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ROLE OF ECOTOURISM POTENTIALS, LIVELIHOOD IMPROVEMENT AND ENVIRONMENTAL SUSTAINABLE DEVELOPMENT IN RAJAJI TIGER RESERVE; UTTARAKHAND, INDIA

Akash¹, Navneet¹, B.S Bhandari² and Kamal Bijlwan³

1. Gurukula Kangri University, Haridwar, Uttarakhand, India
2. Ecology Laboratory, Department of Botany and Microbiology
H.N.B. Garhwal University, Srinagar, Uttarakhand, India
3. SGRR University Dehradun, Uttarakhand
Saklanibotany@gmail.com



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Abstract: Natural conservatory and protected areas are considered as one of the most favourable environments for ecotourism policies, wildlife protection and overall management of the forest areas in context of sustainable development. Uttarakhand Himalaya has a great tourism potential along with the huge tourism hotspots and rich biological diversity. At the same time, the different mountains ranges, religious places, biosphere reserve, national parks, tiger reserve and traditions has made its worldwide importance. Further this also has raised large number of foreign and interstate tourists. In Uttarakhand Himalaya, the world famous Nanda devi national park, Valley of flowers, Corbett and Rajaji tiger reserve has strengthened the tourism potential. The aim of the present study focussed on livelihood improvement of Gujjars, local community and sustainable development of the tourism in Rajaji tiger reserve. This study also aimed to determine the essential factors which affecting the sustainable development and ecotourism policies in study area.

Key Words: Rajaji tiger reserve, Ecotourism, Gujjars, Locals, Sustainable development

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Introduction

Ecotourism is an essential component of the sustainable tourism. It includes the all the tourism activities in a sustainable way. It is also act as an alternative of tourism which involves visiting natural and protected areas of world in order to gather knowledge, to study or to involve in various environmentally friendly activities. Further it also highlight by learning about natural flora and fauna as well as the natural habitats. In other words, ecotourism can be defined as product" or as an operating ``principle" (Cater, 1994a). Buckley (1994), Ormans (1995), and Stewart and Sekartjakrarini (1994) concluded that preference for one over another reflects different priorities of actors and analysts, While Ormans (1995) favour the definition for eco-tourism in which he focused on encouraging better eco-tourists who will help maintain a better environment and sustain the biodiversity. The recent concept of eco-tourism focussed on participation of various community as described by Murphy (1985), is central to the alternative eco-tourism concept, with proponents arguing that participation in planning is essential to ensure those benefits reach residents in destination areas (Cater, 1994b).

Uttarakhand Himalaya has rich potentials of biodiversity and tourism categorizing under international tourism hotspot as many famous biodiversity rich areas like Rajaji tiger reserve, world famous Nanda

Devi national park, Gangotri national park etc. are present in its land. At the same time, the different mountaineering, religious places and expedition has boost up the number of national and foreign tourists in tourism industry. There are 18 national park and 71 wildlife sanctuary and three wildlife sanctuary which occupying 9.2% area under the protected area network in Indian Himalaya. Now, it is known that the integrity of these protected area cannot be sustained without taking into the account of the needs and views of the local residing peoples adjacent (Blaikie and Jeanrenaud, 1996 ; Brandon and Well,1992). Unless the residing locals recognize the significance of these conserved area and take genuine interest in its conservation, it is likely that the illegal activities such as looping, poaching, tramplings well as scraping will occur (Eagles, at al.,2002). In Northern part of India, the state Uttarakhand, is world famous for Nanda devi reserve, Corbett and Rajaji tiger reserve which has huge strengthened of the tourism potential in lesser-Himalayan belt.

Objectives of the study

Considering the importance of the well known Rajaji tiger reserve, the study aims to enhance the ecotourism policies and to promote the development activities by considering the environmental parameters. The article will describes the treasure of tourism and the tourist potential in Rajaji tiger reserve. The study also aims to evolve

sustainable integrated development guidelines by considering the local livelihood and eco-tourism as the catalyst for development in the Uttarakhand.

Methodology

Eco-tourism related development programme and its relevance to Rajaji tiger reserve is to be studied. The present study is based on the field survey, surveying of the deras (shelters) of locals especially Gujjars (tribal community inside the tiger reserve). Data was also taken from

our earlier published papers (Akash et al., 2018abc, Akash and Navneet, 2018) web of science, Scopus data base and Google scholar. Various plans, policies as well as programmes for eco-tourism development were to be studied and evaluated in the terms of present problems in the tiger reserve in order to study their effectiveness. Various efforts to integrate tourism, environment and development will be explored and pattern to promote ecotourism policies.

