



Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/13558

DOI URL: <http://dx.doi.org/10.21474/IJAR01/13558>



RESEARCH ARTICLE

ECO SENSITIVE ZONE: A COMMUNITY'S PERSPECTIVE ON CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE TOURISM DEVELOPMENT IN GANGOTRI REGION OF UTTARAKHAND

Jyotsna Kukreti¹, Pallavi Upreti² and Rani Singh³

1. Lecturer, Sri Guru Ram Rai Public School, Patel Nagar, Dehradun, Uttarakhand, India.
 2. Assistant Professor, Department of Geography, S.D.M. PG Govt. College, Dehradun, Uttarakhand, India.
 3. Assistant Professor, Dept. of Geography, Subodh (Autonomous) P.G. College, Jaipur, Rajasthan, India.
- # **Jyotsna Kukreti and Pallavi Upreti** contributed equally to the Paper.

Manuscript Info

Manuscript History

Received: 19 August 2021

Final Accepted: 22 September 2021

Published: October 2021

Key words:-

Eco- Sensitive Zone, Environmental Degradation, Eco Tourism, Mountain Communities, Tourist Master Plan, Carrying Capacity

Abstract

The unique ecosystem of the Himalayas with its pristine natural beauty has long been home to endless charms and fascinations attracting tourist from across the world. With resources to support sprawling tourism industry the Himalayas have become one of the most visited tourist regions both in terms of Leisure as well as spiritual tourism. Over the years the booming tourism industry has its share in degrading the fragile mountain ecosystem. Recognizing the potential of tourism to foster socio economic growth and to maintain the local environment, the concept of sustainable tourism has come into place. Being ecologically rich and vulnerable at the same time the development of tourism industry in the Himalayan region must thrive within the ambit of nature's limitations. Declaring several ecological rich and vulnerable areas in Uttarakhand to be Eco sensitive zones has redefined not only the type, intensity, exclusivity and inclusivity of tourism activities but also redefined the overall role of tourism in ensuring long term sustainability and viability in such areas. A compendium of community's perspective on challenges and opportunities in Gangotri Eco sensitive zone in Himalayan state of Uttarakhand India has been presented in the paper. The potential impact on local people, economy and tourism industry itself, post designating popular tourist destination "Bhagirathi Valley" in Uttarkashi, Uttarakhand as Eco sensitive zone has been highlighted. Perception of people on various dimensions of sustainable tourism which can potentially thrive within the Eco sensitive zone balancing both the mountain ecosystem as well as local economy have also be assessed highlighting the need of sustainable tourism practices in such fragile mountainous regions.

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Introduction:-

Himalayas are one of the most striking geological formation endowed with magnificent natural beauty. The immaculate snow-clad mountain peaks and, pristine forests and meadows, crystal clear skies and flowing rivers have attracted tourist for centuries with diverse interests. While for some, tourism is purely experiencing the nature at its

Corresponding Author:- Dr. Pallavi Upreti

Address:- Assistant Professor, Department of Geography, SDM P. G. Govt. Degree College, Doiwala, Sridev Suman Uttarakhand University, Dehradun, Uttarakhand, India.

best with endless fascination, for other it is derived by spiritual and religious persuasion. Though in both cases Mountain attract tourist throughout the year mainly because of their unique ecosystems that fundamentally provide the resources for tourism development all year round. Though most of the leisure-based tourism is new, religious and spiritual tourism have existed for centuries in the region (Sharma & Nayak, 2017). Religious and Spiritual tourism being the niche of tourism industry are integral to a country like India with rich, multi-cultural and religious heritage (Gambhir et al., 2021). Due to its serene beauty, tranquillity and harmony Himalayas in North India are also popularly known as “Dev Bhoomi” or spiritual “Land of Gods” which have attracted thousands of devotees each year to visit their sacred Abode of gods nestled in high mountain groves. States like Uttarakhand and Himachal have a significant share of the religious and spiritual tourism in India. Tourism sector in Uttarakhand shares more than 10% of its GDP. Over the years, endless exploration opportunities nurtured within the Himalayas (Soni & Hussain, 2016) has expanded the tourism industry to newer dimension covering adventure, recreation, wellness, beauty, fitness, ecotourism and many others (Mutana & Mukwada, 2018).

The Himalaya, because of its vastness may give an illusion of immortality however they are degrading faster than usual because of the accelerated pace of human development and growing human interventions. Booming tourism and leisure industry especially in these fragile terrains have had its share in degrading the mountain environment over the years (Bhakuni, 2017). Factors including climate, topography, scenery and the seasonal cycle all determine the facilities and activities of mountain tourism, reflecting the strong interdependency between the mountain ecosystem and the mountain tourism system (Ives, 2004). Tourism activities in the Himalayas not just impact the environment but also influences the quality-of-life, quality and well-being of local people and communities with significant socio-economic impact (Sati, 2015). Recognizing impact of mass tourism on Himalayan environment and its potential to foster socio economic growth, the concept of sustainable tourism has evolved over the recent years (Bleie, 2003). Tourism development must therefore go hand in hand, protecting and preserving these resources to ensure long-term growth and viability of tourism (Nepal, 2002a). Since it is one of the fastest growing industry in the world, it must embark on promoting nature friendly tourist activities with long term conservation of the delicate Himalayan environment valuing the character of the area. Within the ambit of Sustainable tourism development, several highly fragile regions within the Himalayan Mountain complex have been designated as Eco sensitive zone to meticulously curtail rampant tourism activities and promote only those which are in harmony with nature (Gupta et al., 2021).

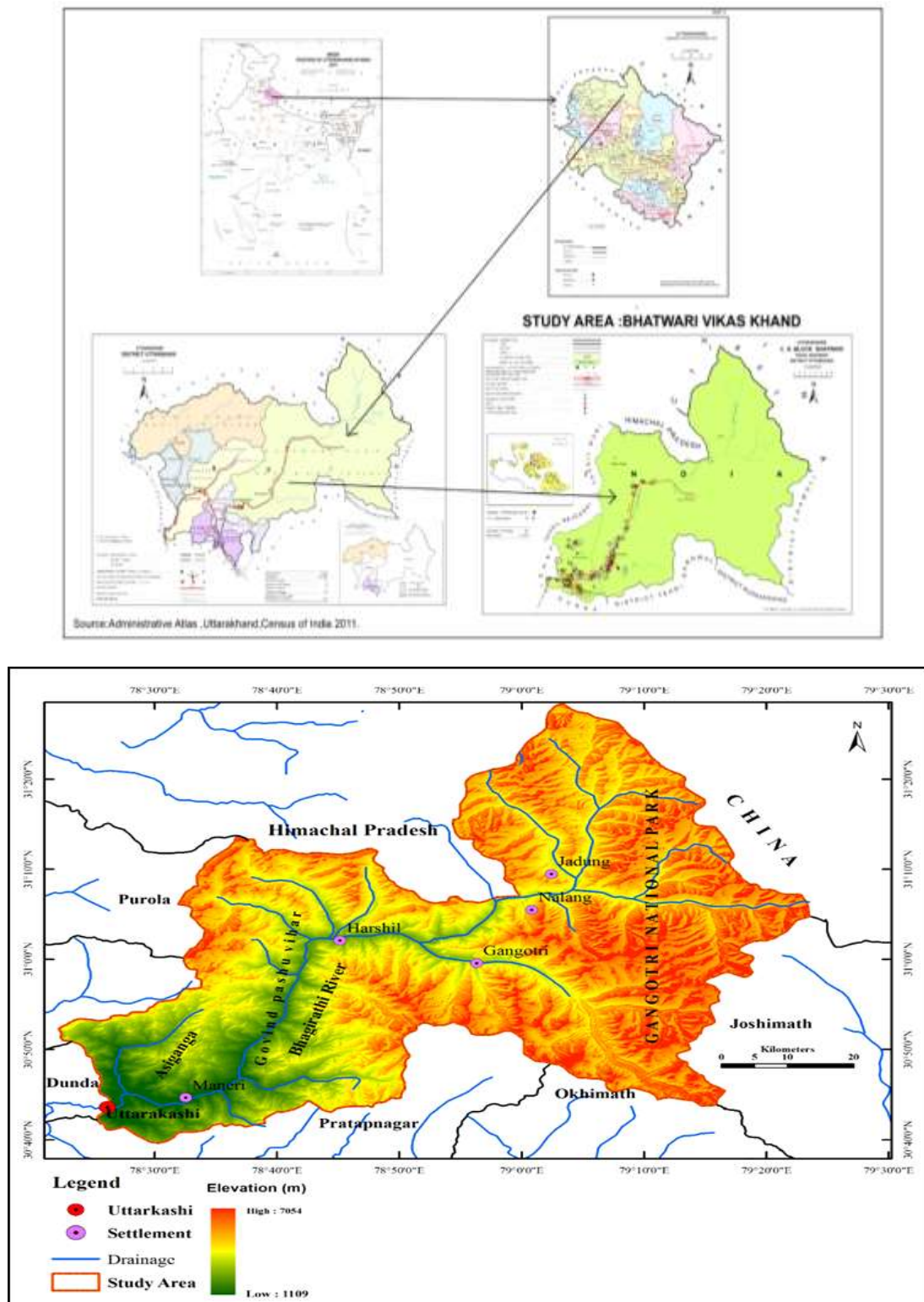
The present study tries to analyse the socio-economic transformation of Gangotri region after its pronouncement into an “Eco-sensitive zone”, the place which has been a popular tourist destination for decades, due to its spiritual and religious significance to Hindus in India. The research paper aims to discuss the influence and challenges of recently declared Eco-sensitive zone, on the existing tourism industry of the region. It contemplates the local community’s perspective and response on the existing challenges and opportunities for sustainable tourism in the Eco-sensitive region. It also presents the newer perspectives and potential of the region to be economically resourceful within the ambit of declared eco sensitive zone with limited human intervention. In addition to this, the paper also tries to analyse the potential impacts of ESZ on tourism of the region through the people’s responses and suggests some sustainable economic and ecological measures for the development of the region.

