as advisory and management committees of councils. He says surrounding people of parks and reserves may be train in management and service skills during employment & service skills during employment sojourns away from their birthplace. They include ex-military men, guards and watchmen, medical practitioners, Teachers, cooks, drivers, mechanics and various other categories. Many of them are literate and return home as leaders and opinion makers in their communities. They are invaluable pool of resources for conservation and development in and near the National Parks. He says in the context of park people conflict. Park authorities in Nepal are presently experimenting with two solutions: one effort is in public relations. The other is a form of compensation. He concludes in one sentence, quoting Sanju (1983), go to people "Answer is there."

Eidsvik (1980) writes, in his article "National parks and other protected areas: some reflections for the future" that at the second conference on National Parks. Perez Olindo (1974) said, "It must be accepted that if conservation of wildlife or any other resource in developing or developed countries is not seen to be within the total environment then the future for such a resource cannot be bright". Fundamentally, the establishment and management of National Parks and protected areas must consider people as a part of the biosphere in which we all live, and of which people form an integral part. Some of these people may be 'indigenous' and live in protected areas; some may be 'tourist' who come to share the benefits of a protected area. He says the world conservation strategy stresses for the integration of conservation with development.

Obstacles to effective management of conflict between National Parks and surrounding human communities in developing countries are the major problem faced by the management. The restriction of access to traditionally use right on resources, the disruption of local cultures and economics by tourists, increased depredations on crop and livestock by wild animals and the displacement of peoples from their traditional lands are the negative consequences of National Park establishment (1998). These adverse effects have generated resentment and hostility that has led to vandalism, such as the setting of fires and the damage or destruction of park property, the refusal of local people to sell food to park staff, and in extreme cases the murder of the park employees. On the other hand, local human populations are apt to violate park boundaries and regulations by hunting animals, cutting down trees and



grazing their stock inside the park. He states eight key obstacles to establishing process for effective management of National Park local people conflicts for examples:

- i. The institutional environment of National parks.
- ii. The lack of trust between National Park authorities and local people.
- iii. The difficulty of communication between parks and they are surrounding human communities.
- iv. The number of different parties or stakeholders involved.
- v. The large difference in power between governments backed parks and local people in rural areas.
- vi. The degree of risk and uncertainly involved in entering into discussions aimed at reducing conflict.
- vii. The problem of binding or informing any agreement on both the local people and government.
- viii. The alternatives for all parties involved to participating in the process.

According to him, conflicts between National Parks and their surrounding human communities are apparently dysfunctional for both. For this, he suggests park authorities have to initiate first by involving local people in decision-making process. He also gives some suggestion for the good relation and betterment of park and local people. He also states the alternatives approaches to modifying the National Park concepts are the 'Conservation Unit' approach suggested by Lusigi (1981), and the UNESCO 'Biosphere Reserves'. Here core areas. Possibly National Parks are buffered by surrounding controlled areas where some forms of utilization are allowed (Batisse 1982 ET. soul, 1986).

Nepal and Weber (1994) in their article "A Buffer Zone for Bio- diversity Conservation: viability of the concept in Nepal's Chitwan National Park" talk about certain biophysical and social-economical aspect that are essential for the success of a Buffer Zone program in the vicinity of CNP. They applied three methods of primary data collection namely household survey, informal interview, and observation with group discussion. They used descriptive type of research design.

In their findings, they say there were several small parcels of forests outside the park: however, they were inadequate to alleviate pressure on resources inside the park and at the same time provide protection owing to their small size and structure. The National Park did not contain any exclusive designated Buffer Zone. A strip of forest immediately outside the

park boundary extended towards the Mahabharata range in the northern section of the district known as the Barandabhar forest (where one of purposed study site is located). This was envisaged as an additional protection to park and with proper, and management of this forest, and the pressure on CNP's resources could be minimized. They also give brief historical aspect of Barandabhar forest and Jagatpur Buffer Zone plantation forest area. They say government managed forest was attracted by villagers especially on the period of political movement but the community managed forest remained intact even during the political unrest. In their finding they say most of the respondents referred to the Rapti river bank as a potential area for the Buffer Zone planning management most respondents in the close to the park area, were in favor of local people, followed by a government agency. Whereas, in the cases of the close to forest and far from forest areas, half the respondents each favored some form of join management by local people and a government agency, which might reflect their willingness to collaborate with government agencies and staff. A rather large proportion of respondents in the close to the forest and far from forest areas also referred to local people as the managing body. Overall, very few respondents choose the government as the most desirable sole managing authority. The willingness to share management was the more pronounced the older the age. The higher level of education and the bigger the land holding size. They also state some criteria that were identified for establishment a Buffer Zone with their suggestion.

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1 Research Design**

#### **3.1.1 Study area and the rationale of the selection of the study area.**

Buffer Zone of Chitwan National Park has spread over 34 VDCs and 2 municipalities. Park authority has divided its Buffer zone in 36 units. Each unit possesses one Buffer Zone user committees, on the basis of purposive sampling this study area covers two committees: One is kerunga BZUC of Jagatpur VDC of 1 ward, which is near the park headquarter: and another is and joined with National park's Buffer Zone forest area. Those two committees represent the whole National Parks.

The BZ user committee is selected based on following criteria:

- ) A Buffer Zone user committee because one has attached with National Park and another is far from National Park but by the expansion of National Park Buffer Zone forest area it lays on Buffer Zone.
- ) BZ development council has categorized one is in 'KA' grade and another in 'Gh' grade for the distribution of park revenue. Thus, these two committees are appropriate for the representation of whole Buffer Zone user committees of Chitwan National Park.
- ) Buffer Zone Users having Heterogeneous, users included from all caste , ethnic groups, and well-being categories'.
- ) The researcher is already familiar with selected BZ Users committee and groups its regarding the social connection.Thus, these sites are selected for the study.

### **3.2 Universe and sampling**

There are 36 Buffer Zone Forest User Groups (BZFUG) in Chitwan National Park. The Kerunga BZFUG of Jagatpur VDC and Barandabhar BZFUG of Bharatpur municipality were purposively selected for the study. The 568 households from part of Kerunga BZFUG i.e. ward number 1 of Jagatpur VDC and all households from Barandabhar BZFUG was the universe for the study. A total of 50 households (20 households from Kerunga and 30

households from Barandabhar) were taken as samples for the study. Simple random sampling method was used.

### **3.3 Nature and sources of data**

Both qualitative and quantitative data were used for the research. The source of data was primary and secondary. The primary data is collected from field work. These have been collected through the personal contact with the respondents, Key Informant interview and others of the study area. The Secondary data has been collected by consulting various published and unpublished literatures. The web based literature reviews and data collection were also made. Department of National parks & wildlife conservation, Chitwan National Park, Department of Forests, Park and People Project, various GOVs, NGOs, INGOs and related offices were key to collect required data. Selected Buffer Zone User Committees were the key source for primary data. The primary data were generated from following methods.

### **3.4 Tools/ Techniques & Data collection**

The data for the present study were generated from the following of techniques.

#### **3.4.1 Key interview**

This technique was chosen for its flexibility to provide opportunity to know the opinion of the respondents. A checklist was prepared for this type of interview and it gave the; history of BZ users present and past socio economic condition and about their contribution on Biodiversity conservation. Information is collected for this study through VDC secretary, elderly people, Youth and Formal VDC member of BZ User Committee from the history to present situations. on the other side, A schedule of both open and closed questionnaires was developed and used to generate basic data from the households which includes population dynamic, household income, occupation, living life pattern, income from tradition and modern occupations, cultures and rituals, gender status and other general information. Anyone member of household either male or female was selected as the respondent for the interview. The quantitative data was analyzed as a unit households and respondent numbers and qualitative information was reviewed with the basis of percentage and time.

#### **3.4.2 Observation**

During the field work, the researcher visited every BZ user group's house hold in the study area and collected the data and information on their life styles, food habits, household types,

sanitation, farming customs. On the other side, researchers participate in their rituals and some festivals and collected the information. Also, the researcher participate and observe some annual meeting of BZ user committee and observed the facts about the system there. Non Participatory methods of observation were so applied for this purpose.