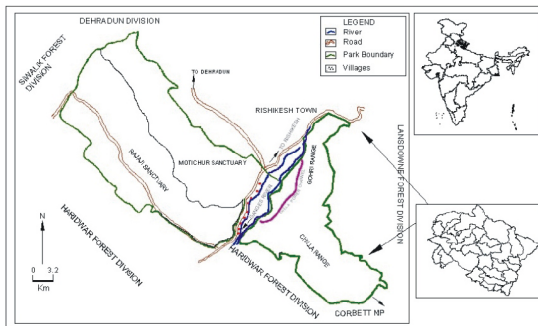


Fig. 1: Map of Rajaji tiger reserve

Ecotourism potentials in North-Himalayan region

The Himalaya is the youngest and highest mountain in the world (Devan, 1988). Its orogenesis started about 70 million years ago with the clash of tectonic plates of Indian sub-continent and the Eurasian continent and the subsequent closing up of the Tethy's sea (Wadia, 1966). The Indian Himalayan region includes Himachal Pradesh, Jammu & Kashmir, Uttarakhand, West Bengal and Arunachal Pradesh. It

supports about 18,440 species of plants, 241 mammalian species and 979 bird species. The Northern part, most of the protected areas are surrounded by number of Gujjars (tribal community) and other tribal communities. So, the involvement of these tribal communities in sustainable development is now-a-days widely acknowledged. The Mountains of Himalaya are the important in providing ecosystem services and have a very significant role in economic development,

environmental protection as well as the ecological sustainability and human wellbeing. The ecotourism in Himalaya play a great role in the livelihood of the Gujjars and other residing local peoples. The mountain of its are considered as geologically active in the world (Naithani et al, 2009). A large number of the population in Himalaya is in poverty line which cover a range of 17-36% (World Bank, 2006) and 75% of villagers women are below poverty line (Sherpa, 2007). These fragile mountains ranges also comprises with beautiful ecosystem like river, lakes (WWF-India, 2006; Balodi and Kaur, 2014). In recent years, the development activities in these mountains has gained attraction as a tourism hot- spot and received a large numbers of tourists every years (Kruk, 2011). It was observed due to the paradigm shift in the tourism development in these areas have high altitudinal lakes became the target sites. This term is called 'ecotourism' which can be explain as "Environmentally friendly travel and visitation to relatively undisturbed natural areas, in order to enjoy nature, wildlife and promotes conservation which has low negative impact on biodiversity and provides for beneficially active socio-economic involvement of local peoples" (Hector, 1996). According to world tourism organization ecotourism is the travel with particular objective such as enjoying, aesthetic, recreation, education, and biodiversity, knowing the culture of any area by

optimum activities not harming the ecosystem and involvement of local community for socio-economic development (Wood, 2002). These all different aspects like socio-economical and ecological makes the ecotourism, as a world's fastest growing trade and largest service industry which is increasing recentl by 20% per year and about 6 times the rate of growth of the tourism industry (Mathew, 2005). In India which has a diverse economy and the service sector now has seen high rates of growth in recent years. However, in spite of this, the urban and rural poverty remains a significant problem (UNDP-WTO, 2008). Many regions of Shivalik hills like Uttarakhand is endowed with dense forests (ISFR- FSI, 2013) hence supporting variety of flora and fauna, scenic beauty, numerous rivers, clear mountain lakes and streams. The natural scenic sites of the part of the cultural ethos of the local communities and hold religious sanctity continue to attract various tourist and pilgrims from all over continent and play important role in the economic development (Naithani, 2013). The state Uttarakhand is known as home of 'spiritual tourism' or 'sacred tourism' because it's religious diversity and cultural heritage ((UNDP-WTO, 2008). It become imperative to Uttarakhand to conserve its rich floristic as well as diversity of fauna in Shivalik. On the other hand it also enhances the ecologically sustained tourism which aims at providing livelihood for its people. Taking all

these things into the mind, ecotourism is being promoted by the state. Uttarakhand government has implemented so many policies to increase the ecotourism and to conserve the environment and sustain the well being of local people so that future generations may continue to experience the destinations relatively untouched by human interventions. However, sometime the lack of proper implementation of different rule and regulation in tourism activities in the state cause an adverse environmental problem.