Materials and Methods: -

Description of the Study Area

The study area is located in the Bhatwari block 30°48’47” N to 78°37’15” E of Uttarkashi district in Uttarakhand, India. It is located 30km away from district headquarter Uttarkashi in the north western part of Uttarakhand (Figure-1). Lying in the Upper Himalayan belt the physiography ranges from snow free valleys, alpine meadows to high snow-clad peaks and glacier systems. (Map. 2). The large variation of altitude, aspect, slope and other physical characteristics thus promote a unique ecology within the area. The region shows that majority of the villages are situated along the catchment area of the river Bhagirathi. The lower reaches depict a settled lifestyle with dependence on sedentary agriculture as the main occupation, while the higher reaches have horticulture, tourism and cattle rearing as the main occupation. The religious tourism to Gangotri, one of the famous Hindu shrines among Char Dhams also provides a great boost to livelihood of local communities. The residents of some of the villages situated in the higher reaches practice seasonal migration due to heavy snowfall in the region. Seasonal transhumance of Gujjars and Gaddis is also evident in the region. The Government of India in its 18 December 2012 notification declared an area of 4179.59 sq kms. from Gaumukh to Uttarkashi, as an ESZ, for the maintenance of ecology of the river Bhagirathi, keeping in view the ecological sensitivity and environmental aspects of the region. The Gangotri ESZ is bounded by 30° 27’ 18”N and 31° 27’ 42”N latitude and 77° 48’ 26”E and 79° 24’ 00”E

longitude. The northern border of zone shares an international boundary with Tibet (China) hence make it a more complicated developmental zone. (Figure-1)



Database and Methodology:-

The database for the study is based on the primary and secondary data sources. The secondary sources include published and unpublished material sources including government documents, gazette reports, census records, Govt, committee reports etc. The primary data has been collected from 17 villages in the Bhatwari block, Uttarkashi selected on the basis of stratified random sampling method. The sample selection of villages was based on their location (valley, lower slope, and higher slope), population of the village (high, medium, low) and accessibility (close to road, away from road and far away), and the households in each village were randomly selected for the study. The respondent's perspective on 20 impact indicators of tourism were assessed and recorded which were categorised under 3 broad categories i.e., Economic Impact, Socio-cultural impact, and environmental impact.

All 17 villages selected for the study are stratified according to the altitudinal zones and geographical location representing ecologically unique features. The ecological zones which are differentiated by three altitudinal zones not only indicated distinguished climatic characteristics of the zone but also represent distinct biodiversity of the region. These zones have been designated as- (i) Lower Altitude Zone - Hot temperate humid climate and sub-tropical valley zone (outer hills) below 1500 meters, (ii) Middle Altitude Zone- Hot temperate dry climate (inner hills) between 1500 and 1800 meters, and (iii) Higher Altitude Zone- Cold Temperate climate zone above 1800 meters (Kharakwal & Rawat, 2009). The sample villages have been classified according to the zonation as presented below (Table. 1).

Table: 1:- Zonal Classification of Sample Villages.

Zone	Range	Climate	No of sample villages
Lower altitude zone	Below 1500 mts	Hot temperate humid climate and sub-tropical valley zone (outer hills)	4
Middle altitude zone	1500-1800 mts	Hot temperate dry climate (inner hills)	8
Higher altitude zone	Above 1800 mts	Cold Temperate climate zone Cold temperate climate	5

The primary information was collected through semi structures questionnaires, schedules at both village and household level. Separate schedules were prepared for different categories of stakeholders including common villagers, elected village representatives, Non-Government Organizations (NGOs), government officials, academicians etc. All the primary and secondary data has been analysed using different statistical techniques and methods on SPSS 21 for Windows 10. All the mapping data has been collected from Google earth 2021, and maps have been prepared on QGIS 3.16.4 mapping platform referring to census village directory and boundary maps.

Result and Discussion:-

The Uttarakhand Himalayas have long been a region of attraction to the people world-wide especially for Hindu pilgrimage due to the presence of numerous shrines and sacred places of religious significance (Durgapal & Singhal, 2018). Gangotri town is a prominent Hindu pilgrim town on the banks of the river Bhagirathi and origin place of the holy river 'The Ganges' located in the Uttarkashi district of Uttarakhand. Located at a height of 3,100 metres in greater Himalayas, it is one of the four sites in the Chota Char Dham pilgrimage circuit in India. In the present study area, the local community's perspective on the potential influence of tourism on their livelihood and impact of designating the area as Eco sensitive zone on the socio-economic sustenance of people has been highlighted. Gangotri temple and Gangotri National Park have long been tourist attraction areas, but the region's location at the very ecologically fragile environment, makes sustainable tourism more challenging (Figure- 2). The improved transportation, communication and infrastructure facilities, has definitely improved tourist accessibility and inflow to these regions. (Durgapal & Singhal, 2018), however unchecked tourism development in ecologically sensitive surroundings is also degrading the local environment. The region is endowed with natural scenic beauty, snow covered mountains, deep valleys, green pastures, lakes and waterfalls, clean environment etc which attract tourists from all over the world. Large tracts of bugyals (grass meadows) and the alpine scrub region (Dayara Bugyal, etc.), Tals (small water-bodies) (Dodi tal, Nachiketatal, Kedartal etc.) have also attracted tourists and adventurers.

In mountain regions, especially in Himalayas, tourism holds a great potential and strategic importance (Ahmed, 2013). It acts as a great source of income generation for local people who normally migrate to plains in search of

employment and other opportunities. To an extent, tourism has been successful in reducing the migration rate from the region and brings various economic benefits to local people, particularly in border villages and marginal areas (Gill & Singh, 2013). In addition to this, it also benefits the neighbouring areas through trade and transport. It brings foreign exchange for the country and develops international good-will by way of the visits of foreign tourists (Rana, 2021). At the same time, it helps in promotion of the development of better infrastructure and allied activities in the region which are essential for the development of tourism industry (Nepal, 2002b).

