CHAPTER I

1. INTRODUCTION

1.1. General Background

Nepal is situated on the southern slopes of the central Himalayas and occupies a total area 1,47,181 sq km. The country is located between latitudes 26º 22' and 30º 27'. North longitudes 80º 04' and 88º 12' east. The average length of the country is 885 km from east to west and the width various from 145 km to 241 km with a mean of 193km north to south. Hills and high mountains cover about 86 percent of the total area and remaining 14 percent are the flat land of the Terai, which are less than 300m in elevation. Altitudes vary from some 60m above sea level in the Terai to Mount Everest (Sagarmatha) at 8848m, the highest point in the world. The temperature and rainfall differ from place to place (GoN/MoFSC 2014).

The population of the country for the year 2011 is 26.49 million, of which 6.73,43.01 and 50.27 percent of them lived in the Mountain, Hill and the Terai region respectively in 2011. The census 2011 enumerated more than 125 cast/ethnic groups distributed throughout the country. Administratively, it is divided into 5 development region, 14 zones, 75 districts, 58 municipalities and 3915 Village Development Committee (CBS 2013).

Nepal is rich in biodiversity due to its unique geographical position as well as its altitudinal and climate variations. Although comprising only 0.09 percentage of global and land area, Nepal possesses an excessively large diversity of flora (Table 1) and fauna (Table 2) at genetic, species and ecosystem levels (HMGN/MFSC 2002). To conserve country's vegetation and wildlife resources, protect unique ecosystem, to provide recreational opportunities and scientific studies, Nepal has promulgated National Park and Wildlife Conservation Act 1973 (here after NPWC Act). This was a first legal instrument to conserve and sustainable use of country's natural resources (Upreti 1981).

Table 1.1: Floral Diversity Status of Nepal

S.N.	Floral Diversity	No of Species	Global Percentage
1	Forest types	35	
2	Ecosystem types	118	
3	Angiosperms	6973	3.2
4	Gymnosperms	26	5.1
5	Pteridophytes	534	5.1
6	Bryophytes	1150	8.2
7	Algae	1001	2.5
8	Fungi	1822	2.6
9	Lichens	465	2.3

Source: GoN/MoFSC 2014

Table 1.2: Faunal Diversity Status of Nepal

S.N.	Faunal Diversity	No of Species	Global Percentage
1	Birds	867	9.5
2	Mammals	208	5.2
3	Reptiles	123	1.9
4	Amphibians	117	2.5
5	Fish	230	1.9
6	Butterflies	651	3.7
7	Moths	3958	3.6
8	Spider	175	0.4
9	Other insects	5052	0.7

Source: GoN/MoFSC 2014

According to provision of the NPWC Act, Nepal, so far has established an extensive network of Protected Areas (10 national parks, 3 wildlife reserves, 1 hunting reserve, 6 conservation areas, 12 buffer zones), now covering total area of 34185.62 sqm km (23.23 percentage) of the country total landmass (DNPWC 2012). All the protected area (here after Pas) are either inhabited by humans or are close to human settlement.

Science the establishment of PAs, local people living in and around them have suffered from social and economic problems (Thapa 1998). Protection of parks and reserves for biodiversity resources has come into direct conflict with the traditional linkage and need of the communities to use resources for survival on a daily basis. Sharma (1991) have mentioned several problems faced by the local communities from park. The major problems include the restriction on forest products as fodder, firewood, timber and herbal plants collection, fishing, grazing of livestock, riding of crops by wild animal, depredation of livestock by large carnivore, loss of human life by wild animals, confrontation with army personnel and park staff, social, economic and cultural disruption by tourists. Moreover, Bhatta (1994) also argued that conservation program would be effective well and sustain for long run if the basic needs of local community are well addressed.

Realizing the fact of the above problems, His Majesty's Government has made the fourth amendments to the NPWC Act 1973. The act is very progressive in involving local people in resource conservation and management as well as benefit sharing with the PAs. The Act also authorizes the declaration of Buffer Zone (BZ) around PAs where local people manage resources for sustainable use. The most important aspect is the channeling back the 30-50 % revenue earned by PAs for the BZ development (HMGN 1973). Until now, 12 PAs have been declared the BZs, which are covering about 3.80 percent (5603.17 sq.km) of the country's landmass (Table 3).

The BZ management regulation 1996 is the main policy document which provides legislative power to park wardens to facilitate formation of User groups/committees and to coordinate the activities of various line agencies operating in BZ. Buffer Zone Management Guideline 1999 (BZMC) also elaborated and clarifies mechanism to mobilize BZ fund and peoples participation for community development. The BZ provision in the act provides an opportunity of retaining 30-50 percent of revenue generated by the parks or reserves to be retained in the BZ of concerned protected areas for the development of local communities, including access to sustainable use and management of BZ forest resources. In fact the concept of Buffer Zone Management around the protected areas was evelved in Nepal as a response to minimize continued resource conflict in and around protected areas (Poudel et al. 2007).

Table 1.3: Status of Buffer-zone in Nepal

S.N.	Buffer Zones	Gazetted Year	Area (Sq.km.)	Districts	VDCs/ Municipality	UGs	UCs	Population
1	Chitwan	1996	750	4	37/2	1779	21	250000
2	Bardiya	1996	507	3	4	262	19	117633
3	Langtang	1998	420	3	34	332	21	68865
4	Shey-Phoksundo	1998	1349	2	11	90	17	29854
5	Makalu Barun	1999	830	2	12	89	12	34467
6	Sagarmatha	2002	275	1	11	90	17	6000
7	Suklaphanta	2004	244	1	9	9	501	143395
8	Banke	2010	343	1	14	61	6	35712
9	Koshi Tappu	2004	173	3	16	531	9	77950
10	Rara	2006	198	3	9	156	10	12121
11	Khaptad	2006	216	4	21	250	14	33272
12	Parsa	2005	298.17	1	11	448	13	85000
	Total		5603.17	28		4097	660	894269

Note: VDC=Development Committee, UGs=Users Groups, UCs=Users Committees, Source: DNPWC, 2012

Each User Group (UG) must develop a work plan for conservation of natural resources, community development and utilization of forest products. Community basic self-governing institution such as Buffer Zone Management Committee (BZMC), User Committee (UC) and UGs are actively involving to fulfill the objective of biodiversity conservation and socio economic development. To promote community based biodiversity conservation program the Department of National Parks and Wildlife Conservation (DNPWC) has been implementing Park People Program with financial and technical assistance from United Nation Development Program (UNDP) since early 1995. The main objective of the program was to enhance the capabilities of BZ community to develop their socio-economic condition and conserve biodiversity in and around PAs (DNPWC/PCP 1999). The people centered of community based biodiversity initiative of Nepal is receiving worldwide appreciation and recognition (Sherpa 1993).

In the case of Nepal, BZs have been developed to focus the special needs of the local communities, who are likely to be adversely affected by conservation measures. The BZ of Chitwan National Park (CNP) , a peripheral area to the park also regarded as a zone of

impact, comprising of about 750 sq km, was declared in 1996 under the provision made by the Act. It includes parts of four district and 35 village Development Committees (VDC) and 2 Municipalities. This study was conducted in the Kerunga User Committee (KUC) of BZ of CNP.

1.2. Statement of the Problems

At the beginning of creation of PAs in 1970's the management prescription of Act and Regulation was very strict and even thatch grasses were not permitted to be collected. In Lowland PAs no settlements have been permitted and exploitation of resources is allowed except thatch grass cutting. Cattle grazing were another problem faced by the local people with the creation of National Park (NP). The local resentment was serious and they became hostile towards the park (Upreti 2005). The attitude of local resident around the PAs was too much negative due to very strict in usury right of local people mentioned in the Act (Heinen and Mehata 2000).

Two and half decade experience of the PAs management has shown that without the participation of local communities, it is very difficult to maintain/conserve the country's ecosystem and biological diversity (Bhatta 1994). As a result, the buffer zone have been brought to conservation forum to participate in conservation and management of the biological resources and sharing the generated revenue in community development as well as in the conservation activities. The basic rational for BZ is that local people who suffer from PAs should be permitted to extract some necessary resources in the exchange. Buffer should thus, ideally protect resources in impact areas while being culturally acceptable and economically viable (Heinen and Mehta 2000). The basic principle of BZ management may be sound but their application can be very difficult (Pradhan 1995).

The BZ provision in the Act provides an opportunity of retaining maximum of 50 percent revenue generated by the parks and /or reserves to be retained in the concerned parks for conservation of biodiversity and community development. The BZMC also made provision for the breakdown of total fund in different headings such as conservation, community development, income generation and skilled development, extension education and administration. To get the fund in time, UGs are required to prepare their work plan and forwarded to BZ management committee through UC. Once the plans approved by the council, the funds is provided to that UG to implement the plan

activities. Such work plan should essentially allocate 30 percentages of the total budget in conservation, 30 percentages in community development, 20 percentages in income generation and skill development activities, 10 percentages in conservation education and 10 percent in administrative expenses.

The government has invested an ample amount of its revenue for the development of local communities of buffer zone area so that the people will convience the importance of the protected area and content biological diversity. One of the main objectives of this program is to resolute or minimize the park people conflict and it has succeeded to the great extend. There is no doubt that buffer zone management program has impacted on the socio-economic development of the local communities but it has not yet well assessed and evaluated. Which is a big lack for the progressive development of the program and to bring the necessary improvements in existing policies and implementation modalities.

1.3. Objectives

The general objective of this study is to analyze the socio-economic condition of the people of kerunga user committee. However specific objectives are given below:

1. To examine the socio-economic impact of this program in buffer zone.
2. To analyse the people's participation in buffer zone program.

1.4. Significance of the Study

The main objective of establishing Buffer Zone is to meet the natural resource needs of local communities as well as minimizing human impact on protected area. The other objectives are to improve the lives of these communities and to support them to organize themselves into strong, self-governed institutions capable of undertaking pro-conservation and predevelopment activities in and around the areas that they inhabit.

To develop buffer zone area, 30 to 50 percentage of total revenue generated by protected areas through eco-tourism and other activities has been provided through Buffer Zone Management Committee. In the contest of Chitwan National Park, it has been provided 50 percent of total revenue to do the programs in the bufferzone. There are 1772 user group and 21 user committee to do this work. According to the report of “Impact Assessment of Buffer Zone Management Program of Chitwan National Park, 2008“ the

main activities of buffer zone management committee and user committees are given below.

- Relief fund against (a) human casualties, injury, loss property, crop and livestock damage by wildlife (b) emergency relief under natural disasters like floods (c) relief for crop seeds and urgent use fund on account of crop depredation and (d) compensation for river cuttings
- Community development program : Road gravel, Canal construction, water supply, School building, Culvert construction and more.
- Conservation program : Electric fence construction, Barbed wire fence construction, Community forest management, Plantation, Dam construction, Bio-gas plant.
- Income generation and skill development program : Target group training, Women empowerment training, agriculture training, Veterinary service, goat and pig distribution etc.
- Conservation education : Anti-poaching program, Youth awareness, School program, Group mobilization etc.
- Institutional development

Though many activities metioned above have been conducting from very beginning, the socio-economic aspect of them has not yet been well studied. The contribution of bufferzone program on buffer zone people and their livelihoods has not been well explored and brought to the frontline. So this study has tried to assess the socio-economic aspect of the buffer zone program and its impacts on people's livelihood.

1.5. Limitation of the Study

The study was confined to only one user committee out of 21 user committees of the buffer zone area of Chitwan National Park.

1.6. Organization of the study

This study altogether contents 6 chapters. The first chapter deals about the introduction of the program including the general background, statement of the problems, objectives, significance of the study, limitaions and the organization of the study. The second chapter consists literatrure rieview for the headings of the global concept of protected area and

national parks, concept of national park in Nepal, concept of buffer zone, buffer zone user groups and committees and the distribution and management of the available funds. The methods of data collection and analysis have been explained in Chapter 3. The discriptions about the study area is provided in chapter 4. The analysis of the data to know the perceptions of the respondents and achieved results are given in Chapter 5. The social composition, educational status of the respondents, priority programs and their participation level in planning, budgeting and implementing the programs and other ways of fund mobilization are explained in this chapter. The last chapter 6 consists of conclusion and recommendations.