### **3.4.3 Group Discussion**

Three types of group discussion were made with the groups of respondents. First groups, from the women, second group are from Youngsters and third and last group from the mixed (adult male and females) from the different caste occupational and local club members. the group discussion mainly focused on their past/present socio-economic condition; the types of discriminations how they were facing in BZ area. On the other side, some annual assemblies meeting were additional to witness group discussion. The discussion had guided by checklist on the relevant issues. Different castes, occupational groups, women groups and other local club members were the focal groups for discussion.

### **3.4.4 Participant Observation**

Participation observation was probably one of the most effective techniques of data collection in social science researcher. On this research participant, Observation has taken for primary data collection, which has effective for this research and the Buffer Zone ‘user committees’ activities and interaction with in their members and with user as well as park authority and Buffer zone development council helped to collect more information. Researcher had more stress on participatory observation & spent more than 30 days in field area to know about the Socio economic aspects about the users and their role in bio diversity conservation. On the other side, Researcher had observed the available minute books of regulation meetings and assemblies, operational plan of committees had observed with participant observation for collecting primary data. Along with this, it was the nice opportunity for researcher to cross check the information given by respondent.

### **3.4.5 Reliability and Validity of the data**

The researcher is well aware about the importance of the data collection during the study. Efforts were made to minimize the possible source of error during the pre and post data collection stage of the study. The researcher has extensively reviewed the similar types of

studies conducted by other method and instrument used for cross check. Combinations of different methods were used to ensure the reliability and validity of data.

### **3.4.6 Data Analysis and presentation**

Data analysis was the most crucial task of research. In the Research Qualitative & quantitative tools were used for data analysis. Quantitative data had classified, grouped, and presented in tables and figures. Data interpretation was made by simple mathematical tools like sum, average, percentage, and range. Moreover, in order to make the report more precise, table, and quotations are presented herewith. Opinions of the respondents have been incorporated in their original form to explain various events. In order to make the findings more organized, various chapters and sub chapters have been arranged with preparing description and analysis.

### **3.5 Limitation of the study**

Every study does have its limitation. Firstly, this present study is a mini Research work which is prepared for the fulfillment of the master degree course in Anthropology. This study is a purposive study of the BZ user groups in Chitwan National Park and but not included other peoples and villages who using the BZ forest. On the other side, this work was the researchers debut work thus some flaws in data collection, manipulation, analysis, and presentations were evident. Financial constraint was the key to shorten the duration field work while logistic difficulties were in traces. Precautions need to be taken by the readers of this paper due to following reasons:

### **3.6 Scope**

This paper was prepared for the partial fulfillment of the Master's Degree in anthropology; thus readers are cautioned to think its scope.

### **3.7 Methods and samples**

The sample was selected purposively, and it does not cover the whole protected area systems of Nepal, the results, thus may not represent the Buffer Zone management network of whole Nepal.

## **Chapter 4: The Setting**

### **4.1 Location and Relief**

Chitwan National Park is in the National Park of Nepal's Terai region. The park covers 932 sq.km area from 4 districts of two Zones i.e, Chitwan Makawanpur, Parsa district of Narayani Zone and Nawalparasi District of Lumbini Zone, although, most of the part lies on chitwan district. Tropical warm climate has found in the park and its Buffer Zones user area. Buffer Zones of the park has distributed in to these four districts. The Buffer Zones includes 36 units i.e. 36 BZUC 18 from chit wan; 15 from Nawalparasi; 2 from Parsa and 1 from Makawanpur district. These 36 units include 2 municipalities (of chitwan district) and 34 VDCs (from four districts). Park's Buffer Zone area covers 750 sq. km. area. National parks headquarter lies on Kasara, which has 23 kilometer far from the Narayangadh bazaar of chitwan.

Chitwan National Park covers 150m to 800m attitude from the sea level. Most of the part of the park includes the churiya range and its Buffer Zone includes Barandabhar forest, which is probably the only remaining large forest patch joining Mahabharata range with churiya range, is also included in the park's Buffer Zone (although Buffer Zone forest does not includes the whole patch of this forest). Settlement of the Buffer Zone is in flat lands, thus homogeneity in agriculture, forest type and socio- economic condition had found.

### **4.2 Climate**

The park is under the tropical monsoon climate with relatively high humidity. The winter, spring, and monsoon are the three main seasons. The cool winter season occurs from October to February. The spring begins in March and summer has soon followed by that ends in early June. The summer days are typically hot with 30°C on average day temperature. The monsoon usually begins at the end of June and continues unit September. The mean annual rainfall is about 2150 mm. (CNP brochure 1990).

### **4.3 Agriculture**

The main cereal and cash crops of the Buffer Zone are wheat, Maize, Mustard, rice and potato. Some area is under the professional vegetable cropping. Some people had now started to be engaged in professional poultry farming and livestock farming for dairy product. Some agricultural lands are now losing its productivity due to the lack of irrigation facility. In properly irrigated land people used to cultivate Paddy and in other they cultivate maize or wheat. Where irrigation facility is not properly available, they used to cultivate mustard and wheat. Potato and other vegetable crops are raised in those lands, which are near the house.

#### **4.4 Forest and Resources**

Chitwan National Park consists of tropical forest i.e. dominantly Sal forest with river rine forest and grass land. The Buffer Zone forest of Barandabhar Jungle is dominantly Sal forest where present natural regeneration has found successful. In settlement of Buffer Zone, Buffer Zone community forest is sissou plantation forest with mixed broadleaved protected forest. Private forest has mixed broad-leaved Natural forest. Private forest is also found with sissou (Dalbergia sissou) and Bakaino (Azadirachta indica) plantation and somewhere with fodder species e.g. Barandabhar (Artocarpus Lachoo), Kavro (Ficus religiosa) and with some fruit Spp e.g. mango (Magnifera indica).

#### **4.5 Demography**

CNP Buffer Zone have Consist of around 3, 000, 00 population which has included 1, 33,876 male and 1, 66,124 Female (CNP Brochure 2009). The total household no in Buffer Zone is 39,324 with average family size of 7/8 Members. This includes different caste/ ethnic groups such as Brahmin, Chhetri, Gurung, Magar, Tharu, Darai, kami, Damai, Sharki, Tamang, and Lama. Domination of Nepal language speakers is exist in the area some other people speak Nepali, Tharu, Newar, Tamang, Darai, Magar Gurung language. In religion, majority of people follows Hindu religion then Buddha, Christian, Islam respectively.

#### **4.6 Buffer Zone User Committees (BZUC) in Chitwan National Park**

Buffer Zone regulation of 2052 gave stress to declare Buffer Zone for the area surrounding of Protected Areas. The act had given provision of dividing Buffer Zone in different units and formation of user committees in each unit. The CNP divided its Buffer Zone in 36 units based



on natural as well as political boundary i.e. VDCs and Municipalities. These committees include 34 VDCs and 2 Municipalities. Among them, 16 VDCs from Chitwan District, 1VDC from Makawanpur district, 2VDCs from Parsa district and 15 VDCs from Nawalparasi Districts. These all committees were formed in 2054(B.S) The total area of Buffer Zone of CNP is 750 sq. km. Among, this 350 sq. km. Area is of settlement of 400 sq .km area is of Buffer Zone forest.

**Table 1: List of BZUC in CNP**

S. N.	Name of BZUC	Settlement area	Ward no.	District	Household	Population
1	Tribeni	Tribeni-17	5	Nawalparasi	1130	3,040
2	Daunnedevi	Dumkibas-14	3	Nawalparasi	728	2,408
3	Daunnedevi	Naya Belhani-26	4	Nawalparasi	1824	6,069
4	Nandavauju	Narayani-12	8	Nawalparasi	806	5,893
	Gosaibaba	Narayani-7	2	Nawalparasi	276	2,457
5	Gosaibaba	Prasauni-16	6	Nawalparasi	556	2,880
6	Lamichaur	Pithauli-32	9	Nawalparasi	1572	8,059
7	Lamichaur	Kawasoti-17	7	Nawalparasi	741	2,657
8	Sisbar	Razahar-19	6	Nawalparasi	1027	5,363
9	Sisbar	Pragatinagar-13	3	Nawalparasi	797	3,833
10	Sisbar	Divyapuri-6	4	Nawalparasi	428	2,158
11	Shikrauli	Amarapuri-11	4	Nawalparasi	461	2,887
12	Shikrauli	Mukundapur-18	7	Nawalparasi	960	5,257
13	Amaltari	Kumarwanti-14	8	Nawalparasi	763	4,463
14	Amaltari	Aggauli-30	8	Nawalparasi	1213	6,865
15	Nandavauju	Kolhuwa-16	7	Nawalparasi	1055	7,499
16	Kalabanzar	Divyanagar-14	4	Chitwan	629	2,519
17	Kalabanzar	Gunganagar-10	2	Chitwan	498	3,197
18	Meghauri	Meghauri-42	9	Chitwan	2170	17,495
19	Kerunga	Sukranagar-12	6	Chitwan	405	2,873
20	Kerunga	Jagatpur-34	9	Chitwan	1627	10,342
21	Mirgajunja	Bachhauri-29	9	Chitwan	1825	9,247
22	BudiRapti	Kumroj- 40	9	Chitwan	1478	8,729
23	Khagendramalli	Kathar -37	8	Chitwan	1385	8,391
24	KhagendraMalli	Bhandara -18	5	Chitwan	1746	6,016
25	Mirgajunja	Ratnanagar-25	4	Chitwan	1332	4,344