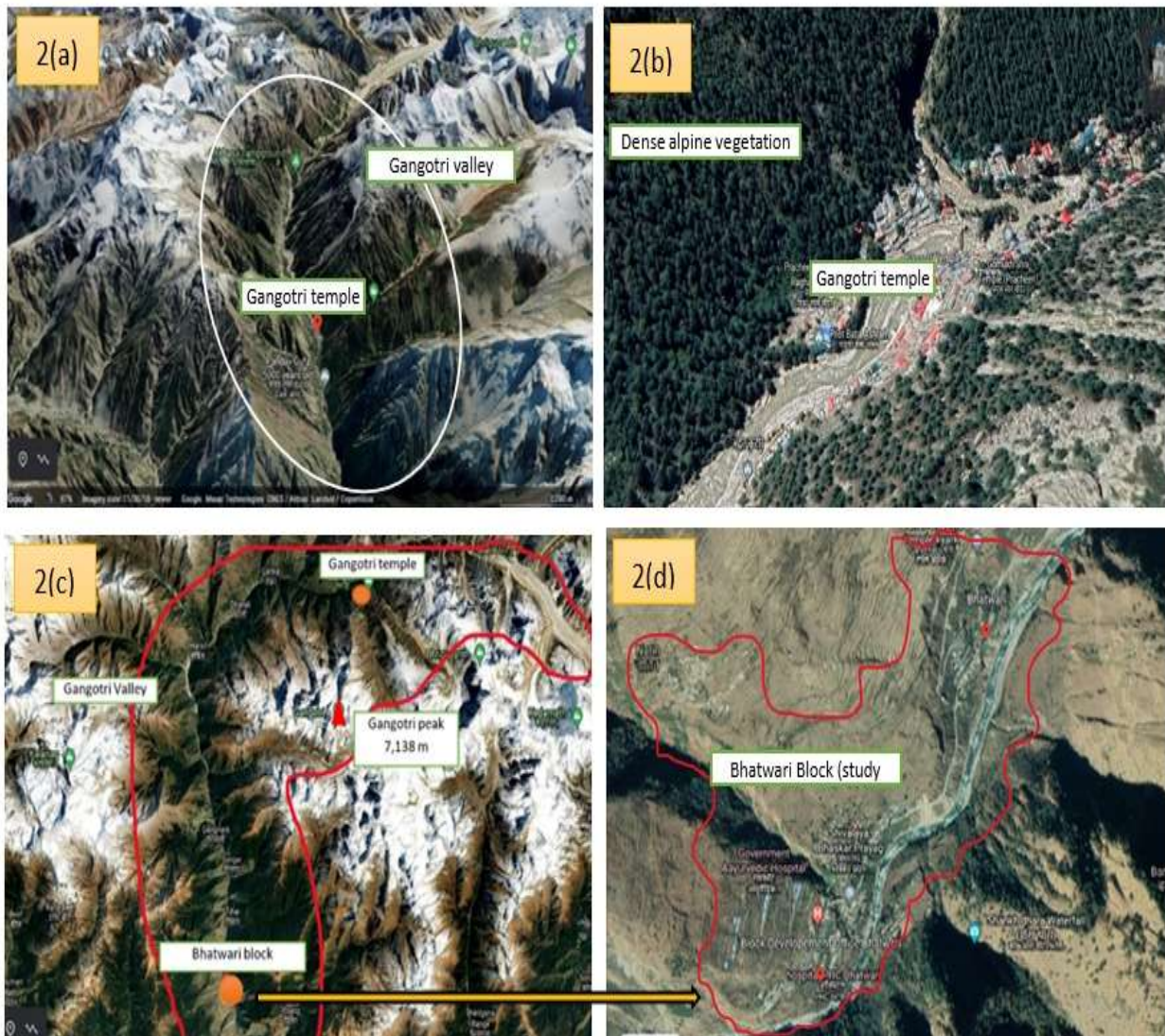
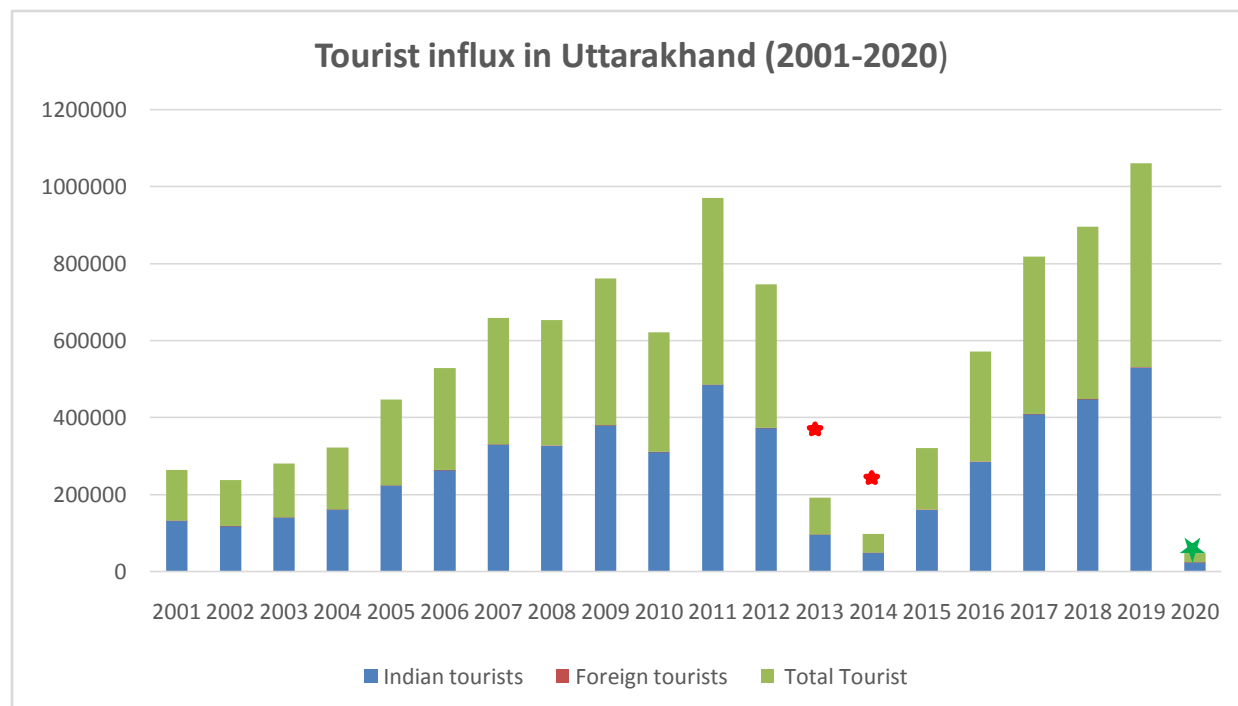


Figure 2:- Geographical dynamics of the region, and tourism activities in the region. 2(a) Gangotri Valley and Gangotri Pilgrimage site located deep within the eco-sensitive valley. 2(b) Gangotri town extent/built up /expanse and location along the river channel and dense alpine vegetation region 2(c) Location of Bhatwari block, with in the Gangotri valley region 2(d) Extent of the site location along the lateral slope of Gangotri Valley region.

Source- <https://earth.google.com/web/search/bhatwari+block/@30.81204222,78.62050634>

The growth in the tourism sector can easily be noticed in the study region, through the increasing inflow data of tourists. The data of growing tourist inflow (Indian as well as foreign tourists) in the Gangotri region is depicted in (Figure-3), an increasing trend in the number of tourists in the last 2 decades is quite evident. Drastic decrease in the visit of Indian tourists in the year 2013 and 2014 was observed due to 2013 Kedarnath Disaster. Drastic Decrease in tourist inflow due to Covid-19 pandemic. Tourism also works as a social catalyst. Income generation through tourism directly helps in raising the standard of living of the local people and indirectly provides opportunities for upward

mobility of the lower social strata (Andereck&Mcgehee, 2008). Increased involvement of different sections of society brings self-reliance, confidence among them and motivation for community participation (Gill & Singh, 2013).



★ - Drastic decrease in the visit of Indian tourists in the year 2013 and 2014 was observed due to 2013 Kedarnath Disaster. ★ - Drastic Decrease in tourist inflow due to Covid-19 pandemic. Source: <https://uttarakhandtourism.gov.in>

Figure 3:- Tourist influx in Uttarakhand (2001-2020).

