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Tourism in Kashmir Valley: Growth, Environmental Impacts and Sustainability

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ABSTRACT

In the recent past, tourism industry has witnessed a tremendous surge worldwide and has become an integral part of human leisure and expedition, thus contributing to the growing global economy. Kashmir valley, also referred as “Paradise on Earth” is rich in picturesque scenes, snow clad mountains, lush green meadows and high altitude lakes, hence attracting tourists from all over the world. Although, tourism plays a vital role in the upliftment of a region, by creating employment opportunities and improving infrastructural facilities but it can also have deteriorating impacts on the environment, if not properly managed. Present state government policies are not adequate to properly manage tourism in the region. The study was aimed to assess the environmental impacts of tourism in Kashmir valley. Data collected from various secondary sources were assessed and it was observed that most of the popular destinations in Kashmir are being thronged by tourists above their respective carrying capacities. This has put enormous pressure on the natural resources in the form of over-production of sewage, litter, loss of animal habitats, deforestation and pollution of almost all forms. This study can thus serve as a wake-up call for all the stakeholders who can make a change in proper management of tourism in the region, so that the sustainability of natural resources is ensured.

Key words: Kashmir, Tourism, Environment, Sustainability.

INTRODUCTION

Globally tourism has been a major source of economic development in the recent past. It has surfaced as one of the rapidly growing segments generating about 8.7% of employment worldwide and contributing about 9% to global Gross Domestic Product (GDP). India has a special status of being embodied with spiritual places of solace throughout the world. As such, Foreign Tourist Arrivals

(FTA) in India have increased by 10% in the year 2016 from 80.3 lakh in 2015 to 88.9 lakh tourists in 2016. As per the latest sources, the Foreign Exchange Earnings (FEEs) by the Indian government in 2016 amounted to a huge Rs. 1,55,650 crore, witnessing a growth of 15.1% (Annual report furnished by MoT Govt. of India, 2016-17). Contributing significantly to this figure is the northern most valley of Kashmir.

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Popularly known as “Paradise on Earth” and situated in the heart of Himalayas, Kashmir is blessed with its rich flora and fauna, wildlife sanctuaries, snow clad mountains, high altitude lakes, cultural richness and world famous pilgrimage destinations etc. The valley is a part of the state of Jammu & Kashmir, which comprises of three distinct regions viz, Jammu, Kashmir and Ladakh.

Tourism industry in the state as a whole has grown significantly, hence, resulted in upliftment of local service industry. These include hospitality, transport, handicrafts, horticulture, retail outlets and other small scale sectors. The valley of Kashmir attracts a large number of domestic tourists and a fair proportion of foreign tourists as well¹⁴. This paper is mainly based on numbers before 2016, after which political situation in the valley turned sour and people had to look for alternatives. In 2014, tourism accounted for 7% of state's GDP according to government figures. It thus possesses immense potential of enhancing the infrastructural development and generation of employment opportunities. Numerous local people are directly or indirectly associated with tourism. It provides employment opportunities to even people who lack specialized skills like, tourist guides, hotel jobs, ponywallas etc. Kashmir has historically been a main route of exchange of commercial and cultural attributes between India and the Eastern Asia. It provides tourists from all over the world with opportunities of eco-tourism, pilgrimage tourism, adventure tourism and even medical tourism¹⁴. Main destinations in Kashmir include Gulmarg, Pahalgam, Dal Lake, Sonamarg, Wular Lake, Mughal gardens and Amaranth cave. Tourism is not only providing economic benefits to the state but also placing Kashmir in the national as well as international limelight.

For the last three decades, considerable debate has been going on to establish the relationship between environment and tourism². In contrast to its economic benefits, tourism can also cause significant deterioration to the environment. As stated by Hawkins⁷, tourism is a goose that not only lays

a golden egg (economic benefits), but also has the potential to foul its own nest (environmental degradation). Whereas, proper management and planning can reduce the negative impacts, unplanned and mis-managed tourism can induce damages that are sometimes beyond the resilience power of nature and hence the damages inflicted are termed as irreparable. The tourism industry therefore can be seen as being highly dependent on natural resources and thus has remarkable impacts to environment, culture, society and economy, mostly in an adverse manner¹³.