CHAPTER II

2 LITERATURE REVIEW

2.1. The Global Concept of Protected Area and National Park

The subject of Protect Area (PAs) management is still new for the most countries of the world (MacKinnon et al.1996). The world Conservation Union (IUCN) defines Protected areas as: land and /or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means. The IUCN (2003) have classified the PAs in 6 categories namely: Strict nature reserve, wilderness areas, National park, Natural Monument, Habitat/species management area, Protected landscape/seascape and Managed resource protected area. Till date, there are more than 102,000 PAs (terrestrial and marine sites) covering totally 18,763,407 Sq km worldwide (Lean G 2004). Since Yellostone National Park became the world's first national park in 1872 (8991 km2) then the concept of PAs initiated (Upreti 1881). Establishment of NPs in third world countries by developing the Unites Stated model resulted in adverse impacts on local communities, sometimes with disastrous side effects (Nepal and Weber 1993).

2.2. Concept of National Park in Nepal

In Nepal, conservation and protection of wildlife started more than a hundred and sixty five years ago in the 1840's when restrictions were placed on the hunting of certain animals during the Rana regime (Upreti 1981). Rhino patrol in Chitwan valley was established in 1961. In 1969, Six Royal Hunting reserves in Terai and one in mountaion were gazette for protection of wildlife. However, in the absence of proper legislation and by law the conservation program of wildlife remained ineffective. In December 1970, the late King Mahendra approved as part of Nepal's newly initiated conservation program for establishment of two National Parks; Chitwan NP in Terai and Langtang in mountainous region. This was beginning of effective conservation movement in Nepal. It was only after the 1960s that an effective conservation program allowed for the establishment of the protected areas (BPP 1995). So far, Nepal has established an extensive network of PAs in the country. These include 10 National Parks, 6 conservation areas, 3 wildlife reserve, 1 Hunting reserve and 12 Buffer zones. These PAs represented the various

ecological zones and ecosystems of the country in Terai, Mid hills, and High Mountain (DNPWC,2004).

NP has been defined as ‘an area of land of unusual ecological and or scenic interest set aside by the Government where fauna and flora are protected as far as possible in their wild state for their scientific, educational and recreational value and for the benefit of the nation and mankind as a whole (Upreti 1981). Legally, the NP has been defined as “an area set aside for the conservation and management of natural environment including wild animals, plants and landscape, together with their utilization”.

2.3. Global Concept of Buffer Zone

Establishment of NPs and reserves has played crucial role in conserving the biodiversity but paid little attention to local people by putting restriction on the local use of resources (Wells and Bandon 1993). The traditional protective philosophy was unable to find the root cause of the problems and has led to failure of many NPs, since it was aimed mainly at protection by law enforcement (Sharma 1991). Conservation of biological diversity inside PAs is possible only if productive forests outside PAs are also managed sustainably (Oldfield 1989).

Realizing the fact that, the conservation activities should not be restricted to PAs only, and because it is difficult to separate human pressure just simply by boundaries, UNESCO launched the concept of Biosphere reserve in 1968 (Batisse 1982). The Biosphere reserve approach established the zonation concept where the BZ was primarily for research, training and tourism and the traditional zone (later renamed as outer Buffer Zone) for the sustainable use by local people. The UNESCO also listed out the basic functions of Biosphere reserve. The functions were the conservation of ecosystem, participation in international research, and development (cooperation with local people).

Authorities of many NPs and reserves started to established BZs as an integral part of the PA system. Many countries established BZ during the 1980’s by introducing technologies like natural forest management, sustainable yield harvest, tree planting, agro forestry. (Sayer J 1991)

The BZ has been defined as “Area peripheral to the NPs and reserves which have restrictions placed on their use to give and added layer of protection to the nature reserve

itself and to compensate villagers for the loss of access to strict areas " (Mackinnon er al.1986).

Else where in the world, BZs were assumed to play a key role in the success of PAs. In practice very few Bzs have achieved the objectives of their establishment. Limited success of the BZs program has been attributed to poor understanding of the local economy, culture and their problems (Sayer 1991) . now it has been the accepted that involvement of local people in the management of BZs of essential for mutual benefits. (McNeely 1984, Oldifild M 1989). Existence of PAs should be beneficial to the local people and the benefits have to be distributed in the neighboring communities. BZs should be considerd as a compensation to surrounding communities for their lost traditional harvesting rights inside the PAs (Mackinnon 1986).

2.4. The concept of Buffer Zone in Nepal

In Nepal, the conservation and management of flora, fauna and areas of special interest is under different categories of PAs (DNPWC 2006). The mountainous NPs of Nepal like sagarmath and langatang were established with human settlements inside and provisions were made for the people to use resources and to uplift the local economy through tourism promotion. However, such provision was not made in the lowland PAs of the country.

Nepal has been considered a leader among developing countries for conservation through its PAs system (Lehmkuhl et al. 1998, Yonzon and Hunter1941). To conserve natural resources and to improve human welfare an NGO, King Mahendra Trust for Nature Conservation (KMTNC) was established in 1982. The Annapurna Conservation Area Project (ACAP), a project launched by KMTNC, was established with the different management philosophy based on the multiple land use concept, where use of traditional resources has been continued (KMTNC 1998). Unlike other PAs of Nepal, there is a special provision that the revenues generated by the ACAP will be spent for conversation and local development. Hence, ACAP aims to conserve natural resources by local participation.

Local use of resources in the lowland PAs of Nepal has been restricted the large tracts of forest outside the PAs during their establishment lack a proper management system (HMGN/ADB/FIMMIDA 1988). Further increased human population pressure from hill

migrants and gradual forest encroachment to convert more and more land into agricultural production, have made the situation worse in the lowland region of Nepal and have resulted in illegal extraction of forest resources and escalating park-people conflicts (Sharma 1991)

Wildlife conservation in Nepal has been quite successful in term of achievements in safeguarding the habitat of several threatened species. However, increasing number of wildlife within PAs started to damage the agricultural crops of the surrounding inhabitants. Besides this, the cases of human death, injuries, livestock depredation and human harassment by these wild animals have increased the conflicts. Park people conflicts are prevalent in all PAs of Nepal, although the extend of conflict varies due to separate legislations (Heinen 1993).

After a comprehensive study of the park–people conflicts in CNP, a BZ concept was proposed as a means to resolve the conflicts. This has put forward a holistic approach for the management of the park. During this period, the DNPWC also prepared a conceptual framework (draft BZ proposal) for the creation of BZs around the PAs of Nepal. The draft BZ proposal of DNPWC addresses issues of increasing human population pressure, rapid deforestation and habitat loss around the PAs. In the mountain region, some PAs have human settlement inside park boundaries where the basic need for fuel, fodder and timber has to be met by the PA. In the lowland region, there are no such settlements or provisions for the people living outside the boundaries except a 15 days permission to cut thatch grass. If the resources outside the PAs cannot be managed properly, more pressure on PAs are inevitable in the coming years. The destruction of the forest pockets outside the PAs will ultimately affect the PAs. This was realized in the draft proposal. Thus to halt further encroachment and degradation of the forest outside the PAs was also one of the objectives of DNPWC. Finally, the BZ concept was approved by the fourth amendment's (1992) of NPWC Act 1973. According to the Act BZ has been defined as: Madhyawarti Chetra (buffer Zone): means "the surrounding area of national parks or Reserves that have been declared by His Majesty's Government of Nepal to provide local people use of forest resources as a regular basis". The amended Act made provision for the sharing of 30 to 50 percent of the parks/reserve annual revenue with the BZ communities to be utilized for conservation and development purposes. NPWC Act (1973) and its subsequent amendments (1993), Buffer Zone Management Regulation

(1996) and BZ management Guidelines 1998 represent the most important legislative measures focusing on the needs of communities as well as minimizing impacts on protected areas to avoid parks and people conflicts.

BZ may include forest, settlements, agriculture lands, open spaces in villages and may other land use forms. Presently, Eleven PAs declared BZs which cover more than 3.80 percent area of the country. Over 189 VDCs inside the BZ's have been involving to conserve biodiversity and sustainable use of natural resources (DNPWC 2012).

The main objective of establishing BZ is to meet the nature of resource needs of local communities as well as minimizing human impact on PAs so as to avoid a controversial situation between the park management and the people. The other objectives are to improve the lives of these communities and to support them to organize themselves into strong, self-governed institutions capable of undertaking pro-conservation and pro-development activities in and around the areas that they inhabit.

BZ may serve two functions i.e. ecological buffering of PAs and socio-economic buffering of neighboring communities. As a general rule the first priority should go to protection needs, second to villager's requirement for harvestable products and their case crops inside the BZ area. A major function of socio-economic buffering is to ensure that rural people don't need to seek forest and other product inside PAs. Traditional use zones inside the PAs, forest buffers, economic buffers, physical buffers are some new types of BZs. Basically traditional use zones and forest buffer is practiced in Nepal.

BZ development is a new and innovative policy intervention that has emerged recently. Nepal's BZs have been developed to focus on the special needs of local communities who are likely to adversely affected by the PAs and also to involve community in a spirit of collaborative management. Such management is practiced by the involvement of user group and user committee. The BZ concept is sound and has been welcomed by both local people and park manager however the coming challenges for the management of BZ have been considered a struggle by park manager (Sherpa 1993).

2.5. The Buffer Zone User Group

The community-based organization formed by the male and female adult members to the households living within the BZ under the provision of various PAs rules and regulations

in known as BZ User Group (BZUG). BZUG is focused on mobilizing BZ community to organize settlement level self-governing organization to undertake self-reliant socio economic development initiative directed at contributing to conservation and protection of parks and forest resources. UG should select chairman and secretary on the basis of consensus to lead and to operate organization. They should prepare settlement profile within three months of formation and should initiate monthly collective work, annual work plan and five year work plan consisting of institutional, environment and socio-economic development activities. About 1468 UG's have been formed and functioning in the BZ of CNP. In the beginning of 1995, UNDP funded Park People Program assisted for UG formulation, mobilization and institutionalization. The UGs are equally responsible for plan formulation, implementation, monityoring and evaluation in each development and conservation activities. The UGs have responsibility over resources such as rangelands, miner forest products and so forth. The UGs should have to make their development plan following the breakdown of expenditure available in the guideline i.e.30 percent of their funds on conservation, followed by 30 percent on community development, 20 percent on income generation and skill development and 10 percent on conservation education and 10 percent on administration. The UGs should selected the program and activities on a prioritized basis as prescribed rules and guidelines. Conservation of forest wildlife and cultural resource receive top priority, followed by conservation of other natural resources. Alternative energy development was third, community was the forth priority and conservation education was the last priority articulated in the guidelines.

2.6. The Buffer Zone User Committee

The park authority has the power to divide BZ area into various units based on the status, extent, and settlement of the BZ. The whole BZ has been divided in to 21 units(existing 37 units recised in to 21 as per the provision of Buffer Zone Management Guideline in 2003) under different 4 management sectors namely: Sauraha, Kasara, Bagai and Amaltari sector. According to Buffer Zone Management Guideline (MZMC), User Committee (UC) has been formed in each unit level from the representative members of UG. One the male and female representative from each male and female UGs of the unit are the members of UC. Thirteen members team from UGs are selected or elected or

choosing from group consensus by the representative member of UGs is called User Committee (UC). The must consist of one third of female representative from UGs.

Twenty one UCs have been formed band functioning in CNP, which cover unit level representation. UCs act as bridge between UC, BZ Management committee and park office especially for fund management, plan and program formulation, selection and implementation, monitoring, evaluation and reporting in a periodic basis. The UCs should prepare separate programs for each fiscal year to be implemented on an annual basis. The work plan of the UCs should be integrated with the work plan of the UCs.

2.7. The Buffer Zone Management Committee

Buffer Zone Management Committee (BZMC) is an apex community institution in BZ of CNP. BZMC consists of one chairperson elected among the chairman of UC, 21 representatives from UCs and 4 representative members from Makawanpur, Parsa, Chitwan and Nawalparasi development committee and one chief warden. It is an umbrella park level committee comprising the member of:

1. Person elected among the chairman of UCs. Chair person
2. Representative of concerned DDCs. Member
3. President of concerned UCs. Member
4. Chief Warden/Warden. Member secretary

This representative organization basically concerns with strategic development and planning, fund generation and management, other extension, motivation and group mobilization mechanism towards the park and BZ management.