Responses of the People on the Impact of Tourism

To understand the perception of people about the impacts of tourism within the region and the potential impacts of ESZ on the environmental issues and the developmental aspects, a primary survey in 17 villages falling in different sub watersheds of the area, with altitudinal and geographical variations, was conducted in (2019) where people responses against 20 indicators were assessed to identify the overall impact of tourist activities on socio economic and environmental aspects of the region. The responses were obtained from 195 respondents (78.97% males and 21.03% females) covering all age groups, through a schedule covering numerous aspects associated with ESZ, its long - term potential impact on people society and environment.

Beneficial Impacts of Tourism in the Region

With the open-ended questionnaire provided to the local community in response to the tourist. During the survey in the field, people's perception about the benefits that they receive from tourism, were recorded. A total of 94.4% of the total respondents replied with multiple responses in favour of tourism while the remaining 5.6% perceived no benefit from tourism to the region. The multiple responses on benefit resulting from tourism are shown in following diagram (Fig. 4)

One of the significant aspects, associated with tourism highlighted was employment, with 48% of the local community responding in favour of the employment provided by tourism in the region. Another 22% of respondents reported that tourism has been the primary reason for all the developmental activities taking place in the region and 19% supported tourism as one of the biggest factors in preventing migration in the region. Market development for the consumption of local produce (10% responses) was the other noticeable benefit reported by the respondents while 1% gave other responses.

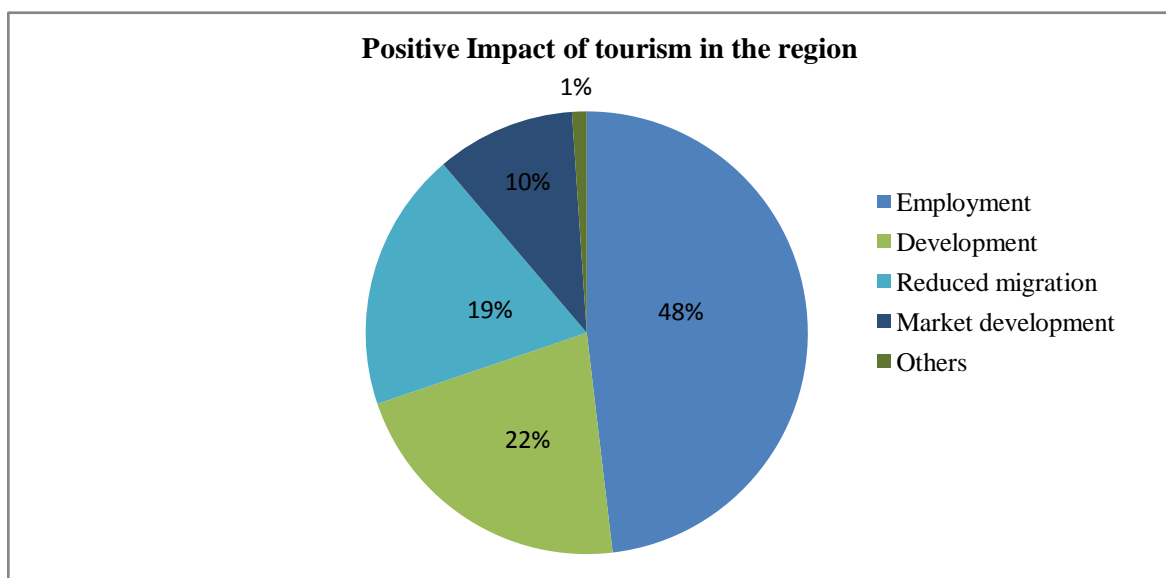


Fig. 4:- Local response on the positive Impact of Tourism in the region.

The responses on the benefits of tourism, on altitude basis show that in all the altitudinal zones majority mentioned employment as the major benefit. Apart from this, 21% responses each from lower and higher altitudinal zone reported use of local produce like food products, decorative items, household items, etc as another major benefit. In middle altitudinal zone, development of roads and other facilities were reported by 24% respondents as major benefits (Table. 2).

Table. 2:- Altitude-wise responses on the benefits of tourism.

	Employment	Dev. Road and Other Facilities	Use of Local Produce	Reduced Out Migration	Others	No Benefit	No Answer
Lower altitudinal zone- below 1500 meters							
Total of 4 villages	51	21	23	12	0	2	0
Percentage	47	19	21	11	0	2	0
Middle altitudinal zone- 1500-1800 meters							
Total of 8 villages	75	35	21	9	2	4	0
Percentage	51	24	14	6	1.5	3.5	0
Higher altitudinal zone- above 1800 meters							
Total of 5 villages	54	25	27	17	2	5	0
Percentage	41.5	19	21	13	1.5	4	0
Grand total							
Grand total	180	81	71	38	4	11	0
Percentage	47	21	18.5	10	0.5	3	0

Adverse Impacts of Tourism in the Region

While tourism has great socio-economic significance and several benefits the local area and its inhabitants, it also possesses potential to adversely impact the environment, if not developed rationally. The pronounced impact on Flora, Fauna, Biodiversity due to overwhelming tourist activities especially in Himalaya's regions have degraded the natural environment around many popular tourist destinations in the mountain region (Pal et al., 2009). The adverse impacts have been highlighted not only at the regional but also at national and international levels (Bhat et al., 2009; Pandey, 2006). In context of the fragile and marginal Himalayan region, the adverse impacts of tourism are considered serious because of Geo-Environmental sensitivity and ecological vulnerability of the region. The

increasing negative impact of tourism and increased sensitivity to environmental vulnerability in the region (Shinde, 2021). It was the evoked global awareness towards the environmental vulnerability and increasing negative impacts of tourism activities which led to the commencement of strategy for responsible tourism in 1998 by the United Nations Economic and Social Council. This eventually led to the declaration of 2002 as "International Year of Eco-tourism", in order to safeguard the ecological and environmental characteristics of the regions that are disturbed by tourists visits (Butcher, 2006; Singh, n.d.). Subsequently UN General Assembly declared 2017 as the International Year of Sustainable Tourism for Development. It came as a unique opportunity to advance the contribution of the tourism sector to the three pillars of sustainability- economic, social and environmental, while raising awareness of the true dimensions of a sector which is often undervalued (UN, (2016). The current trend of nature-based tourism has brought significant growth in both international and domestic tourism to mountain destinations. However, this has also brought severe environmental consequences including modifications and some-times disruption to the local cultures and traditions (Bhat et al., 2009). Thus, it is necessary for mountain tourism to be based on the principles of sustainability, which emphasizes on the sound environmental practices, equity and long-term benefits for all stakeholders (Bonadonna et al., 2017).

The adventure tourism, wildlife tourism and bird watching are new forms of tourism that have grown in recent years. However, the growth in the number of people visiting the valley has now become an issue of concern to the authorities and local population. The reason of this is the poorly planned, uncontrolled and ill-managed tourism. The increased human and vehicular movement in the region have disturbed the natural habitat and movements of flora and fauna (Sati, 2018). A change in the vegetation cover can also be observed in the region (Sen et al., 2017). Pollution in the form of, air and noise pollution due to vehicles, water pollution due to discharge of sewage from hotels, resorts and *dharamshalas* (rest houses) into the rivers and soil pollution due to use of plastic, are some of the major negative effects of tourism highlighted in the local communities. Illegal construction near the river beds to accommodate and provide facilities to the tourists has severely affected the river flow, its composition and channel morphology (Semwal & Akolkar, 2006). In addition, the tourist influx also influences the local culture and traditional set-up, where at times it leads to dilution of traditional and cultural set-up (Kashyap and Raina, 2006b). The following table. 3 broadly lists some of the major impacts of tourism on local environment highlighted in the region.

Table 3:- Major Impacts of Tourism on Environment.

Kind of Impacts	Nature of Impacts
Flora and fauna species	Disruption of breeding habits, killing of animals and changes in nature of vegetation cover because of clear felling
Pollution	Water pollution through discharges of sewage, air pollution due to vehicles and noise pollution.
Erosion	Increased surface run-off due to compaction of soil, Increase in occurrence of landslides and land slips.
Built area	Change in character of built-up area due to concrete, iron etc., changes in housing design, over-load on infrastructure.
Cultural environment	Changes in cultural practices and cultural landscape, revival of traditional festivals, increase in crimes

In the field study, people were asked about the adverse impacts of tourism in the region. Out of total respondents, 47% reported no harm from tourism, 4% gave no answer and negligible 0.5% respondents had no idea about the issue. The remaining 48.5% respondents gave multiple answers. The analysis of results shows that among these (48.5%), 46% of respondents reported accumulation and disposal of waste as a major issue while pollution was reported by 36% of respondents as adverse impact. A total of 8% respondents mentioned unplanned construction, 7% respondents mentioned forests degradation as main negative impact while 3% gave other miscellaneous responses (Fig. 5).

