

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Nepal is rich in the diversity of flora and fauna, including agricultural, natural and wild diversity. Various protected areas such as national parks and wildlife reserves are meant to contain and preserve important flora and fauna, which are the bases for the socio-economic development of the country. In Nepal, The National Parks and Wildlife Conservation Act, 1973 provides the legal basis required for the management of protected areas. The Act has classified and recognized the protected area of Nepal into six categories- as National Parks, Strict Nature Reserve, Hunting Reserve, Conservation Areas, Wildlife Reserve and Buffer Zones. The Wildlife Reserves are the areas managed for the conservation of overall environment, constituting ecological, biological, and geomorphologic as well as aesthetic aspects. There are three Wildlife Reserves in Nepal among which the Suklaphanta Wildlife Reserve initially it served as a hunting place. In 1969 it was declared as a Royal Hunting Reserve. Later with an area of 155 sq. km was officially gazette as Suklaphanta Wildlife Reserve in 1976 to protect Nepal's last remaining herd of Swamp deer. It was extended to its current size as 305 sq. km incorporating Grassland, Wetland, mixed forest and bushes that create mosaic of wildlife habitats.

Nepal is a home to diverse floral and faunal species, natural ecosystems, ranging from lowland Terai region to the high Himalayas. The diverse climatic and topographic conditions have favored a maximum diversity of flora and fauna in Nepal. The country occupies about 0.1 percent of the global area, but harbors 3.2 percent and 1.1 percent of the world's known flora and fauna, respectively.

Nepal is a small country with an area of 147,181 sq. km. that accounts only 0.03 percent of the total land area of the globe but it compasses a wide range of site and sound within its narrow confine as well as multi-diversity of touristic resources. These resources that Nepal has to offer include both natural and cultural features, which are distributed in different parts of the country. This country is renowned for its physiographic and eco-climatic variations, Himalayan ranges, natural beauty, protected areas, rich bio-diversity, spectacular landscape, extraordinary

cultural heritage and mosaic of ethnic diversity. These resources are the major attractions for the foundation and acceleration of tourism industry in Nepal. Therefore, it is necessary to manage these tourism resources properly by mobilizing the local participation with sufficient considerations on the quality of supply side of tourism in order to attract the maximum number of tourists from different parts of the world. It is also pertinent to expose these tourism resources widely with their typical characteristics to the outside world for the development of quality tourism in Nepal. In 1973 the National Park and Wildlife Conservation Act was promulgated and in 1976 the Suklaphata Wildlife Reserve was officially established. According to a National Park and Wildlife Conservation Act 1973, a National Park is defined as an area set aside for the conservation and management of the natural environment including flora and fauna and landscapes. It is primarily intended to protect sites, landscapes/geological formations and scientific or aesthetic values, together with their associated flora and fauna. There is very high dependency and pressure on natural resources mainly on forest and wetlands. People are fully dependent on forest product for firewood, building materials, fodder and grass. Forest resources are considered as the most important natural resource for people livelihood and for the maintenance of ecological balance. Forest resources are the second largest resource after water resource of Nepal. However, forest resources are generating employment and income through timber, tourism, vegetation and also it is used in infrastructure development.

Department of National Parks and Wildlife Conservation (DNPWC) was established in 2037 BS (1980 AD) to conserve and manage wildlife and biodiversity of the country. Nepal has established a very good network of Protected Areas system with 12 National Parks, 1 Wildlife Reserve, 1 Hunting Reserve, 6 Conservation Areas, and 13 Buffer Zones extending from lowland Terai to high mountains, covering 23.39 % of the total country's land, which contribute to in-situ conservation of ecosystems and biodiversity across the country. Conservation efforts made by the government of Nepal is worldwide popular and highly recognized by the international societies.

Tourism development commonly has been advocated as an alternative to traditional natural resource-based economic development, such as timber production, agriculture, and mining. Recently, many advocates of tourism have promoted seemingly new tourism concepts, such as nature-based tourism, ecotourism, and sustainable tourism,

among others. These new forms of tourism are promoted as an environmentally safe way for rural communities to generate income from natural resources. They are advocated particularly in developing countries because many developing countries possess a comparative advantage over developed countries in their ability to provide relatively pristine natural settings. Affluence, education, and environmentalism all contribute to increasing visitation to wild lands and generate income for local communities through the expenditures of tourists such as lodging, transportation, food, guides, and souvenirs. Demand for these new forms of tourism, it is argued, arises from increased concern or interest in unique and fragile ecosystems and a growing desire to travel to new and exotic places, and an increasing number of people who have the financial means to do so. With the enactment of the 1973 National Parks and Wildlife Conservation Act, Nepal joined other nations in the cause of biodiversity conservation by establishing 16 protected areas that include nine national parks, three wildlife reserves, one hunting reserve and three conservation areas. Buffer zones have been declared in the 11 protected areas where local communities are empowered to manage their own resources (Forest Act, 1993).

The SWR harbors the largest grassland inside the reserve which is known as “Sukilaphanta” – “white grassland”. When the grass blooms in winter the seed head appear as glorious white. In winter (January to April) the largest herd of swamp deer in the world can be seen from different machans (view tower) located at different sites. To the north side on a clear day, the Nanda Devi Mountain can be seen. This is a very good place to take an elephant safari, as there are several small ponds that draw wildlife to them. It phanta is managed by controlled burning to help produce suitable habitat especially for the forage to the Swamp Deer. This area is good for sighting wild elephant and other wildlife. Within the reserve, there are number of artificial waterholes. These were made to attract animals away from poaching prone Mahakali River area and improve the habitat. Most of Suklaphata’s wildlife can visited these areas, so these areas surrounding the waterholes are better space to observe animals’ footprints. Salgauditaal(lake) is extremely pretty and has an abundance of birdlife. There is view tower from which egret, herons, storks, eagles, and many of the animals including elephants, rhinos, and tigers can be seen. Rani taal is another beautiful lake that is nestled in the forest. It provides excellent habitat for a truly impressive variety of birdlife. Many of the reserve’s wildlife and mosaic of different wildlife habitat can

be observed around the lake from the view tower. Near Rani taal there is an ancient Temple Singphal, devoted to Lord Shiva.

SWR lies at the geographical location of longitude 80.25” E and latitude 28.35” N. Its altitudinal range varies from 90-270 m. The reserve is bounded in the east and north by protected forest of Kanchanpur district, in south by Indian national forest ‘LaggaBagga’ and Mahakali River in west. A small part of the reserve extended north of the east-west highway to create a corridor for seasonal migration of wildlife into Siwalik Hills. The Syali River forms the eastern boundary southward to the international border with India, which demarcates the reserve’s southern and western boundary. The Headquarter of the reserve is located at Majhgaun in Vimdatta Municipality (DNPWC, 2017).

Buffer Zone is an area peripheral to the park and is also regarded as a zone of impact. The Buffer Zone of the Suklaphanta Wildlife Reserve is spread over in 13 village development committees namely Dekhatbhuli, Rampurbilasipur, Dodhara, Chadani, Beldandi, Jhalari, etc and 1 Municipality (Bhimdatta). Tourism activities are spread over the buffer zone especially in Salgauditaal(lake), Suklaphanta grassland of Arjuni, Rani Taal(lake) to observe huge herd of swamp deer. Nepal has established a typical network of protected areas for valuable resources and buffer zone institutions are formed at different levels aiming at making the community self- reliant by involving them in implementation of various programs and capacity building. There is a need to adopt a spatial strategy for developing a plan for each protected area that is pro-poor, pro-women and pro-special target groups (Maskey and Bajimaya, 2005).

Among the three Wildlife reserve of Nepal the Suklaphanta Wildlife Reserve is famous reserve for swamp deer declared in 1976. It covers pristine area with a unique ecosystem of significant value of the country (NTB, 2003). The wildlife reserve is situated in the Kanchanpur district of Far Western Development Region in the flood plains of Mahakali River. At first, the area was famous for hunting ground and declared as a royal hunting reserve in 1969 and was gazette as Suklaphanta Wildlife Reserve covering 155 sq km in 1976. Later it was extended in north-east section up to Syali River with an additional area of 150 sq km in 1981. Now the total area of reserve is 305 sq. km, and the total area of its Buffer Zone is 243.5 sq. km. It covers Siwalik range to terrain region with mixed forest; and Shyaly, Banhara, Sukanala,

Chaudhar, Takulya river of Kanchanpur District. SWR is renowned for Swamp deer, Royal Bengal Tiger, Bear, Neelgai, King Cobra, Elephant, Spotted deer, Rhinos, and Black-buck. The Reserve is also home for Golden monitor lizard, Hispid hair, Blue bull, Barking deer, Wild boar, Leopard, Jackals, Rhesus monkey and different species of small animals.

SWR is the only protected area which has been set up exclusively for swamp deer. The presence of world's largest herd of swamp deer makes SWR a globally important site for conservation point. SWR also has the pride of having highest density of Royal Bengal Tiger in any habitat in Asia (Poudel, 2007).

The reserve provides habitat for about 424 species of birds, including the highest population of Bengal florican. Other species are Sarus crane, Swamp francolin, Grass owl, Warblers and flycatcher. The reserve provides habitat for 21 species of fishing including Mahasher, Rohu and Tenger. We can find many reptiles in the reserve like Marsh mugger crocodiles, Cobra and Python (DNPWC 2013). The management of the reserve's Buffer zone as well as overall landscape forms the integral part of the management plan. The plan also deals with the major park management, reserve as well as the major Buffer zone management prescriptions for the particular time periods.

There are so many wetlands which supports numerous species of floral and faunal biodiversity. A complete inventory of biological diversity in the SWR has not been accomplished yet. SWR has also increased tourism opportunities, attracting visitors to observe rich agricultural traditions from closest quarter and intermingle with the local farmers with a rich natural heritage (NTB 2005).

The area has three main seasons. From October through early April the weather is dry. The days are warm and pleasant, and the nights are cool. From April to June, the temperature warms up to 40 °C (DNPWC 2017).

There is one Tended camp operating just at the edge of reserve boundary near reserve head quarter. Other various types of hotels are available in Mahendranagar. The Elephant Camp (Hattisar) is located in Pipriya. Elephant for riding are also available in SWR can be arranged at Majagaon. The reserve is accessible by road any part of country and India. A night bus from Kathmandu takes about 18 hours to get there

(Mahendranagar). Flight can be taken from Kathmandu to Dhangadi. It takes 1.5 hours from Dhangadi to Mahendranagar by bus. The reserves headquarter is 8 km, south west of Mahendranagar. There is no regular public transportation to headquarter but rickshaws, tempos or sometimes jeeps are available. An entry fee of NRs.1000, 500, 50, Foreigner, SAARC and Nepalese citizen respectively for per person per day. Not allowed to purchase illegal animal or plant product. It's fully prohibited to travel in reserve area between sunsets to sunrise (DNPWC 2017). Though large numbers of tourists visit in Nepal, among them very few visitors have visited in Suklaphanta Wildlife Reserve. The research is not contributed broadly in Suklaphanta Wildlife Reserve. In spite of benefits from tourism sector, due to various obstacles, tourism sector has not been fully developed in this area and people in this area have not become able to take maximum benefit from tourism sector. In this way, although there is great potentiality of tourism development and economic development in SWR, there are some obstacles which are hindering to it. If the prevailing obstacles are removed than tourism sector can flourish in the area of SWR and it can get economically strong as well.