26	PachPandab	Gardi-35	9	Chitwan	2053	4,649
27	Rewa	Kalyanpur-34	9	Chitwan	1650	7,838
28	Aayodhyapuri	Aayodhyapuri-36	9	Chitwan	1807	13,351
29	Baghauda	Baghauda-45	9	Chitwan	2625	12,376
30	Lothar	Piple- 20	7	Chitwan	1078	3,993
31	Patihani	Patihani-30	8	Chitwan	1318	6,757
32	Brandabhar	Gitanagar-22	5	Chitwan	786	4,192
33	Brandabhar	Bharatpur-6	2(8,9 )	Chitwan	242	1,209
34	Nirmalthori	NirmalParsa-52	4	Parsa	1047	3,456
35	Nirmalthori	Thori-13	9	Parsa	968	6,758
36	Lothar	Manhari -7	2	Makawanpur	876	2,396

#### 4.6.1 Kerunga BZUC

Kerunga BZUC covers the whole area of Jagatpur VDC which has also called Jagatpur BZUC. This BZUC's area has attached with CNP in southern bell Rapti River. This area is facilitated with motor able gravel roads and pitch roads in every ward. This Buffer Zone lies on southern part of the district and joined with sukranagar VDC in west, CNP's Rapti River in south, Patihani VDC in east and Parbatipur VDC and Shivanagar VDC in North. These VDCs are facilitated with three diary depot, five rural development bank, one post office 1 sub health post, five youth club four veterinary center and seven Boarding schools and Eight School (sources;2001). The total population of Kerunga BZUC is 10, 342 among which 5,256 are male and 5,086 are female. Total household in the BZUC is 1627 in 34 settlements and 9 wards. Average family size is 5.75. The major ethnic caste/groups in the area are Brahmin, chhetri, Magar, Gurung, Tamang, kami, Damai, Tharu, Darai, Sharki, Giri etc. There are 2304 Bigha private land and 439 Bigha community land in Jagatpur BZUC .In private land, it includes Khet, Bari and other area e.g. Garden, Private forest, settlement etc. In community land, it includes community forest, common land, and watershed area. 76 % of male and 64%of female are educated in the area. The main source of subsistence in the area is agriculture. This includes crop rising, livestock farming, poultry farming, vegetable rising, and fruit rising. Besides these, some are dependent on service (government and private), labor work, and small business. In agriculture, main agricultural crops are paddy, maize, mustard, wheat, pulse, finger millet, and vegetables. Livestock rising for diary product has

predominately found now days. The Kerunga BZUC is functioning from 18 years. The committee has implemented two development budgets for its socio-economic benefits. There are 52 user groups and 3 community forest user communities under the This BZUC (sources 2001).

#### **4.6.2 BarandabharBZUC**

Barandabhar BZUC covers the some area of 8 and 9 wards of Bharatpur Municipality which has called Bharatpur BZUC. This BZUCs area has attached with CNP's BZ forest .i.e. 'Barandabhar forest'. Every settlement in the area has facilitated with motor able roads. This area lies on central part of the district and joined with Barandabhar forest in east, Gitanagar VDC in south, Bharatpur municipality's area in west and East-West highway and area of Bharatpur Municipality in northern side. Although this area covers a small portion of Bharatpur Municipality, (Bharatpur is also the district capital/headquarter). The total population of the area is 1209 among which 534 are male & 675 are female that includes 242 households in six settlements. The user has facilitated from many more organizations inside the Bharatpur municipality (Bharatpur is also the district capital/ Head quarter). Average family size in 4.99. The major ethnic/ caste group in the area are Brahmin, chhetri, Magar, Gurung, Tharu, Kumal, Sharki Kami Newar, Tamang. There are 214 Bigha Private Lands, which include Khet Bari and Pakhabari and private forest area. Community forest area includes 53 Bigha area 79% female and 87 % male are educated. The main source of subsistence in the area is same as in Kerunga BZUC. This committee is also functioning from 18 years. The community also has implemented two development budgets for its socio-economic benefit. There are 14 user groups under the (Bharatpur 8, 9) user committee and one community forest user group are Functioning in the adjacent forest area.

## **CHAPTER 5 RESULTS AND DISCUSSION**

### **5.1 Socio-cultural economic background of the study population**

Socio/economic features such as ethnic composition, sex, occupation age structure, land holding size, household head. Family size, livestock pattern of sampled households presented of these features can helpful to understand the socio/economic profile of the sampled households.

#### **5.1.1 Background (Social condition)**

Originally the Chitwan area was inhabited by Tharu ethnic community. The lands of Chitwan were gifted by government of Nepal to their employees (Nepal Army and Civil Servant) as a Birtaland as well as Jagirlands. Feudal production system was commonly practiced by the government employees, local elites and army personnel while subsistence economy was practiced by majority of population. Farming, animal husbandry, fishing, and trophy hunting was the major profession in the past.

Large scale migration was started from mountainous region of Nepal after eradication of Malaria. The government policy of resettlement in Terai land and forest land conversion to agricultural land has created a composite cultural scenario. Peoples' living strategies become more complex provided that the migrants and indigenous population have cultural exchanges and their traditional way of living was slightly modified. The indigenous population got further pushed towards the south bordering to current Chitwan National Park. The ethnic group at the mean time were practicing subsistence agriculture and fully dependent on forest resources from the past.

The opening up of the East West highway has played a crucial role to concentrate traders to road head markets while farmers and subsistence population gone further attached to forest resources. The lifetime dependence to the natural resources was the identity of the subsistence economy population. The trade of forest products like timber, firewood, construction materials to road head trading hubs was common strategy of living. The transition of full subsistence economy to initial capitalistic society was common before enactment of National Parks and Wildlife Conservation Act, 1973.

In Jagatpur, Kerunga BZUC's area has attached with Chitwan National Park. Before the establishment of park, local users were very dependent to the forest area (which are now under CNP) for forest products and livestock grazing. No notable forest patches were rests outside the present National park area. After the establishment of park, the law imposed restriction on the local user's traditional rights of forest products.

In Bharatpur, Barandabhar BZUC's area has attached with the Buffer Zone forest of CNP, which has named as Barandabhar jungle & Wildlife from this forest area used to hamper local people as well as their cattle, crops and settlements. Before the establishment of CNP, this forest area has purposed as 'Mirgakunja'. Hunting team from Royal families and from other country used to come in this area in the past time. Conservation need for this area was felt by the government because it had the good habitat for game animals and consist of ox-bow lakes e.g. Bishazari Tal. Probably the Barandabhar forest is only one forest patch adjoining churiya range and Mahabharata range with a long belt.

After establishment of the Chitwan National Park (formerly Royal Chitwan National Park), the transitions of social economical systems are completely in favor of capitalism. The large and small scale industries are looking for raw materials for commercial production higher demands on fuel wood and construction timber is obvious. Illicit cutting and smuggling was frequently reported. On the other hand, the park imposed the legal action in the name of illegal harvesting of forest products thereby creating a conflicting situation between local people and park management.

After the promulgation of Buffer Zone regulation 1996 Government of Nepal declared its surrounding area as Buffer Zone, this included forest area (outside the park) and settlement s nearby the park. The main aim of the regulation was to make harmony in park management with enhanced public participation. The peoples' role to conserve biodiversity was accepted as a key to successful park management.