Poor overlook of actions and limited disclosure of standard information encourage the extension and perpetuation of environmental problems which encourages tourism to destroy the natural resources in the specific environment through over exploitation and poor management policies⁸. Most of the tourist attractions in Kashmir are associated with the abundance of natural resources and that of cultural heritage. As such, potential of both desirable as well as undesirable effects to the environment become substantial². Unplanned tourism can be partially held responsible for landslides, flashflood, abandoned projects and so on¹. As such, tourism can be considered as a double-edged sword that on one hand contributes to the overall development of a place but at the same time inflicts damages to the environment by putting pressure to its natural resources. Environmental degradation induced by tourism occurs mainly as untreated sewage disposal to fresh water bodies, depletion of forest cover to pave way for constructions and sites for adventure sports, soil pollution by polythene menace, snowfall and rain imbalance, climate change, loss of wildlife habitat and so on. Proper management of tourism would incorporate ferrying tourists to a specific place in accordance with its carrying capacity. As defined by Li⁹, carrying capacity is the capacity of hosting tourists by a place that is both socially and ecologically sustainable. Under this level, resilience effects of nature make up for the damage inflicted by tourism

activities. Estimating carrying capacities of major places and abiding by the same is a major pre-requisite for sustainable development of tourism industry in Kashmir.

MATERIAL AND METHODS

The nature of this research is collective and analytical. An exhaustive literature survey was conducted and thereafter the report was compiled on the basis of the collected secondary data. Numbers published by various organizations were analyzed, which include

- Directorate of Tourism (Jammu/Kashmir),
- Tourism Ministry of the Union Government (GoI),
- United Nations World Tourism Organization,
- World Travel and Tourism Council,
- Jammu and Kashmir Tourism Development Corporation and
- Economic Surveys from Union Government (GoI).

Moreover, books, journals, newspapers, economic survey of Jammu and Kashmir and

other online sources were also analysed to obtain desired data. Overall, the present research reviews and analyses a large volume of un-organised data from secondary sources to project upon the impacts of tourism on the sensitive environment of the Kashmir valley.

RESULTS AND DISCUSSIONS

Tourist influx to Kashmir:

The flow of tourists to the Kashmir valley doesn't follow a specific trend. However, it can be predominantly dependent on law and order situations prevailing at that specific point of time. The tourist numbers in the valley saw gradual fluctuations till 2016, when law and order situation went sour; the tourist flow witnessed a sudden sharp dip. Table 1 gives an insight into how the tourist arrival numbers (domestic as well as foreign) have varied from 1988 to 2016. The aim of all the stakeholders has been to stabilize a high influx, which comes as a boon to economy for the state as well as employment opportunities to the local population.

Year	Amarnathji	Domestic/Foreign	Total
1988	96055	722035	818090
2004	400000	377000	777000
2005	265000	432888	697888
2007	213565	441840	655405
2008	498075	572100	1070175
2009	373419	601250	974669
2010	458046	736448	1194494
2011	634000	1314432	1948432
2012	621000	1308765	1929765
2013	353969	1171130	1525099
2014	372909	1167618	1540527
2015	352771	927815	1280586
2016	220490	403442	623932

Table 1: Tourist influx to the Kashmir Valley from 1988 – 2015 (Source: Economic Survey 2009-10, 2015-16)

The trends in rise and dip of tourist numbers in Kashmir can be seen from the Table 1. The number of tourist arrivals which was just 818090 in 1988 ameliorated to 1948432 in the year 2011. The numbers following the year 2012 depict the relationship between peaceful and cordial political situation of a region and tourism. Following the disturbances of 2012, a dip in tourist numbers was witnessed which

fell further after the summer of 2016. Deterioration of law and order situation has a direct impact on the tourist numbers, which is evident from the Economic Survey of 2016 report tabled by the Finance Minister in the Jammu and Kashmir Assembly. The tourist arrivals including Amarnathji Yatris saw a dip of more than 50% than the preceding year. Most of the tourists who came, visited for the

first half of the year until the situation turned sour in July and Kashmir became deserted. The report puts the losses, from July 8 to November 30, 2016, at more than Rs.16000 crore. But such things have been happening in the past too and they suggest that this decrease in tourist arrivals is temporary in nature, and is expected to bounce back as soon as the

situation improves. At the same time, it can be found out that Kashmir has a lion's share in the tourist flow in the state of J&K. The data is provided from the Economic Survey 2009-10, 2015-16 for the state of J&K in the bar graph as given below: (Note that the graph is for entire state of Jammu and Kashmir and not just Kashmir valley).