The concept of promoting ecotourism under natural protected areas and their implications for the conservation of biodiversity is global significance. Ecotourism is not only for suitable practice of tourism under these areas areas as it deals with environmental conservation, but also supports livelihood of these local communities. Uttarakhand Himalaya in present times harbours a good increase of ecotourism in protected areas like Corbett National park, Rajaji tiger reserve, Valley of flowers, Kedarnath wildlife sanctuary etc. Efforts done by state government in building tourism state have promoted the tourism industry in general.

Ecotourism Potentials through environmental sustainability in Rajaji tiger reserve

In Western Himalayan region of India, most of the protected areas are surrounded by number of Gujjars (tribal community) and these areas have great potentials of

promoting wildlife tourism along with cultural, adventurer tourism, natural tourism, pilgrimage tourism (Akash and Navneet, 2018). In Uttarakhand Himalaya, various ecotourism spots like Nanada devi biosphere reserve, Rajaji-Corbett tiger reserve, Jhilmil lake which attracts tourism throughout the years. Secondly various religious places like Badirath, Kedarnath, Gangotri and Yamotri are the key attraction point for Hindus. All of the tourist spots are providing great economy to the locals. Rajaji tiger reserve is one of the major protected area in Uttarakhand after Corbett which protects great diversity of Asiatic elephants and tigers. It opened for tourists from 15th of November to 15th of June of every year. The dominant plant species area Mallotus phillipensis, Dalbergiasissoo, Shorea robusta, Acatia catachu, Cassia fistula, Helicteres isora, and the ground vegetation is mainly comprises of Ageratun conyzoides, Anagallis arvensis, Cynodon dactylon, Kyllinga monocephala, Abutilon indicum, Sida spinosa etc. whereas the high altitudinal area of the Rajaji tiger reserve which lie to the Pauri Garhwal is mainly comprises of Pinus spp. and mixed forest vegetation (Akash et al., 2018a,b,c). Out of the ten forest ranges of this tiger reserve, three ranges namely Chilla, Motichur, Ramgarh of the tiger reserve remained opened for the last six years for tourists whereas the other seven ranges of the tiger reserve didn't open since six years due to

the dense forested canopy *Tectona gradins*, *Shorea robust*, *Dalbergia sissou*, *Mallotus philipensis* and due to the privacy of the fauna of the tiger reserve. The Chilla range of the tiger reserve is one of the great centre of attractions for tourists (Akash et al., 2018b). It was observed from our field study that most of the sites inside the tiger reserve have typical diversity of species as per geographical locations (vegetation and fauna, variations in landscape). So some of the sites form the forest ranges could be selected and diverted for eco-tourism purpose with controlled activities by the government. The area of the Chilla forest division in Western Himalayan zone comes under the protected area network but undergoing rapid changes in fauna and vegetation pattern due to the large scale anthropogenic forcing at some places in form of lopping, grazing and hydro-power project, scraping, trampling and extraction of non timber (Akash et al., 2019). Except all these, Rajaji tiger reserve has great potentials of tourism in terms of elephant safari, birds watching and to enjoy scenic beauty. Birds watching are the centre of attraction and as a key for the researchers as well as scientist because the two range namely Chilla and Motichur have great diversity of birds. The two months october and march are the best months for birds watching. Most of the birds are migrants and comes here from Northern part of America, south-East China, Europe, Russia, and

some of the other countries which have extreme cold climatic conditions during winter. Framing of the different activities under the eco-tourism plan can also consider bird-watching which is one of the most important part under eco-tourism policy in the protected area. Several migratory birds arrives every years in the Rajaji tiger reserve during winter, including the *Tadorna ferruginea*, *Aythya farina*, *Anas clypeata*, *Anser indicus*, *Mycteria leucocephala* and *Ephippiorhynchus asiaticus*, *Anas platyrhynchos*, *Anas acuta*. These beautiful birds are key attraction for tourist.

In Rajaji tiger reserve, Gohri forest division, Dudhia, Jhabargarh are supposed to be best places for observing the diversity of birds in natural environment besides; riparian corridors of the park also provide favourable habitats for birds, where their different behaviours can be observed proficiently specially during dawn and late evening hours. The Haridwar forest division of Rajaji tiger reserve which cover 7304.60 hectare of forest cover in Uttarakhand state (Akash et al., 2018 c). This forest division also has large number of birds species. More than 200 species of birds are singly present in Rajaji tiger reserve in comparison to the other parts of Western Himalaya.