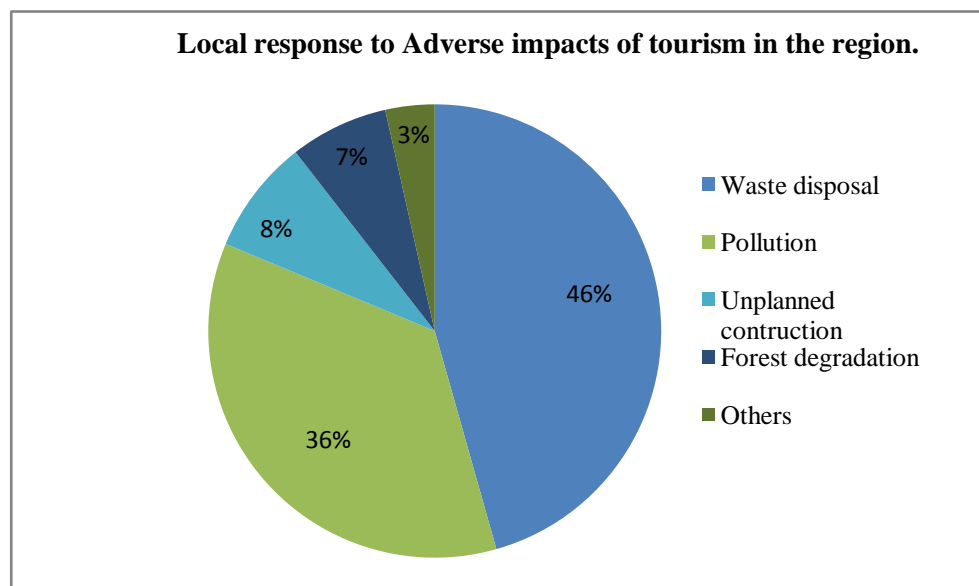


Fig. 5:- Local response to Adverse Impacts of Tourism

The responses were also analyzed on the altitudinal basis. Observations show that all the altitudinal zones report disposal of waste and pollution as the major harms of tourism within the region (Table. 4).

Table 4:- Altitude-Wise Responses on the Adverse Impacts of Tourism.

	ADVERSE IMPACT OF TOURISM							
	Forest Degradation	Waste and Sewage Disposal	Pollution	Unplanned Construction	No Answer	Others	No Idea	No Harm
Lower altitudinal zone- below 1500 meters								
Total of 4 villages	3	28	19	3	0	1	0	23
Percentage	4	36	25	4	0	1	0	30
Middle altitudinal zone- 1500-1800 meters								
Total of 8 villages	6	30	24	7	5	3	0	40
Percentage	5	26	21	6	4	3	0	35
Higher altitudinal zone- above 1800 meters								
Total of 5 villages	3	20	18	4	2	2	1	29
Percentage	4	25	23	5	2.5	2.5	1	37
Grand total								
Grand total	12	78	61	14	7	6	1	92
Percentage	4	29	22.5	5	2.5	2	0.4	34.6

The unplanned and ecologically non-compatible tourism results in un-sustainability of mountain communities. Kashyap and Raina, (2006d), have stressed on the need to develop a plan for sustainable mountain tourism. This would help in improving the quality of life of the mountain people as well as further enhance the satisfaction among tourists without depletion or degradation of natural resources (Kashyap & Raina, 2006). Keeping in mind the adverse effects of tourism, the United Nations Economic and Social Council proposed, in UN General Assembly, a strategy of responsible tourism in 1998. As a result, 2002 was declared as international year of Eco-tourism -2002.

The concept of eco-tourism was introduced by Hector Ceballos-Lascurain. They defined eco-tourism as “travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals, as well as existing cultural manifestations (both past and present) found in these areas (Ceballos-Lascurain, 1987). In other words, eco-tourism is the symbiotic relationship between tourism and environment which benefits the socio-economic condition of local inhabitants and at the same

time promotes tourism and protect the environment (Rai et al., 1998) has underlined the necessity to promote the concept of eco-tourism, by educating the mass. Therefore, to conserve the environment and minimize the negative effects on the human and natural environment, education needs to be incorporated in the curriculum at different levels. This can also contribute to the management of protected areas.

Provisions Regarding Tourism in Eco Sensitive Zone

A 100 kms area covering 4179 sq. kms in Bhagirathi valley from Gaumukh to Uttarkashi has been declared as Eco-sensitive zone overlooking the environmental and ecological sensitivity of the region in 2012, which has posed its own set of challenges, implication and opportunities to tourist activities in the region. Since the region has been a prominent tourist circuits and pilgrimage destination, the response of local people in this aspect have been recorded. People are deterrent to ESZ as they perceive, that its implementation is going to adversely affect their livelihood. Various studies (Kunwar et al., 2009; Pandey, 2006) have already mentioned the adverse impacts that tourism within the region. In this context the MoEF has tried to incorporate some of the green development provisions to the tourism activities, prominent amongst which are: 1. Promotion of traditional knowledge and practices. 2. Promotion of eco-friendly activities (eco-huts, homestays). 3. Regulated activities include the establishments of hotels and resorts, development of roads etc. 4. The construction of various buildings, hotels and resorts in ESZ shall follow the traditional concepts and the architecture of the area. 5. ESZ shall encourage development of walking paths of tourism, pilgrimage and local use. 6. A detailed carrying capacity study shall be carried out for the tourism activities. 7. All new tourism activities, development of tourism or expansion of existing tourism activities shall be permitted within the parameters of tourism master plan (MOEF, GOI (2012)).

Responses of People on the Potential Impacts of ESZ on Tourism

During the survey respondents were asked about the potential impacts of the ESZ on tourism. The responses were classified in terms of positive, negative or mixed. From the responses it was observed that 38% respondents felt that there will be negative impact of ESZ on tourism while 12% respondents felt that there will be positive impact. There were 12% respondents who mentioned that there will be both, positive and negative impacts, whereas 25% of respondents were of the opinion that there will be no impact while 13% gave no answer (Fig. 6).