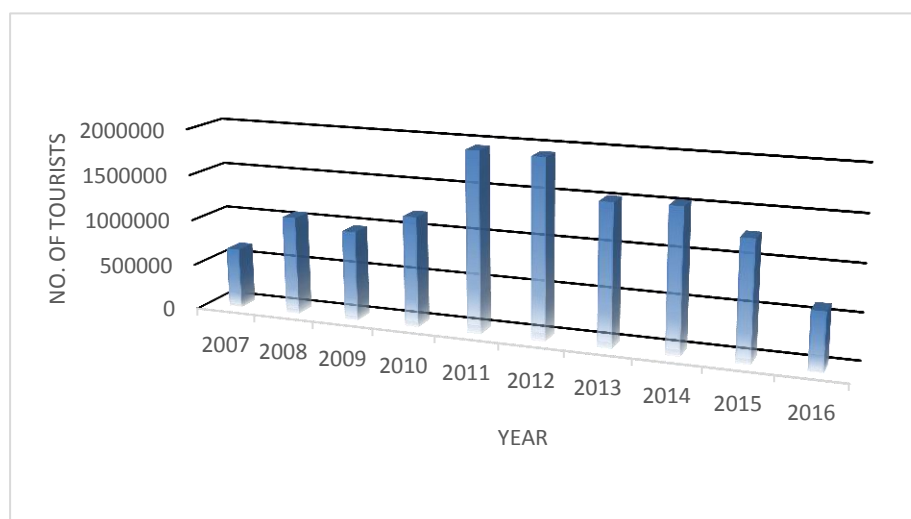


Fig. 1 Tourist Arrivals in J&K from 2007 –2016

“It is estimated that almost 50-60% of total population of J&K is directly and/or indirectly engaged in tourism related activities. Tourism contributes about 15% to State Gross Domestic Product”¹². Because of a distinct

availability of services in Kashmir, the local population has managed to captivate a high spending potential from tourists. This has resulted in encouragement of local enterprises, craftsmen and agricultural growers.

Table 2: Revenue earned from tourism in J&K (Source: Economic Survey 2009-10)

S.No	Name of the department / Organization	Revenue generated (Rs. in crores)				
		2004-05	2005-06	2006-07	2007-08	2008-09
01.	J&K TDC	16.42	17.96	17.65	17.63	19.63
02.	Cable Car Corporation	2.89	7.54	6.76	7.99	8.39
03.	Director Tourism Kashmir/ Jammu (DGT)	0.115	0.15	0.35	0.62	0.54
04.	SKICC	0.46	0.49	0.52	0.64	0.71
05.	Gulmarg Dev. Authority	0.20	0.22	0.32	0.48	0.51
06.	Pahalgam Dev. Authority	0.51	0.91	0.99	0.19	0.13
07.	Sonamarg Dev. Authority	0.00	0.14	0.36	0.32	0.45
08.	Patnitop Dev. Authority	0.11	0.10	0.16	0.79	0.20
09.	Royal Spring Golf Course	0.57	0.35	0.35	0.50	0.46
	Total	20.82	27.05	26.57	29.16	31.01

Revenue Generation for the state

Tourism induced Infrastructural and Economic Development:

To handle such a traffic flow, the development of infrastructure has to match these projections. The data regarding infrastructural

and economic development have been acquired from Ministry of Tourism, Govt. of India. The infrastructure made available in terms of accommodation, transport, etc. is as given below:

Table 3: Status of tourism infrastructure in Kashmir (Source: Ministry of Tourism, GOI)

Type of Infrastructure	Total No.	Bed Capacity
Registered hotels		
5 star	4	1013
3 star	5	786
2 star	10	1060
Class A	29	2110
Class B	66	3239
Class C	82	5585
Class D	21	751
Any other	18	493
Guest Houses (all class)	112	2422
House Boat		
Deluxe	324	1878
A Class	137	645
B Class	124	590
C Class	127	574
D Class	377	1680
Travel Agents/Excursion Agents	192	
Guides	81	

On the other hand, a tabular overview of the total number of hotels, guest houses and

transport facilities are provided for the entire state of J&K for comparison purposes.

