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**ENVIRONMENTAL MANAGEMENT AND SUSTAINABLE
TOURISM DEVELOPMENT IN THE ANNAPURNA REGION,
NEPAL**

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ABSTRACT

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<p>The purpose of this thesis was to examine the perception of environmental impacts of tourism in the Annapurna region. The explosion in trekking tourism has upset the ecological balance and contributed with a significant impact on natural environment. This thesis has reviewed the overall picture of tourism development in Nepal, consequences of environmental impacts and creation of the Annapurna Conservation Area Project. The other objective of this thesis was to find out the difficulties of environmental impact management and promote sustainable tourism for the welfare of the people and the environment of the study area i.e. Annapurna Conservation Area, Nepal.</p> <p>The theoretical part of this study focused on how an increasing tourism activity has brought positive and negative impact on environment. It was divided on four parts; these four chapters provide the detail information for facilitate and manage the environmental impact of tourism for the development of a pro-poor sustainable tourism in the study area. The empirical part of this thesis is based on qualitative research methods i.e. literature review and interview.</p> <p>Annapurna Region has been by far the most popular mountain tourism destination in Nepal. Tourism becomes important sources of revenue to the government. There has not been enough planning and strategic for the development of this Region. ACAP has been doing outstanding work in impact management and tourism development; still conservation and impact management of this Region are found slow. There is lack of information about protected areas of Nepal. More publication, research and marketing are needed to explore the country's socio-bio-physical situation. The practices of sustainability must be start as soon as possible. Beside this eco-tourism and responsible tourism could be the important product for the sustainable future of the Region.</p>		
Key words Annapurna region, Annapurna Conservation Area Project, Environment impact, Sustainability and tourism.		

ABSTRACT

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LIST OF ABBREVIATIONS

ACAP	:	Annapurna Conservation Area Project
ACA	:	Annapurna Conservation Area
CDC	:	Conservation and Development Committee
CAMC	:	Conservation Area Management Committee
ESCAP	:	Economic and Social Commission for Asia and the Pacific
GDP	:	Gross Domestic Product
ICIMOD	:	International Centre for Integrated Mountain Development
INGO	:	International Non-Government Organization
MABP	:	Man and Bio-sphere Program
MOCTCA	:	The Ministry of Culture, Tourism & Civil Aviation
NPR	:	Nepalese Rupee Rates
NTB	:	Nepal Tourism Board
NTNC	:	National Trust for Natural Conservation
NTY	:	Nepal Tourism year
NTNC	:	National Trust for Natural Conservation
NGO	:	Non-Government Organization
PA	:	Protected Area
TRPAP	:	Tourism for Poverty Alleviation Programme
UNWTO	:	United Nations World Tourism Organization
UNESCO	:	United Nations Education, Scientific and Cultural Organization
UNEP	:	United Nations Environmental Programme
UNEP	:	United Nations Environmental Programme
USD	:	United States Dollars
VDC	:	Village Development Committee
WTO	:	World Trade Organization
WTTC	:	World Travel and Tourism Council

1 INTRODUCTION

Nepal is small country with an area of 147,000 square kilometers and has a population of 30,485,798. Nepal features diverse physiographic and ecological characteristics. Nepal's diversity attracts tourists around the world. Its physical uniqueness offers a wide scope of activities that range from visiting jungle resort camp to trekking in snow-capped mountains. Tourism is important to Nepal as a source of foreign exchange and a major employment generator and source of government revenue. For the country like Nepal, which lacks abundant resources the tourism sector is expected to continue to play an important role in the country's development, poverty reduction, environmental conservation and empowerment of local communities. (UNESCO 1995.)

Nepal was opened for the tourists after 1950. Since then Nepal's natural beauty and its rich cultural heritage have attracted a large number of tourists annually. Nepal becomes famous in the world as an adventurous country. It can offer a wide range of adventurous activities but trekking is by far the most popular one. Nepal is the ultimate destination for the trekkers offering an immense possibility from the short and easy to the more demanding challenges of the snowy peaks. It is also called "Trekkers' paradise" with contrast in altitudes and climates and equally a spectacular mix of lifestyles, cultural experiences, vegetation and wildlife. (Nepal tourism board 2010.)

There are many trekking routes in the country that attract tourists. The Annapurna trekking is the most common route capturing about 60 percent of the total trekkers. It was opened for the foreigners in 1997; the region has been recognized as one of the world's best trekking trails. The Annapurna region offers splendid varieties of natural and cultural diversity with spectacular Himalayan views. After the establishment of the Annapurna Conservation Area Project (ACAP) in 1986 the tourism in Annapurna region has been increased. The main idea behind this is to conserve the unique diversity of the region while enhancing the livelihood of the people. It is the first and largest conservation area in Nepal. It covers an area of 7629 sq.km. (NTNC brochure 2013.)

Mountains are important assets for the tourism industry. They take up an estimate share of 15-20% of the global tourism market, generating between 100 and 140 billion USD per year. Nepal is the homeland for 8 of the 10 highest mountains in the world. The elevation of the country ranges from 60 meters above sea level to the highest point on earth, Mount Everest at 8,848 meters. These mountains are rich in a natural resource that includes water, timber, minerals, and biodiversity. Equally important is the rich culture heritage of the mountain peoples. More ever these mountains offer a place of rest, solitude, adventure, recreation and scenic beauty. For centuries, the relative remoteness and isolation of mountains has resulted in less impact and higher resources sustainability. The combined advances in extractive resource technology and increases in leisure time, the impacts of human activity in mountain regions have increased significantly. (ICIMOD 2013.)

Mountain tourism in the Annapurna regions has brought both positive and negative impacts on mountain areas where it is practiced. These changes are manifested in nature and environment, in the economy, and in the social and cultural patterns of mountain people. The Annapurna regions is struggling with high poverty ratios, exacerbated by climate changes, environmental degradation, and an increasing rural urban migration, making traditional livelihoods options increasingly unsustainable. In spite of huge potential, tourism has so far contributed little to the host community. Many researches have shown that some major constraints are policy failure, lack of human resources development, lack of supply side facilities and management and a failure to link with the local production system. (Egorkhapatra 2012.)

The main aim of the thesis is to understand the environmental impacts of tourism on the mountains' ecosystem, at the same time this thesis also reviews the management strategies and action plans to manage the impact of tourism, where it is practiced. The other objective of the study is to review the physical features and attractions of the Annapurna region and highlight the prospective of ACAP in promoting the Annapurna region. This study uses both primary and secondary data. Primary data is collected using interview method with visitors, tour operators and local community leaders. This thesis also uses secondary source of data available in National trust for nature conservation (NTNC) and ACAP. Secondary sources also includes

review of literature on tourism, tourism environment impact, sustainable tourism, E-journals, publications, magazines related to the Annapurna region, Nepal.

With the growth of mountain tourism activities in Nepal, it has had varying impacts on the nature and socio-economic environment of the mountain communities. As this thesis is focused on environmental impact, the social or cultural effects of tourism have not been included. This thesis works as a practical guide to facilitate and manage the impact of mountain tourism for the development of a pro-poor sustainable mountain tourism industry. More than ever the potential for developing tourism in mountain areas is enormous. If properly guided the tourism development in mountain areas can help alleviate poverty and conserve the fragile mountain environment in the Annapurna region.

2 TOURISM IN NEPAL

In the 20th century tourism has emerged as one of the fastest growing industries worldwide. Tourism has become one of the major tools for the socioeconomic transformation in developing countries such as in Nepal. Nepal is regarded as a well-known destination on the world tourism map. The current political situation is stable, which has provided a strong base for the development of tourism industry in Nepal. The newly formed government has strong plans and policies which help to promote sustainable tourism in whole country. To develop the tourism sector the government should be able to line with local needs and aspirations, conservation of environment, maintain the culture value, and the need for foreign exchange earnings and employment. At the same time it should respond to the global threats such as energy crises, climate change, economic recession and wars between various countries, government should be able to use tourism as an effective tool for socioeconomic transformation and poverty reduction. (UNWTO 2012.)

Global tourism trends have increased tremendously, in 2008, international tourist arrivals reached 924 million, representing a growth of 2% from 2007 (UNWTO 2009, 3). World trade organization (WTO) forecast that the number of international tourist arrivals worldwide would be increased to almost 1,6 billion in 2020 (WTO 2001, 10). and the tourist arrival in South Asia is expected to reach 19 million in 2020, as the result South Asian markets share will be increased to 1, 2% (WTO 2001, 19). The WTO report also forecast that East Asia and the Pacific will be the major tourist's attractor continent in the world within 2020. Tourism is continuously growing as a major service sector in both developing and poor countries. It has the potential to provide a genuine competitive advantage to poorer and the least developed countries. (UNWTO 2007.)

In Nepal, the direct contribution of travel and tourism to GDP was NPR 53,5bn (4% of total GDP) in 2011, and is forecast to rise by 4, 7% in 2012, and to rise by 3, 7% pa, from 2012-2022. Travel and tourism directly supported jobs 412,500 jobs and the indirect economic em-

ployment was 952,500 jobs, this is expected to rise by 3, 8% in 2012, and expected to rise by 3, 1% pa in 2022. (WTTC 2012, 1.)

Tourists are attracted to Nepal by the captivating sights, incredible mountains, ancient cultures and religions. Nepal is rich in biodiversity; the hills of Nepal are home to different ethnic groups. Nepal has unlimited tourism potentials, tourism products around social and cultural events could be developed in a new form such as adventure sports. Unfortunately tourism products that are available in Nepal are not exploited optimally. The Government of Nepal has recently formulated its Tourism Vision 2020, which focuses on creating employment in rural areas including women and marginalized communities, distributing tourism benefits at grass-roots level and enhancing community participation in tourism activities. (MOCTCA 2009, 5.)

Nepal could be benefited by trans-boundary tourism since Nepal shares border with India and China, but these border are hardly used by the travelers. The railway services connecting Beijing with Qangxi has the potential to increase cross-border tourism between China and Nepal. The Kathmandu-Delhi and Lhasa-Kathmandu direct bus services have increased the regional tourism, the tourists travelling from India and China use local tourism products and this brings more benefits to local entrepreneurs. The impacts of trans-border tourism are visible, the flow of tourists from India into Bhairahawa and Lumbini in Nepal through the border town of Sunauli, is contributing to the hotel industry and local handicraft producers in Lumbini. As Nepal shares border with China and India, which has also similar culture, religious, and social values, Nepal could reap benefits from trans-border tourism. (Kruk, Kreutzmann & Richter, 2009, 154.)

Today, tourism reaches out to every aspect of Nepalese life and it benefits various sectors directly and indirectly. Tourism generates employment opportunities and helps in the promotion and conservation of the art and culture of country. Nowadays tourism and its activities are increasing gradually; tourism itself is one of the foreign currency earners in the country which definitely is making a significant contribution to the economy. The Government of Nepal and The ministry of culture, tourism and civil aviation (MOCTCA) have been actively promoting tourism in Nepal and also been motivated to the private sector for their participation in the

development of tourism. The Government also gives equal importance to conservation of culture heritage, lifestyle, natural resources and the human resources. (MOCTCA 2009.)

After the election in April 2008 Nepal has been declared a republic country at on May 2008. From this point forward tourism in Nepal has been encouraged by the recent stabilization of the political situation and it is expecting more intensive growth in the tourism industry. Beside this the political parties in the parliament also committed to the tourism as the back bone for the Nepalese economy. Nepal tourism board (NTB) is promoting new Nepal as a new tourist brand name and the state budget for the touristic sector is also growing. The vision of Nepalese tourism is establishing the Nepal Tourism Board as the leading organization for championing the innovative practices of destination marketing and development of the tourism sector. The most important vision is to promote Nepal as the number one mountain-based tourism destination in the world as a brand. This helps to maximize the tourism benefits by developing Nepal as a premier holiday destination in the world. (NTB 2013.)