2.8. Fund Distributions and Fund Management

Present NPWC Act 1973 clearly advocates that 30 percent of 50 percent fund earned by the PAs should be ploughed back into BZ of respective PA for local community development and conservation in coordination with UCs. UP to now in each fiscal year, BZMC of CNP has annually received 50 percent of fund generated by the park each year. Out of the total fund 90 percent and 10 percent are allocated to UCs via UCs and office management BZMC respectively. Twenty-one BZ units of CNP are categorize into ka,

Kha, Ga and Gha groups according to the rule prepared by BZMC. The basic criteria for the category of UCs are number of ward coverage in VDC, area of unit, population of the unit area and impact on either side of park boundaries by wildlife and local communities. All the UCs receives the fund ranges 10 percent to 20 percent of total fund that approved by MFSC. The amount of fund receive by UC depends on how many revenue generated by the Parks and other community fund generation activities facilitated by park and other NGOs involving for biodiversity conservation in BZ. The fund disbursing mechanism on different topic has already stated in BZMC (1999). Respecting the rules and guideline provision and looking users needs and priority, plan/programs are prepared by UGs and submitted to UC. The UG compiles and integrates this program and forward to park office via BZMC to approve the program and the park office releases the fund through cheque to BZMC. When advance payments made to the UG by the UC then program implementation takes place. After submission of technical evaluation and work completion report of first installment to BZMC, then second installment request takes place by BZUC to park office.

CHAPTER III

3. METHODOLOGY

This chapter briefly describes the methods adopted in this research to collect, process, analysis and present the data as demand. It briefly presents a short discussion on the sources of data collection, methods of data collection, data processing and data.

3.1. Sources of Data Collection

The study was primarily based on primary as well as secondary data. The primary data were collected through direct interaction with the members of Kerunga User Group (KUG) and other key informants and experts of related fields. Secondary data were collected mainly from meeting minutes and records of KUC. The other sources are Buffer-zone Management Committee (BZMC), Chitwan National Park (CNP), Department of National Park and Wildlife Conservation (DNPWC), Community Based Organizations and other NGos and their libraries. To collect the primary data form respondents, a structured questionnaire was designed and applied. Those questionnaires contained open questions related to personal information, BZ and park, conservation and development, sources of forest products, selection and distribution of development activities, benifit sharing mechanism and gender and other issues.

3.2. Methods of Data Collection

The selection of the appropriate methods was important part of the research. User perception on various aspect of park and BZ, perception on implemented BZ program, source of fund generation and its existing fund mobilization practices, fund allocation criteria, user expectation on fund expenses, proposed program for socioeconomic uplift of local people, status of villagers after implementing the various program, improvement in development activities, sources of forest products for daily used were identified by exploratory research method supplemented by the descriptive one. Both qualitative and quantitative techniques were applied in this research including field observation, group discussion and questionnaire survey.

Secondary Data Collection

The general types of information on flora and fauna, climate, population, UCs, UGs, were collected from secondary sources consulting available published and unpublished literatures, research findings. CNP management plan and BZ profile, annual reports of CNP, DNPWC, DNPWC/PCP, different research papers, publication were taken as reference for secondary data. Triangulation was also done with primary data collected during the field visit.

Primary Data Collection

Following methods were used to collect the information required for this study.

i. Household survey

   In total 100 houses were purposively selected 62 households in Jagatpur VDC and 38 households in Sukranagar VDC representing all 84 user groups according to population status of these VDCs. Before conducting the formal questionnaire survey, the questionnaire was pre tested in some households and some modifications were adapted to make more understanding to the respondent and smooth flow of subject matter as my purpose. The main house owners were consulted for this purpose.

ii. Group Discussion

   There were 84 user groups (52 at Jagatpur and 32 at Sukranagar VDC) formed under this committee and 6 user groups were purposively selected according to the location and caste composition.

iii. Key informant interview

   The key informants like teachers, committee chairperson and other members, park staff, local party leaders and others were interviewed to cross check the information collected through other methods.

iv. Program selection

   The programs and activities for more detail study were selected through the priority ranking by users during household survey. Users were asked to give 1 to 5 points for their preferred programs, 5 for highly liked one and 1 for least prioritized one. The committee members, BZMC members and park staff were also consulted. The management plan and the minutes were also reviewed to know the status and demands of those programs from local groups.

v. Records review

The register book and minute books of user groups and Kerunga User Committee and records of Chitwan National Park and Buffer Zone Management Committee were reviewed to get the information regarding to this study.

vi. Direct Observation

A structured questionnaire cannot cover all aspect of the reality or elicit all kinds information. Thus the researcher observed different places where the conservation, development, skill development and extension activities had been done by UG/UC and other supporting agencies. At this time direct discussion with local people, UG and UC member and park staff were carried out to identify the different issues about the BZ program.

3.3. Methods of Analysis

The collected data from different methods were processed, tabulated and analyzed using simple statistical tools such as mean, table and percentage. Chart, diagram, were also presented to make the study impressive. Both quantitative and qualitative data collected from survey and other sources were analyzed in descriptive way. The analyzed results were presented in tables and graphical figures.

CHAPTER IV

4. DESCRIPTION OF STUDY AREA

Out of 21 Users committees, Kerunga Buffer Zone User Committee, Jagatpur Village Development Committee (VDC) of Chitwan District was selected to conduct this study.

4.1. The Chitwan National Park

The Chitwan National Park (CNP), a first National Park of the country, was established in 1973 and was enlarged with an area of 932 sq.km in 1977. The park is primarily intended to protect sites, landscapes of aesthetic importance together with associated flora and fauna. The second objective is to develop the area for tourism. It is world renowned for its unique diversity of flora and fauna and outstanding natural features. The UNESCO designated CNP as a World Heritages Site (WHS) in 1984 under the World Heritage Convention recognizing its unique biological resources.

The park represents a nearly pristine ecosystem of river valley, oxbow lakes and the Siwalik (Churiya) hills. The biological richness of the park is outstanding with 8 ecosystem types, which include 7 forest types, 6 grassland types, 5 wetlands and 3 main river system habitats. The faunal diversity consists of species of mammals, 526 species of birds, 49 species of reptiles and amphibians, and 120 fishes species. The floral diversity of the park consists of more than 600 plants species that include 3 gymnosperm, 13 pteridophytes, 415 dicotyledons, 137 monocots, and 16 species of orchids. The park harbors the rare fern (Cythea spinosa), cycas (Cycas pectinata), screw pine (Pandanus furcatus) and many endangered animals such as Asian one horned rhinoceros (Rhinoceros unicornis),Asian elephant (Elephas maximus), Bengal tiger (Panthera tigris), Gaur (Bos Guarus), Gangtic dolphin (Platanista gangetica), Giant hornbills (Buceros bicornis) Bengal florican (Houbaropsis bengalesis) and Gharial (Gavialis gangeticas). Approximately 70 percentage of the park vegetation is Sal (Shores robusta) forest while; grassland, riverian and pine forest cover the remaining area. The climate Park and BZ varies from tropical to sub tropical with high humidity.

The CNP is located between 27°34’ to 27°68’ North latitude and 83°87’ to 84°74’ East longitude. It lies in the southern part of the Mid-Central Administrative Development region of the country and span across proportions of four districts namely: Chitwan,

Nawalparasi, Parsa and Makawanpur (Figure 1). The name of the park is derived from the name of Chitwan district, as major portion of the park lies in district. At some places, the Park boarders cultivated land and settlements without having a river in between. No settlement exist within the boundary of the park.

4.2. The Buffer Zone of Chitwan National Park

The BZ of CNP, an area estimated as 750 sq.km., was decleared in 1996 under the provision made by the fourth amendments of NPWC Act 1973. The BZ extends at 27°28' to 27°70' North latitude and 83°38' to 84°77' East longitude. The BZ spreads over Chitwan, Nawalparasi, Parsa and Makawanpur Districts. A mixture of indigenous and migrant ethinic, caste and occupational groups including Brahmin, Chhetri, Newar, Thakuri,Magar, Gurung, Thakali, Magar, Gurung, Thakali, Majhi, Musahar, Bote, Kami, Damai and Sarki inhabits the BZ. Majority of these people are subsistence farmer and depend on Park for timber, firewood, fodder, grass, thatching material and non-timber forest products. The BZ which is highly subjected to cultivation, has its land use: agriculture (46.3 percent), forest (50.2 percent) and grazing land (3.5 percent).

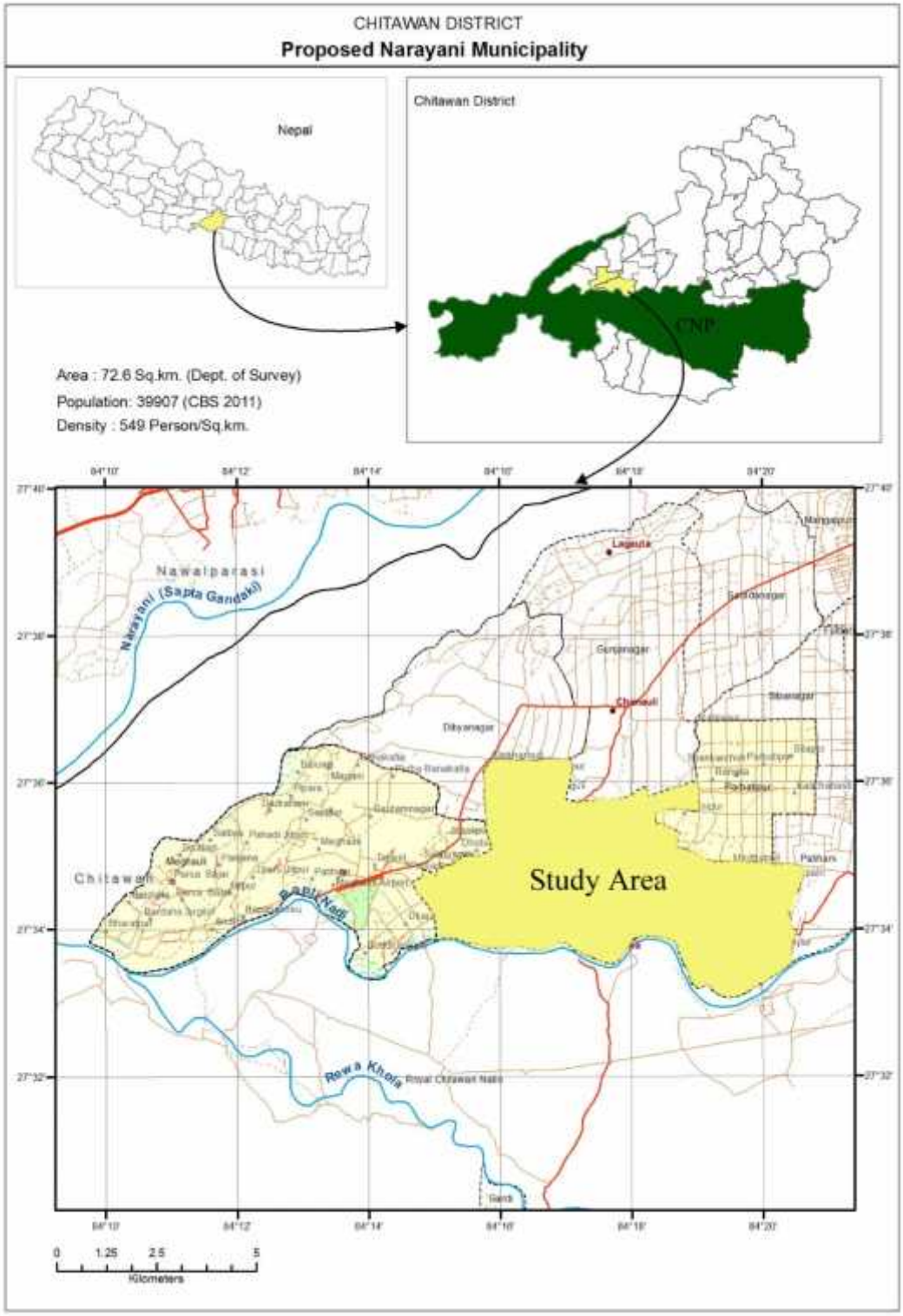

Figure 4.1: Map showing study area

4.3. The Intensive Study Area:Kerunga User Committee

Kerunga User Committee was selected for the study purpose. It is the nearest user committee with frequent access to the park headquater. KUc of BZ, lies in middle north of CNP in Chitwan District (Figure 1). This UC covers an area of 2,393.2 hectare including whole or protions of 15 wards of 2 VDC i.e. 9 wards of Jagatpur and 6 wards of Sukranagar VDC. The total population in KUC was 18753 including 9,547 female and 9,206 male individuals of 3,636 households i.e. 2,492 and 1,144 HHs of Jagatpur and Sukranagar VDCs respectively. This committee contains 84 User Groups (UGs) including 52 and 32 groups from Jagatpur and Sukranagar VDCs. There were 31 female, 37 male and 16 mixed user groups in total (Figure 2). The list of total user groups is listed in Appendix 1.