1.2 Statement of the Problems

Reserve areas and biodiversity conservation activities play an important role in the development of the surrounding areas, especially sustainable rural development, as our survival and prosperity, more particularly in rural settlement rely fully on biodiversity that provides numerous crucial products and services. However, protected areas are also not free from damages caused by different factors. Various types of disturbances caused by ill-regulated human movements and tourism activities, cause damage to protected area biodiversity. Whether the conservation activities, especially in the national parks and its buffer zone areas are socio-economically justified function for overall development and socio-economic sustainability in the surrounding area. In fact, the impact of the conservation activities conducted by the wildlife reserve has to be assessed with theoretical, practical and scientific bases, with prosperity of mankind and sustainable rural development. What types of problems can be seen on the development activities due to the animal activities? What is the role of government for the local people/stake holders for the betterment of their livelihood? Like above emerging issues are related with the life of the local people, so this study has been carried out to answer as follows: The purpose of visit

of visitors in Nepal is for holiday pleasure, pilgrimage, trekking and mountaineering, business and other purposes. For the holiday pleasure the visitors are 410,934 in number. The revenue from tourism is US\$ 429216000 and average revenue from the visitors is US\$ 42.8 (MOF, 2014). It is necessary to develop Nepal as an attractive, recreational, and safe tourist destination in the world map by preserving and promoting natural, cultural, biological, as well as man-made heritages of Nepal. In order to contribute to the economy through development and expansion of the tourism sector, tourism activities need to be expanded; quality of services provided to tourists be improved; foreign currency earnings from tourism augmented and employment opportunities should be raised.

1.3 Objectives of the Study

The general objective of this study is to study the physical development status of the people in buffer zone management. The specific objectives are:

1. To examine the physical development status of the local people living around buffer zone area of Suklaphanta Wildlife Reserve.
2. To analyze problems and prospects of buffer zone approach of community development.
3. To assess community development programs during buffer zone management.

1.4 Significance of the Study

The study has examined the impact of the wildlife reserve to generate employment and income along with tourism activities socio-cultural impacts or implications. This has also analyzed the attitudes of people with regard to biodiversity conservation and rural development activities in the study area. This study has also discovered attitude towards buffer zone governance of local people and how buffer zone management maintaining good governance and co-ordination with stakeholders. The research was conducted in Suklaphanta Wildlife Reserve which is located at Kanchanpur district. This research will help to identify the level of income generation through tourists; to identify the problems faced by the tourism business; importance of wildlife reserve for tourism industry and trend of tourist flow by nationality indifferent seasons. This study is beneficial for administration of Suklaphanta Wildlife Reserve and tourism industry as it will help them to explore the ways of increasing the number of tourists in

Suklaphanta Wildlife Reserve and to find out the tourist season. The study is the useful guideline for wildlife reserve administration and tourism business to interact in the problems, prospects in the tourism business in Suklaphanta Wildlife Reserve area. This study is also useful for researcher in the related fields.

1.5 Limitations of the study

The whole data has been collected from study area therefore result will only applicable to study area not for whole buffer zone area. The studies have been carried out from data collection from respondent and wrong analysis may occur due to wrong information by respondent. However, it has not covered the environmental and biotechnical aspects in detail. This study is having the following limitations:

- a) This study is limited to the Suklaphanta Wildlife Reserve and its surrounding area.
- b) The expenses of the tourists are included only from Dhangadi if tourists are from western part and from Mahendranagar if tourists are from eastern part of the research area.
- c) Only simple statistical tools have been used.
- d) As an academic study, it is limited to time and resources.

1.6 Organization of the study

The study is divided into 5 chapters. The first chapter included the preparation of research proposal. The second and the most important phase included the execution of the Survey (Fields work). This included the preparation of questionnaire and observation sheet; for pre-testing, necessary amendments and data collection. This also include the collection of relevant secondary information. At the third (final) phase, data processing and analysis, including computer data processing were carried out along with interpretation and inferences. The thesis has been arranged into five chapters. Chapter one deals with the general introduction of the work. Chapter Two includes the review of relevant literature. Chapter Three has explains the research methodology followed. Chapter four present the result of the along with brief discussion. At the last Chapter Five summaries the thesis with conclusions and recommendations for the further study.

CHAPTER II

LITERATURE REVIEW

2.1 Biodiversity: A Concept Perspective

Biodiversity is the variety of life. It can be studied on many levels. At the highest level, one can look at all the different species on the entire Earth. On a much smaller scale, one can study biodiversity within a pond ecosystem or a neighborhood park. Identifying and understanding the relationships between all the life on Earth are some of the greatest challenges in science. Most people recognize biodiversity by species a group of individual living organisms that can interbreed. Examples of species include blue whales, white-tailed deer, white pine trees, sunflowers, and microscopic bacteria that can't even be seen by the naked eye. Biodiversity includes the full range of species that live in an area.

Maintenance of eco-system diversity is often carried out by establishing national parks, wildlife reserves and other protected areas. The fourth amendment of the National Park and Wildlife Conservation Act in 1992 made the provision of buffer zone for protected areas considering buffer zone, an area of 2km in the vicinity of the park could benefit from park revenue (30-50 percent) and in return the community is supposed to participate and assist in park management activities. Between 1996 and 2010 Government of Nepal demarcated buffer zones of 12 protected areas covering a total area of 5602.67 square kilometer in 83 VDCs and two Municipalities of 27 districts where benefiting human population is over 0.9 million. In the buffer zone management programme emphasis has been given on the natural resource management where need of eco-friendly land use practices and peoples participation in conservation for long term sustainability are encouraged. This paper is an attempt to outline the various activities that have been executed under buffer zone management programme of Department of National Park and Wildlife Conservation with the internal resources, local communities and support from UNDP, WWF Nepal, CARE Nepal, NTNC and other various partners for the conservation and development of buffer zones in Nepal (Narayan Prasad Bhusal, 2017)

World National Parks Conference at Bali in 1982 focused on the relationship between protected areas and human needs and stressed the relevance of integrating protected areas with other major development issues (Adhikari, 1998). The message is that the protected areas should respond to the needs of local people. The involvement of local people in the management of the protected areas for mutual benefits is widely accepted today (Sharma, 1991). National parks and reserves in Nepal play a very important part in the development of wilderness oriented tourist industry based on the non-consumptive use of natural resources (Majupuria, 1998). But the promised benefits of the tourism have not materialized. The economic benefits have failed to spread to those hardest hit by the establishment of the park. Tourism has grown to become diverse and complex. Third World communities are economically and culturally subordinated to the culture and wealth of the first world. The effect of the tourism upon the local culture is also another part of relationship. The effect can be realized in both ways. Tourism enables tourists to enjoy a way of life, which Nepali people have enjoyed, and at the same time tourist activity might have the effect on the local culture. However, tourist is not to be seen as an active force threatening a passive local culture (Dhital, 2000).

The area was a favorite hunting ground for Nepal's ruling class and was declared a Royal Hunting Reserve in 1969. In 1973, the area was gazetted as Royal SuklaPhanta Wildlife Reserve, initially comprising 155 km² (60 sq mi), and extended to its present size in the late 1980s. A buffer zone of 243.5 km² (94.0 sq mi) was added in May 2004. In 2017, the status of the protected area was changed to a national park.

The name Suklaphanta was derived from one of the grasslands found inside the protected area. The main grassland called SuklaPhanta is the largest patch of continuous grassland in Nepal covering an area of about 16 km² (6.2 sq mi).

The jungles of the Shuklaphanta National Park were once the site of an ancient kingdom. To this day, ruins of that kingdom can be seen in some places. Near Rani Tal, a lake in the reserve, there still remains a brick girdle, measuring 1,500 m (59,000 in) in circumference. It is considered by locals to be a remnant of the fort of Tharuking Singpal. (wikipedia.org, 2021)

Biodiversity is the cornerstone of ecosystem paradigm and it is the function of climate, organism, topography, parent materials, time and heredity (Basnet 1995). Gee (1992) argues that biodiversity is the sum of interaction between species, rather than a mere list of species themselves. Biodiversity as an interacting system implies that the biophysical environment over millions of years in the past, within and between the biotic community and their biotic environment. Deterioration of global environment is concern with decrease in biodiversity, and its adverse consequences on future sustainable global food production are well known (Hegen 1996).

Biological diversity or biodiversity refers to the variety of life form on the earth: the different plants, animals, micro-organisms, the genes they contain, and the ecosystem they form. According to MC Neely (1990), biodiversity is defined as “an umbrella term for the degree of nature’s variety.” Biodiversity, thus, is usually considered as the following three different levels.

1. **Genetic Diversity:** Different combinations of genes within species.
2. **Species Diversity:** Varieties of different species, and
3. **Ecosystem (or habitat) Diversity:** Different combination of species within different ecosystems.

Relative to its size, Nepal is home to a large portion of flora and faunal biodiversity (Belbase, 1999). Owing to its great diverse geographical, geomorphologic and climate conditions, Nepal possesses a vast biological diversity. There are distinctly as many as 118 ecosystems in the various physiographic regions of the country (23 lowlands in terai and siwalik; 38 in mountain; 52 in the midhills; and 5 spread across areas covering more than one of the above zones). Although Nepal represents only 0.1% of the world’s land surface area, it comprises over 2% of the world’s flowering plants (5586), 3% of the Pteridophytes, 6% of bryophytes, and 2.2% of the world’s recorded plants. About 5 % (more than 246 species) of the country’s total reported flora are endemic to the country. Likewise, Nepal is rich in the diversity of fauna. For example, it comprises 4.2% of the World’s butterflies (640 species), 1% of the world’s fishes (182 species), and 1% of the World’s amphibians (43 species), 1.6% of the World’s reptiles (100 species), 9.3% of the World’s birds (852 species) and 4.5% (181 species) of the World’s mammals (ICIMOD, 2004).

Nepal's agricultural biodiversity is also quite rich. Among the over 9000 types of food grains, legumes, oilseeds and vegetables, some are found only in Nepal. Nepal is considered to be the place of origin of rich in the Asian region. Also, many the vegetables are believed to have originated here. The country possesses more than 500 species of edible plants under about 70 plant families. About 200 species of these edible plants seems to be belonging to the cultivated categories and cover as many as about 50 plants families. About 45 important food crops are grown in the country. In Nepal, still there is a large number of wild plant species that are relatives to cultivated crops. At least 83 wild relatives of 36 crops are found in different ecological zones of the country. Until recently, over 150 varieties of different crops had been registered, released and recommended for cultivation in the country (Ojha, 2005). Livestock density is also high in Nepal. The overall livestock density per hectare of cultivated land is estimated to be more than 7. The most common animals domesticated basically in agricultural sector includes cattle, buffaloes, yak, goats, pigs, horse, mules, donkeys, rabbits, ducks and chicken.