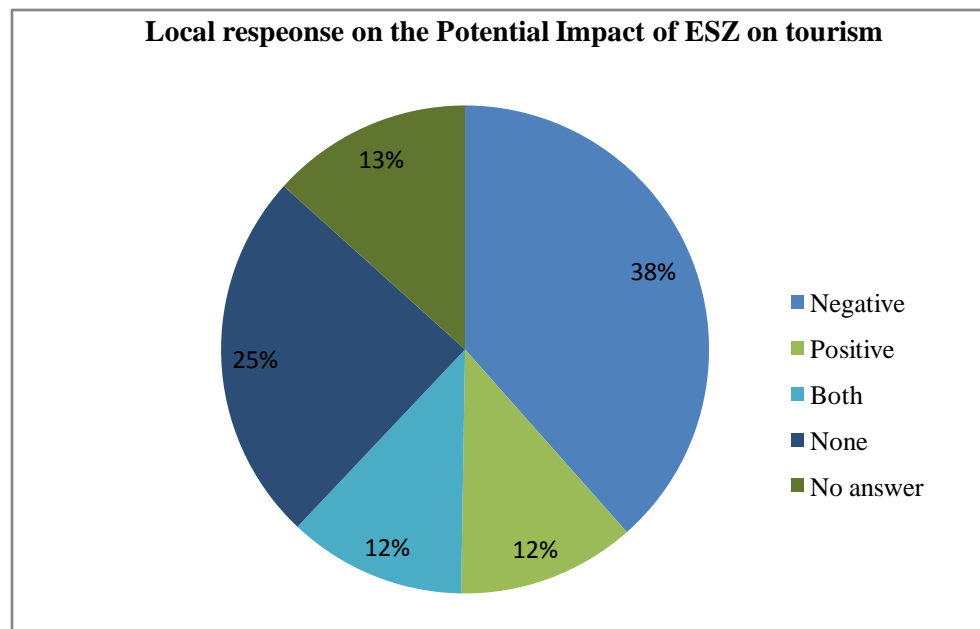


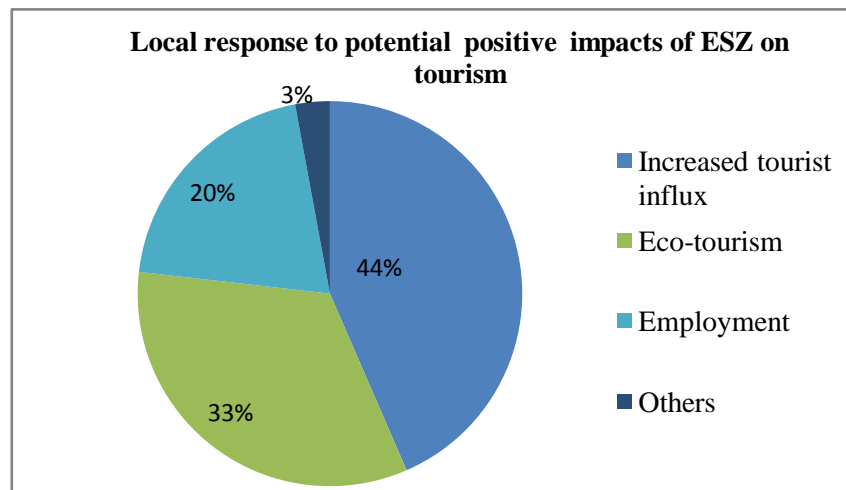
Figure 6:- Potential impact of SEZ on Tourism.

These responses were further classified according to altitudinal zones. In lower altitudinal zone, responses to potential impacts of ESZ on tourism, shows that 37% respondents felt that there will be no impact, while 30% reported negative impact. In middle altitude, maximum respondents (35%) reported negative impact followed by 24% reporting no impact. In higher altitude majority (51%) reported negative impact of ESZ on tourism (Table. 5).

Table. 5:- Altitude-wise Responses to the Potential Impacts of ESZ on Tourism.

	Positive	Negative	Both	None	No answer
Lower Altitudinal Zone- below 1500 meters					
Total of 4 villages	5	16	9	20	4
Percentage (%)	9	30	17	37	7
Middle Altitudinal zone- 1500-1800 meters					
Total of 8 villages	13	28	5	19	15
Percentage (%)	16	35	6	24	19
Higher Altitudinal Zone- above 1800 meters					
Total of 5 villages	5	31	9	9	7
Percentage (%)	8	51	15	15	11
Grand Total					
Grand Total of 17 villages	23	75	23	48	26
Percentage (%)	12	38	12	25	13

Respondents were asked about the potential positive impacts of ESZ on tourism in the field study. It was majority of respondents (71%) who gave no answer to the question while 3% had no idea and 4% reported no benefit out of it. It was the remaining 22% respondents that gave multiple responses to the question. Among them largest number of respondents (44%) opined that it will result in an increase in tourist influx in the region, 33% expected the promotion of ecotourism and 20% were hopeful of increased opportunity of employment as the positive impact of ESZ on tourism. Only 3% gave miscellaneous responses (Fig .7).

**Fig.7:-** Potential Positive Impacts of ESZ on Tourism.

Among all the responses enlisted, it was observed that in lower altitude zone 43% respondents reported increased tourist influx as the potential positive impacts of ESZ on tourism, while in the middle altitude zone eco-tourism was reported by 40% as major positive impact, followed by increased tourist influx and employment with 30% each. In case of, higher altitude zone majority of respondents (64%) reported likely increased tourist influx (Table. 6).

Table. 6:- Altitude-wise Responses to the Potential Positive Impacts of ESZ on Tourism.

	Increased tourist influx	Eco-tourism	Employment	Others
Lower Altitudinal Zone- below 1500 meters				
Total of 4 villages	6	4	2	2
Percentage (%)	43	29	14	14
Middle Altitudinal zone- 1500-1800 meters				
Total of 8 villages	10	13	10	0
Percentage (%)	30	40	30	0

Higher Altitudinal Zone- above 1800 meters				
Total of 5 villages	14	6	2	0
Percentage (%)	64	27	9	0
Grand Total				
Grand Total of 17 villages	30	23	14	2
Percentage (%)	44	33	20	3

Similarly, on asking the potential negative impacts of ESZ on tourism, 46% gave no answer, 3% reported no idea and 2% mentioned no impact. It was 49% of respondents that offered multiple answers to this question. Among them 41% responses mentioned a reduction in the tourist's visits, restricted tourist facilities were reported by 37% and reduced employment opportunity was mentioned by 16% of the respondents as negative impact. It was 4% of respondents who felt that the requirement of permission for even minor works will adversely impact the provision of tourist facilities and other 2% mentioned various potential negative impacts (Fig .8).

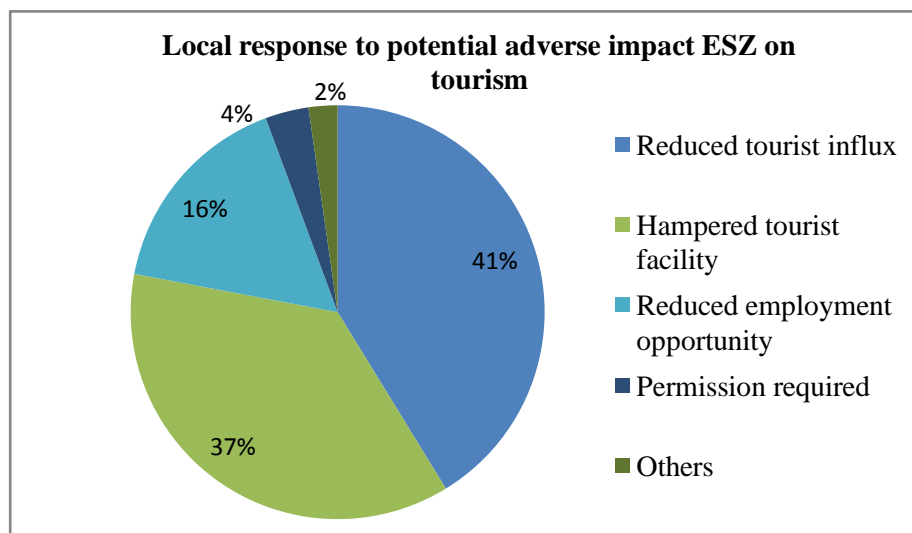


Fig.8:- Potential Negative Impacts of ESZ on Tourism

Altitude wise analysis shows that, in lower altitudinal zone 50% reported reduced tourist influx and another 39% reported hampered tourist facilities as potential adverse impacts of ESZ on tourism. In middle altitude zone 40% reported the hampered tourist facilities while in higher altitude zone 41% reported reduced tourist influx and 33% reported hampered tourist facilities (Table. 7).

Table 7:- Altitude-wise Responses to the Potential Negative Impacts of ESZ on Tourism.

	Reduced tourist influx	Hampered tourist facility	Reduced employment	Permission requires	Others
Lower Altitudinal Zone- below 1500 meters					
Total of 4 villages	22	17	3	2	0
Percentage (%)	50	39	7	4	0
Middle Altitudinal zone- 1500-1800 meters					
Total of 8 villages	22	25	14	0	2
Percentage (%)	35	40	22	0	3
Higher Altitudinal Zone- above 1800 meters					
Total of 5 villages	29	23	12	4	2
Percentage (%)	41	33	17	6	3
Grand Total					
Grand Total of 17 villages	73	65	29	6	4
Percentage (%)	41	37	16	4	2

Recommendations and Conclusion: -

Mountain regions of the world because of their unique landscape have attracted tourists of varied interests. Tourism in Himalayan regions of India mainly in Uttarakhand region is primarily associated with Pilgrimage/religious tourism and char Dham religious yatras. However, the region is diversifying rapidly to leisure and adventure-based tourism also. Gangotri one of the prominent tourists' centres has unique cultural, religious and environmental significance. However, tourism sector is characterized by seasonality and unpredictability because of varying climatic conditions in a year and changing preferences are highly affected. Price, (2004) (Price, n.d.), has highlighted a greater need to frame and implement policies and develop financial instruments that ensure larger economic benefits not only locally but at the national level with long term implications to sustain economic activities within the environmental capacities.