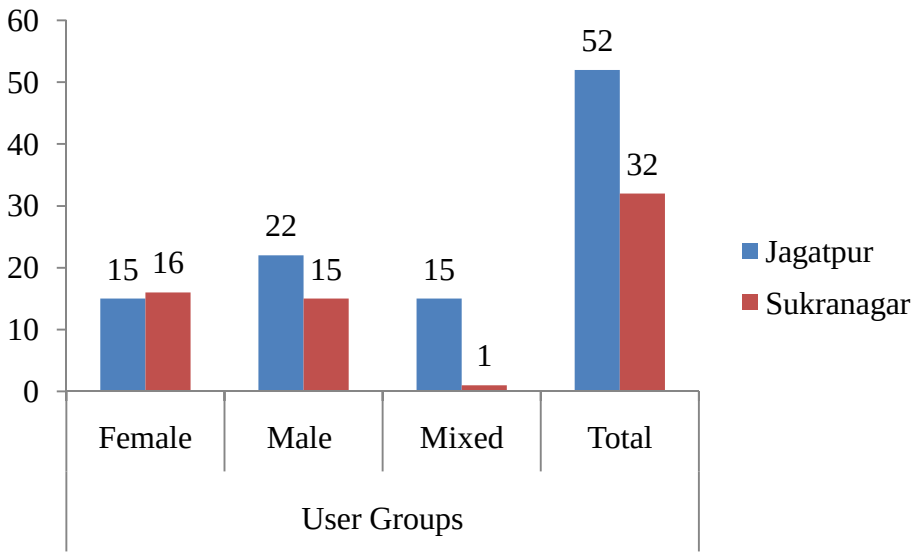

Figure 4.2 Types of User Groups in Two Village Development Committee (KUC).

This UC have become a meeting point of different cast/ethnic groups having different cultural backgrounds. Tharu, Bote, and Darai are the pioneer inhabitants of this UC's area. Mainly hill migrants from different parts of the country in different time period dominated indigenous groups. The communities of both Jagatpur and Sukranagar VDCs were composed of Brahmin, Kshetri, Giri, Indigeneous castes including Magar, Gurung, Newar, Tamang, Tharu, Darai, Bote, Gharti, Praja, Rai and Kumal, Occupational castes including Damai, Kami and Sarki.

The soil of this User Committee area is mostly of alluvial origin. The soil can be classified into clay-loam and sandy-some. The highland contains sandy-loam and lowland contains clay-loam soils. The sub-tropical monsoon type climate prevails in the area with 200 mm annual average rainfall and temperature of 4 to 40˚C in winter and summer respectively (DNPWC/PPP, 2001).

Firewood, fodder, grass, leaf litter are the important natural resources on which population heavily depends on. Majority of households collect the firewood from community forest and then National Parks. Driftwood is another sources of firewood that frequently used by households. Similarly, majority of the HHs fodder sources are crop residue and Homestead. The HH of KUC practice seven types of energy sources. These are namely: brush wood, green wood, crop residue, dung cake, biogas, kerosene and LP gas.

CHAPTER V

5. ANALYSIS AND INTERPRETATION

5.1. General Characteristics of Respondents

Demography plays vital role in socio-economic system of the society. The 100 households of Kerunga Buffer-Zone User Committee were purposively selected for questionnaire survey. Among the participated respondents, 63 and 37 respondents were male and female respectively.

5.1.1 Occupational Status of Respondents

Out of 100 respondents, 77 individuals were involved in agriculture whereas 39 of them were found engaged in different jobs including working in different governmental and non governmental institutions, factories, private farms followed by 4 students.

5.1.2 Educational Status of Respondents

The Table 4 revealed that majority of the respondents were simply literate. The 49 % of them have passed SLC level study.

Table 5.1 Educational status of the respondents

S.N.	Education	Number	Percentage %
1	Master level	0	0
2	Bachelor level	3	3
3	Plus 2 level	14	14
4	SLC level	32	32
5	Literate	51	51
	Total	100	100

Source:Household Survey

5.1.3 Ethnicity of the Respondents

The majority of the respondents were belonged to Bramhan/Kshetri group (Table 5).

Table 5.2 Ethnicity of the respondents

S.N.	Cast	Number	Percentage %
1	Bramhan/Kshetri	61	61
2	Dalit	20	20
3	Aadibasi/janajati	19	19
	Total	100	100

Source:Household Survey

5.1.4 Land holdings of the Respondents

Among the 100 respondents more than 66% of them held less than 0.5 hectares of land (Table 6) which supports to the report of Nepal Ratra Bank published on 2006. NRB, 2006, explained that in Nepal, the number of people holding less than 0.5 hectares of land is increasing.

Table 5.3 Land holding of the Respondents and food sufficiency

S.N.	Land area	Number	Percentage %	Food sufficiency
1	0-5 kattha	10	10	4-7 months
2	6-10 kattha	26	26	6-12 months
3	11-15 kattha	30	30	More than 1 year
4	15-20 kattha	23	23	Savings to sell
5	1-2 bigaha	8	8	Savings to sell
6	More than 2 bigaha	3	3	Savings to sell
	Total	100	100	

Source: Household Survey

Note: 1 hectare=29.5 Kattha

5.2. Respondents Perception on Buffer Zone Management Program

It was assessed by the questionnaire that people have positive attitude towards BZ management program. About 76 percent respondents have shown positive attitude and about 13 percent have shown negative attitude whereas 11 percent were indifferent. The wildlife damages and resource use restriction from park area are still major causes to perceive this concept negatively. It reflects that the positive inclination towards park and

buffer-zone is increasing. It might be due to bottom up approach in planning, decision making and implementaion through local people's participation. Moreover, the regular investment in different developmental, conservational and awareness rising programs also played important role in gradual increase in positive attitude of local people. Members of UGs have been involving in BZ program since 2055 BS. The program was highly appreciated by the families which were directly benefited with the supports to construct phisical structures as bio-gas plant, toilet, irrigation well, drinkig water well and, deep boring and tubewell.

5.3. Respondents dependency on Forest Products

Firewood for cooking and heating, tree fodder/grasses/leaf litter for livestock, and timber for conservation are the important natural resources on which people heavily depend on. According to "National Population and Housing Census 2011" out of 2635 households 1908 households of Jagatpur and 1207 households out of 1863 households of Sukranagar VDCs used wood/firewood for cooking purpose. This study also reflected that majority of respondents fulfill their enery demands from wood products collected form their own private land, BZ community forest and certain portion from the park area also. The 42 respondents from Jagatpur and 25 respondents from Sukranagar used wood products for energy. The dependency level was different for different people but all of them have to enter the park area illegally to fulfill their needs of forest products. They collected thatch grass form NP during the concession provided by the park for short time ranging from 3-7 days.

5.4. Expected Program of Respondents to be Implemented in Kerunga User Committee

As per the opinion of the respondents, received on questionnaire survey and verified by formal and informal interview and group discussion, a list of the preferred activities was made. The proposed prioritised community development and conservation activities of UGs collected during fieldwork are presented in Appendix 2.

During the field survey, the researcher noticed that the expectation of respondents were found vary according to their immediate needs. For example higher number of the respondents near the Narayani river focused the program on river bank protection and

control crop riding by wildlife besides the respondents near highway focused infrastructures development program such as road/path maintenance and development, irrigation improvement, school support. It was realized that to implement the expected program at the same time was not possible due to limitation of budgetary resources. Though, it is expected that effective planning can address the respondents expectation gradually.

5.5. User Group Participation in Planning, Budgeting and Implementation of Buffer Zone Management Program

The UGs are grass root level organization and they should have better knowledge about the problems of that particular area. They may have the basic knowledge to resolve the problem. Participation of the UCs in each and every activity is highly desired by the present community development bottom up approach. Planning budgeting, implementation and ultimately review and revision must have to be done by UGs. In this circumstance, present study found that about 73 percent of respondents actively participated in planning, budgeting, implementation and evaluation and monitoring activities of BZ management whereas 27 percent of them were found inactive in planning and implementation processes. This is due to lack of proper knowledge about BZ program and their aspirations were not well address from the beginning. It was also noted that some of the UGs were supposed to be formed to conduct the only weekly saving and credit scheme and they have still no other support, advice and sustainability vision enlightening. The support from concerned organization on technical, economical, managerial aspect simultaneously for their program planning, implementation, review and decision making process is seen imperative.

5.6. Committee Meeting and Program Selection Criteria of User Groups and Kerunga User Committee

Since the formation of UC in the BZ, KUC has continuously arranging the committee meetings in monthly basis at the 3rd day of the each month. All the issues of the UG, UC and BZMC are friendly discussed in the meeting.

Regarding the program selection criteria of UGs, all the UCs first listed out over all programs under different heading in the settlement basic and consensus was made to

prioritize the program. The UGs also take advice from UC and park staff during program selection process as well. A high majority (88 percent) of respondents replied that group discussion and common consensus was the major criteria to select the program each year. Selected program of UGs have to be submitted to the UC. Then, all the submitted prioritized programs of different UGs are collected and compiled according to the heading wise basis in UC. Discussions are made in topic wise and prioritize also made according to UCs. Final plan and program selection was prepared by the UC. These selected plan and program, attaching technical estimate if necessary, along with recommendation were forwarded to park office via BZMC.

5.7. Fund Flow Mechanism of Kerunga User Committee

The Ministry of Forest and Soil Conservation (MFSC) is the apex body to decide how much percentage of the fund/budget to release to the BZ of CNP. Hundred percent of the member of KUC were found unsatisfactory to the present fund flow mechanism. The MFSC has never decided and released the budget in time (first month, Shawan of new fiscal year). The Ministry has secured the power, how much percentage of the fund (30-50 percent) generated by the park, to release to the BZ management in each PAs. Fund release mechanism of BZ has appeared quite lengthy and tedious. The UC has suggested that to manage the BZ resources actively, properly, timely and successfully easy fund release mechanism should be developed from the policy level. If budget are allocated on time, all the target plans and program will obviously complete in time and entire progress will be made in time. The efforts for management and conservation of the impact zone, either from park side or community side, are seen imperative to flourish the BZ.

5.8. Sources of Fund in KUC

The main objective of the allocation/break of expenditure is that the fund available to the UC and UG should go to different sector of conservation and socioeconomic development of BZ and should address people's needs. About 76 percent of respondents were found practicing according to the guidelines provision to allocate the fund in different headings. However 24 percent of respondents were found unknown about the program heading but they were aware in the implemented program.

The KUC has no other financial sources except the amount received from government that the revenue generated by the park. Though, UC was permitted to maintain their own

funds separately from income received through donations, selling forest products and so forth. The fund received from the park revenue is transformed to the UC at first and then the UGs either equality or equity basis. About 81 percent of respondents were found aware that the revenue generated by park return to BZ for community development activities.

5.9. User Perception on Implemented Activities in Kerunga User Committee

Since 1995, UGs of KUC have been implementing various BZ development program in their respected areas each and every years. Out of total, 86 percent of the respondents reported that they were highly satisfied from the activities implemented in different areas of KUC of BZ whereas 14 percent of respondents expressed unsatisfactory due exclusion of their demanded programs from program planning. But they were positive and believed that those programs will get place one day and will implemented.

5.10. Respondents Perception on Infrastructure Development and Conservation Activities

It is noticeable that after initiation of BZ management programs a huge amount of fund about Rs.4573650/- has been utilized in KUC conducting various activities in five program headings (Appendix 3). All member of UGs have actively been involving themselves to implement the programs. The program implemented in the BZ has directly or indirectly influenced the socio-economic condition of local people positively. Out of 100 respondents, 83 individuals replied that there were positive changes in socioeconomic activities of their communities, whereas 12 respondents were indifferent and 5 people reacted negatively indicating exploitation of riverbank resources like sand, gravel and stone and increasing corruption.