2.1 Tourism vision, policy and campaign

In Nepal, tourism has been considered as a major tool for socio-economic transformation and economic growth. It generates foreign exchange earnings and government revenue, attracts international investors, increases tax revenue and it can also provide employment opportunities. Tourism is being considered as high priority in the government plans, policies and programmes. Tourism becomes a tool for the government to address development challenges such as poverty alleviation, tourism infrastructural development, promotion of domestic tourism, development of backward regions, and gives preference to the environment and the local community for the sustainable tourism development.

Nepal celebrated the Nepal Tourism Year (NTY) 2011 throughout the year 2011. It also marked the beginning of a new mission in Nepal towards the overall development of Nepal's tourism industry. The major objectives of this campaign were to attract at least one million international tourists to Nepal in the year 2011. The campaign gives focused in overall on a

sustainable tourism development; it aimed to see at least 40% of the tourist arrivals visiting beyond the three main trekking areas. The campaign focused on overall tourism development, the main objectives were to improve and extend the tourism-related infrastructure in tourism sites, to enhance the capacity of service provider, build up the community capacity to cater for needs of tourists, and the promotion of domestic tourism for the sustainability of the tourism industry. The NTY 2011 campaign has been planned in conjunction with the tourism policy 2009 and the Nepal's Tourism Vision 2020. The tourism policy of 2009 describes Nepal as an attractive, beautiful, and safe destination in the international tourism market with great potential of economic transformation in the country. Tourism policy 2009 gives emphasize to create self-employment opportunities for the general public and gives preference to combine ecotourism and village tourism with the poverty alleviation. This campaign also strives to develop village tourism for the benefits of the general public and domestic tourism also receives special attention in these plans. (MOCTCA 2009.)

Nepal's Tourism Vision 2020 was developed by the Ministry of Tourism and Civil Aviation in consultancy with industry partners. According to Tourism Vision 2020 tourism regards as:

Tourism is valued as the major contributor to a sustainable Nepal economy, having developed as an attractive, safe, exciting and unique destination through conservation and promotion, leading to equitable distribution of tourism benefits and greater harmony in society.

(MOCTCA 2009, 5).

Tourism Vision 2020 focuses on progressive programmes for building people-centered sustainable development for uplift the livelihood of the people living in every part of the country, by developing tourism infrastructure, increasing tourism activities, creating employment opportunities in rural areas and sharing the benefits of tourism at the grassroots level.

NTB is a national tourism organization agency established in 1998, and it is a public-private partnership that oversees the promotional and facilitation functions of tourism in Nepal. Its primary objective is to establishing Nepal as a premier holiday destination in the international

tourism map. It is guided by the mission statement to maximize tourism benefits by promoting Nepal as a premier holiday destination with a definite brand image in the international arena. NTB has divided its promotional activities in the international sector into three main market segments: conventional long-haul markets, neighboring markets, and emerging markets. Nearly 44% of the total international tourists come from Western Europe and America. These countries lie on the segment 'conventional long haul markets' some other countries are the USA, the UK, Japan, Germany, France, Australia, Italy, Spain and Russia, and other countries as well. This segment categorized in the first place in terms of gross per capita expenditure. The segment 'neighboring markets' includes India, Bangladesh, Sri-Lanka and China which originates 33% of the market share. Eastern Europe, Thailand, Singapore, Malaysia, and the Middle East occupy almost 23% of the international tourist to Nepal. (MOCTCA 2009, 9-11.)

Over the past decade, The NTB has been strongly involved in promoting tourism, beside this; NTB has been proactively involved in farming policies and programmes for the regional development and the poverty reduction. NTB has been involved in the development of different tourism projects such as tourism for Rural Poverty Alleviation Programme, Sustainable Tourism Network, and Marketing Assistance to Nepal for Sustainable Tourism Products, Training on Project Facilitation and Management in Sustainable Tourism Development and Training on Sustainable Tourism Marketing Linkages.

2.2 Major issues and constraints of tourism development

Tourism sector in Nepal has been facing many difficulties due to the lack of infrastructure. Political instability is other major problems in Nepal. Aviation industry especially the government's national flag carrier Nepal Airlines Corporation and its performance has remained the big challenge. Participation of the private sector in the infrastructure development could not be increased. There is a big challenge in culture heritage preservation due to the lack of specific plans and policies. The global economic crises may hit in Nepalese tourism sector. The symptom in this sector has revealed and to hit hard of global financial crises. In spite of various efforts Nepal does not seem to have achieved a satisfied outcome in tourism develop-

ment due to lack of coordinated tourism planning process, failure to diversify tourism products or enhance their quality, lack of local awareness about tourism, lack of professionalism, lack of a market research for international promotion, lack of overseas information centers, lack of a competitive budget for international promotion and lack of accessibility. (Dangi 2006.)

After the peace agreement between government of Nepal and rebel group, the Nepalese tourism sector started to progress slowly. After the peace agreement new Nepal was awarded and also built a new tourist brand name. The natural beauty, diversity and unique features at the same time are representing a permanent strong point of tourism sector in the country. Rural tourism can play the essential roles in Nepalese economy in terms of alleviating poverty and employment generation. There is a possibility of further growth in the number of tourists with the opening of new mountains and restricted areas at the same time there is an immense possibility of developing adventure tourism in the mountains and rivers of Nepal.

In Nepal, mountain tourism being a major product, its proper evaluation and development is needed. In the beginning, mountain tourism was not taken seriously as an important tourism product but later it can be seen that it was developed as an important tourism product. Earlier, most of the tourist who came to Nepal was for holiday/pleasure objective. In recent years, there has been a dramatic increase in the number of tourists coming with the objective of trekking. Proper planning and policy formulation is needed for sustainable mountain tourism development in the country. But various tourism development plans and policies do not seem to have addressed the issues of mountain tourism in Nepal. (Sherpa & Shrestha 2011.)

3 MOUNTAIN TOURISM

Mountains have been a source of wonder and inspiration for human societies and cultures since time immemorial. After coastal regions, mountains may be second in global popularity as tourist destinations. There are a number of reasons that explain why people are attracted by the mountains, such as, to gain a sense of renewal and spiritual well-being, popularity of mountain tourism is the explosion of lowland populations and over-crowding in urban centers. Travelling to mountain areas, which already attracts up to 20% of global tourism, is increasing rapidly. Today the elements that attract people to mountains are clean air, diverse landscapes, rich biodiversity, and unique culture. According to Green, mountains are large masses of rock that rise above the surrounding landscape, high above the ground and 3,280 ft. (1,000) is generally considered to be a mountain. But the definition may vary. (Green 2009, 4.)

The development of tourism in the European Alps had already begun in the 18th century when artists, writers and poets travelled for educational, religious and health reasons. In the beginning of 19th century climbers began to explore the peaks of the Alps. In the mountains regions, tourism as a mass phenomenon started in the second half of the 19th century with the first railroads crossing the Alps. In 1863, Thomas Cook led the first package tour to Switzerland. With the increasing number of tourists, cableways were established, the first one on to Rigi in 1873. A similar trend also occurred in North America, where the expansion of the railways made the Rocky Mountains accessible to tourists and mountain climbers in the late 19th century and a cog railway was built to take tourists to the summit of Pike's Peak in Colorado in 1891. (Godde, Price & Zimmermann 2000, 6.)

3.1 Mountain tourism in Nepal

Before 1949, foreigners were not allowed to enter Nepal; most of the mountaineering activities in the Himalayas took place from the northern side. In 1949, Erich E. Shipton discovered the southern climbing route of Everest. After 1950 the doors were opened for foreigner to visit Nepal. After the advent of democracy in 1950, Nepal started developing different aspects such

as social, economic, and political life. The initial imputes of modern tourism started since 1950 after the successful attempt of Mt. Annapurna on June 3, 1950, by French climbers Maurice Herzog and Louis Lachenal. Three years later in 1953 the successful ascent of Mt. Sagarmatha by Tenzing Norgé Sherpa from Nepal and Sir Edmund Hillary of New Zealand, which was great landmark in the mountaineering history of Nepal. (Godde, Price & Zimmermann 2000.)

After 1955 when Thomas Cook offered the first organized tour of Nepal for foreign visitors, Nepal was introduced as a touristic place on the world tourism map. Nepal became popular destination for climbers, trekkers, hikers and tourists. The numbers of tourist visiting Nepal have been increasing day by day; in 1995 there were only 1,140 which were increased to 448,769 in 2010. Ranking among the least developed countries in the Asia continent, tourism contributes one of the most important sectors in Nepalese economy. In 2010, the country was visited by 602,867 international tourists. The contribution of tourism in national economy is increasing; the total earning by tourism in 2010 was 329,982 USD. (MOCTCA 2010.)

Mount Everest is the most important tourist attraction of Nepal. This mountain is located on Nepalese territory on the China-Tibet border. It can be scaled from Nepalese or from China side but Nepalese route is more popular among mountaineers. After the first ascent of Mount Everest in 1953, the trend of mountaineering and trekking expeditions has been started in Nepal as well as Nepal's remote Solukhumbu district. Today Mount Everest region is the most popular trekking destination in Nepal and Mount Everest is main causes of linking peoples and places from around the globe. On the other hand, the culture of the peoples living in the surrounding regions of Mount Everest is another major tourist attraction in this area. After the increasing number of visitor in this region, in 1971 first trekking lodge is established in the village of Namche Bazaar. The settlement of the tourist lodges had grown as per increasing numbers trekkers every year. Namche Bazaar is now being described as the most sophisticated tourist resort in the Himalayas. Now Everest region catering different services and facilities to the tourists and the local residents such as two airports, travel agencies, medical facilities, banking services, video halls and internet cafés. Namche Bazaar has become more sophisticated region in the Himalayas, this is possible because of the tourism development in the regions.

One example of economic development is Khumjung village which has the highest located bakery on Earth, specialized shops as a bakery in a location where there is no local demand for such products can only exist due to the tourism. (Shakya 2009, 126.)

Mountain tourism often has different constraints that prevent benefits from reaching local people and which leave negative impacts on social, natural and cultural environment, and economic. These are the major problems and constraints of mountain tourism in Nepal. Lack of vital infrastructure for mountain tourism development, royalty fees for expeditions to the high Himalayan and other peaks in Nepal are very expensive in comparison with neighboring countries. At the same time lack of standard service offered in Nepal because of the high customs rates that makes goods for tourism purpose very expensive. Government policy, rules and procedures are quite complicated and time consuming, lack of experienced liaison officers, those deputed makes unnecessary demands and many of them do not reach the place concerned, which generates dissatisfaction. Mountaineering activities are confined to limited popular peaks and areas; there is no adequate effort to promote the peaks that have not become very popular and the new trekking routes respectively. (Nepal K 2002.)

To promote the benefits of tourism among the wider mountain community, while at the same time minimizing negative impacts the following issues and constraints need to be addressed. Infrastructure development which includes transportation facilities, construction of small airports, aid posts, refreshments, lodges in places that have no road link ought to be speeded up. There needs to be a reduction in customs rates for transport vehicles and other goods for tourism purpose, reforms in expedition royalty fees. In comparison with Nepal's neighboring countries the expedition royalty fee in Nepal is very costly, reform in government policy, rules, work procedure and reforms in provision of liaison officer appointment, environment clean-up campaigns, are needed. The Ministry of Tourism and Civil Aviation and Nepal Mountaineering Association issuing the permits of mountaineering that they are responsible for managing their garbage adhering to the set standards, opening up of new peaks for mountaineering and new trekking routes and promoting those which are opening, strengthen national flag carrier Nepal airlines, it is very important to strengthen the national flag carrier in order to promote the tourism sector in the country. (Kruk, Hummel & Banskota 2007.)