Table 4: Hotels and Guest Houses in J & K. (Report prepared by Santek Consultants Pvt Ltd, date of access: 13/05/2018)

	2005		2010		2015	
Type	No. of infrastructural entities	Beds	No. of infrastructural entities	Beds	No. of infrastructural entities	Beds
Hotels						
	670	30333	1028	43039	1715	63653
Guest Houses						
Total	530	16438	896	58052	1607	40108

Table 5: Buses and taxis available for tourists in J&K (Report prepared by Santek Consultants Pvt. Ltd, date of access: 13/05/2018).

Type of transport Infrastructure	2005	2010	2015
Buses	20179	27659	38178
Taxis	8576	11755	16226

Besides being attracted to the natural beauty and cultural heritage of a place, tourists also seek fair returns of the money they invest in the place. As such, infrastructural

developments become indispensable. These could be satisfaction of psychological needs like good transport facilities in and around the tourist place, proper, safe, hassle free,

affordable accommodation, good water, hygiene and sanitation facilities. The others could be related to the attributes of the destination or the tourist place in terms of various sites to visit in and around the tourist place. Some other could be satisfying by their personal tastes like museums, temples, gardens, heritage sites, etc. Or further these could be facilities, which bring in excitement and learning like adventure sports, music, cultural shows, etc. The visitors also come to tourist places to buy the traditional things like

handicrafts, jewelry, etc. In a nutshell the tourist destination should have all the things where the tourist can spend their time and money in a satisfying and justifiable manner.

Carrying Capacity Analysis of some popular destinations of Kashmir:

The carrying capacity analysis was done from secondary data sources collected by Gadoo *et al.*⁶. Some of the important towns whose data was available have been mentioned here in Table 6 below:

Table 6: Carrying capacity analysis of some popular destinations in Kashmir

Tourist spot	Existing Load (2010)	Carrying Capacity	Available Carrying Capacity (2011)	Estimated Load (2020)	Predicted Carrying Capacity (2020)
Srinagar					
Mughal Gardens	1228909	2297904	1068995	1600622	697282
Dal lake	23667	16659	22980	46248	-6963
Dachigham National Park	131	342	554	248	437
Hazratbal shrine	31204	2925	37046	48456	19794
Gulmarg	8648	15390	6742	22601	-7211
Wular Lake	32782	52260	19478	42246	10014
Sonmarg	6578	17280	10702	14398	2882
Manasbal	21323	50310	28987	29015	21295
Tangmarg	2553	15000	117447	6810	113190

The ecological nature of Gulmarg – one of the most popular destinations in Kashmir is quite sensitive and needs to be handled with utmost care and caution. From table 7, it is evident that the existing carrying capacity is almost exhausted and the projected pattern suggests that in 2020 it will cross the sustainable development limit. The negative sign indicates that by 2020, the expected capacity would be exceeded by 7211 people. Hence it is not advisable to allow further constructions in the vicinity of fragile areas and only upgradation of existing infrastructure in standard ways should be encouraged.

In case of Srinagar on the other hand, it has a potential to accommodate extra tourist inflow at selected places. This is mainly because of the security situation, poor connectivity and psychological barriers. With the completion of an alternate highway and the proposed railway line from Jammu to

Srinagar, better connectivity and rigorous advertisement is expected to boost tourist inflow to the city subject to the stabilization of security situation. The carrying capacity of Mughal gardens, owing to its well established and prominent place in tourism worldwide, has been exhausted in the year 2010. A limiting factor to sustainable tourism in these gardens is the amount of time tourists spend here. The carrying capacity thus can be improved by restricting the dwell time of each tourist to a maximum of one hour. Similarly, carrying capacity of world famous Dal Lake behaves no differently, which is projected to be exhausted by the year 2020. Major contributors to its degrading state are the houseboats and the disposal of untreated sewage from the vicinity. If the western edge of the lakefront is developed on the similar lines as has been done on eastern edge, carrying capacity will be potentially enhanced to allow inflow of more

tourists, besides enhancing the overall plight of the lake itself. Thus, by 2020 an additional carrying capacity of 1519 persons could be made possible.