The topography of Rajaji tiger reserve which spread from 250 - 1100 m above the sea level therefore, altitude-wide distribution of migratory birds is another important

feature in the reserve forest which attracts the bird-watchers to stay connect with this protected area. Several islands situated in between the holy river Ganges and few of its tributaries are the prime natural habitat for most of the birds and their large flocks can be observed specially during late winters season. The Chilla forest division of the tiger reserve also has key attraction of elephant safari especially for the international tourist. Elephant safari has a huge potential to attract the tourists and also a source of

generating the revenue. On the other hand, the Haridwar forest division of the tiger reserve have large numbers of religious places like, Chandi devi temple, Goddess Mansa devi and Bilkeswar temple. Approximately 6-7 lacs people visit Mansa devi temple every year and more than 50,000 people visit annually to other temples. Many other temples like Vindyasani temple and religious places are also situated at the top regions of the Chilla forest division of the tiger reserve.

Table.1: Floral and faunal status of species in Rajaji tiger reserve

Fauna		Flora	
Mammals	- 25	Trees	- 128
Birds	- 315	Climbers	- 33
Reptiles	- 8	Shrubs and herb	-63
Fishes	- 9	Grasses	-38
Amphibians	- 6		

In Rajaji tiger reserve, different forest ecosystem arises on different altitudinal gradients or due to the anthropogenic disturbances and variation in topography, rainfall, soil, rainfall as well as the other climatic conditions are also responsible for sustaining the specific types of plant community (Akash, 2018 a).The tiger reserve opened for tourist from 15th December to 15th June every year in which three of the tourist spot named as Chilla, Ramgarh and Motichur remained opened for tourism. The other ranges of the tiger reserve didn't open since six years due to the dense area of the forest as well as for the privacy of the animals. Some of the area of the

reserve has number of the different tracks in which have great potential of eco-tourism. Asiatic elephant is centre of attractions for tourists as elephants sighting is more common. Presence of tigers, leopard, further ensures the feasibility of area for tourism. At present Motichur forest and Chilla forest of the tiger reserve is the centre of attraction for the tourist because 90% tourist visits every year to enjoy wildlife safari.

A large number of the forest sites of Rajaji tiger reserve have great diversity of species as the geographical locations differ (vegetation and fauna, variations in landscape). So some of the sites can be selected and diverted for ecotourism purpose with controlled activities.

Rajaji tiger reserve have huge potentials of tourism in terms of elephant safari, birds watching, scenic beauty. Birds watching are the key features for the various groups of scientists, researchers because Motichur and Chilla and have great diversity of birds. The months from October to March are for birds watching. Most of the birds are migrants and come here from Northern part America, Russia, South-east China, Europe whereas some other countries have extreme cold climatic conditions during winter. Some common birds are *Circus nigra*, *Mycteria leucocephala*, *Nettion rufina*, *Tadorna ferruginea*, *Larus argentatus*, *Gyps*, *Muscicapa strophylia himalayensis*, *Ceryle alcyon*, *Anthus tringoides*, *Tringa glareola*, *Zoothera dauma* and *Motacilla flava* present inside the tiger reserves which are also the key attraction for tourists. The Chilla forest division of the tiger reserve has key attraction of elephant safari especially for the international tourist. Elephant safari has great potential to attract the tourists which is also a great source of generating the revenue. Haridwar forests range of the Rajaji tiger reserve have huge numbers of religious places like Goddess Mansa devi, Chandi devi temple and Bilkeswar temple. In some of the area of the reserve, the movement of Asiatic elephant's and their activity was restricted due to the visitors and devotees. Recently strong implementation of wildlife act and some forest policies has restricted the people's movement inside the tiger