Nepal's biodiversity is renowned also for its possession of a very large of insects (more than 5000 species) and spiders (145 species). Interestingly, perhaps the World's largest honeybee, *Apis laboriosa*, is found only in Nepal. However, one problem facing the country's agricultural diversity is that introduction of a number of high yielding varieties of crops and breeds of animals is threatening the diversity of the land races of local crops and animal breeds. Such genetic erosion is very high in the case of rice and wheat; moderate in maize; and is also attributed to the result of degradation of plant resources. It is a matter of worry and grit concern that some of the food plants species and breeds of domesticated animals are being endangered even to the extent of their complete extinction (Ojha, 2005).

Wildlife tourism, which is either wildlife-dependent or wildlife-independent, is increasingly becoming a popular recreational pursuit. Wildlife tourism can also be categorized as either consumptive or non-consumptive depending on the recreational motives of visitors and the level of visitor-wildlife interactions. The impacts of wildlife tourism and measures to minimize visitor's impact on wild species and their habitats are discussed from a geographical perspective. Managing tourism impacts involves an understanding of the spatial requirements of wild species and the limits

that tourists have to impose on themselves in their pursuit for an enjoyable wildlife encounter (Corazon, 2000). If carried out responsibly, ecotourism can be a valuable means for promoting the socio-economic development of host communities while generating resources for the preservation of natural and cultural assets. In this way, ecologically fragile areas can be protected with the financial returns of ecotourism activities made by both the public and private sectors. In many developing countries, ecotourism has been particularly successful in attracting private investments for the establishment of privately owned natural parks and nature reserves. Many of such reserves are well managed, self-financed and environmentally responsible, even when profit remains the main motivation behind the operation of a private reserve. In this way, the tourism industry can help to protect and even rehabilitate natural assets, and thus contribute to the preservation of biological diversity and ecological balance (Chaudhary, 2001). Suklaphanta Wildlife Reserve was established initially for hunting purpose for the ruling class. But nowadays its objective is changed which is nature conservation and tourism development

2.2 Wildlife Reserve and Biodiversity Conservation in Nepal

In Nepal, the National Parks and Wildlife Conservation Act, 1973 provides the legal basis required for the management of protected areas; the department of national parks and wildlife conservation prepared the management plan for buffer zone, national parks, wildlife reserve, as well as overall landscape forms the integral part of the management plan.

At present, great emphasis has been laid to establishing and maintaining Protected Areas (PA) in order to protect wildlife. The National Parks and Wildlife Conservation Act, 1973 provides the legal basis required for the management of protected areas. The act classified and recognized the PAs of Nepal into the following six categories:

- 1. National Parks:** Areas managed for the conservation of overall environment constituting ecological, biological, geomorphological, as well as aesthetic aspects. At present, there are nine National Parks in Nepal, namely-Chitwan National Park, Bardiya National Park, Shivpuri National Park, Khaptad National Park, Rara National Park, SheyPhoksundo National Park, Langtang National Park, Makalu-Barun National Park, Sagarmatha National Park.

2. **Wildlife Reserve:** Established for the conservation and management of wildlife and their habitat. There are three Wildlife Reserve in Nepal, namely- KoshiTappu Wildlife Reserve, Parsa Wildlife Reserve and Suklaphanta Wildlife Reserve.
3. **Strict Nature Reserve:**Area with unusual features and used for scientific studies. There is only Strict Nature Reserve in Nepal, i.e. Lower Barun Valley.
4. **Hunting Reserve:** Area reserved for recreational Hunting. Only one in Nepal, namely- Dhorpatan Hunting Reserve.
5. **Buffer Zone:** Designated area surrounding a national park or reserve in which the use of resources by the local people is regulated so as to maintain the sustainability of the zone.
6. **Conservation Area:** Area managed with integrated plan for conservation as well as sustainable use of its resources. Three CAs are declared in Nepal, namely- Kanchanjangha Conservation Area, Makalu Conservation Area and Annapurna Conservation Area.

Besides the above act, there are number of other institutional arrangements made in the recent decades, as the efforts towards conserving the biological diversity. Some of the major ones, for example, are the following.

- I. Soil and Water conservation Act, 1982.
- II. Himalayan National Park Regulation, 1979.
- III. The Forestry Sector Master Plan, 1988.
- IV. Environmental protection Council, established in 1992.
- V. Nepal became the member of the Conservation on Biological Diversity (CBD) in 1994 to facilitate Nepal's ratification on the Global Conservation on Biological Diversity.
- VI. Water Resource Act, 1992.

- VII. Forest Act, 1993.
- VIII. Livestock Health and Livestock Service Act, 1998.
- IX. Buffer Zone Management Regulation, 1996.
- X. Biodiversity profiles Project, 1995. This prepared a list of floral and faunal diversity found in the different ecological zone of Nepal.
- XI. The Environmental Protection Act, 1996.
- XII. The Environmental Protection Regulation, 1997.

These made Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) mandatory for any kinds of development proposal and their carrying out. Local Self Governance Act, 1998 has also made mandatory for the local authorities including the DDCs, VDCs and Municipalities to formulate and implement their own plans for the conservation of biodiversity and soil in their respective areas. Because of altitudinal, geophysical and climatic variations, Nepal has a huge diversity in flora and fauna. Regarding farm animals, 25 indigenous breeds of seven species have been identified in the country. The indigenous breeds have their own special importance. Despite their low production potential, these breeds have positive attributes such as hardiness, adaptability to local harsh condition, productivity in low input system, multipurpose use, socio-cultural attachment, and contribution to food and nutrition security. However, farmers are more interested to keep exotic and crossbred animals because of their higher productivity. As a result, the population of indigenous breeds is gradually declining. Seven indigenous breeds of cattle - Lulu, Achhami, Pahadi, Terai, Yak/Nak, Siri and Khaila - have been identified. These breeds have only been characterized at phenotypic and production levels except Lulu which has also been characterized at chromosomal level. Achhami cattle, which is less than one meter tall, and reared in the far-western hills of Nepal, is the smallest breed of cattle in the world. Yak/Nak reared in high mountains under transhumance system is famous for “yak cheese”, a niche product made from its milk. Siri cattle reared in the eastern hills are the best performing indigenous cattle. However, with the growing practice of crossbreeding through natural and artificial insemination (AI), this breed is believed to be extinct.

2.3 Policy Review

Asian countries have been among the world's leaders in adopting legislation and ratifying international conventions for biodiversity conservation. They have devoted substantial resources to habitat conservation and to enforcement of anti-poaching legislation. Despite the governmental investments, south Asia faces daunting challenges that are growing more severe. Habitat fragmentation and poaching for illegal wildlife trade are the most significant threats to biodiversity. With South Asia's rich biodiversity, wildlife is a lucrative target of the trade. Victims of the trade are many and varied and include the iconic tiger and elephant, snow leopard, common leopard, one horn rhino, pangolin, brown bear, several species of deer and reptiles, seahorses, star tortoises, butterflies, peacocks, hornbills, parrots, parakeets and birds of prey, and corals. Freese, (1996) has studied about the benefits from wildlife tourism. The main objective of the study is to find out the benefits from the wildlife tourism. According to him it can be both tangible and intangible. The study found the economic benefits from nature-based tourism, in general, are considerable. It creates employment and supports secondary commercial industry. Developing countries must adjust wildlife conservation policies within a changing social context and emerging economic demand. Nepal has achieved success in wildlife conservation through the establishment of a protected area network and the support of local people; however, trade-offs between conservation and development continue to be debated. In this article, we evaluated the developmental history of wildlife conservation policy in Nepal using the policy arrangement approach. Based on a policy analysis and literature review, we explored wildlife conservation policy from the dimensions of actors, discourses, rules, and resources. Conservation history of Nepal has shown discursive shifts and actor coalitions in policy arrangement, resulting in a policy transformation from restrictive conservation to participatory conservation. Through our analysis, we found that future policies should consider the development demand of the country and focus on sustainable financing for wildlife conservation in order to achieve sustainable solutions. (Kishor Aryal, 2020)

Nepal ratified the CBD on December 1993, as the thirty fourth country to ratify the convention, and already taken certain policy and legal measures for the conservation

of biodiversity. Likewise, Nepal has been participated in other different international convention and obligations, such as:

- I. International Union for the Protection of New Varieties of Plants (UPOV), 1961.
- II. World Trade Organization (WTO), under the General Agreements on Trade and Tariffs (GATT), 1994. Nepal secured membership of WTO on 12 September 2003.
- III. Convention on International Trade Endangered Species of Wildlife Fauna and Flora (CITES) 1973.
- IV. The World Heritage Convention, 1972. (Under this Convention, some areas of the country are included in the list of World Heritage Sites).
- V. Nepal has prepared several policies, strategies and action plans in line with the national policies and international obligations relating to biological diversity conservation. The following are some of the most prominent policies, strategies and action plans in the biodiversity perspective.
- VI. Jointly completed by the Government of Nepal and IUCN in 1988, the National Conservation Strategy includes the following primary objectives.
- VII. To satisfy the basic materials, spiritual and cultural needs of the Nepalese people.
- VIII. To ensure sustainable use of land and renewable resources.
- IX. To conserve biological diversity, and
- X. To maintain the essential ecological and life supporting system.

For the effective implementation of the strategy, Nepal Biodiversity action Plan and Nepal Biodiversity Strategy Implementation Plan have also been prepared. The Ministry of Forest has been designated as the focal point for collaboration with the external agencies concerned with biodiversity conservation and different projects in areas of biodiversity have been envisioned relating to protected areas, forest and rangelands.

Apart from other matters, it specially recognizes the need for managing the country's grassland ecosystems. It was jointly formulated by the National Planning Commission (NPC) and IUCN/Nepal, which identifies the following five priorities action plans for biodiversity conservation in Nepal.

1. Strengthening the development of national parks, wildlife conservation and protected areas.
2. Ensuring adequate representation of Nepal's ecosystems in the protected areas.
3. Involving local people directly in the management of parks, reserve and protected areas.
4. Preserving endemic and endangered species and their habitat.
5. Promoting the role of private and public institutions in setting up biological resources, inventory and developing conservation measures.

To protect global biodiversity, the international community developed and adopted the Conservation of Biological Diversity (CBD) in 1992, with the aim of preventing continuous genetic erosion and promoting concrete efforts to conserve biodiversity by all nations both individually and collectively. This strives to promote conservation of the biodiversity, the sustainable use of the components of biological diversity and equitable sharing of benefits arising from the use of genetic resources. The convention officially comes into being in 1993, and by January 2000, over 170 nations had ratified it. The CBD is a unique international agreement as it provides a framework for integrated action in biodiversity conservation. Since its inception, political, public and media attention to biodiversity conservation has increased (Ojha, 2005). Moreover, The World Resource Institute (WRI), The International Union for Conservation of Nature (IUCN) and The United Nations Environmental Program (UNEP), in consultation with the FAO/UN and United Nations Educational, Scientific and Cultural Organization (UNESCO) prepared the Global Diversity Strategy (1992) that prescribed a set of seven conservation strategy, as follows:

1. Establishment of a national policy framework for biodiversity.
2. Creation of an international policy framework and environment for biodiversity which supports national biodiversity conservation.