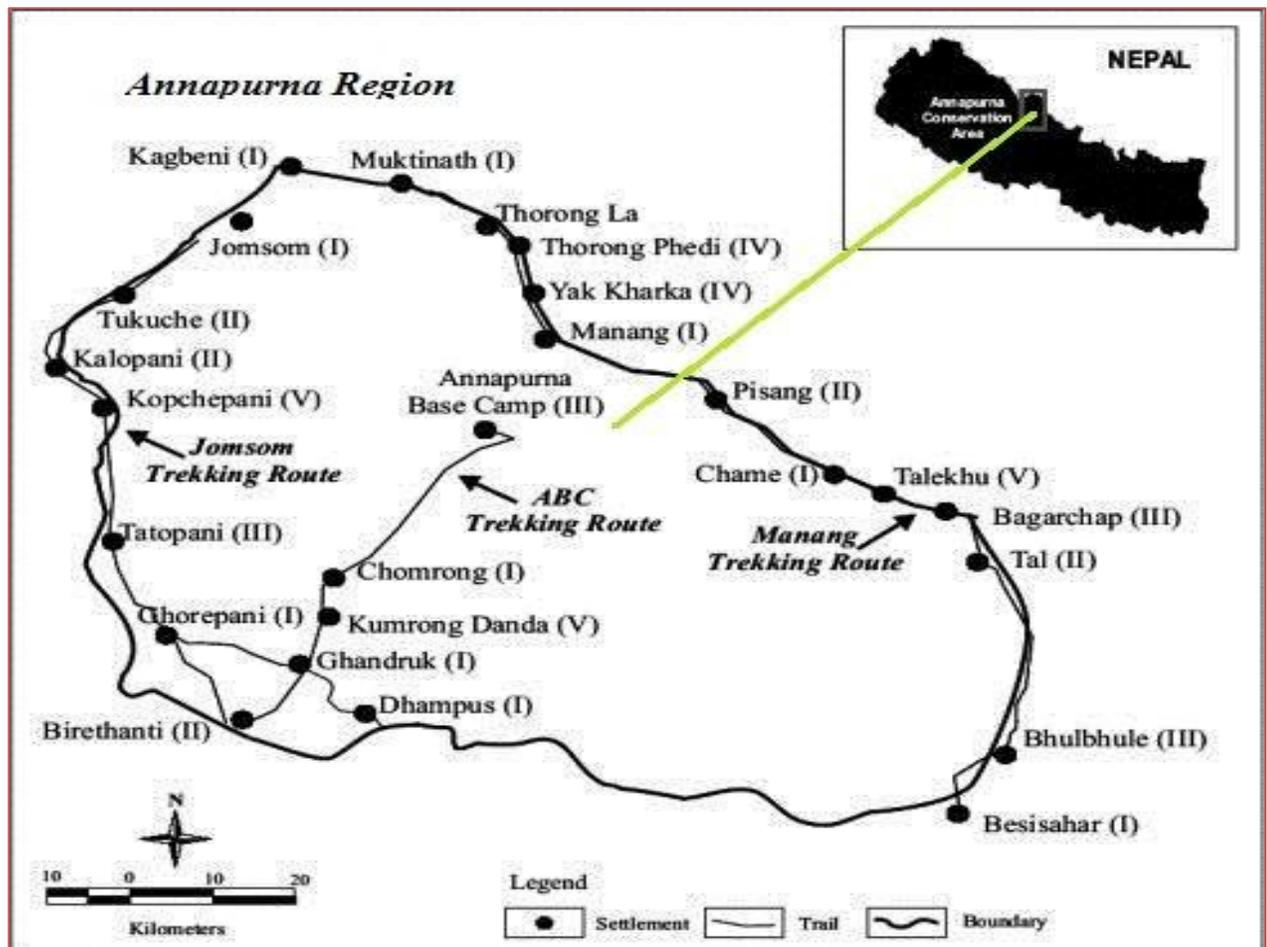
3.2 The Annapurna Region

The Annapurna Region is one of the most notable tourist destinations, especially for trekking tourists. The region lies in the north-western part of Nepal. Popularly known as the Annapurna Trekking route comprising some of the world's highest peaks of above 8,000 m. and the world's deepest valley, the Kali Gandaki Valley; it has attracted trekkers from many countries. Ecologically, the region comprises two high mountain districts and three hill districts. The region has unique ecological and cultural diversity. Such features include diverse climates, i.e. subtropical to alpine and diverse landscapes supporting 22 different forest types with 1,140 plant species, 21 species of amphibians, 32 species of reptiles, 478 bird species and 101 different mammals. In addition, its cultural diversity is demonstrated in its accommodation of people of different castes and ethnic groups such as Brahman, Chhetri, Gurung, Magar, Thakali, Tibetan and many occupational groups plus their own cultural and religious patterns and expressions. Moreover, the Annapurna Region has also been noted for its innovative work as early as in the 1980s in terms of participation of local community in activities and decision making regarding tourism activities. (NTNC brochure 2009.)

The Annapurna Region is one of the high income sources of the adventure tourism in Nepal since 1977. The Annapurna Region is located to the north of Pokhara which is the popular destination of adventure tourists. These enormous and interesting places have made this region popular in the world. The Annapurna is the 10th highest peak in the world which is 8091m. The Annapurna Region has made popular trekking destination due to the river basin, mountain, the Himalayas, bio-diversity, cultural uniqueness and people among the adventure tourism in Nepal. On the one hand, income of tourist in this region is the source of livelihood and on the other hand trekking tourist has chance to know the livelihood of the local people and their culture. (Guide Nepal 2013.)

Tourist arrival in Annapurna region has reached an all-time high. In the last fiscal year 2010, the total number of tourists who visited the Annapurna Region was 79,900. This number of arrivals is the highest ever recorded in the region. According to ACAP the number of tourist visiting the region increased by 5,3 percent in 2009/10, whereas the rate of growth in the pre-

vious fiscal year was 16 percent and the year before was 30 percent. According to conservation estimate about 30 percent of total tourist visits the country travel to the Annapurna Region. This region has been a popular destination for visitors from the UK, Israel, South Korea, China, Germany, the US, France and Japan. (Welcomenepal; EBook browse 2011.)



GRAPH 1. The Annapurna Region and Annapurna trekking routes map (adapted from Nepal K, 2007)

The Annapurna Region is also the home of Annapurna Conservation Area Project (ACAP). It is the first conservation area and largest protected area in Nepal. The Annapurna Conservation Area (ACA) is spread over 7,629 sq. km. of Kaski, Myagdi, Parbat and Manang districts in Northwest Nepal. This region also offers stunning scenery, rich biodiversity and over 3,000

species of plants and 478 species of birds are found in the region. Among, the number of tourists visiting Pokhara more than 60 percent goes trekking in the Annapurna Region. (Nepalbeyond 2011.)

3.3 Trekking tourism in the Annapurna Region

Mountains are the key assets in Nepal's tourism industry. Actually mountain tourism generates revenue to the Government of Nepal, business for tourism entrepreneurs, and seasonal employment for the local community. As mountain tourism have different types of forms such as mountaineering, trekking, hiking, canoeing, and rafting, these activities have different impacts on host communities. Nepal's Government collected revenue as royalties from mountain climbing, 30% of the total sum has been allocated for local area development. In 2007, Nepal earned USD 230,617 million. Based on this, it can be estimated that mountaineering generated seasonal employment for 4,823 high altitude workers, low altitude workers and local porters. Almost a quarter of international tourists to Nepal go trekking. The majority of them are handled by registered agencies, while others are free independent travelers. Local peoples prefers free independent travelers rather than registered travelers because free travelers consume local foods, use local services from which local people are directly benefitted. Trekking tourism contributes immensely to local people by creating income and providing livelihood supports as compared to other forms of tourism in Nepal. (MOCTCA 2007, 50-68.)

The Annapurna Region in North-Western Nepal offers the world's best trekking routes. From the lake city of Pokhara, popular treks lead to Jomson, Annapurna base camp, Mustang and Manang. The Annapurna Region is an area of contrast comprising the wettest, driest and windiest place in Nepal. The Annapurna circuit is by far the most popular trekking route. The area encompasses forested Middle Mountain, the high Himalayas and trans-Himalayan desert plateau. In the lower elevation resides Gurung, Magar, Thakali, and Brahimin village while Tibetan's culture influence becomes apparent in the north. Mustang offers trans-Himalayan landscape and exotic Himalayan cultural experience. Muktinath is also a popular destination for pilgrims and trekkers to the region. Lo-Manthang in Upper Mustang is an extremely exotic

destination. Upper Mustang is also part of ACAP; visitor's needs special permits to visit the region. The trekking in the eastern part follows the Marsyangdi River upstream till Manang. Manang is also the home of Lake Tilicho (4919 m), the world's highest lake. (NTB 2013.)

TABLE 1. Popular Trekking Routes in the Annapurna Region, Nepal (adapted from NTB 2013)

Popular trekking routes	Climates	Access/Accommodation
<p>The Annapurna Circuit: The trek goes from Besi Sahar, off the Pokhara-Kathmandu Highway, to Naya Pool and reaches its high point at Thorong La. On the way there is stunning mountain scenery-Manaslu, Langtang Himal, Annapurna I, II, III and IV, and Dhaulagiri.</p>	<p>Being a high-altitude region, temperatures are lower. Winters are usually extreme with snowfall in the higher altitude regions, while summers are cool and temperate during days, but can get cold and chilly at night and during rains.</p>	<p>Pokhara is the departure point to treks in the Annapurna region. There is an airport in Jomsom if you are going to Mustang, and an airport at Chame for access to Manang. Resorts, hotels, lodges and tea houses are all available along the trekking trail.</p>
<p>Mustang: It offers trans-Himalayan landscape and exotic Himalayan culture experience. Muktinath, Lo-Manthang and Upper Mustang are popular destinations.</p>		<p>Permits & Fees</p>
<p>Manang: The trek in the eastern part follows the Marsyangdi River upstream till Manang. Lake Tilicho (4919 m) the world's highest lake also situated in this region.</p>		<p>Entry Permit must be obtained from the tourist service center in Kathmandu and Pokhara to enter the Annapurna region. To trek to Upper Mustang, one has to also take the Trekking Permit from the Department of Immigration Kalikasthan, Kathmandu.</p>

4 ENVIRONMENTAL IMPACTS OF TREKKING TOURISM

A mountain hosts more biodiversity than any other eco-region on earth; it provides most of the world's freshwater, minerals, forest products and agricultural products and of recreation. Mountains have become a magnet for tourism, which is the most rapidly growing industry in the world. Mountain tourism accounts for 15-20% of world tourism (WTO 2010). As tourism increases in mountain regions around the world environmental, social and economic impacts can also be expected to increase. The impacts of tourism on mountain ecosystems and biological resources are of great concern because of the high degree of biodiversity and environmental sensitivity of mountain areas. Immense altitude changes and associated climatic conditions result in great variations in temperatures, precipitation, soils and vegetation, breeding a rich diversity of ecosystems. Cultural identities and diversity in mountain regions are also under threat by the impact of mountain tourism. Mountain peoples lose value in the face of the latest developments of sports, infrastructure and the demand for luxurious hotels. A loss of cultural identity leads to an increase of social problems of crime, drugs, and the degradation of community values and religious practices that once held the society together. (UNEP 2002.)

Although tourism can provide significant economic benefits for some destinations the image of tourism as a benign and environmentally friendly industry has often been challenged. There is a clear and growing body of evidence that suggests that the effects of tourism development are far more complex than policy-makers usually suggest and that the impacts of tourism occur not just at the destination but at all stages of a tourist's trip. Broader social and environmental changes also shape the form, growth and experience of tourism development. (UNEP 2002.)