### **5.1.2 Caste/ ethnic composition of the sampled households**

The cast and ethnicity plays important roles for the socio/economic development of every society. The villages have been living are inhabited by various caste/ethnic groups. They are Brahmin, chhetri, ethic community, tamang, gurung, magar, newar and Dalit and the major ethnic group are Brahmin and chhetri in both study area.

**Table 2: Caste/Ethnic Composition**

Caste	Jagatpur (Kerunga BZUC ward 1)	percentage	Bharatpur (Barandabhar BZUC ward 8,9)	percentage	Remarks
Upper caste	12	60	18	60	
Ethnic group	7	35	8	26.66	
Lower caste	1	5	4	13.34	
total	20	100	30	100	

Source; Household survey 2010

Above table shows that Brahmin/chhetri (upper caste) 60% household are dominant followed by ethnic group 35% and Lower caste 5% in the kerunga User committee. On the other side, in Barandabhar BZ User committee, Brahmin/chhetri (upper Caste 60%) 18 of household, ethnic caste group 8 household (26.66%) and lower caste group 4 (13.34%) household out of 30 which has shown that Upper caste should have to dominated to other caste in both BZ area.

### 5.1.3 Family size of Sampled HHs.

The average household size was 5.6 in the study area, with minimum 3 and maximum 13 members in Kerunga BZUC and minimum 4 and maximum 8 members are found in Barandabhar BZUC. On the other side, Family size of sampled population is found slightly larger than average HHs size. National Family size of country's i.e.5.4 (CBS 2003), it is also found slightly larger than district average household size. The family sizes are divided in to three sizes i.e. up to 4 members (small size), 5-8 Member (Medium size) and last 9-13(large size) in the both study area. This has shown given the table below.

Table no 5.1.3 Family size of sampled HHs

**Table 3 Family Size**

family size	Number of household in Bharatpur, Barandabhar BZUC(8,9 ward)			Total	Number of household in Jagatpur, kerunga BZUC ward1			Total
	Upper Caste	Ethnic group	Lower Caste		Upper Caste	Ethnic group	Lower Caste	
Small (0-4)	9	2	1	12 (40%)	7	4	0	11 (55%)

Medium(5-8)	6	4	2	12(40%)	3	2	0	5 (25%)
Large (9-13)	3	2	1	6(20%)	2	1	1	4(20%)
Total	18	8	4	30	12	7	1	20 (100%)

Sources: Household survey, 2010

Above the table shows that 40% sampled households have small and medium size family size followed by 20% sampled household have large size family size in Barandabhar BZUC in total 30 household in three castes.

Similarly, In Kerunga BZUC, 55% sampled house hold size have small family size in three castes. Continuously, 25% sampled household size have a medium family size and lastly 20% household have large family size in the study area in all three castes. On the other side, Small and medium family size family is the dominant family in all caste and ethnic group. And in large family size, there are a lot of family member then. Who use more forest product and resources to compare then other in both sample area. More family member means' more Household labor available for the forest products collection and other work directed to support household economy. So it will be affect the BZ forest and its area.

#### 5.1.4 Educational structure of sampled population

Education is an important indicator in determining the status of the community and its development. It plays a vital role in all sector of the society. In Bharatpur, Barandabhar BZUC (8, 9 wards), Educational structure of the community people has played important role for the participation of BZUC activities. If the entire person has household is educated; their participation on any development activities is more effective. For this study level of education is classified in to four categories.

- i. Illiterate
- ii. primary
- iii. Secondary
- iv. college

**Table 4: Education**

	Number of people in Jagatpur Kerunga BZUC(1 ward)	Number of people in Bharatpur Barandabhar
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Level			BZUC (8,9 ward)	
	Male	Female	Male	Female
Illiterate	9	17	19	24
Primary	18	14	11	17
Secondary	8	10	25	21
College/ High school	12	12	15	11
Total	37	53	70	73

Sources: Household survey 2010

Above the table show that 9 male and 17 female are still illiterate in Jagatpur, Kerunga BZ user committee and 19 male and 24 female are in Barandabhar BZ user committee which include some of the part of ward no 8 and 9 of Bharatpur. Continuously, 18 male and 14 female should have primary education in kerunga BZUC and 11 male and 17 female have primary education in Barandabhar BZUC 8, 9. On the other side, in secondary level education 8 male and 10 female have got secondary education in kerunga User committee and Barandabhar BZ user committee (8,9 ward) of Bharatpur 25 male and 21 female have got a secondary level education. Continuously 12 male and 12 female have access to college or higher secondary school level education in kerunga BZ user committee similarly, in Barandabhar BZ user committee 15 male and 11 female have to access the same education. In the field area, most of the Brahmin or chhetri respondent's families are found more educated to compare then others. They have got secondary and college level education and little percentage people are only illiterate.

#### 5.1.5 Caste and ethnicity structure

The cast and ethnicity plays important roles for the socio/economic development of every society. The villages where users have been living are inhabited by various caste/ethnic groups. They are Brahmin, chhetri, ethnic community, tamang, gurung, magar, newar and Dalit and the major ethnic group are Brahmin and chhetri. on the other side, (Jagatpur) kerunga BZ User committee where users has been living are inhabited by various caste-ethnic groups such as a Brahmin, chhetri, gurung, tamang, magar and the major ethnic groups are Tharu and Dalit similarly, in Barandabhar BZ user committee Upper caste groups people are more than other caste groups which has shown table below.

Table No; 5.1.5 Caste and Ethnicity structure of sampled population



**Table 5: Caste and Ethnicity**

Number of people in Bharatpur 8,9 wards (Barandabhar BZ User committee) BZUC			Total	Number of people in Kerunga BZ user committee of Jagatpur (ward 1)			Total
Upper Caste	Ethnic group	Lower Caste		Upper Caste	Ethnic group	Lower Caste	
78	39	26	143	54	30	6	90

Sources; Household Survey 2010

In this table, Jagatpur (Kerunga BZ user committee) there are 54 people in upper caste continually, 30 people are from ethnic caste group and lower caste 6 out of whole people of 90 in 20 Household. Similarly, In Barandabhar BZ user committee of Bharatpur, upper caste (Brahmin-chhetri) population is 78, in ethnic caste group 39 people and lower caste 26 people out of 143 in 30 household which have shown that the upper caste groups people percentage are higher than other caste group in both field area. This has to know that Brahmin should have dominated to other caste group in both study area.

#### 5.1.6 Religion composition of the sample user Population

Religion is one major component of every society; it's a way's of social control and direction. Malinowski defined: "Religion is a mode of action as well as system of belief and a sociological, phenomenon as well as a person experience".

Religion is a set of belief and practices (Ember and Ember, 1977:38). In BZ user area, Many People belong to the Hindu groups. They have a traditional practice of the following Hindu, Buddhist and christen religion. Hindu's people are celebrating all Feast and festivals with great respect as performed.

In the study area most of the people are Hindu, or we can say Hindu is dominant follower by Buddhist and Christian.

**Table 6: Religious Structure**

Number of people in Bharatpur 8,9 wards (Barandabhar BZ User committee) BZUC			Total	Number of people in Kerunga BZ user committee of Jagatpur (ward 1)			Total
Hindu	Buddhist	Christen		Hindu	Buddhist	Christen	

98	37	8	143	59	24	7	90
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Sources; Household survey 2010

Above the table shown that, Hindu is the main region in both sampled area. In Barandabhar BZUC, 98 people are Hindu and 37 people are Buddhist and 8 people are Christen out of 143 no of people in 30 Household. So in this study area, Most of the people are Hindu.

Similarly, In Kerunga BZUC, Hindu is the main Region in BZ user area which has mostly household are involving continuously, 59 people are Hindu, 24 people are Buddhist and 7 are Christen out of 90 people in 20 Household. So in this study area, most of the people are Hindu to compare other region people in both areas. Which has shown that Hindu is more than others.

So we can say that religion is the one of the major factor to know socio-economic character of the people. In the study area most of the people are Hindu, or we can say Hindu is dominant follower by Buddhist and Lastly Christen.

## 5.2 Economic condition

### 5.2.1 Occupational structures

Occupation refers to all the activities earning by people for their livelihood and daily requirement fulfillment. Agriculture is the main occupation in Nepal. So in this case is in the study area most of the people are depended on agriculture. The main livelihood source is agriculture besides this study population is involved in variety of occupation like services, foreign services, and others. In this study student infant and inactive persons are not included.