3. Creation of conditions and incentives for local biodiversity conservation.
4. Management of biodiversity through the human environment creating institutional conditions for bio-regional conservation, supporting biodiversity conservation into the management of biological resources.
5. Strengthening the protected areas ensuring their sustainability.
6. Conservation of species, population and genetic diversity and
7. The expansion of human capacity to conserve biodiversity, especially by increasing awareness, appreciating biodiversity values, helping to disseminate information needed to conserve biodiversity, promoting basic and applied research on biodiversity, conservation and developing human capacity for biodiversity conservation.

As most other Nations of the world, Nepal was awakened and affected by the above international efforts. Nepal's first significant institutional recognition of the need for and the planned efforts towards conserving the country's flora and fauna were reflected through the first five-year plan (1956-61). The enactment of Aquatic Animal Protection Act 1961 was another notable institutional mechanism developed especially for the purpose of protecting aquatic animals and wetland areas.

In order to implement the CBD, it is crucial for Nepal to create a legal framework on the conservation of Nepal's biological resources (Adhikari, 1999). Protection of indigenous genetic resources, patenting indigenous knowledge and practice and fairly equitable sharing of benefits arising out from the use of the patents are some essential features for biodiversity conservation and sustainable livelihood (Belbase, 1999).

The Nepal biodiversity Strategy (NBS) embodies a strong commitment to fulfill our international obligations as signatory to the CBD, being committed to the protection and management of biological resources and their development on a sustainable basis for the benefit of Nepal's future generation and for the global community as a whole (Deuba, 2002). Biological diversity in Nepal is closely linked to the livelihood and economic development of most its people and relate to agricultural productivity and sustainability, human health and nutrition, indigenous knowledge, gender equity, building materials, water resources and aesthetic as well as cultural wellbeing of the

society. Nepal's biodiversity has been threatened due to number of problems of which immediate and root causes have are identified (HMG/MFSC, 2002).

The Rio Earth Summit (1992) and Agenda 21 called for all countries to develop national strategies for sustainable development. The World Summit on Sustainable Development held on Johannesburg (2002) focused on poverty alleviation and sustainable development protecting and managing natural resources base including biodiversity conservation. Millennium Development Goal (MDG) presses for the implementation of the Convention on Biological Diversity and Convention to control Desertification, including sustainable development of all types of forest and genetic resources (Lekhak and Lekhak, 2003). Sustainable development has been one of the national agenda for development in Nepal. Nepal has formulated biodiversity conservation policy from local to central levels. The Constitution of Nepal gives an especial attention to all three tiers of the government to conserve, manage and use biodiversity resources as a concurrent subject matter. The National Parks and Wildlife Conservation Act (1973), Forest Act (1993), Environmental Protection Act (1994) and control of International Trade of Endangered Species of Wild Fauna and Flora Act (2017) and their subsequent regulations are the visible policy reforms for biodiversity conservation in Nepal. The National Biodiversity Strategy and Action Plan have been instrumental to mainstream the biodiversity conservation following the spirit of the convention. Similarly, institutional set up from center to local level is strength of biodiversity conservation of Nepal. Parliament committees, Councils of Ministries, National Planning Commission, Ministry of Forests and Environment, and its departments and field offices and Ministry of Land Reform, Agriculture and Cooperative, and its departments and field offices are working on forest and agrobiodiversity conservation. The role of formal and informal institutions such as community forest user groups to biodiversity conservation is praiseworthy. Enactment of CITES Act (2017) is another milestone to biodiversity conservation in Nepal.

2.4 Empirical Review

It is suggested that connected efforts from all stakeholders, from the policy makers and administrators, are indispensable for any kinds of strategies, plans, programs and detailed actions are needed to yield satisfactory result in conservation and maintenance of biodiversity (Ojha, 2005)

Sthapit and Jarvis (2001) documents the steps of in situ conservation of agricultural biodiversity on-farm and various methods used with other options that a farmer might have to contribute to the food security and possible increase in farmer's income. With a review on agro-ecosystem of in-situ conservation sites for crops genetic resources in Nepal, Joshi et al (2001) have documented the existing information on agro-biotic, socioeconomic and farmer managed factors in three physiographic regions (ecosites), namely- Jumla, Kaski and Bara. National workshop "on-farm management of agricultural biodiversity in Nepal" was held in 24-26 April 2001. The output of the workshop (Sthapit et al, 2001) has contributed to achieving the four objectives of the CBD Work Program on Agricultural Biodiversity and has helped increasing global awareness in the importance of crop genetic diversity in agro-ecosystems as a tool for sustainable development (Jarvis 2001). Sapkota (2001) expresses that the scenario of agro-biodiversity is changing over time and space, which present new challenges and opportunities towards fulfilling the national commitment in the implementation of the Convention on Biological Diversity (CBD) and the Global Plan of Action for Plant Genetic Resources for Food and Agriculture (GPA-PGRFA). Dhital, (2000) studied the Economic Effects of Chitwan National Park by using the case study of Chitwan National Park. The study found that by the establishment of national park the local people have sacrificed many things. The people are sacrificing the large amount of opportunity cost in terms of crop production. According to him the effects created by the park are shortage of grazing land, human life and crop damage by the wildlife, effects on health and education, effects on cultural attitudes. Of all the effects the reduction in livestock rising is the most significant and the immediate spillover effect of the park on the local level. Chattarjee, (2008) in a study has studied the relationship between relationship between tourism and natural resource management. According to Chattarjee, (2008), in recent years growing awareness among tourism researchers of the relations between tourism and natural resource management has resulted in a substantial body of academic literature examining tourism issues under a relatively new set of tourism concepts. The research found the new forms of tourism, such as nature-based tourism, ecotourism, and sustainable tourism, now are advocated as an environmentally safe basis for economic development in many rural locations worldwide. New forms of tourism are closely related to outdoor recreation, which has been a management objective of National Forests since their inception. Phulara (2009), using both primary and secondary source of data collection concluded

that tourism is one of the significant contributors in the sector of Nepalese economy. The author further concluded that in spite of highly potentiality of tourism development in all development regions and their ecological regions, tourism in Nepal is especially centralized in the eastern and in the central part of the country. In Kathmandu, Pokhara, Annapurna region and Mt. Everest and in other different areas of the country, serious environmental damage has been caused. This situation has also been created in some of the valuable and sensitive touristic resources and cultural and natural landscape of Nepal. Thus, the author in the end has concluded that both the natural and cultural diversity of these areas are at risk and also their potentialities are at risk.

Documentation on the plant genetic resources in Nepal, their conservation and management has been made by SAARC Agricultural Information Centre (Upadhyaya and Joshi, 2003). The documentation include the diversity richness and their indicators in Nepal which includes 200 species of cultivated species, 118 ecosystem types, 102 fine aromatic rice varieties, 7000 flowering plants, 370 flowering plants endemic to Nepal, 170 fodder trees and shrubs, 35 forest types, 400 horticultural crops, 550 food value crops, 188 improved cultivars, 700 medicinal flora, 170 mushrooms, 2000 rice land races, 200 vegetables, 75 vegetation types, 500 species of wild edible plants, 120 wild relatives of cultivated crop and 71 wild relatives of fruits in Nepal. Various research, studies and documentation on agricultural biodiversity have been carried out in Nepal (Joshi, et al, 2003; Rijal, et al, 2003; Gupta, et al, 2003; Yadav, et al, 2003; Pandey, et al, 2003; Tiwari, et al, 2003; Bajracharya, et al, 2003; Bimba, et al, 2003; Baniya, et al, 2003; Khatiwada, et al, 2003; Subedi, et al, 2003; Rana, et al, 2003; Gauchan, et al, 2003; Pant, et al, 2003; Sapkota, et al, 2003; Adhikari, et al, 2003; Shah and shah, et al, 2003; Adhikari and Adhikari, et al, 2003, Thapa, et al, 2003).

Mahendra Trust for Nature Conservation (now, National Trust for Nature Conservation) established the Nepal Conservation Research and Training Center (NCRTC) in 1989 in the CNP to conduct biological research monitoring of fauna and flora in the lowland protected areas of Nepal. In course of time, the center widened its focus and added human dimension to its conservation efforts. The center presently has been renamed as Biodiversity Conservation Center (BCC) since January 2002. The emphasis has been on conservation and integrated development with the twin

objectives of applied biological research and sustainable development of local communities by providing alternate livelihood options. BCC has helped in minimizing the conflict between conservation management and local people. BCC conducts the different activities related to biodiversity conservation and management, such as Tiger monitoring, Elephant monitoring, Birds Survey, ungulate Survey, capacity building programs, women empowerment programs, veterinary services, health and sanitation programs. (KMTNC, 2005).

Widmann et al (2003) reported that the information needs of user groups than CFUGs are virtually unknown and recommend that baseline data of biodiversity should be collected. And, approaches on how to incorporate Participatory Management and Evaluation of Biodiversity (PAMEB) in the Nepal biodiversity strategy should be explored.

WWF Nepal Program, with more than 30 years' experience in conservation in Nepal, has played a more effective role in policy and advocacy on biodiversity issues (Gurung, 2006). In recent years, WWF Nepal program focus on the works for species, forest, fresh water and climate change with strong emphasis on sustainable livelihood (WWF 2006). WWF is intensifying its efforts to saving life in the selected 200 eco-regions, and is relying on eco-region-based conservation (ERBC) to safeguard biodiversity over the long term (Myint et al, 2000).

CHAPTER III

RESEARCH METHODOLOGY

This chapter consists of the description of the study area, conceptual framework of the study, sampling and Surveying procedure, source of data/information, data collection techniques and techniques of data analysis.

3.1 Research Design

The exploratory as well as descriptive study designed was adopted to examine the issues and to describe the findings. Structured questionnaire and sheets were applied for the collection of primary data and information, along with unstructured instruments, tools and techniques for the collection of secondary data and information. Both the independent and dependent variables were observed or taken simultaneously.

3.2 Description of the Fields

This study was carried out in the Suklaphanta Wildlife Reserve and its Buffer Zone. For the sample interviews and observations, following sites was selected to visit, considering the location and the extent of Suklaphanta Wildlife Reserve and its Buffer Zone. The Bedkot Municipality (in past; sudav.d.c. and daijiv.d.c.) was main study area for this research.

The location of the selected sampling sites represents the entire area of influence by Suklaphanta Wildlife Reserve and its Buffer Zone. The locations of the SWR and the sampling sites for the key informant interviews and observation will be shown in the Maps (figure 3).