In Nepal, with the growth of mountain tourism it has had various impacts on the natural and socio-economic environment of the mountain communities. Available studies show that the most notable environmental impacts results from the demand of fuel-wood, pollutions and garbage management. In mountain areas tourism is an attractive option for developing the livelihood of the local community. But the benefits of the tourism have not been allocated spontaneously. Poverty and environment degradation is more intense in the loftiest of all Nep-

alpine mountain regions. There is growing pressure on environment resources for the fulfillment of the basic necessities of the community. The processes of consuming the natural resources are irrelevant and redundant by the inexorable processes of globalization and liberalization. Tourists and travelers trekking can have terrible effects on ecosystems. Impacts of trekking become especially damaging in high-altitude regions where the recovery rate of the environment is slow, making them especially susceptible to impact. Furthermore, littering and pollution, deforestation area also associated with trekking tourism in high mountain areas. (Egorkhapatra 2012.)

4.1 Sources of impacts

There are many ways to categorize the potential environment impacts of tourism. Such impacts include transport and travel, accommodation and shelter, recreational and tourism activities in the natural environment. Recreational and tourism activities include boating, off-road vehicles, hiking, camping, mountain bike riding, horse riding and caving. In some cases all three impact categories may occur together leading to a common impact situation. The degree of biophysical impact depends on the location, diversity, intensity and duration of the activities. The major sources of environmental impact are trampling and wear access roads, permanent overnight dwellings, and trekking, hiking, camping, walking trails, focal points of activity such as rivers, lakes and wildlife habitats. (David & Ross 2013, 110.)

Tourism sites received at low level of risk of biophysical damage where there are only few trails, little access and few visitors. It often fits in the concept of wilderness tourism. In the case of recreational tourism impacts the significant impacts can occur at recreational sites after only short periods of time and low levels of use. Another possible way of impact is a rapid increase in impacts at first which then increase slowly during subsequent years. At the same time some impacts such as campsite expansion and damage to trees at campsites do not occur rapidly but instead show a gradual deterioration over time. A high and continuous impact potential may exist where there are many trails, roads, facilities and infrastructure. This situa-

tion comprises of many linkages and networks such as trails and roads, car parks, campgrounds, river access points and scenic lookouts. (David & Ross 2013.)

Trampling is the biggest threat which damage both soils and vegetation. It is the result of visitor leaving trails and pathway to take photographs or when a particular animal is pursued because people want to see it. Recreational activities are sources of trampling damage to vegetation: camping and firewood collection, use of bush/informal toilets, horse riding, off-road vehicles, walking and hiking, wildlife viewing and photography etc. Environmental impacts associated with the construction and operation of built facilities is higher. In many tourism sites natural areas there is often a focus of intense visitation and impact such as tourist resort, campground, picnic area or car park. Accommodation and shelter in particular provides continuous focal points of activity which have direct or indirect impact on natural environment. The observation of wildlife plays an important part in the recreational experience of hikers, campers and other area users. Seeing animals in the wild involves risk of negative impact on animals. Another source of impact is cumulative impacts. The problem of cumulative environmental impact lies in different smaller impacts which later combined result in a much larger and significant impact situation. (David & Ross 2013, 83-134.)

Construction of infrastructure and support facilities for tourism development results in a complex source of disturbance in environment. This happens if the development project is situated entirely in a natural setting. Ski resorts are a major issue in mountains areas and other potential environmental impacts are tourist accommodation and resorts as well as their associated structure and facilities. Newsome et.al adapted this table from Buckley et al. In TABLE 2 below, Buckley et al. 2000 mentioned that various forms of environmental pollution can arise from the built facilities such as visual pollution, solid and liquid waste disposal problem, and use of pesticides to control insects.

TABLE 2. Environmental impacts of infrastructure and support facilities in the development of tourism (adapted from Newsome, Susan & Dowling 2012.)

Activity	Possible Impact
<i>Land clearing</i>	
Noise	Disturbance to wildlife
Light pollution at night	Disturbance to wildlife
Removal of vegetation	Loss of habitats, shift in species composition of area, weed invasion, increased fragmentation of habitats.
Soil erosion	Soil loss, stream sedimentation and reduced water quality, sedimentation of coral reefs.
Energy supply	Noise from generators, pollution from fumes and oil/reduced air quality, disturbance corridors
Water supply	Ground water abstraction/reduced water tables, construction of dams/disrupted stream flow
Waste disposal	Need for solid landfill or removal of waste off-site, liquid treatment facilities/odour, litter
<i>Transportation infrastructure</i>	
Roads	Nutrient, fertilizer, pesticide and oil run-off, road corridor impact and noise from vehicles, barriers to animal movement
Airstrips	Noise
Boat landings	Damage to water margins

In the Annapurna Region the number of tourists has grown, so the environmental problems for the region are also increased. The sources of environmental impact are construction activities and infrastructure development, deforestation and intensified or unsustainable use of land, trampling and alteration of ecosystems by tourists' activities. The area is remote everything must travel by foot or by mule. The local have made a trekking infrastructure to support the visitors, they have built lodges, hotels and restaurant. There are also reasonably warm showers, 4000m above sea level. This has resulted in soil instability and slope failures due to the heavy construction. Deforestation has been huge problem because 90% of the local energy fulfill by forest at the same time forests are heavily used to assure comfort for visitors to heat the oven and the water tanks. The ensuing erosion has caused many landslides in the region. Another problem has been huge amount of garbage left by hikers and trekkers. (ForestryNepal 2013.)

4.2 Bio-physical impacts of visitors' activities

The impacts of tourist activities on the biophysical environment are rapidly increased as the intensity of use and development grows. The quality of the environment both nature and manmade is essential to tourism. Tourism relationship with the environment is complex; many tourism activities can have adverse environment effects. Many of these impacts are linked with the construction of general infrastructure such as roads and airports, tourism facilities; including resorts, hotels, restaurants, shops and golf courses. The negative impacts of tourism development can gradually destroy the environment resources on which it depends. Uncontrolled conventional tourism poses potential threats to many natural areas. It can put enormous pressure on an area and lead to impacts such as: soil erosion, increased pollution, discharges into the sea, natural habitats loss, increased pressure on endangered species, strain on water resources and heightened vulnerability to forest fires. (Geointeractive 2013.)

TABLE 3. Visitor activities' impacts on wildlife (adapted from Ward & Beanland 1994)

Potential bio-physical impacts	Variables to be assessed
Wildlife disturbance affecting: <ul style="list-style-type: none"> • Behavior • Breeding success 	<ul style="list-style-type: none"> • Change in feeding patterns (quantify) • Breeding success: Number of eggs laid, young reared to adults • Effects on productivity resulting in disturbance of essential functions • Severe exertion (Quantify) • % displacement • %survival • Change in behavior patterns (qualitative & quantative) • Change in population size
Habitat alteration	<ul style="list-style-type: none"> • % loss of habitat • % loss of food supply/loss of food source (species) • Change in biodiversity • Indirect effects on other species

Visitors' recreational activities in natural areas bring impacts on wildlife. This includes behavioral changes, decreased or disturbed mating and breeding success, displacement, and species composition change and population decline. This impact depends upon factors such as species characteristics, location and timing of disturbance. Wildlife shows greater vulnerability to disturbance during breeding season and some wildlife also showed a degree of habituation. While the impact of some tourist activities occurs immediately, others occur over a longer period of time.

Another biophysical impact of tourist activities is impacts on vegetation. Vegetation varies between species, location and season. It also varies depending upon the tourism activity. Generic impacts include damage to vegetation, composition change of a plant community, decreased height and area of spread etc. The major causes of impact to vegetation are trampling, weed invasion and direct damage. At the same time tourist activities bring lots of negative impacts on physical environment which includes soil compaction and structural change, altering the hydrological regime, increased erosion, sediment disposition, pollution, damage on formation and change in temperature. The intensity of the impact varies between environment type, climate condition, activity type and severity of use.

In the Annapurna Region before the establishment of ACAP tourism activities are unregulated, uncontrolled and haphazard development. The lack of regulation in the region has led to the biophysical impacts on the region such as landscape degradation, garbage pollution, and increased use of natural resources such as fuel wood and timber. At the same the overwhelming numbers of visitors in the region have affected on wildlife and on vegetation. Garbage disposable is another issue that has received much attention in the region. Garbage left behind by trekkers and mountaineers including food cans, bottles, empty oxygen cylinders, pent batteries and ropes pose disposal problem in the region. Beside this trail erosion caused by increased trekking traffic such as excessive widening, deep incisions, exposed bedrock, exposed mineral oil, trail displacement, exposed tree roots and running water on the trail. (Nepal 2007, 10.)

5 ENVIRONMENTAL MANAGEMENT PRACTICES

Scientists believe the rapid loss of biological diversity around the world is just the beginning of the sixth mass extinction and an ominous portent of a possible end of humanity itself on the planet. Protected areas have become the last figure of the world's extant biological wealth. However many of these biological sanctuaries are currently affected by a series of social, political, industrial and institutional challenges. If these challenges are not addressed through effective management strategies, the world may lose all the parks it seeks to protect. (Terborgh & Peres 2002.)

The top-down management model applies strict nature protection approaches especially in national parks and wildlife reserves. The main characteristic of the top-down model is that it seeks to protect wilderness by removing social elements. It has traditional view of nature and humans; it dwells on the false premise that society and nature are separate. The bottom-up approach to conserve sees the environment not as an isolated entity but as an individual set of multiple and often complex social, political, cultural and ecological realities and seeks local involvement and initiatives in the planning and management of protected areas. UNESCO Man and Biosphere Program MABP tries to link social development with nature protection by involving rural communities in conservation programs. All local adaptations of the bottom-up conservation approach invariably comprise community participation in the planning, implementation, and management of local development and conservation programs in and around protected areas. (Nepal S, 2009.)

Participatory conservation has often been considered a social movement based on morality and pragmatic grounds. Moral justification comes from the arguments that local communities have rights to be part of the decision making process. And the pragmatic ground for community involvement in biodiversity conservation can effect from socio-political environment, non-participation of a key stakeholders such as local communities will lead to failure of conservation initiatives. As management strategy, participatory conservation has gained significant popularity in biodiversity conservation in developing countries. Some examples of successful

implementation of participatory conservation are Annapurna Conservation Area Project in Nepal and Communal Areas Management Program for Indigenous Resources in Zimbabwe. (Nepal S, 2009.)

Since 1973, the Government of Nepal prioritized biodiversity conservation by adopting the Protected Area system. The national parks and wildlife conservation act of 1973 assigned major responsibilities for establishing of PAs with the objectives of conserving the unique natural and cultural heritage and protection of the valuable wildlife. The Annapurna Region is popular for its combination of high peaks, spectacular natural and cultural landscapes, and high culture diversity. The area surrounding the Annapurna Region is rich in varied flora and fauna. It features the world's deepest valley, the Kali Gandaki, between the Dhaulagiri and Annapurna regions stretching from tropical lowlands lush temperate rhododendron forests in the south to a dry sub-alpine steppe environment on the northern range, the Annapurna Region includes an outstanding variety of wildlife habitat and vegetation. Annapurna Conservation Area Project is the largest conservation is in Nepal. It is the project of National Trust for Nature Conservation in close collaboration with the local Conservation Area Management Committees which is formed under village development committees. The ACAP has pioneered integrating natural and social system into protected area management in Nepal. (NTNC brochure 2008.)

5.1 Visitor planning and management

Visitor and tourism resources are dependent on each other. Visitors come to a tourism destination to experience the site and the visitor's interest in the resources of the site issues the need to protect them. However it is unlikely for the visitors to have closer encounter with tourism resources without causing some forms of negative impact. The degradation of resources cause spoils the quality of the resources and visitor experience. The factor that produce negative impacts of tourism activity in a particular destination are often associated with visitors' inappropriate behavior, unawareness of the sensitivities and values of the sites. For visitor management if visitor were made more conscious of the value of the resources, they would appreciate their environment more. (McArthur & Hall 1996.)