Most of the respondents about 88% emphasised to increase the investment in developmetal and income generating activities. Right now only 30% of total budget was allocated in this field. Moreover the large amount of the conservation budget was also invested in the activites similar to development ones like bio-gas plant construction, fencing, river training and very less amount goes to consevation activities as plantation.

5.11. User Group Saving and Credit Scheme in Kerunga User Committee

Saving credit scheme is an important and prominent activity conducted by the UGs in the BZ. By the end of December 2006, there is financial capital of Rs.2866918/- in KUC of BZ, which is generated by the members of the UGs. Male members generated Rs.1102729/- and female member generated Rs.1764189/- with the equal sharing of both male and female through their own groups. The generated fund has been mobilized within their group members for household activities and several micro entrepreneur activities that provided opportunity to improve livelihoods. Special Target Groups have shared a significant role in getting benefit from this scheme. Cooperative model is adopted to institutionalize the saving and credit schemes in the BZ and two user groups are joining to the cooperatives in the KUC. To provide opportunity for micro credit facility PPP and PCP handed over an amount of 58 lakh to the BZMC to establish a Biodiversity Conservation Fund.

5.12. Contribution of BZ Fund in Kerunga User Committee

BZ management activities have started various development program with formation of BZMC in 1998. The main target of the BZ management is to uplift the living condition of the local through various conservation and community development activities. Several other activities have also been conducted to provide opportunities for income generation, skill development and awareness to improve their economic condition. Further more, the park management aims to develop a sustainable alternative source much needed to local communities such as firewood, fodder, and timber in BZ in order to reduce pressure on the park and reduce some of the conflicts with local communities. Various activities within 5 program headings have been conducted in KUC since 1998. Till the F/Y 2065/66, a total of Rs.4573650/- has been spent to conduct many community development and conservation activities in KUC (Appendix 3). Out of total budget NRs.1450795/- a highest amount about 32% has been invested in community development activities followed by conservation activities (29%), income generation and skilled development (20%), conservation education (10%) and lowest in administration (9%). Allocation of budget and separate activities conducted in different program headings are given in the following paragraphs.

5.13. Conservation Programs in KUC

Conservation activities play a vital role to reducing the conflict between parks and neighboring communities. Many activities under this heading have been implemented in KUC, which are given in table below. A large number of people living in BZ are benefited from these activities. After initiation of these activities, it is already mentioned that, the harmony between park management and BZ community has been increasing. Out of the total budget released in 6 F/Y, about 31 percent (Rs.1321795/-) has been spent in various conservation activities. It is almost equal to the 29 percent of the total budget released to BZ as prescribed in the BZMG. To reduce the local community dependency on forest products, alternative energy promotion activities also initiated in BZ area. About 113 households are taking benefit by installing the biogas plant in their house.

5.14. Community Development Programs in KUC

Community development activities focusing infrastructure construction and maintenance are very necessary to give communal access to the people living in the society. Social services such as school, health post, drinking water, road and trail and irrigation are the major socio-economic indicators of the society. Fourteen types of community development activities in 62 different place have been completed in the KUC since 1998. Major community development activities of KUC so far include school support in 13 place, road gravelling in 16 place, hum-pipe in 10 place, community drinking water well construction in 10 place, installation of irrigation boring. A large number of household are benefited by community development activities. A total of Rs.1450795/- (32 percentage) was spended in this program in 6 F/Y periods. Amount investment was 2% higher than that the total budget available to the BZ as prescribed in BZMC.

5.15. Income Generation and Skill Development Programs in KUC

KUC organized several training to enhance capacity of the local people. This training directly of indirectly helps to the users to support income generation and skill development. During the past 6 F/Y periods, the KUC organized 18 training programs 19 times in different places of the BZ /. About Rs.934530/- (20 Percent of total amount) has been spent to conduct many training programs. The budget spent to organize the various training was conducted as stated in BZM guideline. The larger number of livestock in the

BZ is a constant threat for the sustainable management of forest resource in the park and BZ. Timely measures are necessary for the management of livestock in the BZ's area. Taking consideration on this aspect, two veterinary and one livestock service training has also been conducted in the KUC.

5.16. Conservation Education Activities in KUC

Participation in biodiversity conservation can't be expected without raising awareness to the local people. Most of the people of BZ are becoming conservation leader. Even, many efforts are needed to raise awareness level of all inhabitants in BZ. The KUC have organized several conservation education activities during past six F/Y periods. The education extension activities conducted by the KUC are poster-pamphlets distribution, conservation sing-song activities, BZ orientation training, Wildlife week celebration, bag distribution to school children and UG members, scholarship to specialized target group. The UCs also organized study/observation tour for the UG members to share experience and familiarize with different aspect of BZ management and crosscutting issues of the BZ of other PAs as well as other related participatory resource management organization. Following table shows the summary of activities conducted by KUC. only 10 percent (Rs.457265/-) of the total budget for past 6 F/Y periods was spent for the extension conservation and education activities.

5.17. Administrative Expenses of KUC

Out of total fund released to the UC, 10 percent of them can be allocated for the administrative function such as office management, stationery purchasing and other official management. By the study time periods of 6 F/Y, about 9 percent (Rs.409265/-) have been used for administrative activities of the KUC. It is cleared that this budget amount was also 1% less than that of the provision made in BZMC.

5.18. Developmental activities

The user committee has to develop its own working plan and has to submit to BZMC for approval and releasing the budget. The committee has received Rs. 4573650/- from government of Nepal from 2002 to 2008. In this period, additionally Rs. 375000/- was directly invested in different developmental activities and wildlife damage compensation purposes through Buffer Zone Management Committee (BZMC). Among several

developmental programs and activities following 5 programs were selected for detail study based on the high preferences given by committee and local people and the socio-economic influences of these programs over local livelihoods.

1. Irrigation well/boring
2. Bio-gas
3. River training
4. Electric fencing
5. Road gravelling

5.18.1. Irrigation well/boring

Irrigation well was the highly preferred progam by local people. The 77% respondents were direclty involved in agricultural activities and well aware about the value of water in agricultural production. Among 100 respondents 87 individuals pointed out ‘irrigation‘ in their 5 priority developmental activities. In total 82 wells were constructed at different sites of Kerunga UC. And the user commitee has been regularly allocating the budget for extending irrigation facilities in its areas to increase the land productivity and benifit to its users. In total NRs. 1068550/- was invested in irrigation sector (Figure 3). Almost all budget was invested in electric fencing in fiscal year 2062/63, so no budget was allocated for this activity in that particular year.

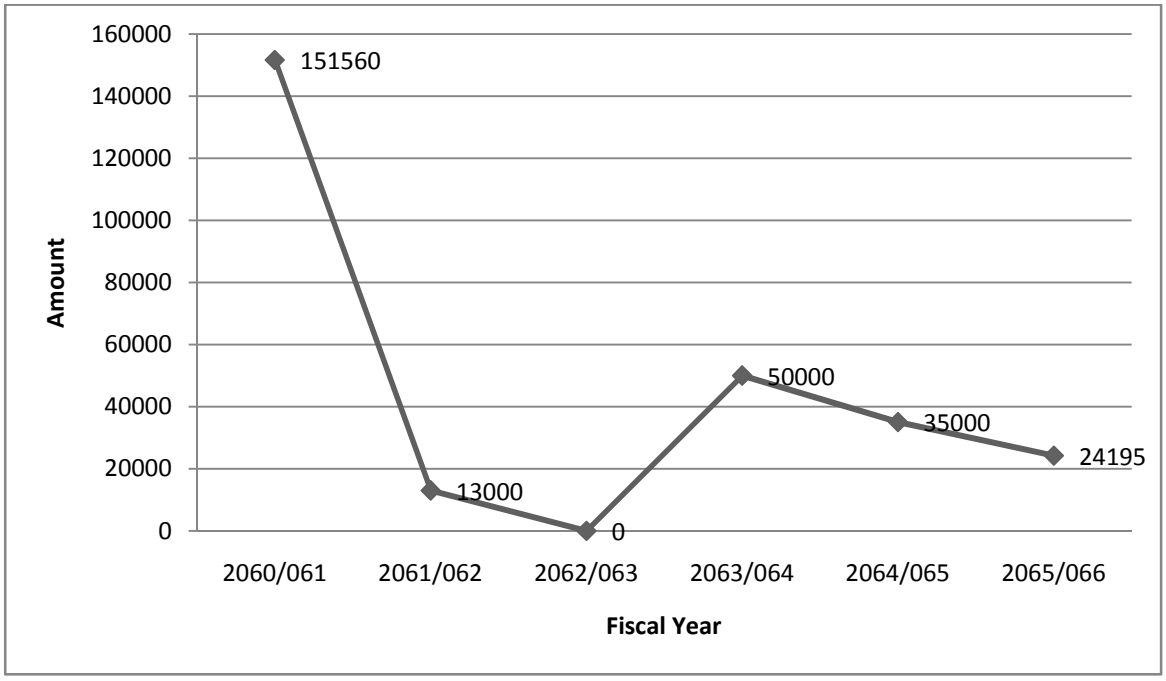

Figure 5.1 Total Expenditure (NRs.) of KBZUC on Irrigation in Fiscal Years 2060/061 to 2065/066.

It has been estimated that 1.5-2 bigha land was irrigated from one well. In average 5 households were fully benefited from one irrigation well. People participation was mandatory in different forms as monetary and labor. The committee provided only Rs. 11000/- in average for one well construction and remaining expenditures were managed by the users themselves. Cumulatively, the committee had supported Rs.975950/- in different periods of time.

The irrigation facility increased the productivity of the land and household income by many folds than before. Before the construction of the well, farmers produced only Maize and Mustard throughout the year. At that time farmers got only 3 quintal of Maize from 1 bigha land but nowadays same land produces 6 quintals Maize just double than previous amount. And they also started to plant rice in same land after water available. Most of the farmers were engaged in market oriented vegetable farming which increased household income by more than 100%. They invested such incomes in education, health and industries and also made some savings which ultimately helped them to improve their quality of life.

5.18.2. Bio-gas

Biogas was secondly favored program after irrigation well. Among 100, 76% of respondents included this program in their 5 priority list. In total 242 households had biogas plants and buffer zone committee had provided partial support of amount NRs. 1500/- to 165 households only. During 6 years period from 2060/61 to 2065/66, total amount of NRs.247500/- was contributed by committee in bio-gas development sector. The committee had provided this support to its users in all six fiscal years (Figure 4). The figure also reflects the increasing trend of bio-gas plant instalation as the supporting amount was increased in later years than previous.

Among surveyed households 41% had installed biogas plant. People also got certain kinds (money or materials) of supports from different local NGOs working in buffer zone area. Buffer zone committee also provided the construction materials as gravel, sand and stone from Rapti river bank free of cost to users to construct the plant.

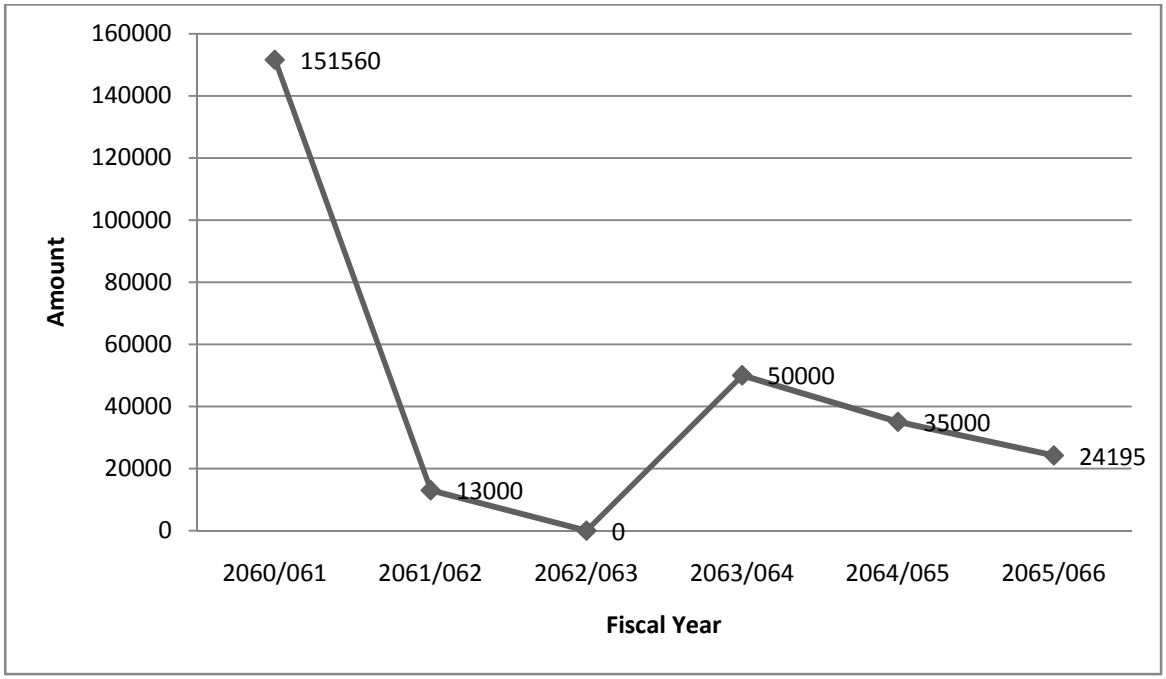

Figure 5.2 Total Expenditure (NRs.) of KBZUC on Bio-gas in Fiscal Years 2060/061 to 2065/066.