3.3 Nature and Sources of Data

The study was based on both primary and secondary source of data information. The primary information was collected from sample household Survey and observations. Relevant secondary information was also collected from different sources to facilitate the analysis process.

The study has been based on both primary and secondary source of data and information. The primary information has been collected from sample interviews (questionnaire Survey) and observations; whereas,

Primary Sources

Data and information are collected through the field visit. Primary sources like questionnaire and interview are used in order to collect data. Visitors, Hotel/lodge owners and local people have been interviewed through the medium of structured questionnaires.

Secondary Sources

The secondary data and information are collected from different related books, journal, Ministry of Finance, Nepal Tourism Board, yearly journals published from Department of National Parks and Wildlife conservation, administration of Suklaphanta Wildlife Reserve, tourism related association and so on. secondary information was collected from secondary sources.

3.4 Sampling and Population

S.N.	Place	Households	Sample
1.	Chathari	250	
2.	Sundarpur	250	10
3.	Bhaphanta	150	10
4.	Nayagaun	200	10
5.	Lalpur	250	10
Total		1100	50

In order to meet the objectives and needs of the study, **random** sampling design was adopted to select the households for the interview. Altogether, 50 respondents were selected randomly from the five locations, along with interview and visual observation in Bedkot Municipality (in past; sudav.d.c. and daijiv.d.c.). Random sampling method was used for the collecting data due to the lake of time bound and study area covers very vast geography. Random sampling method is the best method for average representing the cover area by study, so this method has been selected.

3.5 Techniques and Tools for Data Collection

Household Survey questionnaire (personal interview) was carried out using structured questionnaire to collect primary information. The local residents, especially the household heads were considered as the key informants for this study. The questionnaire was prepared to cover the aspect requires fulfilling the objectives of the study. Visual **observation** and collection of relevant primary data and information was carried out by the researcher using observation sheet from the Suklaphanta Wildlife Reserve and its adjoining areas. Relevant **interaction** on the concern subject was also made with the staffs/workers of the Reserve (such as Warden, Rangers, Game Scout, etc) to identify/ understand about the conservation activities and processes being conduct at the Reserve and its Buffer Zone.

The main source of secondary data were taken from Department of National Parks and Conservation, Ministry of Agriculture Development, Ministry of Forest, Ministry of Science and Technology, Nepal Agriculture Research Council (NARC), epartment of Forest research and Survey, Tribhuvan University, Office of uklaphanta Wildlife Reserve, and different INGOs/NGOs, including IUCN, ICIMOD and WWF. Relevant ata and information have been searched through Internet too.

Following tools and techniques has been applied for the research work:

- | | |
|-------------------------------|----------------------|
| 3.5.1 Household Survey | Questionnaire Method |
| 3.5.2 Key Informant Interview | Checklist Method |
| 3.5.3 Focus Group Discussion | Checklist Method |

3.6 Data Management

After collection of primary raw data, processing and tabulation was worked out, further supplemented by computer software. The computer software applied use processing, classification; tabulation and analysis of the data and information were MS WORD and MS EXCEL.

3.7 Method of Data Analysis

After the collection of data and information (primary and secondary), processing and analysis was carried out applying different statistical tools and techniques, along with

relevant physical development analysis. Analysis of present status of the rural people in the study area was found out and relationship among different physical development related variables were analyzed by describing linkage and implications in rural development and poverty reduction perspectives, with interpretations and inferences. This study has also analyzed about the good governance of Buffer Zone management by processing the available data.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

The study explains the buffer zone of Shuklaphanta Wild Life Reserve in terms of socio economic implication. This analyzes the attitude of the rural people in the study area with regarded to their occupation, general livelihood and identification of the organizations involve in supporting the rural livelihood in rural area. The empirical analysis of the study concentrates on the tourism which is determined by the natural resources i.e. development of tourism which is depended on the natural resources especially forest conservation areas of Nepal. The analysis also considers that the problems and prospects of the tourism when the natural resources are systematized and how is its contribution for generating employment and income of the local people. The household survey, visitor survey and hotels/lodge survey are the main sources of data for the analysis. The household survey has been conducted to analyze problems, prospects, and opportunities created by the wildlife reserve. In the same way, visitors' survey has been conducted to analyze the attraction on the natural resources which are located in the area of wildlife reserve and hotel/lodge survey has been conducted to analyze the opportunities created by the park when the visitors come for visiting the wildlife reserve area. The visitors' survey analysis is related to tourism development which helps to increase the opportunity of employment and revenue generating. The visitor's demand can be considered as the most important factor determining the government revenue from the park at national level. The major highlights of the study includes the followings

4.1 Demographic and Socio-Economic Information

The study shows the indigous ethnic group (Adhibasi/Janajati) in the buffer zone of Shuklaphanta Wild life reserve is mainly the Tharu, Magar and Rana. The other caste and ethnic groups of the area include the migrant from different parts of the country. The major caste and ethnic groups presently dwelling in the buffer zone are Brahman, Kshetri, Tharu, Kami, Damai, Sharki and so on. More specially, mainly Tharu community was observed in Chathari settlement; mainly Brahman Kshetries found in Sundarpur; mainly Tharu, Brahman, Kshetri communities were observed in

Bagphanta. Tharu and Brahman, Kshetries were found in Nayagaun areas. And mainly Tharu, Brahman and Kshetries were found in Lalpur areas.

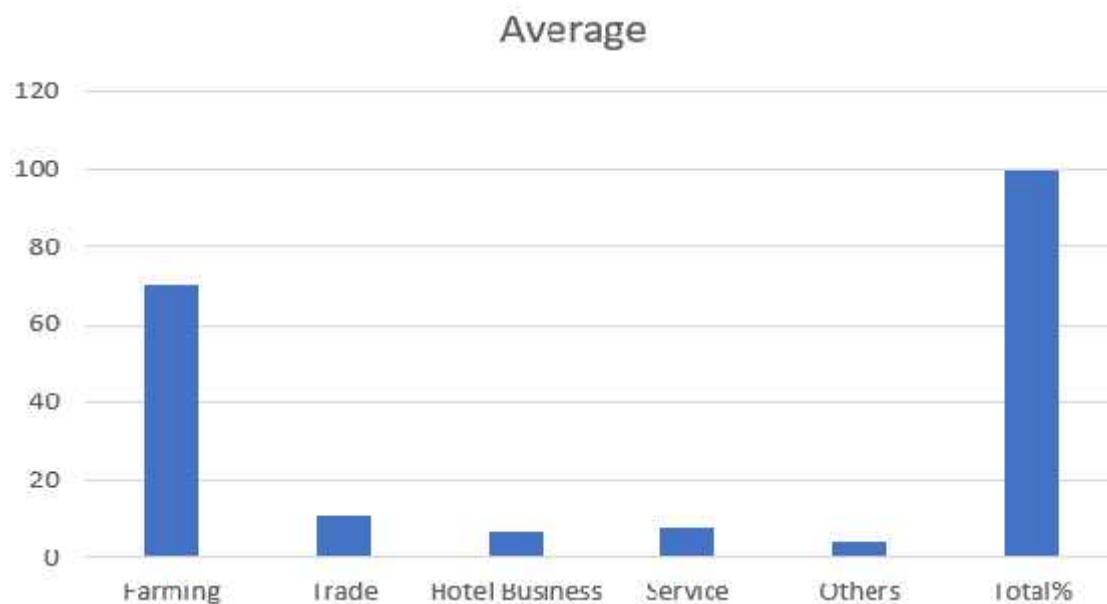
Table 4.1 Main occupation of the rural people observed in the buffer zone of SWR

Study Area	Occupation of the households observed (%)					Total%
	Farming	Trade	Hotel Business	Service	Others	
Chatahri	80.00	5.00	5.00	5.00	5.00	100
Sundarpur	70.00	10.00	10.00	10.00	0.00	100
Bagphanta	80.00	5.00	5.00	5.00	5.00	100
Nayagaun	60.00	15.00	5.00	15.00	5.00	100
Lalpur	60.00	20.00	10.00	5.00	5.00	100
Average	70	11	7	8	4	100

Source: Fields Survey, 2020

Total number of sample households observed (N)=50 i.e. 10 sample household per sample location.

Figure 4.1 Main occupation of the rural people observed in the buffer zone of SWR



Occupation patterns in the buffer zone as observed in the Survey revealed that majority of the buffer zone population (70% household) are mainly engaged in agriculture. Other means of occupation of the people in buzzer zone include Hotel Business, Trade and Service sector. The trend of the occupation pattern in the SWR buffer zone, as revealed by the study, have been presented in table 4.1 and figure 4.1.

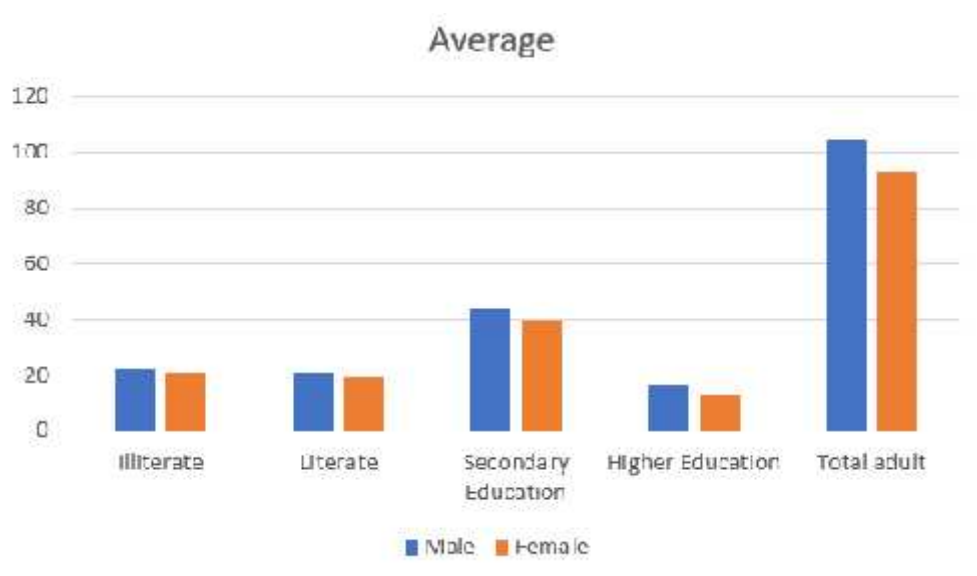
Table 4.2 Adult educational status of people observed in the buffer zone of SWR in 2020

Study area	Illiterate		Literate		Secondary Education		Higher Education		Total adult	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Chathari	4	3	5	6	12	12	3	2	24	23
Sundarpur	5	4	5	5	11	10	2	3	23	22
Bagphanta	3	4	3	2	8	7	4	3	18	16
Nayagaun	5	4	3	2	9	8	4	3	21	17
Lalpur	5	6	5	4	4	3	3	2	17	15
Total	22	21	21	19	44	40	16	13	104	93

Source: Fields Survey, 2020

Total household Survey = 50 (i.e. 10 households per sample Survey location).