Making visitors more aware of their activities requires effective information delivery, which relies on the frequent communication between visitors and site-managing organization. In other words managing visitors implies not only controlling visitors' activities but also communicate and educate them. It is practices of ensuring visitors achieve high standards of experience and at the same time it manages and maintains of the tourism resources as well. There are any strategies used in visitor management such as physical control of visitor activities, pricing, transport scheme and environmental interpretation. Visitor planning involves various tasks and activities that are best developed through a management or visitor planning process. Visitor planning includes two key areas of management. The first one is controlling and limiting the impacts of visitor use and the second is maximizing visitor experiences through appropriate activities, education and interpretation. (McArthur & Hall 1996.)

The tourism sector even seeks to be socially inclusive and permit access to different resources has to be address. It needs to permit access to sites and yet needs to protect the resources. This requires a wide range of management tools to balance the needs of the visitor, the place, and the host community and tourism stakeholders. As the result 'visitor management' has emerged in the tourism context. Visitor management develops and adapts many of the principles and practices used in the outdoor recreation and leisure areas. There are two types' measures they are 'hard measure' which are place extensive and place permanent restrictions on visitor activity, and 'soft measures' which involves improving marketing, interpretation, and planning and visitor coordination. (Page 2009.)

5.2 Site management action

Site management in tourism areas is complex tasks. Site management includes assets management, setting appropriate limits of use, managing visitor risk and providing the appropriate level of access. Managing roads and trails, managing built accommodation, campgrounds and other facilities, managing riverbanks, lakes, and coastlines and site restoration are some example of site management. In the Annapurna Region, Nepal ACAP is working on various site management actions plans such as resource conservation program, alternative energy program,

conservation education and extension program, community development program/community based infrastructure development works, tourism management program, women development program, agriculture and livestock development, general and reproductive health program and heritage conservation program. ACAP was established with the task of achieving sustained balance between nature conservation and socio-economic improvement. As the part of site management action, conservation area management committees were created at the local level at the same time the authority for conservation area management was given to the District development committees and Village development committees (NTNC Newsletter 2009).

ACAP has working on conservation of resources programs like forest management and wild-life management activities, soil and water conservation, training for local nursery workers, alternative energy and fuel-efficient technologies, restoration of sites of historical and culture and archaeological importance were introduced. It has several activities for community development such as improvement, maintenance and construction of schools, trails and bridges, general health and sanitation facilities with health and family planning clinics. At the same time ACAP has been working on tourism management with programs like formation of local lodge management committees with hotel and lodge management training for lodge operators, brochure and publicity materials, information posts, visitor centers, helicopter evacuation for visitors for search and rescue during emergency. Education and extension is another successful campaigns of ACAP it includes programs like conservation education classes in schools with conservation awareness camps, indoor and outdoor conservation education centers, education materials development and village clean-up campaigns (NTNC 2008, 119).

5.3 Stakeholders' participation in impact management

In Nepal, non-governmental institutions such as Nepal Mountaineer Association, Annapurna Conservation Area Project, and Buffer Zone Management Council are established to manage tourism activities. Nepal has experienced three types of tourism operations, i.e., (1) strictly institutional (2) a blend of institution and community (3) community owned tourism operations. Nepal Mountaineering Association is an example of a strictly institutional operation

which was established to promote mountain tourism; increase awareness of mountaineering and organize mountain climbing activities etc. Annapurna and Manaslu conservation area projects are another example of a blend of institution and community model approach. The ACAP which is managed by National Trust for Natural Conservation is a pioneer project in Nepal, with a vision to integrate conservation and community. Community owned tourism operation approach represents a variety of models that engage local people. In the community owned mode local people take appropriate decisions and local people benefit directly from the development and the promotion of the tourism in their areas. (Kruk, Hummel & Banskota 2007.)

The participation of local community is very important for making sustainable tourism development. If the local people are not involved in tourism development programmes they can obstruct the development process due to the lack of the benefits they can get. Without local peoples or participations tourism will fail to achieve its objectives. Local participation is not a one-time activity or event that can ensure a project's success. It should be a process to identification and formulation of the problems and opportunities, in the design and implementation of strategies and in the monitoring and evaluation of results. Participation is linked to the project cycle which follows analysis, planning and implementation to monitoring. (Kruk, Hummel & Banskota 2007, 57-69.)

There are many stakeholders with varied interests working in the Annapurna Region, especially on Annapurna conservation area. These are the government, national and local; local and national entrepreneurs; NGOs and INGOs; local people and communities; and visitors. Integrating stakeholders; the Conservation and Development Committee of ACAP comprises of specialized committees from various fields such as, lodge management, electricity management, community management, etc. and this made ACAP able to achieve success in its multifarious areas. ACAP now covers 55 Village Development Committee (VDC) in an area of 7,629 sq. kilometers and is the largest protected area in Nepal. The institutional set up of ACAP consists of project organization and local organization. The local institution consists of conservation and development committee and series of specialized committees. It is the main institution responsible for the formulation of policies and programmes relating to resource management and community development. (ESCAP 1999.)

6 THE NEED FOR ENVIRONMENTAL SUSTAINABILITY FOR TOURISM DEVELOPMENT

In Hindu Kush- Himalayan tourism is not a new phenomenon. Pilgrims, mainly Hindus and Buddhists have frequented holy sites in the Himalayas for untold centuries. But nowadays the perception of the tourism has been changed, tourism becomes a huge phenomenon. The trend of tourism in Nepal came through mountaineering in the 1950s and 1960s. For a country with the world's highest mountain peaks, Nepal has been advertised as a mountaineering country in the world. In the early stage mountaineering was a seasonal affair, trekking to the base camp is very difficult; it will take many weeks for both porters and the mountaineers. The impact of these kinds of activity in local community and foreign exchange earning was not satisfied. The 1960s and the 1970s, there has been increasing number of trekkers to the rural mountain areas. As the increasing numbers of trekkers and mountaineers began to travel on rural mountain regions, the government began to make policies and programs to support for the development of tourism. On the other hand the government also recognizes tourism as a comparative advantage for the development in inaccessible and remote regions of the country. (Kruk , Kreutzmann & Richter, 2009.)

If the tourism is based on principles of sustainability it can be the instrument in improving the livelihood of mountain communities and increasing their interests in policy making issues. Sustainability encompasses ecological, economic and social components. In the context of tourism development every tourism activity has its limits and the benefits must reach a larger community. On the other hand it is necessary to monitor, regulate and control all the tourism activities and income and employment which can create social friction or disharmony. Tourism plans should not only focus on resources conservations but should also focus on issues of equality, community development and social harmony. The key components of sustainable mountain tourism are conservation of natural resources on which tourism depends; improvement in the quality of life of the local population; and enhancement of visitor satisfactions. To develop the sustainable mountain tourism activities, effective policies, strong local involvement, control mechanisms and modern and traditional systems are needed because without

these essential elements mountain tourism could easily be a short-term boom and bust enterprise. (Nepal SK, 2002.)

As the number of trekkers began to increase in Mount Everest and the Annapurna Region, the impact of the unmanaged tourism causes various problems such as environmental degradation, socio-culture impacts, and waste disposable. To prevent from above major problems from occurring there was the establishment of Sagarmatha National Park and Langtang National Park in 1976. The establishment of National Trust for Nature Conservation in 1982 and the Annapurna Conservation Area Project (ACAP) in 1986 also plays vital roles to protect natural flora and fauna. Nepal currently has 21 protected areas which are more than 30% of the Nepal Himalayas. (Conservation International 2007.)

Before the establishment of ACAP in 1986 the area was full of environmental crises such as forest degradation, environmental pollution, cut-throat competition among hotels and lodges, public infrastructures and the local communities had been totally neglected. After the intervention of ACAPs the participation of local communities in the conservation of natural and cultural resources and the activities in the promotion of sustainable tourism has been increased. ACAP activities have brought lots of awareness about effects of unmanaged tourism, at the same time it also raises awareness about positive impact of tourism on the livelihoods of the local peoples. In 2007, ACAP received over 60,000 visitors (MOCTCA 2009). After the intervention of this project it has brought lots of positive impacts such as build up physical, social, and economic infrastructure, build up new roads, better drinking water, sanitation, and health and education- in that areas tourism brings economic transformation and creates the employment opportunities. (Banskota & Kruk 2006; Bajracharya & Furley 2005.)

The Annapurna Region is by far the most popular trekking destination in Nepal. As tourism activities increased it brings lots of negative impact on the environment. This introduced various new factors affecting the environment in the Annapurna Region. These factors are high population growth, poverty and subsistence farming, traditional methods of cultivation and over-grazing, energy requirements, trekking tourism, sanitation and litter, income from trekking tourism and depletion of indigenous culture. Because of these factors the social, cultural

and natural environment of the Region are in danger. These factors are further neglected by inappropriate development and poorly managed rural development projects. At the same time lack of conservation awareness at the local level as well as at the government level has contributed to the plight of the natural system. And conservation efforts in Nepal often fail because they focus mainly on an arbitrary enforcement of regulation. It has now come to the attention about need of environmental sustainability for the survival of humanity and tourism development in the region. (Banskota & Sharma 1998, 15.)

Environmental sustainability implies sustainable levels of both production and consumption. The sustainable development should be improvement in human well-being such as poverty reduction, increased literacy, reduce hunger and inequality. These goals cannot be achieved unless environmental sustainability is the baseline. On the other hand beside environmental sustainability, economic and social or institutional sustainability are also equally important for sustainable development. Hence, the environmental sustainability without the involvement of the people is not meaningful. Environment sustainability should be based on the maintenance of natural capital (input/output). On the output side, waste emission from a project or action being considered the assimilative capacity of the local environment without unacceptable degradation. On the input side, harvest rates of renewable resources inputs should be within the regeneration capacities of the natural system. Environmental sustainability seeks to improve human welfare by protecting the sources of raw materials ensuring that the sinks for human wastes are not exceeded. (Banskota & Sharma 1998, 5-6.)

6.1 Carrying capacity

At the heart of sustainability lies carrying capacity. Carrying capacity is a complex terminology, which includes many organisms, can live sustainably in a particular environment without destroying its resources. Many things can be limiting factors such as food, water, shelter, capacity to absorb wastes that determines carrying capacity at different times and places. It can be defined as the maximum use of natural and cultural resources by the community and the tourism of the given geographic area without adverse impact on the socio-culture, economic or

biophysical environments. Carrying capacity concept is complex; there are difficulties in operationalizing this approach, hence a critical factor approach is needed. Critical factors are crucial variables, the presence or absence of which are vital and which also affects others aspects of sustainability. These critical factors need to be changed/alternatively, conserve or protected in order to increase the carrying capacity of the environment. Critical factors can have negative or positive effects on both community and tourism and on natural resources. Failure factors results in overall impacts on mountain community and natural resources and success factors improve their current state. It is very important to identify the most critical factors which changes brought will have the potential of being acceptable to policy planners and the concerned community for the comprehensive process of tourism development in the Annapurna Region. (Banskota & Sharma 1998, 8-9.)

Peoples are a major component in the mountain environment; carrying capacity goes beyond the natural environment and includes other components such as the social-cultural and economic aspect of the mountain habitants. Carrying capacity not only target mountain people or mountain areas, it includes the different levels that determine the way in which natural resources are affected. The actors involved in consumption and production of mountain tourism need to be identified and their interest in natural resources need to be understood. Appreciating and understanding the values of the unique natural and cultural resources of mountain areas and communities will help to bring about a better chance of promoting sustainable development. The need of provide knowledge at all level for various actors to appreciate and value the resources and development their capability for mountain tourism development. (Banskota & Sharma 1998, 10.)