Table No 5.2.1 Occupational Structure of sampled study Household.

**Table 7: Occupational Structure**

Occupation	Number of household in Bharatpur Barandabhar BZUC(8,9 ward)			Total	Number of household in Jagatpur kerunga BZUC ward1			Total
	Upper Caste	Ethnic group	Lower Caste		Upper Caste	Ethnic group	Lower Caste	
Agriculture	18	8	4	30	12	7	1	20
Services	11	1	0	12	5	1	0	6
Foreign services	2	4	1	7	3	1	0	4

Others	5	7	1	13	7	5	1	13
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Sources; Household survey 2010

Above the Table shown that, Agriculture is the main Occupation in both sampled area. In Barandabhar BZ User committee, 18 household are in agriculture, 11 houses are in services, 2 houses are in foreign services and 5 are in others from upper caste groups. On the other side, from ethnic caste groups, 8 houses are involving in agriculture like that 1 house is in services and 2 are in foreign services and other in 7. Similarly, ethnic caste group there are also 4 house are involving in agriculture 1 are in foreign services and 1 is in others which has shown that most of household are involving in most occupation such as an agriculture, services and others.

Similarly; In Kerunga BZ user Committee, Agriculture is the main occupation. Which has mostly household are involving Continuously, 12 household are in agriculture,5 household are in services, 3 household are in foreign services and 7 household are involving in other from ethnic caste groups. On the other side, 7 household are from Ethnic caste groups, 1 is in services, 1 is in foreign services and 5 are in other occupation from ethnic caste group's house. Continuously; in Lower caste cases, 1 house is in involving with agriculture and others. In this study cases, the table shown that most of houses are involving in different kinds of occupation such as agriculture, services, foreign services and others.

### 5.2.2 Income structure

Agriculture is the main sources of livelihood of rural people of Nepal. so in this study area most of the households are depended on agriculture the main livelihood sources is agriculture beside this households are depend on services, foreign services, Laborand others.

**Table 8: Income Sources**

Occupation	Number of household in Bharatpur Barandabhar BZUC(8,9 ward)			Number of household in Jagatpur kerunga BZUC ward1		
	Upper Caste	Ethnic group	Lower Caste	Upper Caste	Ethnic group	Lower Caste
Agriculture	18	8	4	12	7	1
Services		1	0	5	1	0
Foreign services	2	4	1	3	1	0
labor	0	0	3	0	0	1

others	5	7	0	7	5	0
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Sources; Household survey, 2010

Above the table shows that agriculture is the main income sources of in all caste groups in both study area. In Barandabhar BZ user committee, 18 household have get incomes from the agriculture in upper caste groups. In these household some household have get extra income foreign services and other services. On the other side, in ethnic caste groups, 8 household have agriculture is the main income sources also they are getting extra income from the services 1, foreign services 4 household and 7 are in other income sources. Similarly, in lower caste groups household 4house hold are getting income from agriculture also these houses are involving in extra services such as a 1foreign services and 3 household are involving in labor etc. which are their extra income sources.

On the other side, in Kerunga BZ user committee, 12 upper household income sources is the agriculture and some houses are also involving in other income sources. They have extra income sources such as a 5 household are in services, 3 household people are in foreign services and 5 are in other types of extra business. Continuously, in ethnic caste group's household, 7 houses are in agriculture and 1 in services, 1 in foreign services and 5 houses have other business. In these cases some house have a one and more income sources and last lower caste groups household 1 which has got extra income from agriculture and labor. This has shown that Agricultural is most famous in both study area. Mostly Households are involving in agriculture field. On the other side, Agriculture is the main occupation and income sources of Nepal.

### 5.2.3 Live stock holding status

Live stock holding plays important role in agriculture production. It is also indicates pressure on the forest from the livestock in term of consumption of fodder, grass in other hand livestock is considered as a liquid asset as it can easily be converted in to cash selling. According livestock plays multifunctional role in Nepalese farming system. They provide milk meat ghee and draught power for filling the land and nature for maintained of soils. Livestock play an important role for the upliftment of their socio-economic status of related household. Similarly, the number of unit of livestock and type of livestock determines the wealthy status of the household in the rural community. In the study area, percentage of the buffalo and goat are dominated in terms of number and then followed by others.

**Table 9: Livestock Holdings**

Caste	Kerunga BZUC				Barandabhar BZUC				Remarks
	cattle	goat	buffalo	Total	cattle	goat	buffalo	total	
Upper caste	7	47	17	71	3	47	36	86	
Ethnic caste	1	30	5	36	0	24	17	41	
Lower caste	0	6	3	9	0	19	8	27	

Sources: Household survey, 2010

Above the table shown that, Goat is the main Livestock In both sampling area. In Kerunga BZ user Committee, Upper caste Households has 71 live stocks in 12 household. Continuously, ethnic castes have a 36 livestock in 7 household out of 20 and lower castes have a 9 livestock in 1 household out of 20 household. on the other side, In Barandabhar BZ user committee, upper caste have a 86 livestock in 18 household continuously; ethnic caste groups have a 41 livestock in 8 household and lower caste household have a 27 livestock in 4 house out of 30 houses.in both comparatively, upper caste have a more livestock then other caste groups household in both sampling area.

#### 5.2.4 Land holding patterns

In the Nepali context, land holding is one of the most prestigious things as well as determinants of the income and food sufficiency of the people. The more land income less land less income because more household depends upon agriculture, in the study area are more land holders are from upper caste.

**Table 10: Land Holding Scenario**

S.N.	Ethnicity	Barandhabhar BZUC		Kerunga BZUC	
		Area (Bigha)	Percentage	Area (Bigha)	Percentage
	Upper caste	32	65.30	23	58.97
	Ethnic caste	12	24.48	15	38.46
	lower caste	5	10.21	1	3
	total	49	100	39	100

Sources; House hold survey, 2010

Above the table shows that most of land is holding by upper and ethnic caste. In Barandabhar BZ user Committee, Upper caste has a 32 Bigha Land (65.30%) out of 49 Bigha in 18 Household. Continuously, Ethnic caste has a 12 Bigha Land (24.48%) Out of 49 Bigha in 8 Household and lower caste have a 5 Bigha Land (10.21%)Bigha in 4 Household similarly, in Kerunga BZ user Committee, Upper caste have a 23 Bigha (58.97%) out of 39 Bigha In 12

household, continuously, ethnic caste have a 15 Bigha Land (38.46%) in 7 Household and lower caste have 1 Bigha (3%) in 1 household. which has shown that the mostly land are using by upper caste groups and ethnic caste to compare than lower caste in both sampling area.

## 6 Contribution of BZUC in Bio-diversity conservation

Behind the formation of BZ and BZUC peoples contribution toward bio-diversity is expected. People can contribute in direct or indirect way to conserve the bio-diversity. We concern mainly with the contribution of BZUC toward the conservation park. In Bharatpur, Barandabhar BZUC, area most of the respondents said that the cattle pressure on the forest area has reduced notably in comparison to the past. Animal husbandry with improved Spp and reduction in unproductive of cattle might lead to this. Likely in Jagatpur, Kerunga BZUC area large herds of cattle's movement toward CNP cannot be seemed easily as earlier. Most respondents felt the notable reduction of grazing pressure in CNP from the park from the area of Jagatpur, Kerunga BZUC. Stall-feeding and the animal husbandry with improved less no of cattle and the availability of grass in the BZ community forest area might be the leading factor. Low pressure of cattle in forest area contribute to provide sufficient grazing land for wild animals, likely the chance of contamination with domestic cattle disease becomes lower plant diversity also be maintained by the low pressure of cattle.

Collection of forest products from CNP and its BZ forest has felt in both committees area reduced. In Jagatpur, kerunga BZUC consists of 4 BZ community forest patches, for fulfillment of their need of forest products. In Bharatpur, Barandabhar BZUC has not clear BZ community forest patches but the certain portion of Barandabhar forest has considered as BZCF, which is in handing over process. In both committees area by the motivation of BZUC and by self-motivation local people had maintain private forest in large or small scale. Likely they planed fodder SPP & new improved Spp of grass. This ultimately reduces the pressure on forest product. Collection period of thatch grass from CNP is reduced to 7 days from his days. For these BZUCs has also given agreement.