Figure 4.2 Average educational status of the adult people observed in the SWR



Source: Fields Survey, 2020

With regard to the adult educational status in the buffer zone of the SWR, the Survey revealed that average 20% adult (11% male and 9% female) were illiterate; 35% adult (18% male and 17% female) were literate; 52% adults (27% male and 25% female) were secondary level educated; and 45% adult (27% male and 18% female) were

observed higher educated on an average in the buffer zone. Among the total population of adults (55% male and 45% female were observed during the sample Survey of the study area. The detail educational status of the adult people in the different sample Survey locations of the buffer zone has been presented in the table 4.2 and figure 4.2.

4.2 Gender Sensitivities in the Household Activities

The analysis of role of women in different household activities observed in the buffer zone revealed that women play primary (Major) role in most of the farming works and related activities, such as crop production and livestock rearing works. However, in case of buying necessary household goods and items, women's role seems to be minor as observed in the study area (Table 4.3).

Table 4.3 Role of Women in Different Household Activities Observed in the Buffer Zone of SWR in 2020

Study	Agricultural Work (in %)		Livestock Rearing Works (in %)		Animal Selling (in %)		Buying Goods (in %)		Total
	Major Role	Minor Role	Major Role	Minor Role	Major Role	Minor Role	Major Role	Minor Role	
Chathari	40	10	20	5	5	10	5	5	100
Sundarpur	35	5	15	10	10	5	10	10	100
Bagphanta	45	5	10	10	5	10	5	10	100
Nayagaun	50	5	10	5	10	5	10	5	100
Lalpur	40	10	15	5	10	5	5	10	100
Average	42	7	14	7	8	7	7	8	100

Source: Fields Survey, 2020

Total number of sample households observed (N)=50 i.e. 10 sample household per sample location.

Similarly, in terms of family functions such as child care and guest respect, women play primary role, whereas in case of educating children and in other important family decisions, women's role seems to be still minor in the buffer zone of SWR (Table 4.4).

Table 4.4 Role of Women in Different Household Activities Observed in the Buffer Zone of SWR in 2020

Study	Response on role of women on different household activities (%)							Total
	Child Care		Child Education		Guest Respect		Family Decision	
	MajorRole	MinorRole	MajorRole	MinorRole	MajorRole	MinorRole	MinorRole	
Chathari	40	5	5	5	30	10	5	100
Sundarpur	35	5	10	5	35	5	5	100
Bagphanta	40	3	12	10	20	10	5	100
Nayagan	40	4	11	5	31	5	4	100
Lalpur	40	5	10	5	30	5	5	100
Average	39	4.4	9.6	6	29.2	7	4.8	100

Source: Fields Survey, 2020

Total number of sample households observed (N) =50 i.e. 10 sample household per sample location.

4.3 Problems of Buffer Zone Approach

Buffer zones have been used as part of larger integrated conservation development programs to provide the benefits of ecological buffering of protected areas and socioeconomic buffering of neighboring communities. The authors explore the legal and managerial development of buffer zones internationally and with the passage of a conservation amendment in Nepal. A review of Nepal's buffer zone policies and

several ongoing projects shows that there are several potential inherent problems. As written, regulations tend to expand the authority of the state by imposing restrictions in populated areas formerly not under control of park officials. Some participatory rights are provided to citizens, but management authority largely remains top down from the standpoint of local users. The authors question whether the managerial and research capacities exist to monitor buffer zones for their effectiveness for both conservation and development purposes and make several recommendations to improve implementation.

Loss and fragmentation of suitable natural habitats is the main threat to biodiversity conservation in Nepal. It is occurring at all levels including terrestrial and aquatic habitats. Species that survive such threats are likely to lose genetic variations as the number of individuals in a population is reduced and populations are increasingly isolated from one another. There is a potential for recovery of communities as long as all of the original species survive. While the creation of protected areas assures protection of certain species, such protected areas, however, are usually surrounded by damaged habitats, making them habitat islands. Habitat outside protected areas is under continuous pressure from human activities, and they are being degraded and converted into agriculture lands. The success of malaria eradication program in the Terai in the late 1950s resulted in mass migration of people from the hills to the plains in search of productive agricultural land. This brought about a devastating effect on the biological diversity of the Terai and many of the unique ecosystems, along with the species residing with them, were lost. There is no record of how many species were lost and what quantities during this span of time. Various development activities, such as roads and canals passing through park and reserves, have also created an edge. The portion of the east west highway passing through the Bardia National Park has resulted in many accidents and added to the edge in the interior of the park. Habitat fragmentation has restricted the migration and mobility of many species and has increased the incidence of wildlife damage to human life and property. Such people-wildlife conflicts have frequently given a negative impression of wildlife conservation. For example there are frequent cases of elephant damage in east Nepal during their migration from India to Nepal. The damage incidents are reported from the migratory route which has been converted into agricultural fields and new human settlements. (Tirtha M. Maskey, Nepa, 2020)

4.3.1 Infrastructures/Facilities Available

Infrastructure and facilities available in the 5 selected study locations was comparatively analyzed based on observation and discussion, especially in terms of facilities and services. The development of the study area was measured and analyzed in terms of infrastructures index, which was built on the basis of logical expression of 1 and 0 for the presence and absence of the facilities respectively (Table 4.3). And, table- 4.4 describes specific and comparative service and facility functions available in the study areas.

Table 4.5 Available infrastructures and facilities observed in the BZ of SWR in 2020

Study	Facility/Infrastructure Types								Total	Mean
	Primary School	Secondary School	Health Post	Police Post	Post Office	Electricity	Market Facility	Bank		
Chathari	1	0	1	0	0	0	0	0	2	0.25
Sundarpur	2	1	1	0	0	1	0	0	4	0.5
Bagphanta	2	1	1	1	1	0	2	0	8	1
Nayagaun	1	1	1	1	0	0	1	0	5	0.63
Lalpur	2	1	1	1	0	1	2	0	8	1
Sum	8	4	5	3	1	2	5	0	27	0.675

Source: Fields Survey, 2020

Total number of sample households observed (N)=50 i.e. 10 sample household per sample location.

Table 4.6 Infrastructure and Facilities

Location	Surveyed Farm House Hold	Infrastructural service/facility availability function							
		Primary School	Market Facility	Secondary School	Health Post	Police Post	Electricity	Bank	Post Office
Chathari	10	×			×				
Sundarpur	10	×		×	×		×		
Bagphanta	10	×	×	×	×	×			×
Nayagaun	10	×	×	×	×	×			
Lalpur	10	×	×	×	×	×	×		

Source: Fields Survey, 2020

Total number of sample households observed (N)=50 i.e. 10 sample household per sample location.

Thus, based on infrastructure index observed, Lalpur area was comparatively the most facilitated area among the five locations, whereas, Chathari area was observed and grouped as least facilitated location among the sample study areas in the buffer area of SWR.

4.3.2 Sufficiency of Agricultural Production

The majority of household in the buffer zone are engaged in agricultural occupation. The farm products they produce are the primary means of their livelihood. However, the agricultural production by the buffer zone, people is not sufficient to meet the needs for all households as observed in the study area. Only 50% household's agricultural production seems to be sufficient for them for 12 months; only 20 % households in buffer zone are selling their surplus agricultural production; and other households seems to be deficient to fulfill their needs by their agricultural production (Table 4.7)

Table 4.7: Sufficiency of agricultural production observed in the buffer zone of SWR in 2020

Study Area	Situation of agricultural production (%) Household				
	No Agric. Production (Houshold)	Sufficient for 4 months	Sufficient for 6 months	Sufficient for 12 months	Selling Surplus
Chathari	10.00	60.00	10.00	20.00	10.00
Sundarpur	5.00	45.00	30.00	15.00	10.00
Bagphanta	20.00	10.00	60.00	15.00	15.00
Nayagaun	5.00	55.00	20.00	10.00	15.00
Lalpur	20.00	20.00	50.00	10.00	20.00
Total	50	50	50	50	50
Average	12.00	38.00	30.00	12.00	8.00

Source: Fields Survey, 2020

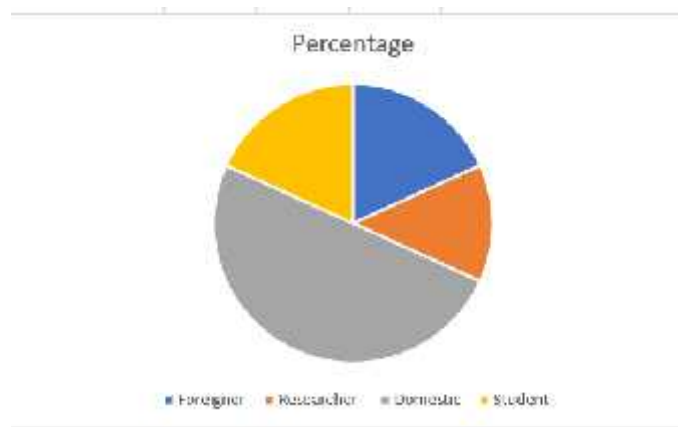
Total number of sample households observed (N) =50 i.e. 10 sample household per sample location.

4.2.3 Tourism Development in the Study Area

Development of tourism is one of the emerging activities in the buffer zone of SWR. Based on the analysis of the local people's responses about

t 55% visitors of the SWR include domestic tourist from different part of the country. Besides, other visitors visiting the SWR and the surrounding areas include international tourist, student and researchers (Figure 4.3)

Figure 4.3: Local People's Responses on the Types of Tourists Visiting the SWR



Foreigner 20%, Researcher 15 %, Domestic 55%, Student 20%

Source: Fields Survey, 2020

While tourists visit the wildlife reserve and the surrounding places, they contribute to generating income and employment to the people in the area. The ways by which the income and employment generation occurs among the people in the buffer zone include food and lodging charges, tourist guiding, entrance fees into specific tourist places, vehicular transportation charges and so on. The contribution of the tourist in generating income and employment in different locations of buffer zone of SWR has been described by means of multiple piedigrams as under (Figure 4.4).

Figure 4.4: Local People's Response (%) on Tourists' Contribution to Income Generation in the Buffer Zone of SWR

Source: Fields Survey, 2020

4.2.4 Resource Conservation and Utilization in the BufferZone

SWR plays an important role in conserving natural resources. Based on the present Survey, carried out in the buffer zone, 90% of the local responses were stating that the wild life reserve has conserved floral and faunal resources; 70 % responses comprises that it has contributed in water resource conservation; 20% responses reviled that the wild life reserve is supporting the use of water resources for irrigation purpose however, 15% responses were expressing the negative impact due to the wild life reserve specially by wild animal. Location-wise responses on this concern have been presented in table 4.8.