All households with biogas plants said it saved their time, improve family health otherwise they have to illegally enter to park area in search of fuel wood which is very risky from being caught by park authority, getting sudden encounters with deadly wild animals and large river currents. It also utilized cattle dung and got compost fertilizer to apply in farm fields which improves the land productivity. Around 95% respondents with biogas plant were involving in some forms of vegetable production for family use and commercial purpose. Females were mostly benefited from this program as 75% fuel wood collectors were female and they were fully responsible to manage almost all cooking materials for their households. Now they can utilize their leisure time in child caring, income generating activities and other social development activities. But almost all households getting support for bio-gas plant installation were economically sound. The poor families cannot offord to establish bio-gas plant as except the nominal support from UC, other expenditures were out of their capacity. The most important factor was the necessity of user's own livestokes before plant construction but there was not such provisions provided by UC.

5.18.3. Fencing

Respondents gave electric fencing as third priority program because it protects agricultural crops and other property from wildlife damages mainly by One Horn Rhino (Rhinoceros uniciornis) and Wild Elephant (Eliphus maximus). Before that about 3032

meters of barbed wire fencing was constructed along the Rapti River and forest edges but it was not effective in controlling wildlife intrussion in agricultural lands. The committee invested first two years budget of NRs.308700/-on Barbed wire fencing but later it shifted towards electric fencing. The investment was hightest NRs.350000/- in year 2062/63 as shown below (Figure 5). It was due to requirement of large amount of money to start electrict fencing project. The other neighbouring User Committees also did same to cover their area with electrict fencing. Then after the expenditure went down due to maintenance expenses only.

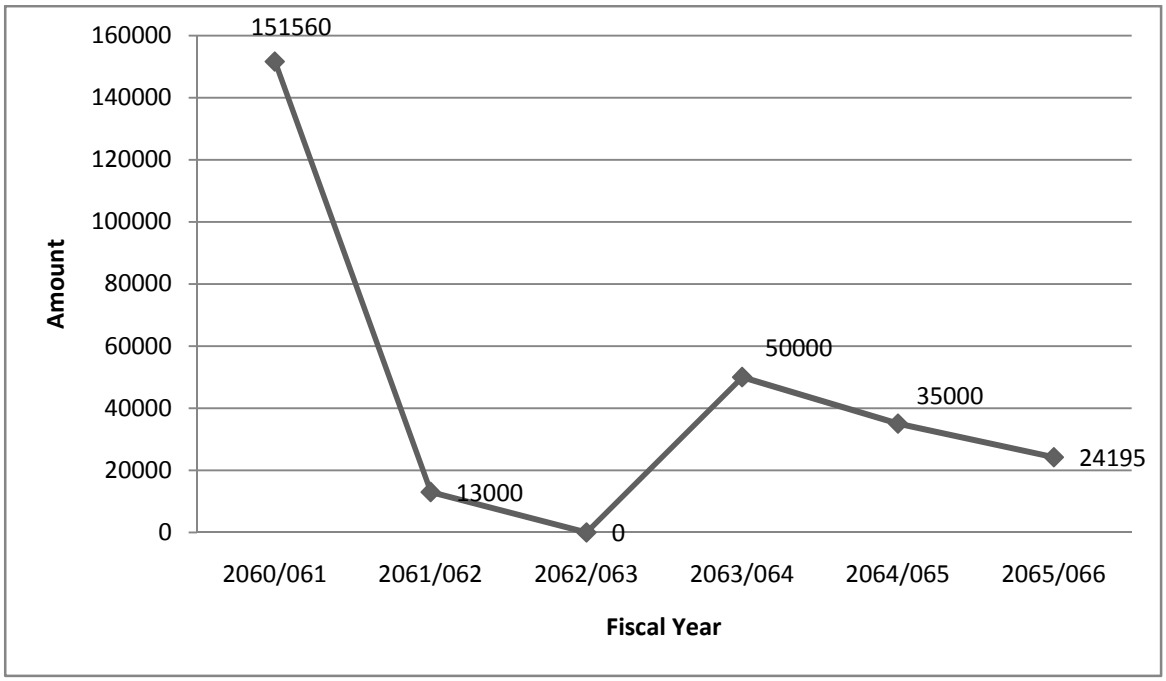

Figure 5.3 Total Expenditure (NRs.) of KBZUC on Fencing in Fiscal Year 2060/61 to 2065/66.

The electric fence of 10.5 Km had been stretched as Southern boundary alone the Rapti river. The committee had invested Rs. 535000/- for this purpose. The local farmers were highly appreciated this program due to decreasing rate of wildlife damage by 90% after electric fence construction. This program also saved the time of local farmers otherwise one family member had to involve to keep wildlife away from their field mainly during crop harvesting season. Even though farmers were able to harvest only 60% of their farm products but after fencing farmers collected around 90% farm products. Moreover they can utilize their time in earning activities and career development. But it demands regular and frequent maintenance which is costlier and delay in its maintenamce has caused of crop damages and property loss many times even causing human casualties. In addition,

the provision of compensation for their losses was also highly appreciated and becoming an important program to reduce public hatred towards the park.

5.18.4. River training

Committee had invested total amount of NRs. 555020/- in dam construction along the Rapti river to protect the land from flooding. In 2059 BS, there was a big flood at this area with sever property damage and human casualties. So users had given river training and maintenance a priority program. Till 2065/66, committee has spent NRs. in Rapti river side embankment and other maintenance activities. The Figure 6 shows the annual budget allocated in different fiscal years for this purpose. The investment was big during 2060/61 fiscal year and decreased gradually, because the construction was started in this year for large area and maintenance was conducted then after. In total, about 1593 cubic meter dam was constructed along the Rapti river.

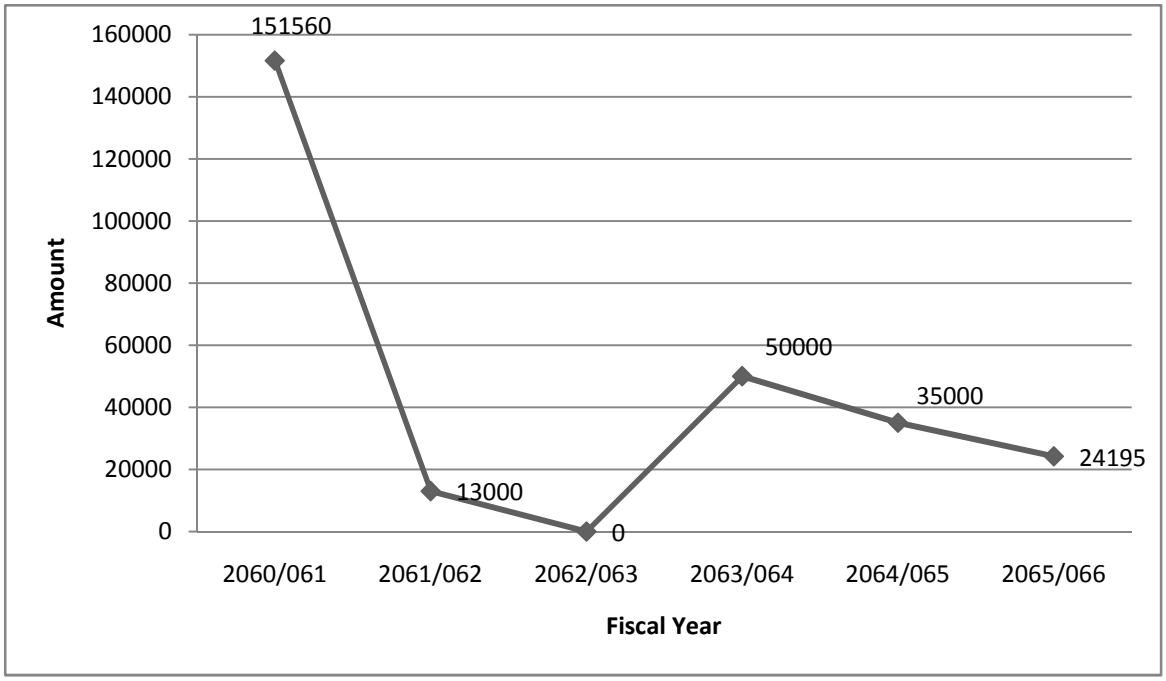

Figure 5.4 Total Expenditure (NRs.) of KBZUC on River Training in Fiscal Year 2060/61 to 2065/66.

About 100-200 bigha agricultural field was directly protected due to dam construction. Moreover the land value was also increase by 200 % and trend was going up.

5.18.5. Road Gravelling

Since 2060/61 till 2065/66, the committee had invested NRs.273755/- and gravelling and maintenance of about 4.9 Km length of local road. About 61% of the respondents had

indicated this program as one of the five priority programs as maintained road helped them in trasportation which ultimately facilitate to ease their daily activities like marketing, education, getting health services and many more.

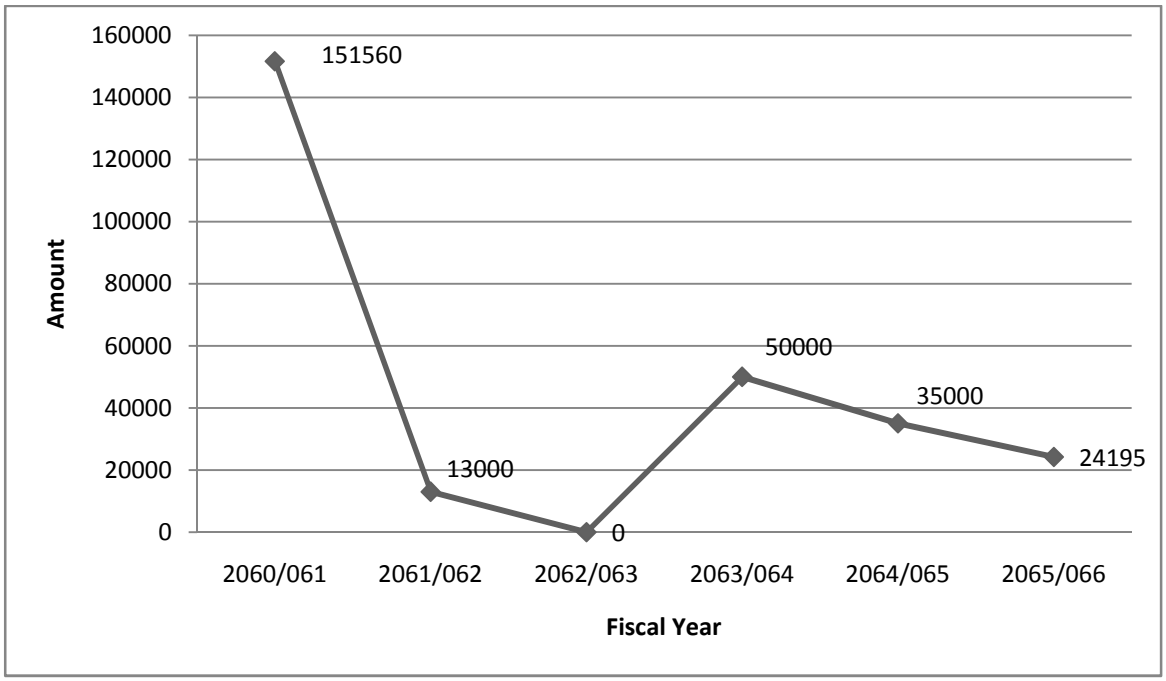

Figure 5.5 Expenditure (NRs.) of KUC on Road Gravelling in Fiscal Years 2060/61 to 2065/66.