reserve. Government also has implemented different rules constructed so many corridors and tracks for elephants and other fauna residing in the tiger reserve. It was also observed that, during the last decades the economic condition of people getting better due to the tourism attraction which has led to increase in the social interactions, tourists, purchase power and religious activities of the people different levels (Joshi et al., 2009). The tribal community like Gujjar residing in the reserve especially in Chilla forest which are affecting the flora as well as fauna diversity. The Gujjar (community living inside the park) residing near the area where the water, sources of the food as well as fodder available for them and their cattle. Gujjars community is mainly responsible for the lopping of many important medicinal and fodder plants species, *Lagerstroemia parviflora*, *Dendrocalamus strictus*, *Ficus bengalensis*, *Grewia oppositifolia*, *Emblia officinalis*. The resident areas of Gujjar were the internal corridor for animals movement but now due to the wildlife provision act 1971, all the activities near the internal corridor is restricted by the government so that all the wild animals can move freely. Further the rehabilitation programme of the forest official and government in the protected area is still going on for wildlife conservation need of tourists. The income from tourism has been advocated to be the best possible alternate livelihood for forest

dependent communities (Chandola, 2012). On the other hand, industrial development in its neighbourhood is likely to attract large number of people to the city for visit and to enjoy the scenic beauty. Different historic places are present inside the tiger reserve in which memorial of a female elephant named as Rampyari at Kansrao range is very famous and was constructed in 1992. The Haridwar forest is famous for historic places. The presence of antiquities at Gohri forest division in Rajaji tiger reserve, historical tale of Sonar Kothi hilltop and the history of various villages which were once situated inside the park and the historical wells. These were constructed before 1877. The another thing is Elephant Safari which one is also the centre of attraction for tourism especially the international tourism in the tiger reserve. Promotion of ecotourism policies can also ceremonies, turning them into a show for tourists and losing their validity for local people (Heredge, 2003) though, it is difficult to measure how far something loses value to local people. It was observed that form the earlier studies and form the observation , the economic condition of Gujjars and local residing peoples getting better due to the tourism attraction. Further it has led to increase in the purchase power, social interactions, tourists and religious activities of the people at all levels (Joshi et al., 2009). The rehabilitation programme of the government is continuous going on the way for the resettlement of locals and Gujar community. The ecotourism policy always is bringing about changes in people's ideas, lifestyles, social systems, behavioural patterns, institutions values and norms, expectations, values and norms as well as the other manifestations of material and non-material cultures.

Table: 2. Some potential tracks for promoting viable eco-tourism in Rajaji tiger reserve

S.No.	Route or tracks	Forest range Moticur Distance(Km.)	Major features of the track
1.	Motichur - Kansrao - Cherring cross track	22	Long stretch, which open at Mohand forest, RNP.
2.	Motichur - Danda track	04	Elephant's habitat with typical topography
3.	Forest motor road from Motichur to Kansrao	14	Sal dominant area, ideal habitat for elephant, leopard and barking deer
4.	Kansrao - Satyanarayan (Motichur forest) track, which runs parallel to Haridwar - Dehradun railway track	08	Ideal habitat for elephants and barking deer, elephant's movement is more common during dry season
5.	Forest road from Motichur to Beribara via Beribara ghata	17	Dense forest with rich fodder species, elephant's movement is quite frequent during early summer
Chilla forest			
1.	Chilla - Rawasan / Luni forest chowki track	23	Ideal Habitat for tiger and sloth bear, migratory routes for elephants towards Lansdowne forest
2.	Chilla - Gohri across the duggadda	10	Habitat of Red jungle fowl
3.	Khara (Patthar Ghati) - Rawasan / Luni forest	14	Ideal Habitat for tiger and sloth bear, migratory routes for elephants towards Lansdowne forest
4.	Forest road from Chilla hydro-electric power house [Jhabarghar] to Dogadda rau* [Gohri forest] along river Ganga	03	Huge potential for migratory bird watching during November to March and wildlife sighting

1.	Mundal (Gara shroath) - Soni shroath / dogadda shroath	05	Habitat for tiger, leopard and elephants besides, barking deer, sambhar, spotted deer and wild boar sighting is very common
2.	Khara - Dayara rau track via Luni / Rawasan forest	13	Natural habitat for tiger, sloth bear, elephant and leopard besides barking deer, sambhar, spotted deer and wild boar sighting is very common
Haridwar forest			
1.	Haridwar – Kharkhari by pass track (if maintained and controlled)	06	Elephant's movement has been restricted to some extent. Species like spotted deer, sambhar, barking deer are very common
2.	Dudiva block	-	Habitat of fishes
3.	Ranipur - Dholkhand track	22	Unique forest stretch with rich wildlife. One of the most important elephant's habitat besides, leopard, barking deer, sambhar, spotted deer, wild boar and langur are common species found
4.	Rawli - Hathi kund track	02	Ideal habitat for elephants but under anthropogenic pressure. Leopard, blue bull, spotted deer, sambhar, barking deer and primates are very common species found
5.	Chirak to Chirak rao's grasslands	02	Ideal habitat for elephants but under anthropogenic pressure. Leopard, blue bull, spotted deer, sambhar, barking deer and primates are very common species found
6.	Ranipur chowki to Sureshwari devi temple track	0.5	Elephant's movement is very common during monsoon and early winter besides, leopard and several deer species are commonly found