Carrying capacity could be divided as social, economic and environmental. Social carrying capacity includes education and health conditions, cultural heritage and institutional aspects. Trails and bridges are the most important means of transportation for both locals and the visitors. Another important dimension of the social carrying capacity is the effectiveness of traditional institutions and new intuitional development. Economic carrying capacity is referred as the ability to absorb tourism development without having to squeeze out local development. In the Annapurna Region tourism development provide the benefits for community development.

Resources generated by tourism have to be used for mountain community development and mountain tourism development. The quality of environmental resources in the Annapurna Region is fragile, partly due to human action and partly due to the fragility of the area. Without conserving the natural resources tourism development is not likely to be sustainable in the Annapurna Region. (Banskota & Sharma 1998, 43-45.)

7 RESEARCH METHODOLOGY

Research methodology has many dimensions and research methods do constitute a part of it. Research methods are understood as all those methods and techniques that are used for studying the research problem. But research methodology is the process of systematically solve the research problems. It is considered as a science of studying how research is done scientifically. Research methodology includes various steps adopted by the researcher and it also explains the logic behind them. The researcher must have knowledge of both research methods and the research methodology. It is necessary for the researcher to design his methodology for his research problem. (Kumar 2008, 4-5.)

7.1 Research methods

In general 'research' refers as a tool that used in search for knowledge. It is an art of scientific investigation, it also define as systematic search of information on a specific topic. In other word research is the method consisting of enunciating problems, formulating a hypothesis, collecting the data, analyzing the facts and reaching in certain conclusion towards the concerned problem. The role of research in several fields has greatly increased in modern times. It is applied on economic, whether related to business or the economy as a whole. The business and government has used research in solving operational problems and making economy policies. Research provides the basis for nearly all government policies in economic system such as government budgets and it also facilitates the decisions of the policy maker. It is equally useful for social scientist in studying social relationship and seeking the answer to various social problems. (Kothari 2006, 1-6.)

Veal 2006, mentioned research definition according to the sociologist Norbert Elias “The aim, as far as I can see, is the same in all sciences. Put simply and cursorily, the aim is to make known something previously unknown to human beings. It is to advance human knowledge, to make it more certain or better fitting, the aim is discovery”. According to Dr. Azadeh Asgari research is the systematic process of collecting data in order to increase our understanding of

the phenomenon about which we are interested to solve problems. The main purpose of research is to find out the new information, explain the relationship between variables, develop new ideas, verify existing knowledge, discover new theories or improve on existing theories, explain the phenomenon or situation, utilize of new techniques and finally understand, predict and control the result. (Veal 2006, 2.)

Qualitative research methods are predicated on the tents of the qualitative methodology. A qualitative methodology is associated with the holistic-inductive paradigm. The main methods of data collection are interview, participant observation, focus groups, Delphi techniques, case studies, action research and documentary methods. There are other methods such as the biographical method that studies and reports on a person's life (Gayle 2001). According to the (Veal 2006, 40) quantitative research involves statistical data analysis. The data may be collect from questionnaire surveys, from observation involving counts or from secondary sources. There are two approaches of quantitative research i.e. type A and type B. Type A research makes use of statistical methods and tests, and type B research is also based on numerical data but it do not uses statistical test but it use percentage as a statistical measures. Type B research is more informal than type A and is closer in approach to qualitative methods.

The research was carried out to gather information related to case study area. The author has used both primary and secondary data to finalize the whole research work. Secondary information from different sources has been reviewed to re-write the theoretical background of the research and primary data has been collected using interview method to analyze the current situation of tourism environmental impact in case study area. The methodology of the research is based on interviews with visitors and tour operator they has been travelling and operating trekking tours in the Annapurna Region. The research was conducted with qualitative approach work which includes interview and literature review mainly focused on to study tourism environmental impact and sustainable tourism development in study area. In literature review the author has reviewed various books, journals, e-magazines, articles, research work documents etc. related to the case study area, which gives better understanding and clear background about the thesis topic. For the interview there were two different types of ques-

tionnaires that were sent to the interviewee. There were seven questions asked to the visitors and ten questions were asked to the tour operator.

The main purpose of the research was to examine the perception of environmental impacts of tourism within a protected area Annapurna Conservation Area (ACA). This thesis uses the qualitative research methods which are mainly focused on to study environmental impact of tourism in protected area. Qualitative research methods is used for textual analysis to understand and explain a phenomenon i.e. environmental impact of tourism in protected areas, at the same time it is used for understanding a social phenomenon from the perspective of those involved as participants in the research i.e. visitors, tour operators and tour guide in the Annapurna Region.

7.2 Data collection

Data collection is the process of collecting data. In research the purpose of data collection is to obtain information for analysis and to make a decision about important issues. Data collection begins after a research problem has been defined and research design plan has been carried out. While deciding about the method of data collection, the researcher should keep in mind about data types. There are two types of data i.e. primary data and secondary data. Primary data are new data which are collected for the first time and the researcher is the primary user of data. The secondary data on the other hand, are those data which already exists and were collected for some other purposes but it can be used in current project, the researcher is the secondary user. (Kothari 2006, 6.)

In the process of data collection primary and secondary data were used. The secondary sources of data have been used in this thesis for the analysis of the environmental impact of tourism in the Annapurna Region. The literatures available from the Ministry of Tourism and Civil Aviation, National Trust for Natural Conservation, Ministry of Forest and Soil Conservation (Department of National Parks and Wildlife Conservation) have been utilized. Primary source of data were collected from semi-structured interview with tourism representative who have good

knowledge about the Annapurna Region. The interview was taken among tour operator and visitors who have been in this area. The interview questionnaires are directly linked to the areas of this thesis. The main purpose of the interview is to find out the tourism impact on the environment in the Annapurna Region. Due to the time consuming and expensive nature of this research the interview questionnaire were sent through email.

The theory behind this research was relatively easy to gather information from different literature, e-books, articles and brochure etc. Although reliable information sources such as statistical data on environment impact on the Annapurna Region were more difficult to find. In theoretical part this thesis explains about tourism in the Annapurna Region and how tourism activities have been brought positive and negative consequences on environment. The information collection for the empiric part of this study began after deciding the research methods used in research and after the proposal of the interview with tour operator and tour guide was fixed. Conclusion was made according to the interview response and text analysis available from different literatures.

7.3 Validity and reliability

Validity represents the entire experimental concept and establishes whether the results obtained meet all of the requirements of the scientific research method. It determines whether the researcher truly measures that which it was intended to measure or how truthful the research result are. According to Veal, tourism researches are difficult to carry out because it is largely concerned with people's behaviors and their attitudes. The researcher should rely on people's response based on questionnaire on interviews. Validity of tourism data can never be as certain as researches as in the natural sciences. (Veal 2006, 41.)

Reliability is the extent to which significant results must be more than a one-off finding and be inherently repeatable. Other researchers must be able to perform exactly the same experiment, under the same conditions and generate the same results. The aspect of reliability can vary between natural sciences and social sciences. If the research conducted for natural sciences it

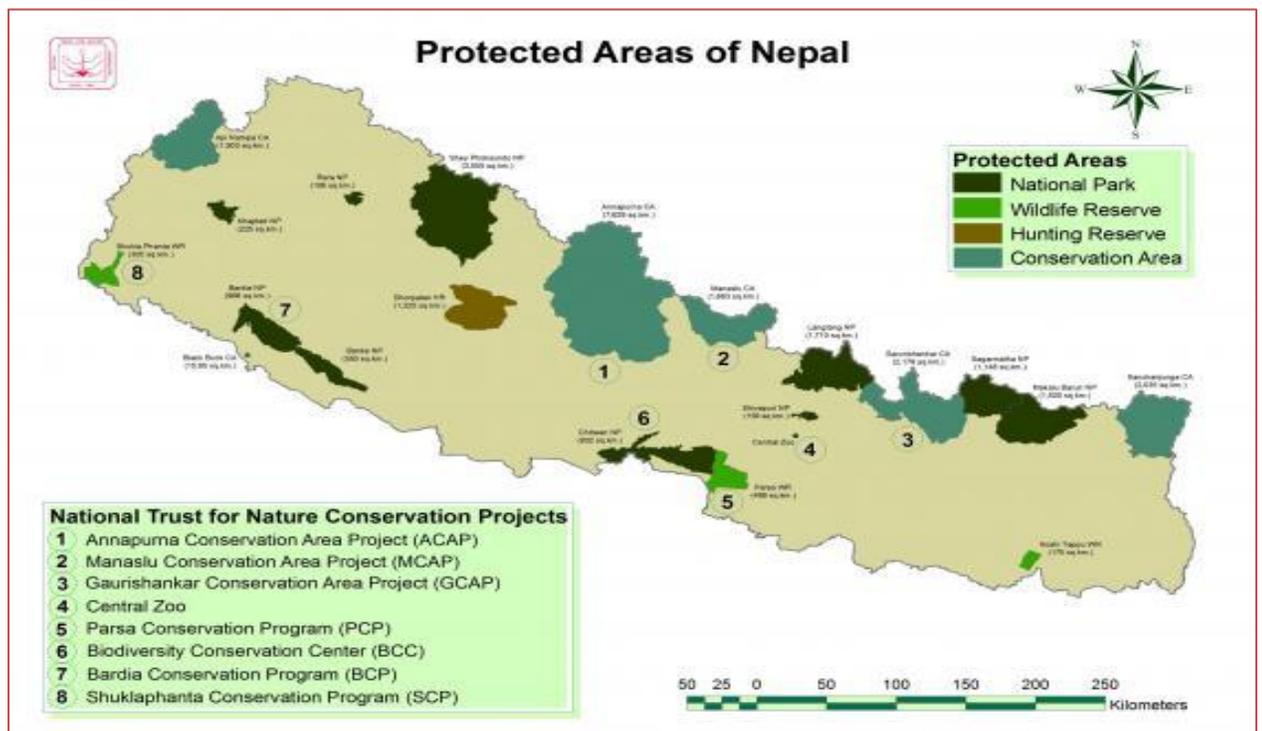
should produce identical results. But this is rarely in the social sciences, because they deal with human beings. The pattern of human behavior could vary according to social and physical environment. (Veal 2006, 41.)

This research involves questionnaire based interview. The finding of the research includes real people's knowledge, skills, abilities, personality, and motivation and so on. The interviewee's participation could be complex and validity in outcomes is questionable in terms of time limits, number of questions asked and their knowledge and experience about the thesis topic. In the reliability aspect the result of the interview is not expected to be same. Because human beings patterns of behavior could change accordance with social and physical environment.

8 A CASE STUDY FROM ANNAPURNA CONSERVATION AREA PROJECT

8.1 Background of the case study area (ACAP)

Established in 1986, the Annapurna Conservation Area Project (ACAP) is the largest and also the first Conservation area and largest protected area in Nepal. It covers an area of 7,629 sq. km. and is home to over 100,000 residents of different culture and linguistic groups. Other features that also make the Annapurna Region unique is it has one of the deepest valleys named Kali Gandaki Gorge, the world's largest rhododendron forest in Ghorepani and the world's highest located lake, Telicho in Manang. The Annapurna Region is equally rivaled cultural diversity. Different ethnic and religious group of people reside in this region. Each of these groups speaks their own dialect and has unique culture and traditions. The local people reside in the 5 districts of the 57 village development committees of the Annapurna Conservation Area. (NTNC brochure 2009.)