Illegal hunting and trapping of wildlife from the CNP and in BZ area has not found now a days. Many times BZUCs had given information about the potential hunting and trapping of wild animals from CNP pond. Its BZ forest BZUC. Before the formation of BZUC wild animals like wild boar, dear etc. found in cropping field used to kill by local people but now they use to choose up to CNP of BZ forest area.

In Jagatpur, Kerunga BZUC had large patches of plantation forest (i.e. BZCF) other plantation work in public land has also found in this area. In Jagatpur, Kerunga BZUC was conserving and managing BZCFs area private plantation has found in the settlement area.

BZDC of CNP did 'Bishazari Tal' conservation work with the help of Bharatpur Barandabhar BZUC. They maintain the check dam of the 'Tal' that increased the level of water in 'Tal' and they again made the second check dam that elaborated the area of Tal. By these aquatic animals, diversity has helped to increase. Many water birds are finding in the 'Tal' that helps to increase the bird's diversity in the area.

BZUC always supported for the better conservation of park. They directly did not work for this but indirectly they did many things. Public awareness program has worked about the park conservation. And motivation toward the need of public support to the park can be taken as the major support from BZUC. Both committees are conducting conservation education work are reducing the pressure on CNP and BZ area.

After the establishment of BZUC in CNPs BZ, we can feel initial development in bio-diversity conservation. In Jagatpur, kerunga BZUC had conserved and managed its CF in well manner; greenery in the area can be note. Adjacent pasture land of CNP had improved its quality due to the less pressure of cattle wild animal did not feel disturbed. In Bharatpur, Barandabhar BZUC, the joining forest area of Barandabhar forest had drastically changed its quality. Being local residents also, researcher also noted the positive change in the quality of forest. Movement of wild animals like rhinoceros, Dears etc. in this area now found frequent. In recent rhino counting, in BZ as compare to before the number of rhino is found notably decreased.

## **7 Historical process of people's involvement in park management**

In the world's context concept of people's involvement in park management specially came out through the world congress on national parks held in Bali in 1982. The congress laid atress on programs with revenue sharing, local participation and complementary development schemes adjacent to protected zones for the people who live on the perimeter of them (norman:1985) that congress relied on the comparison of people's involvement on the park management for its sustainability.

In Nepal's national park history the word 'Buffer' was familiar. Some part of forest and pasture land, outside the park used to take as "buffer" area, where local people can use forest and its products as subsidies of natural park/protected area. A large patch outside the park in royal bardia national park and in rara national park was set down as 'Buffer' area in 1980s.



The establishment of Makalu Braun National Park and conservation area (1991) and of Annapurna conservation area (1992) has designed with the involvement of local people in protected area management. In the establishment of those protected areas they were supported by the NGO and INGOs, later on they proved with better result that the people's involvement in protected area management makes more effective management. Community forestry program was launched in the country in 1989 with the concept of local people's involvement in forest management, conservation, and utilization. This program had given better result by improving the quality of forest and maintaining greenery especially in the quality of forest and maintaining greenery especially in the hilly region where the program has first lunched. In local context of CNP, KMTNC's NCRTC (Sauraha) initiated to maintain community forestry in Bagmara (where the quality of forest has degraded before) with local people's active participation. This Bagmara community forest had improved its quality in a short period and later on many wild lives started to settle in the area. From which local people were able to collect money from tourism .and forest products for the local use with the better management of forest and its bio-diversity these all gave stress to HMG/N to implement BZ program with the concept of peoples involvement in protected area management.

In the past, park involved local people in nominal level. Major programs in past for the peoples participation were conservation education program in which public co-ordination meeting were lunched once in every year. In indirectly contributed for the protection of park by the collection of local peoples sympathy. Another major program was the provision of thatch grass cutting facility to the local users from. This grassland of the park used to maintain by which grazing game animal were benefited. Now besides these many local peoples are directly or indirectly involved in anti-poaching works. Illegal collection of forest product from CNP is reduced in certain patches because of the available alternative source. Forest area outside the park (in BZ) has maintained in best condition by which movement range of wild animals had increased. In past, in some limited programs of people's involvement, participation of local users was in limited numbers. Only local political leaders used to be invited in public co-ordination meeting. They actually felt that kind of meeting only as a picnic ceremony provided by the park, where they eat, drink and enjoy for 1-2 days. Now such types of meetings use to be full of local users participation with large number. Now people maintains positive attitude towards this kind of meeting for the better management of park and Buffer zone.

In past subsidies to the local people were not provided in sufficient way. Only the provision of thatch grass cutting was main subsidies to the local people. Local people their livestock and agricultural land hampered by wild lives were not provided reliable subsidies. Long official process was the other complexity. Some woods to make watch toward (Machari) on the cropping field was sometimes provided by park. Now with provision of 30-50% revenue sharing in BZ, local people are benefited with great subsidies from park. Many 'developmental' works in BZ area has done with the BZ budget. Local people are provided alternatives source of forest product from community forestry and private forestry. Human domestic cattle and crop damaged by wild animal has given reliable subsidies from park via BZDC with no complex official process.

Present park authorities felt comfortable and more effective way of park management is people's involvement. Alternatives lunch of BZ program conflict between park and people has reduced. Greenery outside the park has maintained and the habitat for wildlife is increased. Help from different BZUCs have provided to the park. Although they felt the necessity of separate BZ in its in official way as it has increased the complexities on the varieties of responsibilities of their job. Now to assist people's participation in park management there (CNP) was the park and people project-lunching Park and people program for the betterment of park and people. Major activities of the project are park management and Buffer zone management and development. in BZ management major activities are: developmental of community organization, community development activities, income generating activities, conservation awareness activities natural resource management and green enterprises including ecotourism. Besides this KMTNC's NCRTC is also working in BZ area of CNP. The major activities of NCRTC are research, training of workshop conduction and conservation oriented community programs. Other local NGO's and INGO is helping indifferent fields. These all assist to the increasements of people's participation in park management.

## CHAPTER 8: CONCLUSION AND RECOMMENDATION

### 8.1 Summary

The BZ is considered to be one of the most important programmes in Nepal in terms of providing equitable distribution of forest resources on user, household and reducing poverty. The dependence of the household on BZ user community is mainly based on the benefited derived by fuel wood, fodder, timber and leaf litter. Besides forest products BZ forest provides several indirect benefits to the BZ user community and their user house such as water fertilizer cool and fresh air.

The study of "Buffer Zone management and its development process in Chitwan National Park" was conducted in Bharatpur 8, 9 wards (Barandabhar) and Jagatpur VCD wards no 1 (Kerunga) on BZ user committees. The objective of this study is to analyze the socio-economic characteristics of the BZ user's household and to examine their contribution on conservation of BZ area in bio diversity conservation. To fulfill these objectives in whole BZ users, only 10.98% of household are selected in Kerunga BZ user committee and 7.77% household are selected from Barandabhar BZ user committee where they reached has selected different kinds of method and applying. Primary and secondary data are used for study.

The BZ user committees are heterogeneous in terms of caste and ethnicity. There are different ethnic groups. Magar, Newar, main castes were: Brahmin, Chhetri, Thakuri Dalits. Upper castes are dominated to other caste. In Jagatpur, Kerunga BZ user committee, sampled user household 60% household are Brahmin, Chhetri, Thakuri. Secondary, 35% household are ethnic group and lastly, 5% household are Dalit (Lower caste). On other side in Bharatpur ward no (8,9) Barandabhar BZ User committee, the sampled of house are 30 total and only 60% of house are Brahmin, Chhetri and Thakuri, only 26.66% household are ethnic caste of group and last 13.44% household are Lower caste group in 4 household such as a Dalit, Kami, Sarki, etc.

In terms of sex the population seems to be balanced. The average family size is 4.5% in the study area at Jagatpur and 4.76% in Bharatpur, Barandabhar BZ (8, 9) user community.

In the education sector, most of Brahmin is educated to compare to other caste. And agriculture is the main occupation in the study area in upper castes and ethnic groups and

lower caste people secondary, services and lastly, foreign and others .It, fire food. This is also found that upper caste is holding more land, ethnic caste group people is secondly and third is the lower caste people in both study area.