While booming tourist activities boost the socio-economic status of the society in the region which has other wise very limited options to earn their livelihood, but at the same time the rampant tourist activities degrade the very fabric of conducive environment al conditions on which the tourism of the area thrive. In the past decade the growing tourist activities have not only increased construction activities, Pollution, congestion in the area, but also hampered the socio- cultural fabric of the society in the region. Land, air, water pollution, waste disposal problems highlighted by the local communities are diluting the very base of economic activities with limited livelihood means in the region. On the basis observations made on the issues/ problems related to tourism and tourism related activities, and the opinions of people for sustainable tourism, an attempt has been made to highlight the challenges and concerns of tourism as an economic activity in the region. This calls for environmentally supported tourist activities which are woven within the carrying capacity of the vulnerable mountain ecosystem yet yield sustainable means of livelihood options for the local communities (Ceballos-Lascurain, 1987; Nepal, 2002b).

Various proposed practices that may promote sustainable tourism within the Eco Sensitive zone are suggested to be - regulation of tourism activities considering the carrying capacity of the region, developing new/optimum walking treks, promoting home-stays and nature-based tourism, tourist sensitization practices towards environment and cultural practices of the region, promoting local cuisine and food practices, Strengthening and capacity building of the local people etc (Singh, n.d.). The focus on understanding the concept of carrying capacity and incorporating it into the developmental plans of the area can also play important role in promoting sustainable tourism (WTO, (1980.). This will help in developing appropriate and adequate infrastructure, enhance eco-friendly facilities for tourists and regulate the tourist activities including vehicular movement. Such strategy would encourage and promote small tourist locations, decentralize the tourist traffic, develop employment opportunities at local levels and would also help in distributing the economic benefits to different sections of society. There is also a need to develop markets and promote the use of local produce that would further promote local economy and cater to the needs of tourists.

The concept of home stays, eco-tourism, Bio tourism and local material-based infrastructure development would promote the eco-friendly tourism (Kashyap & Raina, 2006; Rai et al., 1998). Tourism department has been promoting Rural Tourism Upliftment Programme through the promotion of home stays-where tourists are introduced to the rural environment, culture, living and food habits of local people. A diagrammatic representation of sustainable pattern of tourism in the region is presented below (Fig. 9) Similarly, Green Pupil Organisation is practicing a farm tourism model in Raithal village, which is based on promoting tourism, reducing migration and providing benefits of tourism to locals. These practices provide an opportunity to tourists to contribute to the living of locals by involving them (figure-10).

In order to preserve the quality of environment and ecological health of the ecosystem of the region, it is required that appropriate measures are taken. Some of the suggested measures are- regulated tourism activities such as construction of hotels, running of restaurants and encouraging group transport to reduce traffic. Sewage treatment plants to control water pollution, promotion of the concept of home-stays, developing walking treks, emphasis on eco-tourism, promoting wildlife tourism, bird watching etc., facilitating the use of alternative bio-fuels and LPG etc. are some other suggested measures

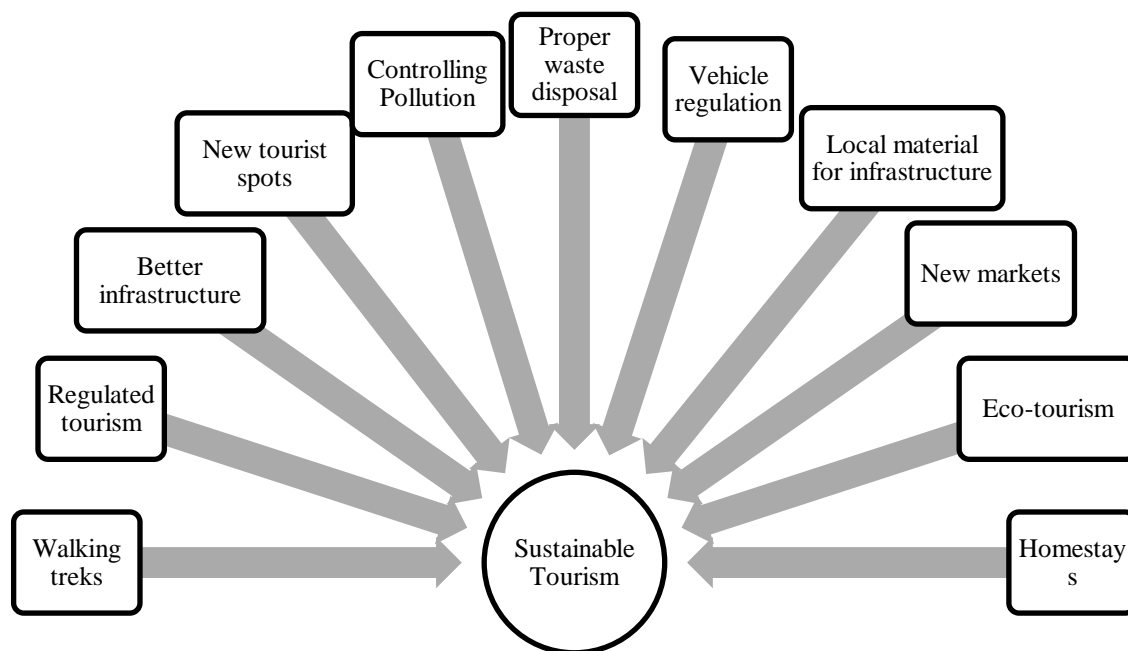


Fig: 9:- Some Suggested Measures for Sustainable Tourism Practices in the region.



Figure 10:- Panoramic View of Himalayas from Raithal promoting homestays.

Conclusion: -

Since the study region, is Eco sensitive zone it is imperative to understand the very nature of livelihood activities in the region. Planning, incorporating and implementing the tourist activities within the ambit of ecological capacity is the challenge in the region (Sati, 2018). Understanding the concept of ecological sensitive area and preparing Tourist master planes, as well as zonal planes according to the very guidelines of ESZ regions are imperative. Expansion, development and diversification of tourist activities have immense potential in ESZ however within the permissible limits permitted in these zones. The economic viability might be slow initially due to restricted economic activities however diversifying to sustainable tourism practices may gradually generate long term livelihood opportunity with less economic fluctuation and environmental disturbances. Identification/development

of tourist circuit as well as local service provider groups, capacity building, resource mapping, behavioural and communication skills as well as strengthening environmental sensitivity is definitely going to be crucial steps in ensuring sustainable tourism in such ecologically sensitive zones (MOEF, GOI 2000; Nepal, 2002b). Sustainable tourism considering local stake holder perception, their economic needs, and viability on one hand and appreciating environmental and cultural values on the other will truly benefit the local mountain communities along with the natural environment in which they thrive (Sati, 2020). The concept of sustainable tourism is therefore a big challenge as well as a need in such Ecologically sensitive Mountain terrains, where finding the right balance between developmental strategies, balancing both the economic needs as well as environmental concerns is critical.