Source: (Modified from Rasily, 2008 and Joshi, 2010, Akash and Navneet, 2016d)

Table 3. Some potential sites where watch towers can be constructed for promoting eco-tourism in Rajaji tiger reserve

Chilla forest division		
S.No.	Location of watch towers	Distance from range headquarter (Kms.)
1.	Ghasiram((already constructed, need to be maintained regarding visibility point of view)	01
2.	Danda Ghat in Danda block	04
3.	Mundal (situated, need to be re-constructed at more height)	08
4.	Jhabargarh (in between power plant and soni shroath, adjoining to river Ganges)	0.5
5.	Bahera Block	03
6.	Khara- Hardwari	08
7.	Mithawali (adjoining to Mithawali river)	14
8.	Luni (near to forest chowki)	19
9.	Khara (near to forest chowki)	13
10.	Luni block	11
Haridwar Forest division		
1.	Ranipur (existing, need to be re-constructed at more height)	0.3
2.	Ranipur to Shivalik Koot	04
3.	Chirak (just 1.5 kms. towards south from chowki near to chirak rau)	5.5
Motichur forest division		
1.	Kansrao (near abandoned anti-poaching tower)	16
2.	Koyalpura chowki (adjoining to Motichur river)	06
3.	Koyalpura water hole (already constructed, need to be maintained)	09

Source: (Modified from Joshi, 2010; Akash and Navneet, 2016d)

Table: 4. Tourist inflow and revenue earned in Rajaji tiger reserve (Chilla and Haridwar forest division)

Year	Haridwar forest division (Indian/ Foreigner tourists)	Chilla forest division(Indian-foreigner tourists)	Revenue earned (In Chilla forest division)- In Rs
2009	12049450/ 20067	16596/ 1892	18,13,885/-
2010	18837125/ 29555	12434/ 1893	31,14,185/-
2011	13454650/ 26722	13161/ 1751	39,27,270/-
2012	15231875/ 26875	17207/ 1643	46,62,330/-
2013	13960014 / 25153	16131/ 1882	59,06,440/-
2014	12537723 / 21395	15644/ 1026	41,51,165/-

Modified from: (Rasily, 2008; Gaur and Gupta, 2016, Akash and Navneet, 2016d)

Livelihood improvement of tribal (Gujjars) and locals in Rajaji tiger reserve

The Muslim Van Gujjars community are a pastoralist people which lives in the different areas of Uttarakhand especially the foothills of Himalaya. Their main occupations are rearing of buffalo and to follow the transhumance between the forest foot hills and high altitude alpine meadows without more diversification of subsistence strategy. The economy of this community is totally based on the production of milk and supply of various milk products like ghee, curd, butter and to provides well bred progenies (genetically superior) of indigenous buffaloes to the other areas of Uttarakhand. The existence

of these pastoralist Gujjar transhumance is one of the great examples of symbiotic relations with the forest areas of Rajaji and sedentary population spread over in the different migratory routes.

The forest of the world are facing severe anthropogenic pressures in various forms of pollutants, grazing, deforestation, trampling, scraping resulting into the loss of biodiversity (Akash and Navneet, 2019). Although these pastoralist community has adverse affects on the flora and fauna in past greatly but due to the long efforts of the forest official and state government, they have been resettled from maximum of the forest ranges of Rajaji tiger reserve. Their numbers are only limited to Chilla, Motichur and