5.19. Social Development

5.19.1. Inclusiveness

The existing executive Kerunga Buffer-Zone User Committee contains 13 members including 3 female and 10 male users. All vital posts except "Vice President" were occupied by male candidates. The committee was formed considering the ethnic inclusion. Among 13 members, there were 7 members belong to Brahamin/Kshetri, 2 from Indegineous Tamang community and 4 members belong to Dalit (Figure 2).

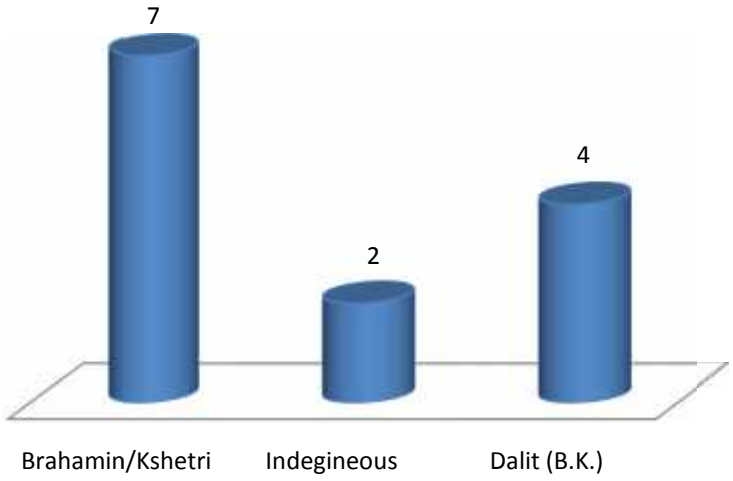

Figure 5.6 Inclusiveness in Kerunga Buffer-Zone User Committee

5.19.2. Leadership Development

The selection process of leaders in different levels of Buffer zone's organizational structure was different. There were 9 Ilaka under Kerunga User Committee 6 in Jagatpur VDC and 3 in Sukranagar VDC. There were 84 user groups, 52 groups (15 female groups, 22 male groups and 15 mixed) in Jagatpur VDC and 32 user groups (16 female groups, 15 male groups and 1 mixed group) in Sukranagar VDC. One user group contained 37 members in average and two of them were chose to perform as Chief and Secretariat to lead and to look after the all group transactions inside and outside the group.

Kerunga user committee was the mid level body which communicates user's voices with Buffer Zone Management Committee and makes reach the decisions of council to the ground user groups. During the formation of this committee, one person, chairperson or secretariat of user group was selected and among them one is selected as an Ilaka representative through consensus or election process. From each Ilaka there were 9 representatives, they formed an incomplete committee which chooses additional 4 members including 2 female, in total there were 13 members in full body committee. In current executive committee, there are 3 female members one occupying the position of "Vice President".

5.19.3. Group Saving

As a rule all members of the group had to save certain amount of money in group. The group fund was mobilized among group members as loan to fulfill their immediate demands. But only 59 user groups are continuing their monthly saving, remaining groups had stopped to perform this activity. At beginning, all groups were involving in saving and the field mobilizers of Park and People Project (PPP) and Participatory Conservation Program (PCP) used to assist them in this regards but after phase out of those projects the user groups became dysfunctional due to lack of transparency, unclear record keeping and lack of guidance. But few functioning groups were managing and mobilizing their funds very well and increasing their transactions. So it would be very effective if all groups were brought to one *common forum* by forming a cooperative.

5.19.4. Participation in decision making process

Buffer zone program is the latest development in conservation that enhances people participation in protected area management. It links consevation with local livelihoods (Poudel et al. 2007). People participation level was differed according to the types of programs and activities implemented.

Group discussion

Group discussion was organized in 6 user groups Annapurna mishrit user group, Jagatpur-4, Brikram Baba Purush user group, Jagatpur-1, Jyoti Mahila user group, Jagatpur-9, Sagarmatha Mahila user group, Sukranagar-7, Naya Bihani Purush user group, Sukranagar-3 and Upakar Mishrit user group, Sukranagar-6 to assess the participation trend and to discuss on different issues. The certain important characteristics of these groups were given in Table 4.

Table 5.4 Important characteristics of six selected User Groups.

S.N.	Name of User Group	Number of User	Monthly Saving (NRs.)	Total Saving (NRs.)
1	Annapurna Mixed	39	0	0
2	Bikrambaba Male	47	100	329000
3	Jyoti Female	20	25	25000
4	Sagarmatha Female	52	0	0
5	Naya bihani Male	36	50	600000
6	Upakar Mixed	43	50	175000
	Total	237		1129000

The level of participation was different in different groups (Figure 9). In discussion program, only 27 out of 39 users (7 females and 32 males) of Annapurna mishrit user group including 4 females and 23 males came to talk. But from register book, in average only 61% of users attended the regular meetings. In Bikram Baba Purush user group of 47 individuals, only 27 took part in discussion and put their views confidently. From their records the participation in their regular meeting was only 57% in average. The participants from Jyoti Mahila user group was quite low only 12 Individuals out of 20 members. It may be due to morning time when most of them have to involve in cooking. The register book reflected that their participation was quite good with 83% individuals in average attendance in regular meeting. In Sagarmatha Mahila user group, very encouraging number of females 39 individuals from 52 participated the program and from their records also 87% of members used to come during regular meetings. But only 19 individuals from 36 memnbers of Naya Bihani Purush user group took part in discussion program. The records showed 67% of participation in regular meetings. In Upakar Mishrit user group of 17 females and 26 males, only 11 females and 13 males came to take part in discussion. The female attendance was good with average 74% in regular meetings while only 52% males took part.

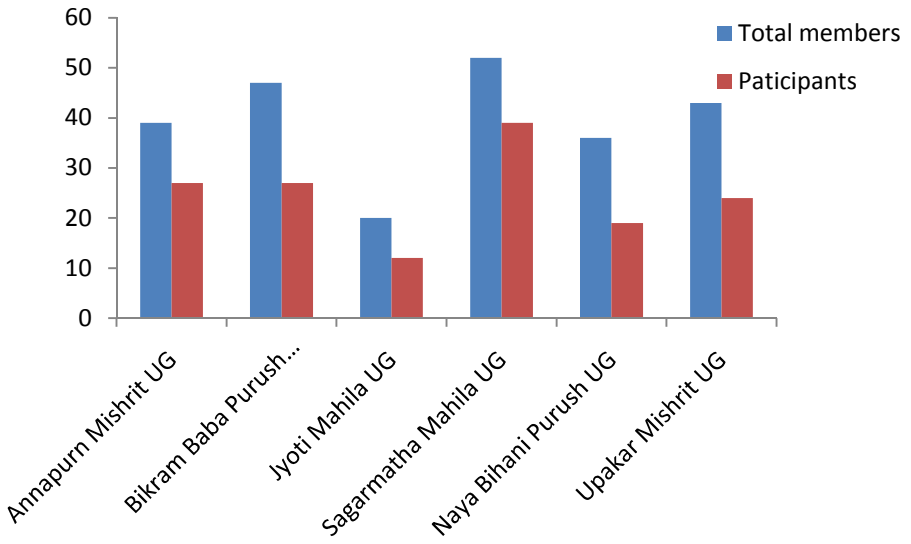

Figure 5.7: Participation of users in group discussion program.

In case of male groups the participation was low compare to female groups. Male users were more confident to express their views but in female groups few active females spoke out their views while others stayed passive. Contrastingly, in mixed groups females were almost dominated by male participants though female number was good in case of Upakar Mishrit user group.

Among 6 selected user groups 2 groups Annapurna Mixed User Group and Sagarmatha Female User Group had stopped regular saving collection. The groups contained certain conflicting issues regarding to leading the group, lack of that the members were disintegrated. And about 47% of members had no idea about their chair person and even the name of the group. If the members were united to bring in same forum and make them aware about the importance of saving, the saving collection can be started again.

Other 4 groups Bikrambaba Purush UG, Jyoti Mahila UG, Naya Bihani Purush and Upakar Mixed UG were performing regular monthly saving collection of NRs.100/-, NRs.25/-, NRs.50/- and NRs.50/- respectively (Table 7). These all four groups have already collected certain amount of money ranging from NRs.25000/- to NRs.600000/- depending upon the date of their establishment. Each group provides loan to its members with 12% of interest rate. The loan helped users to fulfil immediate needs.

Trainings and workshops

The committee, park authority and other I/NGOs has conducted different kinds of vocational trainings on capacity building, income generating and awareness rising sectors as electric wiring, painting, hair cutting, candle making, vegetable farming, computer training and conservation awareness rising. In total 8 trainings on different areas were organized and in total male participants were high in number than female. People from different social groups were participated (Figure 10). Locals from poor, dalit and indigeneous groups were highly encouraged but very few participants had developed their career in related fields. Only 6 people i.e. 3 from electric wiring group and 3 from computer training group adopted same sectors as their profession and earning certain incomes too. Others may have applied so gained knowledge in their daily life. Participants of vegetable farming groups were being involve in their farm. About 56% of the participants of the discussion program demanded skill development trainings which help them to get good job and support to increase their income.

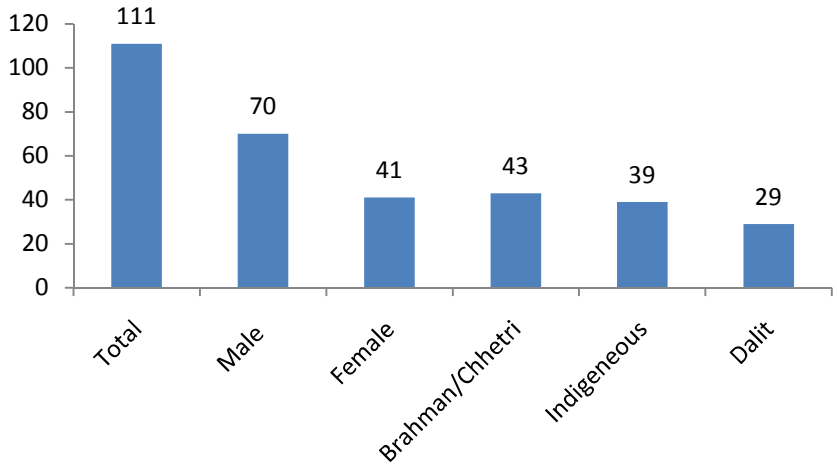

Figure 5.8 Participants representing different social groups.

CHAPTER VI

6. CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

The buffer zone management program has contributed a lot to uplift the socio-economic status of the buffer zone communities and able to bring positive attitude towards national park authority and wildlife conservation. Local people liked the programs that have direct connection with their production activities like irrigation, bio-gas, electric fence, river fencing and others. The continuous investment in community development, conservation activities and the provision of compensation for the property loss and human casualties made people to change their perception towards the park and wildlife. The vocational trainings, economic supports to conduct income generating activities and other capacity building activities helped them to hunt the jobs and entrepreneurship development and ultimately to improve their economic conditions. The user groups formation, fund collection and mobilization through the cooperative concept and developing plans through consensus brought them all together and made them to work with cumulative effort, which helped to keep the social integrity intact and made them strong to put their views at any forums.

6.2. Recommendations

The implemented programs were mostly rich benefiting, so the poor focusing programs like income generating and capacity building vocational trainings which will directly help them to find earning opportunities to improve their living standards should developed and implemented. Moreover the subsidies provided by Buffer Zone User Committee must be differentiated according to economic status of the users. Poor people should give more subsidies if possible should total support to make toilets, boring and other structures. For that separate group discussions (dalit, indigenous and marginalized poor) need to be conducted to pin out the felt needs of these groups, otherwise few members from these groups mixed with other class people in their user group may not able to speak out for their needs and will always remain in same condition.

A proper monitoring mechanism should be formed to conduct regular monitoring the user groups and keep them active and reformed the inactive groups to restart saving collection. Similarly the regular and proper maintenance of the structures like fencing, bio-gas plants, borings and embankments must be maintained for its long term services and the committees should allocate certain budget regularly for this purpose.

A macro level study covering the whole user committees needs to be conducted to know the overall contribution and impacts i.e. positive as well as negative of buffer zone program on the socio-economic environment of the buffer communities living around the Chitwan National Park.