Less known sites like Wular, Manasbal, etc. have excess carrying capacities left that could be exploited if the destinations are put on the tourism radar and consequently infrastructural facilities are improved. These sites have immense tourism potential, but lack basic infrastructure – that most tourists look for in a tourist place. If proper measures are taken by the authorities, overall load of tourists on specific places can be dispersed to newly explored places. The valley of Kashmir is full of other unexplored destinations that can bring a boost to the state economy round the year.

ENVIRONMENTAL IMPACTS OF TOURISM

The main centers of attraction in Kashmir are its pristine nature, culture and pilgrimage spots. Increase in the number of tourists over the time in Kashmir has resulted in amelioration of environmental issues and concerns. For example, untreated sewage from small scale industries and hotels has polluted various lakes, rivers, groundwater and other water resources. Encroachment and demand of more hospitality centers have resulted in deforestation, large rush of tourists have resulted in polythene and other menaces. Gulmarg and Shri Amarnath Ji Yatra are the best examples of how mismanaged and unplanned tourism can hurt the ecological balance of a region. Similarly, Dal Lake in the heart of Srinagar has lost its sheen and attraction because of lack of proper management and social sense among tourists and is now polluted with animal carcass, weeds and leftover food and polythene. The main source of pollution in the Dal Lake is the mismanaged inflow of sewage. Sewage production is directly related to the increasing demand of tourism industry in the vicinity which prompts people to set up new hotels, lodges and houseboats. The sewage emanating from these hospitality infrastructures flows into the lake and hence cause serious threats to its ecosystem. Some broad areas of tourism

related threats to environment have been briefly discussed under the following sub-headings:

Solid Wastes and Littering

One of the key factors responsible to environmental degradation is the production of solid wastes at an unprecedented rate. This is an acute problem faced by almost all the tourist destinations in Kashmir. Untreated and unmanaged solid wastes have become a grave threat to the ecological balance of these areas. Solid wastes enhance pollution of soil and water, besides reducing the attraction of a certain place. Increase in the tourist influx to a particular area consequently imposes more pressure to the tourism related services like hotels, restaurants and retail shops, which in turn produce tons of wastage and dispose it off into the open. The effects of this problem is most serious in pilgrimage areas like Amarnath Ji Yatra, where a large number of people throng the holy stalagmite in a very short span of time. Moreover, indiscriminate littering of plastic wastes and other garbage by the tourists in eco-sensitive places is threatening to the ecosystem and is causing environmental degradation.

Sewage

A primary cause of decimation of water resources and its natural flora and fauna is the drastic increase in sewage production from hotels etc. However, tourism alone cannot be held responsible for sewage production. The movement of people from villages to city centers to enhance life standards, is also partially responsible for degradation of environment by generating bulk of sewage among other activities. Furthermore, development of tourism industry attracts people for the availability of job and other business related opportunities resulting temporary and permanent settlement of huge population which is also a main reason for rapid urbanization of these areas. Consequently a number of environmental problems including sewage production are generated due to urbanization. Sewage contains organic matter that is rich in nutrients and helps algae and other microbes to thrive,

hence increasing Biological Oxygen Demand (BOD) of fresh water. Lidder River among other fresh water sources are a major victim of untreated sewage in Kashmir.

Air Pollution

A report framed by The Lancet Commission based on pollution and health puts the worldwide deaths caused by bad air quality in the year 2015 at a staggering 6.5 million where India with 2.51 million deaths held the apex spot. Unmanaged transport and stubble burning significantly enhances air pollution in Kashmir causing a number of respiratory diseases. The air quality of Kashmir is worst in the autumn months when people start burning leaves to prepare for winter. From the tourism point of view, transportation system is the major source of air pollution in Kashmir. Rapidly increasing tourist arrivals to Kashmir have increased the air and road transport over the recent past. This rise in motorable transport has facilitated the emission of carbon dioxide (CO₂), sulphur dioxide (SO₂) and greenhouse gases. As a consequence, the region has witnessed acid rains in the past, hence directly affecting the landscape, natural vegetation and agro-based industry as well. The recently installed Continuous Ambient Air Quality Monitoring Stations (CAAQMS) at various locations in Srinagar city by State Pollution Control Board (SPCB) have only confirmed that the rise of pollution in the city is alarmingly high.