GRAPH 2. Protected areas of Nepal, National Trust for Nature Conservation Projects (adapted from NTNC brochure 2009)

The natural and cultural features of ACA have made it most popular trekking destination in Nepal. More than 60% of the country's total trekkers come to the Annapurna Region. In this region tourism has been established as one of the most important sectors of the local economy. The increasing number of visitors has made exerted immense pressure on natural resources. Fuel wood consumption, growing local pollution, similarly litter and the waste produce by trekkers and hoteliers is another major concern. Tourism practices in the Annapurna Region bring immense impact on environment, on local communities and flora and fauna. ACAP was established to minimize the negative impact of tourism and enhance the living standards of the host community. And it involves local people in all aspect of ACAPs conservation and development processes. The key activities conducted by ACAP contribute to a sustainable future in the regions such as resource conservation, tourism management, community development, conservation education and extension. (NTNC brochure 2009.)

The philosophy of this project is resource conservation on a sustainable basis with the involvement of local inhabitants for the improvement of the economic life. The active participations of the local community at all stages of project planning, implementation, monitoring and evaluation constitute the cornerstone of this project. The guideline principles of ACAP are people's participations, facilitating role of ACAP and sustainability. Its core programmes consists of resources conservation, sustainable rural development, sustainable tourism management and conservation education and extension. The ACAP area is divided into five zones. They are special management zone, wilderness area, protected forest/seasonal grazing zone, intensive management zone and biotic/anthropological zone. (ESCAP 1999.)

The institutional set up of ACAP is unique, which consist of project organization and local organization. The local institutions consist of conservation and development committee and series of specialized different committees. Conservation and Development Committee (CDC) is the main institution responsible for formulation of policies and programmes. Under the CDC specialized subject matter committees are formed. Presently there are over 500 such committees operating in the area. During the last ten years ACAP has been able to achieve

success in its various fields such as development of local institutions, tree plantation, heritage conservation, forest conservation, community development, literacy enhancement, horticultural development, tourism promotion and conservation education and extensions. ACAP also has carried out a scientific studies on biodiversity, medicinal plant survey, fuel wood consumption survey and wildlife survey. After the ten years of establishment ACAP has received a number of awards for its contribution to the environmental conservation. The financial sources of this conservation area are the entry fee from visitors, income from support service, government contribution and foreign assistance. (ESCAP 1999.)

8.2 Activities undertaken by ACAP on resource conservation and tourism management

ACAP has been successfully working in conserving and managing the natural resources while at the same time promoting the economic development in the region. Under natural resource conservation program, local level Conservation Area Management Committees and subsequent sub-committees are formed to mobilize local people for overall conservation and development of ACA. This Program includes activities such as nursery management, plantation, community mobilization, wildlife monitoring, capacity enhancement of local people in conservation area management. (Banskota & Sharma 1998.)

Under resource conservation various activities has been taken. Such as Conservation Area Management Committee (CAMC) strengthening which includes administrative and accounting training along with support for stationery materials. A forest coordinating meeting for conflict resolution between forest management subcommittees of Ghachowk and Tuse villages has been conducted. However the meeting was unable to resolve the conflict. Different types of forest seedlings such as Raikhanyu, Dalchini, Nimaro, Bamboo and vegetable seedlings such as cauliflower, broccoli and cabbage were distributed. Forest monitoring activities has been actively conducted during the monitoring trip three bird traps were dismantled and two woman were warned against illegal herbs collection. ACAP supported for plantation fencing 1,000 meters stone masonry fencing wall in Chhonup of Lomanthang. The height of the wall was 1.52 m and its width 0, 45 m. (Prakriti 2010, 3-4.)

ACAP has been working on tourism management and economic development of the region. Various activities such as World Tourism Day on 27 September 2009 were celebrated with slogan "Tourism celebrating diversity". From 26 August to 1 September 2009 a survey for sign posting was conducted from Ghandruk to Narchyang. Different sites for sign posting were identified by the survey team with 19 being prioritized. Tourist arrival and exited statistic has been recorded. In different places such as Pothana, Bhurjungkhola, Sikles and Upper Mustang tourist check post has been established. Beside this various activities such as tourism awareness camp, tourism workshop, local festival support and waste management activities has been undertaken by ACAP as tourism management strategies in the region. (Prakriti 2010, 5.)

8.3 A review of the literature about the case study area

The Annapurna Himal is well known in Nepal and around the world for its beautiful mountains and its rich ecological diversity. Thought of as a trekker's paradise the Annapurna Himal attracts more than 25,000 visitors over the short trekking season. Compared to the second most popular area Sagarmatha National Park the number who comes to the Annapurna area is nearly five times greater. Concern is growing that the number of international visitors will threaten the sustaining capacity of the area's environmental and cultural resources. (Puntenney 1990, 15.)

Twenty years ago a trekker would have found it difficult to find one tourist lodge in the Annapurna sanctuary now there are more than 20 lodges and more than 200 along the circuit outside the sanctuary. Over the past 10 years, the annual increase in tourism has resulted in the clearing of vast tracts of rhododendron and forested areas to meet the demands of lodges and trekker for fuel wood for cooking, hot showers, campfires, and building materials. "A typical climbing expedition in Sagarmatha for example, lasts two months and requires four loads of wood per day for a total of 8,000 kg of firewood. In contrast, a Sherpa hearth burns 5,000 kg of wood per year". (Puntenney-1990, 16.)

A report on tourism in the Annapurna area pointed out that the income from tourism is deceptive only 20 cents out of three dollars spent daily by the average trekker remains in the village. Secondary environmental and social impacts, caused by the growing recreational use of the area, have presented more difficult issues such as disruptions of the local economy. Conflicts have arisen as villages rely less on their own self-reliance and more on tourist dollars and outside resources to meet their daily needs. The psychological impact of tourism on the local cultures has created an atmosphere in which feelings of cultural pride and self-respect are giving way to a sense of insecurity and inferiority especially among the young people, who face unemployment and have to resort to begging. Tourists have influenced dress patterns, food habits, family structures, religion, community language, and daily patterns of life. (Sherpa & Shrestha 2011.)

The pressure of the tourism on Annapurna's environment has increased rapidly. ACAP has encouraged local participation in natural resource management. Special legislation established to multiple use conservation areas and permitted hunting, collection of forest products, and the delegation of management authority to the village level. High priority has been given to minimize the environmental impact of visiting trekkers and to increasing the local economic benefits from tourism. ACAP has been authorized to collect visitor entry fee, helping the conservation project to be financially self-sufficient. The government provides no staffs or funds to manage this protected area. (Sharma & Wells 1996, 74-75.)

The tourism based on the principle of sustainability, can become a self-financing mechanism for nature conservation in naturally diverse and culturally rich areas like Nepal. In ACAP the tourism management program main aim is to balance between ecology, local livelihood needs and visitors' satisfaction. The program's objective is to reduce negative impacts of tourism and increase the positive impact. Some activities are established visitors' information centers and tourism check posts and eco-museums are managed with different exhibits and information related to ACA. Creating awareness on the minimum impact code for visitors, preparation of audio-visuals, sign posting and tourism related awareness camp. At local level, capacity enhancement of local people in managing tourism and tourism enterprise development activities are conducted. (NTNC 2013, 15.)

This is the review of interview taken by UNESCO with the respected local elder Min Bahadur Gurung from Ghandruk and chairman of the regions conservation and development committee. UNESCO conducted the case about Annapurna Conservation Area Project (ACAP) for teaching and learning for a sustainable future for a multimedia teacher education programme. The main aim of this case study is to find out the cultural and environmental issues facing Nepal and the Annapurna Region, analysis of ACAP and the identify how the ACAP activities contribute to a sustainable future in the region. Six questions were asked in interview, which is about the natural environment, ACAP, role of local community in resource conservation and sustainable living. (UNESCO 2013.)

According to him, in the village many ethnics group such as Hindus, Buddhists and Animists lives there with peace and harmony. His forefathers managed their forest resources by themselves. They used forest area for fuel wood and harvested it on a rotational basic. He mentioned they harvest selected old trees of a particular area for a certain period of time, he said there will be no adverse impact on the environment. And this traditional rotation system makes the forest harvesting sustainable in the long run. He had mentioned our culture and religion provide education for nature conservation. The forest is prohibited from any use and is thus a home for many birds, deer, insects and other living forms. The forest resources such as medicinal plants are also important to treat many common diseases. Forests also prevent from landslides and water source kept in good condition. Gurung emphasizes forests keep our village green and shape our lifestyle and behaviors. (UNESCO 2013.)

Gurung had mentioned they protect and conserve the forest is for their benefit. Sustainable management and use of the forest resources is their way of life. Everyone in the village looks after their forest to manage wildlife and conservation. Their communal management system is working. The establishment of Annapurna Conservation Area Project was helpful for them. ACAP works in a principles integrated conservation and development program through people's participation. It helps them to strengthen their traditional institution with the formation of the conservation and development committees. ACAP also helps them to implement small scale community development projects such as drinking water supply, medical facilities, irrigation, bridges and trail construction and repair. But he also mentioned development works

should not be agent for destruction to environment rather should aim to meet basic needs of the local communities. (UNESCO 2013.)

8.4 Analysis of the interview with visitor and tour operator

In this section an interview taken with visitors and tour operator has been analyzed. The interview with visitors and tour operators was taken by thesis writer. The main aim of this interview was to find out the stakeholders' perspective on tourism development, tourism environment impact management and their roles and responsibilities on sustainable tourism development.

The interview was taken on 15th Feb 2013 with the visitors who have travelled to the Annapurna Region. The visitor's name is Nabin Bhatta, who is from Nepal. He did Annapurna circuit trek. The interview was taken through phone/Skype, due to the technical difficulties such as expensive nature of research and time consuming. Interview question was set and interview was taken through phone and the interviewee answer was written in a paper. The method of the interview was semi-structured. Around 7-8 questions were asked. The interview questionnaire is about his trip to Annapurna, what he have seen or found about tourism environmental impacts in the region and what could be the suggestion for the sustainable tourism development in the region as a visitors perspectives.

According to him he has an adventurous nature. He wants to travel and explore the different places. He mentioned that he had read many times about Annapurna treks and many of his friends told him about the Annapurna. He described Annapurna as being one of the mountain ranges located in Great Himalayan range. Typical meaning of Annapurna is "several plates with full of rice". The Annapurna massif contains six major peaks over 7,200 m. Annapurna 1st, 2nd, 3rd, 4th, Gangapurna and Annapurna south. He did Annapurna trek it took 17 days from starting point Besisahar to ending point Nayapul in Kaski district. He also mentioned about alternative short route instead of Annapurna circuit i.e. Annapurna century trek. It takes about 10 days to 12 days to finish the trip.

Bhatt mentioned, one of his friends did Annapurna trek with trip advisor, his friend recommend him to make a trip with same travel company. So he booked all his travel arrangement with trip advisor. Trip advisor is the world's largest travel site, enabling travelers to plan and have a perfect trip. It offers trusted advice from real travelers and a wide variety of travel choice and planning features. Trip advisor is an international travel site, it also offers various travel arrangement in Nepal. (Tripadvisor 2013.)

During his travel period he found there is a good relationship between tourists and local community. Tourism supports economic development in the region. Tourism is the main source of earning either local community should do farming. There were lodges and tea shops along the way to Annapurna trek. As tourists flows increases the business is also good in that area. According to him tourists used to stay in these tea shops and lodges. Otherwise they should do camping trekking, which is very expensive and in winter it is very cold to sleep in the tent. Somewhere tourists used to donate for school and hospitals, which makes local community happy, so he found there was good relationship between local community and the tourists.

Bhatt was aware of natural and environmental impact of tourism in the region. He have heard and read many times about the environmental issues in ACA. But when he did his trip to Annapurna circuit he did not find such impacts. He honestly replied me that he did not give focus on that issues, he tried to enjoy his trips. But he believes that tourism activities bring negatives and positive impacts on environment, socio-culture and the economy. He also mentioned that his holiday directly or indirectly benefited local people and he also tried to minimized impact on the environment by following the rules and regulation told by ACAP representatives.