References:-

1. Ahmed, n. (2013). Sustainable tourism development in uttarakhand region of india. International journal of management and social sciences research, 2(4), 106–111.
2. Andereck, k., &mcgehee, n. G. (2008). The attitudes of community residents towards tourism. In tourism, recreation and sustainability (pp. 236–259). Cabi publishing. <http://www.scopus.com/inward/record.url?scp=84860405227&partnerid=8yflogxk>
3. Bhakuni, k. (2017). Issues and challenges of sustainable tourism in nainital, uttarakhand. In p. Sharma & s. Rajput (eds.), sustainable smart cities in india: challenges and future perspectives (pp. 383–397). Springer international publishing. https://doi.org/10.1007/978-3-319-47145-7_24
4. Bhat, m. S., imran, m., &kuchay, n. A. (2009). Impact of tourism on landuse/land cover in the himalaya: a case study of lidder watershed of pahalgam. Rawat, m.s.s. And pratap, d. (eds.), management strategies for the indianhimalaya: development and conservation, transmedia publisher, srinagar (garhwal), 2, 62.
5. Bleie, t. (2003). Pilgrim tourism in the central himalayas. Mountain research and development, 23(2), 177–184. [https://doi.org/10.1659/0276-4741\(2003\)023\[0177:ptitch\]2.0.co;2](https://doi.org/10.1659/0276-4741(2003)023[0177:ptitch]2.0.co;2)
6. Bonadonna, a., giachino, c., & truant, e. (2017). Sustainability and mountain tourism: the millennial's perspective. Sustainability, 9(7), 1219. <https://doi.org/10.3390/su9071219>
7. Butcher, j. (2006). The United Nations international year of ecotourism: a critical analysis of development implications. Progress in development studies - progr dev stud, 6, 146–156. <https://doi.org/10.1191/1464993406ps133oa>
8. Ceballos-lascurain, h. (1987). Estudio de prefactibilidadsocioeconomica del turismoecologico y anteproyectoarquitectonico y urbanistico del centro de turismoecologico de sianka'anroo. Mexico City: sedue.
9. Durgapal, b. P., &singhal, b. (2018). Tourism in uttarakhand. International journal of management studies, 5(5), 8–19. <https://doi.org/10.18843/ijms/v5is5/02>
10. Gambhir, d., khalid, a. M., &sharma, s. (2021). Religious tourism and sustainable development: perspectives from hill states in india. In a. Lubowiecki-vikuk, b. M. B. De sousa, b. M. Đerčan, & w. Leal filho (eds.), handbook of sustainable development and leisure services (pp. 273–287). Springer international publishing. https://doi.org/10.1007/978-3-030-59820-4_18
11. Gill, n., &singh, r. P. (2013). Socio-economic impact assessment of tourism in pithoragarh district, uttarakhand. International journal of advancement in remote sensing, gis and geography, 1(1), 1–7.
12. Gupta, a., arora, n., sharma, r., &mishra, a. (2021). Determinants of tourists' site-specific environmentally responsible behavior: an eco-sensitive zone perspective. Journal of travel research, 00472875211030328. <https://doi.org/10.1177/00472875211030328>
13. Ives, j. (2004). Himalayan perceptions: environmental change and the well-being of mountain peoples. Routledge. <https://doi.org/10.4324/9780203597569>
14. Kashyap, s. D., &raina, k. K. (2006). Bio-tourism: sustainable developmental option for the mountain communities. A.p, agarwal, s.k., kumar, r. (eds.), in mountain technology agenda: status, gaps and possibilities, shiva offset press, dehradun.
15. Kharakwal, j. S., &rawat, y. S. (2009). Excavations at kanmer: a harappan site in kachchh, gujarat. Puratattva, 39, 147–164.
16. Kunwar, c., dangwal, k., &darmora, a. (2009). Contribution of mountain women in biodiversity conservation and sustainable use of resources in uttarakhand region of hindukushhimalayas. Rawat, m.s.s. And pratap, d. (eds.), management strategies for the indianhimalaya: development and conservation, transmedia publisher, srinagar (garhwal), 1, 299.
17. Moef, (2012), the gazette of india, part-ii, section-3, subsection-(ii), published on 18 december, 2012, new delhi, ministry of environment and forest, goi, p.5. (n.d.).
18. Moef, report of the committee on identifying parameters for designating ecologically sensitive areas in india, ministry of environment and forest, goi, p.7. (2000).

19. Mutana, s., & mukwada, g. (2018). Mountain-route tourism and sustainability. A discourse analysis of literature and possible future research. *Journal of outdoor recreation and tourism*, 24, 59–65.
20. Nepal, s. K. (2002a). Tourism as a key to sustainable mountain development: the nepalesehimalayas in retrospect. Unasylyva (fao). https://scholar.google.com/scholar_lookup?title=tourism+as+a+key+to+sustainable+mountain+development%3a+the+nepalese+himalayas+in+retrospect&author=nepal%2c+s.k.&publication_year=2002
21. Nepal, s. K. (2002b). Tourism as a key to sustainable mountain development: the nepalesehimalayas in retrospect. Unasylyva (english ed.), 53(208), 38–45.
22. Pal, a., saklani, b. K., & kathait, j. S. (2009). Anthropogenic activities and their impact on wildlife: a study of himachalpradesh. Rawat, m.s.s. And pratap, d. (eds.), management strategies for the indianhimalaya: development and conservation, transmedia publication, srinagar (garhwal), 2, 224.
23. Pandey, b. W. (2006). Changes of land use and cropping system and environmental sustainability in western himalaya. Rawat, m.s.s. (ed.), resource appraisal, technology application and environmental challenges in central himalaya, transmedia publication, srinagar, uttaranchal, 246–247.
24. Paper 30- mountaineering tourism prospects and trends: a case of uttarakhandhimalaya | international journal of information movement. (n.d.). Retrieved 25 september 2021, from <http://www.ijim.in/paper-30-mountaineering-tourism-prospects-and-trends-a-case-of-uttarakhand-himalaya/>
25. Price, m. F. (n.d.). Price, m.f. (ed.), (2004), conservation and sustainable development in mountain areas, iucn, gland, switzerland and cambridge, uk. Iucn, 5.
26. Rai, s. C., lepcha, r., & sharma, e. (1998). Ecotourism: a strategy for conservation and development in research for mountain development: some initiatives and accomplishments. G.b pant institute of himalayan environment and development (gbpihed), gyanodayaprakashan, nainital, 196.
27. Rana, g. (n.d.). Status and scenario of tourism industry in india – a case study of uttarakhand. Status and scenario of tourism industry in india – a case study of uttarakhandtourism: inclusive growth & sustainable development, edition: 1st, chapter: 56, publisher: bharti publications, editors: prof. S.p. Bansal, prof. Sandeep kulshreshtha, dr. Prashant kumargautam. Retrieved 25 september 2021, from https://www.academia.edu/31889174/status_and_scenario_of_tourism_industry_in_india_a_case_study_of_uttarakhand
28. Sati, v. P. (2015). Pilgrimage tourism in mountain regions: socio-economic. . . South asian journal of tourism and heritage, 8 (2), 164–182.
29. Sati, v. P. (2018). Carrying capacity analysis and destination development: a case study of gangotri tourists/pilgrims' circuit in the himalaya. Asia pacific journal of tourism research, 23(3), 312–322. <https://doi.org/10.1080/10941665.2018.1433220>
30. Sati, v. P. (2020). Sustainable tourism development in the himalaya: constraints and prospects. Springer international publishing. <https://doi.org/10.1007/978-3-030-58854-0>
31. Semwal, n., & akolkar, p. (2006). Water quality assessment of sacred himalayan rivers of uttaranchal. Undefined. <https://www.semanticscholar.org/paper/water-quality-assessment-of-sacred-himalayan-rivers-semwal-akolkar/ff0468127922d352108a6f3eb93213be36bf345d>
32. Sen, d., singh, kumar, a., tangri, dharendra, kumar, anand, c., dubey, rameshwar, & bali. (2017). Pattern of retreat and related morphological zones of gangotri glacier, garhwalhimalaya, india. Quaternary international. <http://dx.doi.org/10.1016/j.quaint.2016.07.025>
33. Sharma, p., & nayak, j. K. (2017). Residents' perception of religious tourism and its impacts: a case of uttarakhand, india. Proceedings of icrbs 2017.
34. Shinde, k. A. (2021). The environmental impacts of religious and spiritual tourism. In the routledge handbook of religious and spiritual tourism. Routledge.
35. Singh, m. K. (n.d.). Garhwal himalaya: trekking tourism promotion and environmental conservation. Rawat, m.s.s. And pratap, d. (eds.), management strategies for the indianhimalaya: development and conservation, transmedia publication, srinagar (garhwal), vol. Ii, pp. 246–252, 2, 246–252.
36. Soni, g., & hussain, s. (2016). A study on the impact of tourism on the himalayas. E-commerce for future & trends, 3(1), 27–35.
37. Un, (2016), resolution adopted by the general assembly on 22 december 2015, 70/193: international year of sustainable tourism for development, 2017, seventieth session, agenda item 20. (2017).
38. Wto, (1980), manila declaration on world tourism, world tourism conference, p.1,. (n.d.).