Degradation of fresh water resources

Water contamination is another major issue caused by the tourism in Kashmir. The quick tourism development has put a substantial weight on water assets to the expense of the requirements of the nearby community. Although there has been a significant rise in the construction of inns, lodges, hotels, houseboats along the fresh water bodies, but any scientific intervention for proper management of wastewater and water preservation has not been inducted. For instance, sewage from many hotels and residential homes on Dal banks are disposed into the lake harming its natural flora and fauna. Floating vegetable gardens, a portion of

Kashmir's greatest vegetable-producing areas and furthermore a focal point of fascination for expansive number of sightseers, are additionally significant polluters. The requirement of fresh water and other local resources in Kashmir is already very high. Accordingly, there have been increasing pressures on these assets so the assets are exhausting at a quick rate.

Deforestation

The quick development of tourism is one of the fundamental culprit for uncontrolled decimations of woods, in light of the fact that the developing interest of tourism has prompted expanding requirement for building material i.e. development of lodgings, eateries, lodges, houseboats and for other rural exercises. Increase in tourist entry has prompted increase in the interest for nearby forest resources by manifolds and this pattern pushes local community to harvest more trees with a specific purpose to produce more crops. Another vital reason of deforestation is the cost of land close to the tourist sites has expanded at a quick rate because of increasing demand for different tourism related activities, which prompt unlawful infringement, logging and chopping down of forest trees. With the rise in unmanaged tourist inflow, there arises a need for land clearance for new constructions, putting pressure on forest land. The report from the Forest Department in 2010 puts the estimate of land encroachment in Kashmir valley at 4877 hectares. According to the forest policy of India around 33% and 60% of the aggregate region of plain and Himalayan areas respectively should be under forest cover, however sadly there is just under 22% of forest cover on national scale and just 20% in J&K. Yet at the same time, the developing competition for the utilization of forest resources is causing degradation of these valuable assets at a high scale. In the meantime deforestation is bringing forth major issues, for example, soil disintegration, loss of biodiversity, environmental change and furthermore affecting water cycle adversely and condition of the locality.

Land Degradation

There has been a great pressure on the natural land resources significantly because of rise in construction of tourism and recreational facilities. Constructional processes include mining of sand, soil (for making bricks etc) and other important minerals and can often lead to unchecked erosion and caving. In addition to that, tourists demand better facilities at airports, railways, golf courses, natural parks etc. that leads to unwanted degradation of land resources, loss of flora and fauna, and deterioration of the landscape. Moreover, the plastic wrappers and bags used by the travelers ameliorate the polluted state of land resources.

Degradation and Loss of Ecosystem

Unchecked development of tourism related facilities (lodging, restaurants, entertainment, etc.) mining of sand and different minerals, deforestation and construction of roads may result in the demolition of biological community. Also, development of air terminals, streets, rail and roads causes loss of wildlife habitats. Besides, presence of visitors in a large number in close vicinity to wildlife habitats and their actions like horse riding, sledging, trampling may responsible for extinction of numerous types of the fauna, soil disintegration, loss of vegetation, decrease in air and water penetrability. Thus, modification of biological systems by visitor's recreational exercises can lead to the degradation of natural habitats and further deteriorate the condition of the environment.

Change in Climate

Tourism, being a climate responsive sector, is directly affected by any unpleasant changes in the weather of region, like climate-change inflicted storms, floods, loss of snowfall, excessive rains etc. Globally, tourism cannot be excluded from the list of climate change sources as it involves movement of people and creation of facilities for travelers and is hence a secondary source of climate change. It has been estimated that only movement of people from one destination to other amounts to 50% of the total traffic (road, rail and air), hence contributing substantially to the emission of

greenhouse gases and other major pollutants. In the last two decades, the rise in average temperature in Kashmir valley as reported by IMD (Indian Meteorological Department, Ministry of Earth Sciences, Govt. of India), was 1.45°C as compared to 2.32°C in Jammu region.