Table 4.8: Responses of the Local People in the Buffer Zone on the Resource Conversation Role of SWR

Study	Response (%) on Resources Conservation due to SWR				Total
	Water Resource Conservation	Floral & Faunal Conservation	Use of Water Resource on Irrigation	Negative Impacts by Wild Animals	
Chathari	40	40	10	10	100
Sundarpur	50	40	10	0	100
Bagphanta	30	30	25	15	100
Nayagaun	40	40	10	10	100
Lalpur	40	40	5	15	100
Average	40	38	12	10	100

Source: Fields Survey, 2020

Total number of sample households observed (N) =50 i.e. 10 sample household per sample location.

For the cutting and collection of Khar (Roofing straw) grasses and other necessary forest item to the buffer zone people, the SWR annually publish public notice for 5-7 days a year. Only during the noticed days the rural people in the buffer zone can enter into the wild life reserved forest in order to cut and collect Khar and other necessary forest product only with the authorized permission of SWR administration. Otherwise the rural people cannot enter into the SWR to cut and collect the timber product.

4.4 Prospects of Buffer Zone Approach

SWR has been influencing the development processing in the surrounding rural areas including to the rural people in the buffer zone in many ways. An inquiry was made to access the impact of SWR among the rural people in the buffer zone. Based on the Survey, the people's response on the impact of the SWR has been described here especially in terms of impact on agricultural production, environment biodiversity, social and economic situations especially on people's economic activities.

4.4.1 Impact on Agricultural Product

The Survey, in general shows positive impact of the SWR on agricultural production and productivity. The people's responses indicate that forest has been increased due to the SWR which has resulted in increased raining, that is ultimately causative to better agricultural production. Besides, the SWR has supported to agricultural process and activities such soil fertility maintenance, irrigation and soil conservation.

4.4.2 Impact on Environment and Bio Diversity

Survey shows that there is the positive impact of the SWR in terms of environmental pollution. During the Survey, 50% respondents expressed that environmental pollution in the surrounding area has been decreased after the inception of the SWR and 30% respondents expressed that there is no change in environment pollution due to the SWR. However 20 % respondents expressed that the environmental pollution has been increased. The responses of the local people in the selected sample locations has been presented in the multiple bar diagram in figure 4.5

Figure 4.5 Diagram Showing the Local People’s Response on Impact of SWR on

Source: Fields Survey, 2020

Furthermore the people’s responses indicate that greenery has been promoted due to SWR in the surrounding area promoting floral and faunal diversity. And there is also positive impact of the SWR to the socio economic environment in the buffer zone.

Table 4.9 further describes the impact of the SWR in surrounding rural areas environment and bio diversity, including socio-economic environment.

Table 4.9: Local People’s Response on Impact of SWR on Environment and Bio-Diversity

Study	Percentage Response						Total
	Greenery Promotion	Degrading Environment	Promoting Bio Diversity	Negative Impact on Bio Diversity	Negative Impact on Soc-Eco environment	Positive impact on Soc-eco environment	
Chathari	40	5	25	5	5	20	100
Sundarpur	40	5	30	5	5	15	100
Bagphanta	45	5	20	5	5	20	100
Nayagaun	50	5	25	5	5	10	100
Lalpur	45	5	30	5	5	10	100
Average	44	5	26	5	5	15	100

Source: Fields Survey, 2020

Total number of sample households observed (N) =50 i.e. 10 sample household per sample location.

Table 4.10: Employment Opportunities Provided by the SWR to the People in Buffer Zone

Study Area	Response%			
	Year Round Employment	Seasonal Employment	Occasional Employment	Total
Chathari	10.00	80.00	10.00	100
Sundarpur	20.00	60.00	10.00	100
Bagphanta	30.00	20.00	30.00	100
Nayagaun	10.00	50.00	20.00	100
Lalpur	15.00	55.00	15.00	100
Average	17.00	53.00	17.00	100

Source: Fields Survey, 2020

Total number of sample households observed (N) =50 i.e. 10 sample household per sample location.

The impact of the SWR seems to be considerable in promoting and conservation of local culture. Based on the Survey average 65% respondent expressed that there is no significant impact of the SWR on the local culture diversity, 15 % respondent expressed that there is positive role of SWR in conserving and promoting local cultural diversity in the study area. However, 20% respondent expressed that negative expression have been created due to the SWR as far as the conservation and promotion of the local cultural diversity concerns. Table 4.11 describes the local responses in different location under on this concern.

Table 4.11: Local Responses on Impact of SWR on Local Culture

Study Area	Response%			
	Negative Impact	Positive Impact	No Impact	Total
Chathari	20	10	70	100
Sundarpur	15	15	70	100
Bagphanta	25	20	55	100
Nayagaun	15	10	15	100
Lalpur	20	10	70	100

Source: Fields Survey, 2020

Total number of sample households observed (N) =50 i.e. 10 sample household per sample location.

4.4.4 Impact on Women’s Economic Activities

The study shows that the activities of the SWR in the study area of the buffer zone have promoted the women’s economic activities. Based on the Survey, average 52% respondents expressed that women’s economic activities have been supported and increased due to the different programs and activities of the SWR. However, 42% responses were stating that there is no any change in women’s economic activities in the buffer zone due to the impact of the SWE and 6% respondents expressed that women’s activities have been distributed due to the impact of SWR. Figure 4.7 describe the local people’s responses in different location of the study on this concern as reviled from the Survey women are organized in different groups through which they carry out different economic and social functions in the buffer zone. Different income/employment generating activities such as vegetable farming, goat rearing, poultry farming, mushroom cultivation, sewing and cutting, etc are carried out in the women groups. Some groups are also conducting saving and credit programmes among the farm household in the buffer zone of SWR.

Figure 4.6: Local People's Response on Impact of SWR on Women's Economic Activities

Source: Fields Survey, 2020

4.5 Institutional Support to Community Development

Apart from the SWR, there are so many institutions and organizations involved in supporting development activities in BZ of SWR. A BZ management committee

(BZMC) is currently active in bio diversity conservation and sustainable livelihood enhancement in the BZ of SWR. Under the BZMC, user's committees and sub committees and user groups are formed almost in every VDCs of BZ. Such groups and committees manage community forest and miscellaneous income and employment generating activities in their command area. Besides these there are so many other organizations and institutions engaged in supporting development activities in the buffer zone. Some of the importance of them:

- Bio diversity Conservation Center/National Nature Conservation Trust
- Different community forest group/Federation of community forest user group of Nepal, Saving and cooperative organizations.
- Local clubs, youth organizations, NGOs/INGOs including Nepal Red Cross, NNSWA, UNDP and Park and People Management Program.

4.5.1 SWRs' Support to Rural Poverty Reduction

With regard to poverty reduction and rural development in the BZ, SWR is playing an important role. The responses of the local people in this concern in different study location have been presented in table 4.12.

Table 4.12: Local People's Responses on Role of SWR in Rural Poverty Reduction in BZ

Study Area	Response%				Total
	Providing Fodder Support to Livestock	Support to Farming	Promoting Hotel Business	Generating Employment of Tourist Guide	
Chathari	35	40	25	15	100
Sundarpur	40	20	15	15	100
Bagphanta	35	30	35	15	100
Nayagaun	30	30	30	15	100
Lalpur	20	30	20	15	100
Average	30	30	25	15	100

Source: Fields Survey, 2020

Total number of sample households observed (N) =50 i.e. 10 sample household per sample location.

Based on the Survey, on an average 30% respondent expressed that hotel business has been promoted in the BZ due to SWR, 30% respondent expressed that the SWR has provided fodder support to their domesticated livestock. 25% respondent expressed that employment of tourist guide has been generated in buffer zone due to SWR; and 15% responses were stating that SWR has supported in agricultural farming activities to the rural people in BZ (Figure 4.8). All of these support activities of the SWR

seems to be important for the poverty reduction and empowerment of the rural poor farmers in the BZ.

Figure 4.7: Local People’s Response in Role of SWR in Rural Poverty Reduction in the BZ

Source: Fields Survey, 2020

4.5.2 Personal Benefits to Rural People due to SWR

As expressed by the local respondent during the Survey, personal benefits to the rural people in the buffer zone from the SWR include employment, environmental benefit, entertainments, and supports for farming activities. The local people’s responses in this concern have been presented in table 4.13.

Table 4.13: Respondent Responses on Personal Benefits due to the SWR in the BZ

Study Area	Response%				Total
	Employment Benefits	Income Generation Support	Entertainment Benefit	Support to Livestock Farming	
Chathari	30	20	25	25	100
Sundarpur	40	20	10	30	100
Bagphanta	30	30	20	20	100
Nayagaun	20	30	20	30	100
Lalpur	40	30	20	10	100
Average	32	26	19	23	100

Source: Fields Survey, 2020

Total number of sample households observed (N) =50 i.e. 10 sample household per sample location.

Figure 4.8: Respondent's Responses on Personal Benefit Due to SWR in BZ

Source: Fields Survey, 2020

CHAPTER V

SUMMARY AND FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Findings

The present study has assessed and analyzed the rural people's attitudes and socio-economic situation in the BZ. This also analyzed the impact of the SWR for their livelihood and poverty reduction, particularly to generate employment, agricultural development and socio-economic implications. The major issues concerning park-people interaction for the rural for the rural livelihood of the people in the BZ include the habitat quality deterioration, high pressure on reserve resources, inadequate alternatives to livelihood and resources, inadequate coordination among the concerned stakeholders and insufficient financial resources. For the conservation of natural resources in the SWR and the sustainable rural livelihood enhancement of the people in the BZ, increasing public awareness is apparently necessary. There should be proper coordination between the reserve management authority and the local people for biodiversity conservation and sustainable rural livelihood. Poaching and smuggling of wildlife and forest products seems to be reportedly increased. Effective control of this is must through coordinated and participatory approach. Community forest should be developed and encouraged in the BZ and it should be handed over to the user committees so that the pressure in the projected areas can be reduce. Demand driven and inclusive programs should be implemented to increase people's participation for biodiversity conservation and livelihood enhancement creating local people controlled resources distribution and management system. The Sukhalaphata Wildlife Reserve, this fascinating land of biodiversity is the largest protected area of Far-Western Development Region. This wildlife carries the largest amount of tourist among the conservation areas in Far-western Development region. The unique biodiversity, the scenic grandeur in combination with the multicultural and multi-ethnic diversity make it the popular visiting destination. With the objectives of achieving a balance between the environment conservation and socio-economic development, through people's participation the Sukhalaphata Wildlife Reserve established. Through the arrival of tourism in Suklaphanta Wildlife Reserve, and

administration and people's of locally have been me able to earn foreign currency and improve their living standard. They have become able to improve their economic standard through tourism business. In the same way, the administration office also collecting revenue from tourism business. Nepal is recognized as a tourist destination because of its unique nature. Besides cultural heritage and religious/traditional practice, Historical monuments and the sites of pilgrimages are sure to motivate tourists to visit Nepal at least once in lifeline. The art and architecture, ethnicity tradition and custom of the people are there to see while feeling the hospitality and warmth of the people in this friendly atmosphere of Nepal. The foot trails, the country side view, the highland and lowlands hills and plains, the green forests, magnificent rivers, ice-capped Himalayas, diverse group of flora and fauna are not to be missed by anyone who travels Nepal with lots of expectations. This trade creates many favorable multiplier effects in private sector like foreign country earning, employment generation, change in socio-cultural and traditional structure, change in lifestyle, upgrading living standard etc.