On the other side, upper caste are holding 86 livestock only 18 household, ethnic caste are holding only 41 livestock in 8 household and lower caste holding 27 live stock in 4 house in Barandabhar BZUC of Bharatpur and in kerunga BZUC of Jagatpur, upper caste have a 71 live stock in 12 house hold, ethnic caste have hold 36 livestock in 7 household and Lower caste groups have hold 9 livestock in 1household.

Similarly, In the Land Holding system patterns, Upper caste have more land to compare then other caste groups such as a they have a 65.30% Land in only 18 household, continuously, ethnic caste group household have a 24.48% land in only 8 household and lower caste groups have an only 10.21% land In 4 household In Barandabhar BZ user committee of Bharatpur. On the other side, At Kerunga BZ user Committee, upper caste have a 58.97% land , ethnic have a 38.46% land and lower caste have a only 3% of land.

In the case of regions, Mostly people are Hindu in Barandabhar BZ area and Kerunga BZ user committee and mostly upper caste is Hindu.

On the basis of the study it is conducted that the forest fulfills demands of forest product like fuel wood, fodder, timber, leaf litter plants etc. practically this is required for day by day lives. On the other side, BZ management distributes the forest product proportionally on the basis of their user need. And they have to need to conserve the BZ forest. They can only use the basic products from the BZ area.

## **9Key findings**

- ) The study area is found heterogeneous in term of caste and ethnicity, the large number of house hold of Brahmin- chhetri about 60% has involved in BZ management and user Committee.
- ) Hindu is a dominant religion to then other.
- ) The Average household size is found 4.5 and 4.76 in sample area
- ) Agriculture is the major occupation of upper caste, ethnic household and lower household area.
- ) It terms of sex is not balanced in both sample area.

- ) There is a weak participation of Dalit (lower caste) in executive committee.
- ) It is also found that the upper caste and ethnic caste are holding more livestock so they have been harvested more feeding materials for livestock in comparison to the lower caste people.
- ) It is also found that the major income sources are the agriculture in upper caste household in both sampling area. There are also more livestock in upper caste of household to compare then other in both user communities so that upper caste are more benefited then other caste from forest products because the smallest number of people in ethnic caste and lower caste.
- ) Most sampled study households are getting fresh drinking water regularly. After management of BZ management of forest, it can be seen that land productivity has increased due to an increase in water bodies; it has helps to increase agricultural production due to from it most land holders are more benefited in comparison to the less land holders.
- ) BZ management and chitwan National park has created a skill development programme for user groups and committees to develop their contribution for biodiversity conservation on the other side, some of the micro and macro level skill development training also created by the park and BZ management for the user committees and groups. Which have to help to people to improvement of their lifestyle and it will benefited for the conservation of BZ management because of the lack using of forest products. Also park and BZ management has also provided training for to know the conservation of forest. It's, benefited to conservations.
- ) On the other side, User Committee are involving to the conservation of their BZ area forest also, they are involving in the management process and formation of the management aspect.

## **9 Conclusion**

The peoples of buffer zones faced a strict restriction on resource harvesting and use after the establishment of park. The fourth amendment in 'NPWC Act 2029' in 2050 B.S. made drastic change in the vision of HMG/N to see the local people around the park introducing the concept of BZ. 'BZ regulation (1995) 2052 and BZ management guideline 2056(1999) with the aim to make peoples' participation in park management revenue sharing in BZ and

complementary developmental Schemes in BZ area for the better conservation of park and benefits for its surrounding peoples the concept of BZ has come to Nepal.

Significant socio economic change has been observed. Although, many BZUGs under the BZUC and among them some are male group, some are female group and some are mixed group. These type of UG are formed according to locality i.e. village/Toll. Thus, indirect participation in BZUC from different groups (i.e. gender, ethnic, and locality) is found in CNP's BZ. The participation of lower caste group (dis-advantaged group) has lacked. Decision making process of BZUC is democratic. Record keeping is up to date in well manner found mobilization is bounded with BZUCs approved programs and rules and regulation of HMG/N. Local users, now is contributing to conserve bio-diversity in direct and indirect ways. Proper participation of Women & ethnic groups is not found. The participation of lower caste group (dis-advantaged group) is lacked.

Record Keeping is up to date in well manner and has good fund mobilization is bounded with BZUCs approved programs and rules & regulation of Nepal Ministry of government. There is no fund miss use cases Transparency of fund mobilization is maintained. This all have contributed to reduce park Management and people Conflict. Local Users, Now is contributing to conserve Bio-Diversity in Direct & indirect ways. People's involvement in park management is now increased. Local Peoples had already started to feel the park is for their betterment and for their improvement of their life style.

Some training is provided to the BZUC and its other users from the park and people project e.g. Leadership training, Account & record Keeping Training, small skill development Trainings, Macro & mini level skill development trainings etc. These also strengthen the capacity of BZUC members and Local users. Many kinds of income generating activities are conducted within the BZUC areas.

## **11Recommendations**

Area declaration of BZ made exclusion of the real users. In Bharatpur Barandabhar BZUC, the same users of community forest before the declaration of BZ are excluded in large proportion, for which forest that area was declared as BZ. In Bharatpur Barandabhar BZUC also realized this saying the declaration of BZ in the area is not scientific. Thus, the decelerated area should be reviewed in the way that real users may not be excluded. Likely

division of primary and secondary users may clear the liability and facility for local user who are extremely affect or simply affected from the park or park's BZ.

Forestry initiative work in BZ should be more effective. Handing over the adjacent forest/forest patches as community forest with the use rights of forest product to local communities should be done with no lengthening the times. Sufficient fodder plants should be providing to local peoples.

To make active and proper participation of women & Dis advantaged group they must be empowered with effective programs especially for them. In the period of formulation of new BZUC Local People should be convinced for the representation of different interest groups in BZUC.

Punishment and reward system should be maintain for the promotion of effective management of BZ unless the harassment creation in negative works and promotion to the positive efforts toward biodiversity conservation is maintained willingness of the user/BZUC's member will not be increased. Some active members of the BZUC expressed this kind of complexities.

Skill development trainings and income generating activities should be promoted in BZ, which may be enhancing the living stander of local Users and give employment. This may be reduce the pressure on National park because Local Peoples (who are poor& unemployed and dependent upon forest as they collect & sell fire wood & other forest products) will get alternative employment.

Regular monitoring and evaluation work should be extended with more effective programs e.g. audio-visual, essay/quiz/speech programs, meetings, seminars conduction etc. This may enlarge the knowledge of people/users about protected area and it's important and about BZ & this may lead to effective management of BZ & sympathy to protected areas.

While going in to the dept. of the study, there are still needed basic physical, financial and humanitarian supports from the government and non-government sectors in order to uplift and bring the dominating people in major development schemes.BZ management has to take all people on the management process and institutional development programme.

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## ACRONYMS

BZ	-	Buffer Zone
BZUC	-	Buffer Zone User Committee
BZUG	-	Buffer Zone User Group
BZDC	-	Buffer Zone Development Council
DNPWC-		Department of National Park and Wildlife Conservation
CNP	-	Chitwan National Park
VDC	-	Village Development Committee
NGO	-	Non-Governmental Organization
INGO	-	International Non-Governmental Organization
KMTNC-		King Mahindra Tourist for Nature Conservation
CBS	-	Central Bureau of Statistics
PPP	-	Park People Program
NPWC	-	National Park & Wildlife Conservation
HMG/N-		His Majesty's Government of Nepal
UC	-	User Committee
UG	-	User Group
UNDP -		United National Development Program