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8. APPENDIXES

Appendix 1 : The list of User Groups

S.N.	User Group name	Address		Household	Female	Male	total
		VDC	Ward no				
1	Pragati	Jagatpur	1	69		60	60
2	Pragati	Jagatpur	1	36	35		35
3	Rapti	Jagatpur	1	69		69	69
4	Rapti	Jagatpur	1	58	58		58
5	Gaurab	Jagatpur	1	60	16	44	60
6	Nabha prabhat	Jagatpur	1	29	6	23	29
7	Janagaran	Jagatpur	1	33		33	33
8	Janagaran	Jagatpur	1	32	31		31
9	Janakalyan	Jagatpur	1	33		32	32
10	Janakalyan	Jagatpur	1	33	33		33
11	Bikrambaba	Jagatpur	1	47		47	47
12	Bikrambaba	Jagatpur	1	56	56		56
13	Aadarsha	Jagatpur	1	46		45	45
14	Aadarsha	Jagatpur	1	35	35		35
15	Ghailaghari Bote	Jagatpur	1	19	13	6	19
16	Redcrossgram	Jagatpur	1	40		40	40
17	Kalika	Jagatpur	1	90		67	67
18	Kishan Utthan	Jagatpur	2	75		71	71
19	Mahila Utthan	Jagatpur	2	21	21		21
20	Janajibika	Jagatpur	2	35		35	35
21	Shramjibi	Jagatpur	2	38	30		30
22	Garib Utthan	Jagatpur	2	39	16	23	39
23	Darai Utthan	Jagatpur	2	49	9	40	49
24	Shree kalika	Jagatpur	2	34	1	33	34
25	Sital	Jagatpur	3	56		56	56
26	Chhahari	Jagatpur	3	75	75		75
27	Annapurna	Jagatpur	4	39	7	32	39
28	Madhu	Jagatpur	4	36		36	36
29	Naba Durga	Jagatpur	4	45	20	25	45
30	Shanti	Jagatpur	4	27		20	20

31	Narayani	Jagatpur	4	30	12	18	30
32	Gurash	Jagatpur	4	35		35	35
33	Shree Laxmi	Jagatpur	5	47	6	41	47
34	Pashupati	Jagatpur	5	72		72	72
35	Sidhartha	Jagatpur	6	138	31	37	68
36	Dhampus	Jagatpur	7	52	10	42	52
37	Dhurba	Jagatpur	7	96		36	36
38	Majhuwa	Jagatpur	7	81	20	9	29
39	Gautam Budda	Jagatpur	7	65	32	13	45
40	Kerunga	Jagatpur	7	49	12	37	49
41	Milijuli	Jagatpur	8	23	23		23
42	Saraswati	Jagatpur	8	64		64	64
43	Himchuli	Jagatpur	9	28		25	25
44	Udaya	Jagatpur	9	31		31	31
45	Laliguras	Jagatpur	9	45	39		39
46	Nabakiran	Jagatpur	9	64		56	56
47	Juntara	Jagatpur	9	43		43	43
48	Jwalamukhi	Jagatpur	9	55	35		35
49	Jyoti	Jagatpur	9	20	20		20
50	Mistrit sirjansil	Jagatpur	9	32		25	25
51	Pashupati	Jagatpur	9	23		18	18
52	Rapati	Jagatpur	9	22		22	22
53	Chetansil	Sukranagar	2	60		43	43
54	Udhamsil	Sukranagar	2	34	34		34
55	Parijat	Sukranagar	2	22	22		22
56	Amrit	Sukranagar	2	40		37	37
57	Kisan	Sukranagar	3	49	47		47
58	Naya bihani	Sukranagar	3	36		36	36
59	Milan	Sukranagar	3	40		40	40
60	Jagriti	Sukranagar	3	40	31		31
61	Mahila chetana	Sukranagar	3	25	19		19
62	Prabhat	Sukranagar	3	31		31	31
63	Batawaran	Sukranagar	3	25	18		18
64	Kiran	Sukranagar	3	31		19	19
65	sirjana	Sukranagar	3	34	34		34
66	Pasang	Sukranagar	3	39	39		39

67	Sukra	Sukranagar	3	61		58	58
68	Kakakul	Sukranagar	3	32		32	32
69	Jagrit	Sukranagar	7	66		63	63
70	Prathana	Sukranagar	7	35	35		35
71	Pragati	Sukranagar	7	22	19		19
72	Betari	Sukranagar	7	25		23	23
73	Bikas punja	Sukranagar	7	36		34	34
74	Suryamukhi	Sukranagar	7	34	29		29
75	Sagarmatha	Sukranagar	7	55	52		52
76	Shanti	Sukranagar	7	54		51	51
77	Chandrajyoti	Sukranagar	7	25	17		17
78	Pragati	Sukranagar	8	79		55	55
79	Chital	Sukranagar	8	79		50	50
80	Nawa Jiban	Sukranagar	6	32		30	30
81	Narikalyan	Sukranagar	6	53	53		53
82	Upakar	Sukranagar	6	43	17	26	43
83	janaki	Sukranagar	5	21	19		19
84	Samajkalyan	Sukranagar	5	21		18	18
	Total			1279	485	646	1131

Appendix 2: The proposed prioritized community development and conservation activities

Respondents	Priority activities				
	Irrigation	Bio-gas	river training	Electric fence	Road gravel
1	5	4	3	1	2
2	4	5	2	3	1
3	5	3	4	2	1
4	4	5	3	2	1
5	5	1	4	3	2
6	3	5	4	2	1
7	1	5	4	3	2
8	2	4	5	3	1
9	5	4	2	3	1
10	4	5	3	2	1
11	5	3	1	2	4
12	5	4	3	2	1

13	3	4	5	2	1
14	4	5	3	2	1
15	5	4	3	2	1
16	5	4	2	1	3
17	4	3	1	5	2
18	3	4	1	2	5
19	1	4	5	3	2
20	5	4	2	1	3
21	5	4	3	1	2
22	4	5	3	2	1
23	3	4	5	2	1
24	2	4	2	3	5
25	5	4	3	1	2
26	4	3	2	5	1
27	5	4	3	1	2
28	3	5	2	1	4
29	2	5	4	3	1
30	5	4	3	2	1
31	5	3	2	1	4
32	5	4	3	2	1
33	4	5	3	2	1
34	4	3	2	5	1
35	3	4	5	1	2
36	5	4	3	1	2
37	3	5	4	1	2
38	4	3	5	2	1
39	2	3	5	4	1
40	1	5	4	2	3
41	5	1	4	2	3
42	5	2	4	3	1
43	5	3	4	1	2
44	4	5	2	1	3
45	5	4	1	3	2
46	4	3	5	1	2
47	4	2	5	1	3
48	5	4	3	2	1

49	3	1	5	4	2
50	5	2	4	3	1
51	5	3	4	2	1
52	4	5	3	1	2
53	5	3	4	2	1
54	4	3	5	1	2
55	5	2	3	4	1
56	5	2	4	2	1
57	4	3	5	2	1
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59	5	4	3	2	1
60	5	3	4	2	1
61	4	2	3	5	1
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63	4	2	5	3	1
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68	4	2	5	3	1
69	5	4	3	1	2
70	4	3	2	5	1
71	4	3	2	1	5
72	5	2	4	3	1
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74	5	4	2	3	1
75	4	3	2	1	5
76	3	2	5	1	4
77	5	3	4	1	2
78	5	4	2	3	1
79	5	4	3	2	1
80	4	5	3	2	1
81	5	3	4	1	2
82	3	2	4	5	1
83	5	4	3	2	1
84	5	4	1	2	3

85	4	3	5	2	1
86	4	2	3	1	5
87	5	1	4	3	2
88	5	2	4	1	3
89	5	3	4	2	1
90	4	3	5	1	2
91	4	1	3	5	2
92	3	4	2	5	1
93	2	3	1	4	5
94	5	2	4	1	3
95	5	4	3	2	1
96	5	3	1	4	2
97	5	2	1	3	4
98	4	5	1	3	2
99	5	3	1	4	2
100	1	5	2	3	4
Total	414	340	319	232	195

Appendix 3: The total investment in different activities under 5 broad headings during 6 fiscal years from 2060/061 to 2065/066

S.N.	Name of Activities	Address	Unit	Quantity	BZ management committee provides thorough UC
A	**Community Development**				
1	Bridge Construction	Kerunga UC	Nos	3	95000
2	Culvert construction work	Kerunga UC	Nos	1	5000
3	Road maintenance work	Kerunga UC	Km	5.69	268755
4	School Support	Kerunga UC			0
i	Furniture construction	Kerunga UC	Set	60	41000
ii	School Education Donation			2	65000
iii	Door window shutter			12	21240
iv	Barbedwire fence		Meter	674	46000
5	Community building /Mandir/Gumba	Kerunga UC			0
i	Gumba Construction Support	Kerunga UC	Nos	1	17000
ii	Health post construction Support	Kerunga UC	Nos	1	4000
iii	Mandir Construction Support			1	4000
iv	Community Building Construction Support			1	10000
6	Irrigation program	Kerunga UC			0
i	Kulo maintenance work	Kerunga UC	Meter	50	102600
ii	Well construction and boring work	Kerunga UC	Nos	19	392000
iii	Water Supply Well	Kerunga UC	Nos	11	65200
7	Machan Construction		Nos	2	65000
8	Barbedwire fence		Meter	200	14000
9	River training work		cum	50	47000
10	Drain Construction		Meter	100	8000
11	Electric Fence Construction Work		Km	6	150000
12	Toilet Construction Support		Nos	12	30000
	Total				**1450795**

B	**Conservation Program**				
1	River training work	Kerunga UC	cum	1500.99	458020
2	Bio-gas plant instlation support	Kerunga UC	Nos	165	247500
3	Plantation work	Kerunga UC	Hector	3	31900
4	Damage compensation	Kerunga UC	Nos	1	23250
5	Anti-poaching informant	Kerunga UC	Nos	1	7000
6	Barbed wire fencing work	Kerunga UC	Meter	2158	263700
7	Machan Construction		Nos	3	15000
8	Electric Fence Construction Work		Meter	3.5	235000
9	Improved Stove donation		Nos	40	20000
10	Forest Watcher		Nos	1	20425
	Total				**1321795**
C	**Income generation and skill development**				
1	Hair cutting training	Kerunga UC	Participant	5	6750
2	Livestock health camp	Kerunga UC	Nos	1	6900
3	Wax lamp making training	Kerunga UC	Participant	25	33000
4	Electric Wiring training	Kerunga UC	Participant	5	39000
5	Computer training	Kerunga UC	Participant	32	59130
6	Painting training	Kerunga UC	Participant	10	16000
7	Agriculture training	Kerunga UC	Nos	39	15000
8	Agriculture donation	Kerunga UC	Nos	12	75000
9	Kulo maintenance	Kerunga UC	Nos	4	25000
10	Irrigation well	Kerunga UC	Nos	36	331750
11	Rovolving fond	Kerunga UC	Nos	6	65000
12	Electric Fence Construction Work	Kerunga UC	Nos	1	150000
13	Boring and Well construction	Kerunga UC	Nos	5	112000
	Total				**934530**

D	**Conservation education**				
1	Study tour	Kerunga UC	Participant	60	90200
2	Eco-club mobilization	Kerunga UC	Nos	4	33200
3	Day and Weekly celebration	Kerunga UC	Nos	1	18065
4	Conservation Interaction program	Kerunga UC	Nos	8	88800
5	Anti-poaching informant	Kerunga UC	Nos	3	30000
6	Quiz contest	Kerunga UC	Nos	2	8000
7	Cultural program	Kerunga UC	Nos	1	3000
8	Audio-vedio program	Kerunga UC	Nos	4	8000
9	Scholarship program	Kerunga UC	Nos	1	5000
10	Sport program	Kerunga UC	Nos	1	3000
11	Conservation prize	nos	Nos	3	15000
12	Children class donation		Nos	5	40000
13	Conservation road drama			2	10000
14	Hoading board construction			8	18000
15	Poster pumpleting			3	17000
16	Advisement and news paper			1	5000
17	Anti-poaching awareness program			1	10000
18	Stationary distribution for children			50	15000
19	Female co-ordination meeting			1	15000
20	Lok Dohori song			1	25000
	Total				**457265**
E	**Admistation expenditure**				**409265**
	Grand-total				**4573650**