Rare and endangered species should be protected through coordinated approach. Free and open access cause destruction of forest resources and biodiversity, but excess control cause stress to local people. So, protected forest should be timely opened with certain regulations. Proper coordination is essential for biodiversity conservation and rural livelihood sustainability in the BZ. In fact the impact of the conservation activities of the Reserve needs to be critically reviewed with theoretical, practical and scientific bases for the conservation of biodiversity. Particularly, the Reserve should be accountable to the people rather than being administrator and the local people in the BZ should support for the biodiversity conservation avoiding the greed of the natural resources of the Reserve. For this appropriate policies and programs are needed, especially for the promotion of the employment opportunities supporting the Reserve conservation, such as sustainable farming, enhancement and conservation of local skill and eco-tourism promotion in the BZ. The residents of in the protected area should be encouraged for the conservation oriented development activities for their economic betterment rather than their displacement from the area. This work, however, is really most challenging too, requiring multidisciplinary cooperation and interaction in a sustained manner.

5.2 Conclusion

Based on the observed scenario in the buffer zone of the SWR, agricultural farming and related enterprises are growing in the buffer zone. More than 80% **households** in the buffer zone are engaged in farming activities. Integrated development of crops, livestock and poultry, market oriented organic vegetable production, fruits growing, and sustainable community forest management including mulberry sericulture and beekeeping seems to be highly potential in the buffer zone of the SWR for maintaining agricultural productivity, sustainability and conservation of biodiversity, enhancing rural food security and employment. In this context, the following points are recommended for further research and development studies on enhancing sustainable livelihood enhancement in the study area.

- Promoting sustainable rural tourism business seems to be highly potential in the buffer zone of SWR. For this further in depth studies are essential, especially on updating information on the tourism carrying capacity of the tourism sites in the buffer zone and study on the impact of tourism on social, cultural, economic and ecologic aspects.
- Similarly, study on the impact of the community forest in the buffer zone economy and decreasing pressure on the resources of the park are also imperative for the development of effective monitoring and evaluation systems for proper biodiversity conservation and rural livelihood sustainability.
- Appropriate studies regarding minimization and/or management of Park-People conflict and increasing participatory interaction/cooperation for the biodiversity conservation and sustainable livelihood enhancement in the Reserve and Buffer Zone is also imperative.
- Beekeeping promotion is highly potential in the buffer zone if properly coordinated with the Reserve and Department of Agriculture with proper integration with horticulture, seed production and forest development. Since wild bee floral resources are also adequately available in and around the buffer zone, further studies regarding beekeeping promotion are imperative in the area.
- Another potentiality in the buffer zone is promoting sericulture industry if mulberry farming is increasingly promoted in buffer zone community forests.

So, further studies on sericulture industrial promotion are also necessary for increased employment and income generation in the study area.

- Market oriented organic vegetable farming should be promoted in the buffer zone to attract the urban consumers and the agro-tourists. Farmers need to be trained in organic practices, such as composting, vermin-composting, green manuring, etc.
- Fruit farming is also potential to be promoted in the buffer zone. Promotion of fruit farming especially mango, litchi, guava and banana crops can be kept under in depth research.
- Agro-processing and storage facilities are inadequate in the buffer zone.
- Considering farmer's needs and possibilities, studies are needed towards establishment of agro-product processing storage structures.
- Local Governmental Institutions (including VDCs/DDC) should also develop and implement policies and programs for promoting sustainable rural livelihood enhancement to alleviate poverty through sustainable livelihood enhancement in the buffer zone of the SWR.

ence, tourism sector has been creating lots of positive impacts in generation of increment in household income level; art; tradition and culture have also been flourished among the foreigners. So, Tourism sector/business must be prioritized

which are based on natural resources.

5.3 Recommendations

The study area has not become able to achieve the benefits that it can achieve. The important and benefits to this region is not sufficient. For more increment of economic sector in the area of Suklaphanta Wildlife Reserve, following mentioned recommendations are suggested through which tourism development can also be promoted and conservation of reserve can be done properly.1. The special attention must be given to the sustainable management of fuel wood. The encouragement for the private plantation is one of the positive steps in this direction. In the response to household attitude the large number of household suggested for the biogas. Therefore, providing the credit facility for the biogas plant can be considered as one of the strong devices to mitigate the pressure on the park resources. 2. The reduction in livestock number of household due to the park establishment is

found to be remarkable. It must be compensated directly or indirectly. The establishment of income generating projects for the local people may be the indirect method of compensation.³ Human life and crop damage by wildlife of the park can be considered as one of the conspicuous problems in the adjoining area. It is desirable that special development under the park management that deals with depredation should be established.⁴ The political instability is the burning issue in the content of Nepal. Due to this local people and tourists are much more affected. Strike, which is one of the main problems to the mobility of tourists create problems to them. And, strike is the result of political instability.⁵ There should be establishment of different tourism related information centers in local places or villages areas also.⁶ There should be development of proper way to enter into to forest. In the same way, geographical constraints should be reduced, proper infrastructure system, proper transportation system and proper communication should be developed. Hence, tourism sector is flourishing in the context of Nepal. In order to attract more tourists in Nepal, various measures should be adopted so that Nepal can become able to earn more foreign currency and can get developed economically. The natural resources based tourism should be increased because it helps to preserve the natural resources and balance the eco-system

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ANNEX-I- Questionnaire

A STUDY OF SOCIO-ECONOMIC STATUS OF BUFFER ZONE OF SUKLAPHANTA WILDLIFE RESERVE

(Household Survey Questionnaire)

Name of Household Head:..... Age:.....Sex: Male/Female

Address: Na.Pa.....Ward No:...Tole:.....Family Size.....

SA= Single Answer

SAS= Single Answer with Sub-answer

MA= Multiple Answer

MAS= Multiple Answer with Sub-answer

1. What is your main job/occupation?

(a) Agriculture

(b) Trade business

(c) Hotel business

(d) Services

(e) Others (Specify).....

2. What are the facilities and infrastructures available in your village/location? (MA)

(a) School (Primary/Lower Secondary/Secondary/Higher Secondary)

(b) Health Post

(c) Post Office

(d) Electricity Office

J (e) Others (Specify).....

3. Family Education Situation:

	Male (No)	Female (NO)	Total (No)		Male (No)	Female (No)	Total (NO)
Literate				(c)Secondary Education			
Illiterate				(d)Higher Education			

4. Describe the role of women in different household activities as follows.

Activity		Activity		Activity	
Agriculture works		(d)		(g)	
Animal caring		(e)Child Caring		(h)	
Animal selling		(f)		(i)	

5. How long your own agriculture productions sustain the family?

- (a) No agricultural production (always works as labor)
- (b) 4 months
- (c) 6 months

- (d) 12 months
- (e) Selling surplus agriculture products

6. What types of tourists come to visit the Wildlife Reserve? (MA)

- (a) Foreigner tourists
- (b) Domestic Tourists
- (c) Students
- (d) Researchers
- (e) Others (specify).....

7 How do they support the income generating activities of local people?

- (a) Through lodging/food charge
- (b) Tourist guiding charge
- (c) Entrance fee into main tourist place
- (d) Hiring charge of vehicle
- (e) Others (specify).....

9. When the Wildlife Reserve opens for fuel wood, khar, etc to the local people?

- (a) 15 days, once in year
- (b) 15/15 days, twice in year
- (c) Always in year, but no animal grazing permitted
- (d) Others (specify).....

10. What types of role plays the Wildlife Reserve to the water resource conservation?

- (a) Conservation of the source of water
- (b) Conservation of the aquatic animals

- (c) Providing water resource for farm irrigation
- (d) Negative impact to water resource and aquatic animals
- (e) Others (specify).....

11. How does Wildlife Reserve contribute to the agriculture product works?

- (a) Technical support to the farmland
- (b) Irrigation support
- (c) More raining due to increasing forest area
- (d) Others (specify).....

12. How does the Wildlife Reserve cause impact to your surrounding environment?

- (a) Greenery promoted
- (b) Biodiversity conservation supported
- (c) Degraded the environment and negative impact to biodiversity
- (d) Causing disorders in the society

13. How does the Buffer zone cause impact to the socio-economic environment?

- (a) Negative impact to socio-economic environment
- (b) Positive impact to socio-economic environment
- (c) Causing disorder to the social culture

14. How the living animals in surrounding area being affected due to the Buffer zone?

- (a) Destroying aquatic animals
- (b) Destroying aquatic plants

- (c) Destroying the source of water
- (d) Positive impact in general
- Others (specify)

15. Are there any organizations supporting income/employment generation and conservation of environment and biodiversity in your location?

(a) Yes (b) No If yes, specify the following

SN	Name of organizations	What the organizations do?	How the organizations causing impacts?

16. Specify the impact due to the Reserve Area in the following aspects (MAS).

Employment: (a) increased

Environmental pollution:

Effect on local culture:

Effect on biodiversity:

Women's economic activities:

Observation Sheet used for the study

A study of Physical Development status of buffer zone of Shuklaphanta Wildlife Reserve

OBSERVATION SHEET

Locality Name..... Tole..... Ward No.....

VDC/Na. Pa.....

Community (Caste/ethnic group): Settlement type: Urban/ Sub-urban/ Rural

Specific Observations:

1. Housing types:
 - J Construction materials:
 - J Windows:
 - J Doors:
 - J Roof type: RCC/RBC, Zinc Sheet, Khar/ Paral/ Seula, Others (specify)
2. Surrounding Environment:
 - J Greenery pleasant/ Non-greenery but pleasant/ Not pleasant and hazard
 - J Clean and healthy surrounding/ Dirty and unhealthy
3. Source of Drinking Water:
 - (a) Good/Clean
 - (b) Normal
 - (c) Not so good
 - (d) Contaminated
4. Irrigation type and conditions:
5. Market facility: Are there shops nearby, related to agriculture? (a) Yes (b) No
If yes, specify the type and number. Type Number

6. Access to agricultural extension/ service
 - J Agric. Service Center nearby (yes/no):
 - J Livestock Service Center nearby (yes/no):
 - J Agroveter shop nearby (yes/no):
 - J Agro product storage facility (yes/no):
7. Bank (Yes/no): If yes, how far?minutes (to.....)
8. Poultry farming (Yes/no):
9. Livestock farming (Yes/no):
10. Home gardening (Yes/no):
11. Commercial fruit orchard (Yes/no):
12. Commercial vegetable farming (Yes/no):
13. Biogas plant (Yes/no):

The End

ANNEX-II- Photographys

Suklaphanta Wildlife Reserve

Water Resource of SWR

Grassland of SWR

Herd of Swamp Deer In SWR

View Tower (Machan)

Fireline of SWR

Greenery of SWR

Swamp Deer in SWR

Komodo Dragon

Rani Taal