The second interview was taken with Rajan Dhungana who is the manager of Wildpath Adventure trekking company. This company was established two years ago in Kathmandu, Nepal. Dhungana manages Wildpath Adventure and works closely with other guides, porters, hotels and lodge owners that he has known and trusted for many years. This company operates all throughout in the Annapurna Region. It is one of their areas of specialization, and they have a very good knowledge of the area. They offer camping and tea-house trekking, walking

tours and cultural tours. According to him the main environmental issues are garbage and deforestation – both of which can be related to the expanding tourism industry.

According to Dhungana they are aware of tourism's impact and they strive to ensure that the negative aspects of that impact are minimal. As part of that, their objectives include the motto of 'do no harm', and improving education standards about the environment and the industry's impacts. One of their most important objectives is also to preserve the character of trekking in Nepal, whilst ensuring environmental wellbeing. As a company, they adhere to minimal impact practices for their tours and trekking. They strive to educate and encourage their clients and their employees about the issues and to lead by example. This would include items such as encouraging trekkers to order the same meal to save on cooking fuel, to always carry kerosene, rather than using firewood on camping treks, to actively discourage the use of bottled water (while being mindful of the health of our clients), minimizing the need for hot showers and the use of electronics on treks and always carrying out or ensuring that proper disposal methods are used for whatever garbage we create.

Dhungana mentioned, they follow the sound principles of eco-tourism and they trained their employees and staff to have a high awareness of best practices. For example, they do not encourage trekkers or porters to take short-cuts, new routes etc., and they ensure that on camping treks they do not pitch the campsite on untouched ground. They also work with the local communities when trekking and ensure that they respect their local regulations. In addition to the actions they have also started a small NGO, which strives to improve education standards in an area located about 100 km from Kathmandu. As part of that, they are slowly working to help education the children about the environment. They also bring trekkers to the area where they can volunteer at the schools, village or hospital and they encourage them to look for ways of incorporating environmental awareness into their volunteer efforts.

He addressed that the challenges are those that face many developing nations: While we want to improve the standard of living and opportunities for Nepali people, including ourselves, we do not want to do so at the expense of the environment and by destroying the unique trekking experiences that Nepal offers. He thinks they have done a great job of starting this and they

will continue to support their efforts. He thinks it will require the continued cooperation between and education of all the interested parties. That is the need of trekking companies, local communities and clients to all help ensure that the tourism is sustainable. Continued support for and possible expansion of ACAP will also help.

8.5 Research findings and recommendations

In the Annapurna Region the scope of adventure tourism and green tourism have been increasing over the time. It is the area which has demonstrated the success of conservation along with local development by involving people. In this research the author has used a qualitative research method which includes literature review and the interview. The author has taken two interviews with two stakeholders such as visitors and tour operator, who have good knowledge about the case study area. After the analysis of the interview and the text analysis, it was found that with the increasing number of tourist in the region the consequence in environment, economy and socio-culture have also emerged. The issue of mass tourism versus quality tourism becomes a major concern. Likewise the issue of sustainability of tourism development is of prime concern in the area.

In the meantime it was found that there has been an increasing demand for infrastructure developments such as road linking, hotels & lodges and built facilities for tourists. It is good for tourism development but such activities cause environmental effects in the overall pristine landscape of the area. In recent years road construction has hampered trekking in the region. To sustain Annapurna trekking industry officials are working to explore new trekking trails especially for tourists on shorter visits and looking for a soft adventure and culture experience rather than strenuous high altitude trekking. On the other hand poverty, population growth and forest as a fuel wood is another issue which needs to be addressed for any development intervention. At the same time climate change brought effects on agricultural fields and deserted households in most of the settlements are also major concerns for the sustainable development of tourism in the region.

During this study it was found that ACAP has been able to demonstrate effective work on conservation and development with local community participation. ACAP has done outstanding work on making forest conservation rules and community development decision. Conservation education, lodge owner training, literacy programmes and women's development have increased environmental awareness among villagers. Available reports show that the dependence on the forest has decline because of the fuel efficient stoves, back boilers, kerosene and electricity. In addition to these major successes of ACAP conservation initiatives, in this research the researcher has found there has been an improved sanitation, tourist facility; drinking water supplies and access to toilets have now improved. Similarly, an available report indicates improvement in safety, hygiene, comfort in tourist lodge and standardization of lodge price.

Finally, the search of alternative route and the diversity of tourism products in the area are essential for extending the length of stay of tourists. Development of research centers and resources centers in the most focus sites is also necessary to highlight the country's uniqueness in terms of biodiversity and cultural heritage. There are several issues that need to be immediately addressed by ACAP such as lack of baselines data and documentation on the socioeconomics and natural resources conditions, lack of monitoring and evaluation mechanism for its programmes and lack of equal distribution of conservation incentives. In the Annapurna Region now tourism becomes a driving force in the conservation and development, there has to be focus on product diversification and income generation activities.

9 CONCLUSION

Tourism has long history in Himalaya's kingdoms, now it becomes important source of revenue for the government. In Nepalese context tourism and mountain are interlinked with each other because mountain tourism accounts for one fourth of global tourism market in Nepal. Annapurna trekking has been widely recognized as naturalist's paradise. It has been thought as having the world's best trekking routes. The Annapurna Region is an area of contrasts comprising the wettest, driest and windiest places in Nepal. Because of the area's unique and adverse ecological and cultural features as well as accessibility, the Annapurna Region has been by far the most popular mountain tourist destination in Nepal.

Nepal was officially opened to the outsider in the 1960s, and the Annapurna Region witnessed the increasing number of international visitors due to its scenic attraction, rich culture and challenging landscape. As the number of visitors increased, negative environmental impacts of tourism emerged. Despite positive benefits that tourism has brought to this region, deforestation, habitat destruction, litter, garbage and other negative effects have also occurred posing serious threat to the overall natural environment of the area. Many scholars highlighted the problem and prospects of the Annapurna Region, arguing for protected status. In this study all the environmental issues and a sustainable tourism management practices of Annapurna Region has been discussed.

This research examined the issues for environment impact in protected areas of Nepal on the basic of the primary and secondary data. I have found that the majority of the Indian sub-continent tourists visit the area for religious purposes while American and Europeans visit for trekking. The consequences of tourism activities such as improper livestock management and high fuel wood consumption have created pressure on natural resources. On the other hand the pollution due to tourism is also major issues. For sustainable tourism development domestic tourism should be promoted and proper managed animal rearing practices should be adopted. The new technologies and development works can destroy the traditional use of the resources which leads in the degradation of the local culture. To avoid destroying old knowledge and

technologies, new technologies should be locally tested and adapted later in the local community.

In the case of the sustainable management ACAP has been able to demonstrate outstanding work in the area with local people's participations. In an effort to avoid any conflicts of interest ACAP has sought the involvement of locals and has emphasized environment education. ACAP projects are working on environmental protection and sustainable development such as the training of lodge owners, with an emphasis on sanitation, deforestation and cultural pride. ACAP has encouraged the construction of toilets throughout the area. ACAP encourages the use of kerosene for cooking throughout the region, where the use of firewood by both trekking groups and hotels is prohibited. In Pokhara there is visit ACAP's Trekkers Information & Environmental Centre. In addition to providing information, the center sells iodine, solar battery chargers and other products that can help to protect the environment while trekking. There is also a trekkers meeting board and a battery drop-off center. (Dependra-Nepal-Guide 2009.)

Nepal has great potential in mountain tourism along with it can offers wide range of activities to the tourists. Unfortunately there has not been enough planning and strategic for the development of this sector. Nepal still has existing infrastructure and services for the tourists which is comparatively poor. In current situation Nepalese tourism need diversification, both in terms of product and destinations. For example mountain activities are mainly focused on some parts of region such as Mount Everest, Helambu-Langtang and the Annapurna Region. All the development project and infrastructure are centralized in this region. Because of that other parts of mountain region are neglected. There have been few actions taken at supply side management, destination and planning enhancing on demand. The local communities are far away to get direct advantage from the tourism. I think local habitants are the key factor, they should be motivated to involve every project run in their community. It gives positive feeling towards tourism and its activities.

However, the practices of conservation and impact management of this region are found slower. As the tourism activities actives in the region the consequences also increased rapidly. In Nepal along with the Annapurna Region has been badly affected by many incidents such as

masarcas of royal family, Maoist revolution and political instability in the country. Beside this poverty and population growth is first issues which need to address for any development intervention. For the sustainable management of the region concerned stakeholders need to incorporate in above mentioned issues.

For future prospectus the Annapurna Region can be a paradise for the trekkers. It could be one of the hotspot destinations in the world in terms of mountain tourism activities. This region has its own reputation about the natural biodiversity. Each protected areas have their own uniqueness and importance. Tourism becomes major source of earning in the Annapurna Region. There is lack of information about protected areas of Nepal. More publication, research is needed to explore the country's socio-bio-physical situation. Marketing is necessary with rest of world for the information flow. Within country information centers need to be developed. In the protected area, there should be an information unit. In Nepal along with the Annapurna Region one serious but least understood topic is sustainability. The need of practices of sustainability must be started as soon as possible. Beside this eco-tourism, could be the important product for the sustainable future in the region.

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CENTRIA UNIVERSITY OF APPLIED SCIENCE

Degree Program in Tourism; Pietarsaari Unit; FINLAND

An interview questionnaire on “**Environmental management and sustainable tourism development in Annapurna region, Nepal**”

Researcher: Gandip KC

You are kindly request to answer the following question in interview. The main purpose of the interview is about your trip to Annapurna, your opinion about tourism impacts in the Annapurna region and what could be the suggestion for the sustainable tourism development in the region as a visitor perspective.

Name of the interviewee: Nabin Bhatta

Address: Kathmandu, Thamel- Nepal

Date of Interview: 22nd February 2013

1. How do you know about Annapurna?
2. How long is your trip to Annapurna?
3. How did you manage your trip (travel agency) to Nepal-Annapurna?
4. How do you experience the relationship between tourists and local residents in Annapurna region?
5. Did you found that natural and the environment has been affected in any way by tourists?
6. Did you feel that your holiday benefited local people, and minimized impacts on the environment?
7. Finally, do you have any advice to improve sustainable tourism development in this region?

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Degree Program in Tourism; Pietarsaari Unit; FINLAND

An interview questionnaire on “**Environmental management and sustainable tourism development in Annapurna region, Nepal**”

Researcher: Gandip KC

You are kindly request to answer the following questions in interview. The main aim of this interview was to find out the tour operator and protected areas perspective on tourism environmental impact management in Annapurna region. The final outcomes will be used as a feedback for sustainable tourism development in the region.

Company name: **www.wildpathadventure.com**

Address: Wildpath Adventure Pvt. Ltd, P.O. Box No: 13257, Nayabazar KTM, Nepal

Contact person: Rajan Dhungana

Date of Interview: 26th February 2013

1. How long this company has been operating tours?
2. Is this company operating tours in Annapurna region Nepal? What kinds of tours?
3. What are the main environmental issues facing by the Annapurna region?
4. Does this company aware of tourism impact? What kinds of objectives do you sets for impact management?
5. Described the activities that your company takes part for preserving the environmental wellbeing?
6. What are the challenges related to sustainable tourism developments in the region?
7. What do you think about Annapurna Conservation Area Project (ACAP) relationship with environmental impact management and contribution for sustainable future in the region?
8. Does this company have responsible travel policy at present or in future?
9. How is this company working on eco-tourism and sustainable tourism approaches in Nepal at present? What about in the future?
10. What should be done for sustainable tourism development in the region for future?