some areas of Mohand as well as in Gohri forest range. The Muslim Van Gujjars are a pastoral group living in the foothills of the Uttarakhand Himalaya, are also known as buffalo grazers, follow transhumance between high altitude alpine meadows and forest foot hills without much diversification of subsistence strategy. The economy of Van Gujjars is completely based on milk production and supply of milk products along with the providing genetically well bred progenies of indigenous buffaloes to the hill people of Uttarakhand. Van Gujjars takes 28-30 (market price 40) for the cost of one litre milk, for 1 kg butter, they take only ? 200 (market price ?300- ?400). In recent years, the rehabilitation programme of Gujjar community from the Rajaji tiger reserve has made a great concern for better effort and for livelihood improvement as well as for the development of local residing Gujjars and also for wildlife conservation. At the same time it has also provided great for sustainable development of the areas which lead to the regeneration of the forested wealth along with fearlessly movement of animals. On the other hand in recent years, forest officials and government also has involves the locals as a tourist guide, tour operator and has permitted few activities like Grazing, lopping far away from the buffer zone of the tiger reserve. They are getting benefited from the various state and central government policies through forest officials. They also gets training

for operating tour regarding to safety measures and risk factors. Gujjars well known for having their better resource management practice through grazing of alpine pastures. They also exports buffalo manure to the different small farmers of the plane areas of Haridwar for their agricultural fields. They also have proved them with a great intact social structures along with mutual resources sharing. On the other hand, they are also providing small scale ethnoveterinary services to the local areas in a reasonable rate and earning a livelihood source. As the time proceeds, they also have taken the interest in international emphasis on the biodiversity conservation.

The whole areas of Rajaji tiger reserve comes under Rajaji- Corbett elephant reserve which maintains the elephants population as single entity of about 90% of 1000 odd elephants in Northern India (Singh, 1986). The Asiatic elephants and tiger are the major attraction of the tiger reserve. In India it occurs in North-Western part. It has been estimated that, 800-1000 elephants occur in Rajaji- Corbett tiger reserve and the adjoining forest areas (Singh 1995, Johnsingh and Joshua, 1994). The turbulent Ganges emerges from the Himalayas and begins its journey through the Indo- Gangetic plains at the park. The junctions of the Gangetic plains and the Outer Himalaya give it a rich eco-tone that is unique in its diversity. The locals peoples and Gujjars gets benefited through the rich soil which is transported in their land through

Ganga river. As the alluvial nature of the soil make the areas very productive but the same factor makes it very prone to soil erosion also. Secondly, Rajai tiger reserve also receives ample rain because it is the first barrier to the monsoon clouds that sweep through the plains and deposits the ample rain (1500-2000 mm) in the region. Further, down, water from the Himalaya and Shivalik giving rise to the geological formation known as 'Terai'. The Terai plains are marked by the high water table and abundant surface of water in form of stream and swamps. Much of the babhar plains and almost all of the terai plains are under agriculture, and it is noteworthy that a significant proportion of the Terai- Babhar tract at the fringes of the Shivalik has come under the plough in the last five decades. With good protection and conservation measure, the tiger reserve has continued to support the higher level of faunal wealth and dominant multi-tier forest vegetation. Further so many projects by government of India are going on the status of Asiatic elephant and Tigers. The implementation of these project has improved the chances of the survival as well as saved large areas of forest habitat and maintained biological diversity in the tiger reserve (Panwar, 1987). Further, participatory management for pastoralist community, small-scale wildlife tourism, health care, conservation education which can generally enable the Gujjars and local villagers to make the transition

from exploiting the forest (Dobias, 1991). The Successful implementation of the ecotourism plan in the Rajaji tiger reserve along the adjoining areas would be helpful in reducing the man-animal conflict. This would also ensure active participation of the local community in conservation initiatives in the tiger reserve (Joshi, 2010). Further policies need to be revised and developed for locals and Van Gujjars of Rajaji tiger reserve so that they are able to get benefits in conserving genetic diversity of livestock, promoters of indigenous medicinal knowledge and also about coping process from environmental stresses.

Conclusion

Rajaji tiger reserve has huge potentials of ecotourism due to the natural conservatory status in Shivalik Himalaya. Different historical evidences are unexplored in the Rajaji tiger reserve, which have great antiquities. On the other hand, some places with tales of rehabilitated villages along with ecotourism in form of birds watching, jeep safari, elephant safari, animals watching. Ecotourism development in this area is a means for facilitating the sustainable development and progress. If these regions are selected on the basis of awareness and knowledge this can results into the sustainable ecotourism development. Furthermost the development of ecotourism is a great source of income generation and employment in the tiger reserve which may be a significant tool for socioeconomic

development of Gujjars, locals villagers and other tribal communities. Although this area is a major destination for tourists but huge man-animals conflicts lack of some forest policy, gap between Gujjars, locals and forest officials as well as the less non-involvement of these

communities sometime create huge problems which must be improved for a successful destination.

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