## ANNEXES

### Annex 1: List of BZUC in CNP

S.N.	Name of BZUC	Settlement area	Ward no.	District	Household	Population
1	Tribeni	Tribeni-17	5	Nawalparasi	1130	3,040
2	Daunnedevi	Dumkibas-14	3	Nawalparasi	728	2,408
3	Daunnedevi	Naya Belhani-26	4	Nawalparasi	1824	6,069
4	Nandavauju	Narayani-12	8	Nawalparasi	806	5,893
	Gosaibaba	Narayani-7	2	Nawalparasi	276	2,457
5	Gosaibaba	Prasauni-16	6	Nawalparasi	556	2,880
6	Lamichaur	Pithauli-32	9	Nawalparasi	1572	8,059
7	Lamichaur	Kawasoti-17	7	Nawalparasi	741	2,657
8	Sisbar	Razahar-19	6	Nawalparasi	1027	5,363
9	Sisbar	Pragatinagar-13	3	Nawalparasi	797	3,833
10	Sisbar	Divyapuri-6	4	Nawalparasi	428	2,158
11	Shikrauli	Amarapuri-11	4	Nawalparasi	461	2,887
12	Shikrauli	Mukundapur-18	7	Nawalparasi	960	5,257
13	Amaltari	Kumarwanti-14	8	Nawalparasi	763	4,463
14	Amaltari	Aggauli-30	8	Nawalparasi	1213	6,865
15	Nandavauju	Kolhuwa-16	7	Nawalparasi	1055	7,499
16	Kalabanzar	Divyanagar-14	4	Chitwan	629	2,519
17	Kalabanzar	Gunganagar-10	2	Chitwan	498	3,197
18	Meghauri	Meghauri-42	9	Chitwan	2170	17,495
19	Kerunga	Sukranagar-12	6	Chitwan	405	2,873
20	Kerunga	Jagatpur-34	9	Chitwan	1627	10,716
21	Mirgakunja	Bachhauri-29	9	Chitwan	1825	9,247
22	BudiRapti	Kumroj- 40	9	Chitwan	1478	8,729
23	Khagendramalli	Kathar -37	8	Chitwan	1385	8,391
24	KhagendraMalli	Bhandara -18	5	Chitwan	1746	6,016
25	Mirgakunja	Ratnanagar-25	4	Chitwan	1332	4,344
26	PachPandab	Gardi-35	9	Chitwan	2053	4,649
27	Rewa	Kalyanpur-34	9	Chitwan	1650	7,838
28	Aayodhyapuri	Aayodhyapuri-36	9	Chitwan	1807	13,351
29	Baghauda	Baghauda-45	9	Chitwan	2625	12,376
30	Lothar	Piple- 20	7	Chitwan	1078	3,993
31	Patihani	Patihani-30	8	Chitwan	1318	6,757
32	Brandabhar	Gitanagar-22	5	Chitwan	786	4,192
33	Brandabhar	Bharatpur-6	2(8,9)	Chitwan	386	1,046
34	Nirmalthori	NirmalParsa-52	4	Parsa	1047	3,456
35	Nirmalthori	Thori-13	9	Parsa	968	6,758
36	Lothar	Manhari -7	2	Makawanpur	876	2,396



## Annex 2 Questionnaire for household survey

Household survey form

Interview no.

Date of interview

Name of BZUC

Name of the respondent

Religion

Permanent Address

Current Address

### 1. Demographic information of sampled study population

S.N.	Name of family members	sex	Age	Education	Occupation	Major Income sources	Religion
1							
2							
3							

3. Do you have own land if yes, how much do you have?

I. Yes .....II. No .....

Type of Land	Katha	Bigha
Bari		
Khet		

4. Agriculture income of household

Type of crop	Total population	Selling unit	Bought	Price per kg
Rice				
Maize				
Wheat				
Others				

5. Income from Livestock and sources for a grazing

(During One Year)

Type of crop	Number/ Quantity	Earned Rs.	Months for Each Sources	
			CF	PF
Cattle				
Buffalo				
Goat				
Chicken				
Milk Products				
Farming of Others				

6. For How many months do you have enough food for your family from your own production?

.....Months

7. How do you cope in times of shortage?

Buy Food      Withdraw from saving      Borrow foods      Borrow money

Hire out labor    other specify.....

8. If you need loan, from where do you get?

.....

9. How much interest rate you have to pay?

.....

10. How far isthe location of Buffer Zone forest area from your house?

.....Km.

11. What is the distance of house to the market?

.....Km. (About)

12. How many Bharies (Doka) of the fodder/grass do you need to feed your live stocks for a week?

.....

13. From where do you collect the fodder?

Buffer Zone forest      National Park Area      Private forest      Community forest

14. Who collect fodder?

Women                  Men                  Children                  Others

15. Energy source assessment

(a) What are the sources of your energy need?

Firewood                      Electricity          Gover Gas          Kerosene

(b) If firewood from where do you get?

Buffer Zone forest          National Park      Market                  Community forest

(c) How Much Bharies/ Doka of firewood you need weekly or Month?

.....

(d) Who collects firewood in your family?

Women                      Men                  Children              Others

#### 16. Timber use assessment

(a) Have you used timber recently? Yes..... No.....

.....If yes, for why?

House Construction      Furniture              Animal shed          Tools and others work

(b) From where do you get timber?

National Park                  Buffer Zone          Market                  Others

#### 17. Total Buffer Zone forest collected during the last 12 months.

Product Type	Unit	Price unit	Total Collection from Buffer Zone Forest Harvesting Period	High Quantity	Sold	Bought
Timber						
Fuel Wood						
Leaf/ Grass						
Fodder						
Others						

18. Are there any representation from your Household in BZ User communities?

Yes                                  No                          If Yes, from when?.....

19. Have you participate BZUCGs Annual Meetings or assembly?

Yes                                  No                          If Yes, u when did you attendant the last time?

20. Has BZ forest helped people in income generating activities besides forest products?

Yes                                  No                          No Idea                  If yes, How much? In Rs ?

## Appendix II

### Guide Questionnaire for Interview

- 1 Major forest collect from Buffer Zone.
- 2 Major forest products consumed in household and sold in others.
- 3 Wage of local labor for different works.
- 4 No of meeting and assemblies and other actives activities of the BZUCs and BZUGs
- 5 Where the users generally participate in a year.
- 6 Major sources of BZUGs income.
- 7 Actual needs of the users they expected from their group fund.
- 8 Participating people no in BZ forest.
- 9 Overall benefit from BZ forest.
- 10 What are the main sources of fuel energy in your community?
- 11 Is there equal access in BZ sources?
- 12 Who has the done decision making process in your Buffer Zone forest?
- 13 Are you satisfaction in decision?
- 14 What are the positive effects of Buffer Zone forest?
- 15 What are the negative effects of Buffer Zone Forest?
- 16 What is the contribution of BZUC in BZ MGMT.?



## **Appendix III**

### **Guide Questionnaire for interview**

#### **key informant interview**

- 1 Number of Buffer zone User Committees' member their names and gender compositions.
- 2 Number of Buffer zone User group under the buffer zone user committee.
- 3 Name of the representative of user committees in Buffer zone development council.
- 4 Major sources of conflicts between park and people till date
- 5 How the user group were formulated.
- 6 How the user group member identified.
- 7 How the user committee member were selected.
- 8 How the Buffer Zone development programs is planned and implemented.
- 9 Status of representation of poor, disadvantaged people's women and ethic caste/group in Buffer Zone user committee.
- 10 Major ongoing activities of Buffer Zone user committee.
- 11 Legal and practical situation of coordinating between Buffer Zone user committee and Buffer Zone user group.
- 12 What is the record keeping system who is responsible for this? When the record is disclosed among the general member (it includes in assembly or When required)?
- 13 How the fund is collected (from park and internal)?
- 14 Meeting days of Buffer Zone user committee and participation. If difficulties arise, what was the reason?
- 15 Major Buffer Zone development activities implemented in committee's area.

- 16 Involvement of people/users in Buffer Zone development activities (user committee members and general members).
- 17 How is communication system among members of the committee maintained with user group's members, member of council and park authority?
- 18 Helping agencies and their jurisdictions of help in the area of each committee.

### **Buffer zone user committee's contribution in Bio-diversity conservation**

- (1) Pressure of cattle grazing situation in park area.
- (2) Use pressure for forest products (fuel wood, wood grass, fodder collection) in park area.
- (3) Illegal hunting and killing wildlife in the park.
- (4) Support from Buffer Zone user committee's to anti- poaching unit/work.
- (5) Support from Buffer Zone user committee's for the better conservation of park.
- (6) Efficiency of Buffer Zone user committee's initiatives in bio-diversity conservation.
- (7) What are the major causes of Conflict between park and people?

### **Other miscellaneous information.**

- (1) Vision of park authorities and people about government's present policies on Buffer Zone development and management.
  - (2) Suggestion for the better relation of park and people.
  - (3) By park authority
  - (4) How can the present level of people's participation can be strengthened for Buffer Zone development and management?
  - (5) What is present attitude of park authority in involving local people in park?
  - (6) Management activities directly or indirectly?
- Role of other helping agencies for peoples participation in park management and their mail activities.