Snowfall imbalance

Climate change is badly hurting the snowfall balance of Kashmir valley. A large number of tourists are attracted to Kashmir because of adventure sports associated with snow. The recent rise in temperatures, no snow in winter season, torrential rains are a clear symptom of climate change making its presence in the valley. According to the findings of a research conducted by National Institute of Hydrology, Roorkee, Ladakh, Zaskar and Greater Himalayan ranges of J&K have witnessed a decrease in the glacier volume ranging between 3.6% and 97% in the past three decades, with most of glaciers degrading by 17% -25% . The low snowfall amount is not only affecting fresh water sources but also poses a negative image for the tourism industry in the state. Hence sustainable development is required. Another facet of climate change is irregular patterns of rainfall. Therefore, droughts and flood like situations have now become more prominent. The great floods of September 2014 can be attributed to drastic climate change over the recent past.

SUGGESTIONS AND RECOMMENDATIONS:

By the above discussion it is proved that the unmanaged and unrestrained growth of tourism is detrimental for the environment in the state. Tourism needs to be planned, administered and taken in an environmentally sustainable, socially favorable and economically feasible way to shun its destructive impacts.

Environmental Management

Following suggestions should be an integral part of the management policies for the area:

- 1) To avoid worsening of the flimsy ecology of the state, the Ministry of Planning and Human Resources should account for the rules, regulations and policies related to the

environmental management of these areas. A reliable Environmental Management and careful development of tourism as well as leisure and housing facilities like restaurants, hotels, houseboats, parks etc is required.

2) To reduce the ecological impact on flora, fauna and vulnerable habitats, the ecology and environment of lakes, rivers and other water bodies should be managed resourcefully.

3) The adoption of eco-friendly practices should be made compulsory to the tourism industry, encouraging the protection and promotion of environment for a longer period in future. In this context, ecotourism can be put in the spotlight, which is more dependable and is helpful in the conservation of environment and wildlife of the area.

4) The type and amount of pollutants along with their sources should be identified. Appropriate measures must be taken to minimize them.

5) An active participation of the local population should be encouraged by the promotion of activities, in which people can directly or indirectly involve in making judgments in the tourism related activities, which affect their living and land.

6) Special services and investment layouts must be aided by government to promote environmental conservation.

Increased Environmental Education and Awareness Programs

There is a need to educate the tourists to know the impact of their activities on the environment and measures to reduce them. Also, the local people need to be made aware of the benefits of keeping the environment protected and how this is important to maintain tourism in the state. The stakeholders can play an important role here as the knowledge of climate change and environment is generally lacking in the J&K hosting community. The authorities must organize awareness camps for the local community, in collaboration with the Meteorological Department. This will help them in managing recreational and tourism activities at the tourist destinations more efficiently.

Management of Waste

For efficient management of the waste following things can be done:

1) The concept of “Reduce, Reuse and Recycle” should be made popular. The installation of dustbins and ‘Recycle Bins’ is required at every corner of tourist destinations. Appointment of conservancy staff, proper segregation and treatment of the collected waste must be done. Setting up of waste recycle centers with proper technology is required. Subsidy on the recycled products should be promoted.

2) Land fill areas must be identified. Harmful wastes from hospitals etc. must be disposed off at proper areas assigned by government. “Polluter pays” principle must be followed that penalizes those who dump the waste improperly and at unassigned places.

3) There should be a system of monitoring the hotel progress including waste management, water and energy use on a regular basis.

4) Further, conferences, seminars, road shows etc. should be organized that help to solve problems related waste management and disposal. There should be easy availability of data regarding the wastes and management to the researchers, users of the waste and governmental organizations.

5) Environment friendly measures like complete prohibition on the use of plastic and introduction of pollution free battery-operated vehicles can help in the ecological protection.

Problem of Sewage and Other Liquid Waste

Appropriate installment and management of waste water using standard waste water treatment systems can help in the improvement of sewage problems. Improvement in the drainage water purification system and prevention of mixing of sewage water with the lakes, rivers and other water bodies must be done to minimize pollution. The construction and use of septic tanks and bio-toilets must be made compulsory at tourist destinations and housing facilities. Strict rules should be imposed, penalizing those who defy them, including cancellation of licenses of owners of service providers of hotels, restaurants, houseboats etc.

Problem of Deforestation

To check the deforestation activities following things can be done:

- 1) Deforestation must be avoided, rehabilitating cut down woods on war footing. Native trees, shrubs and other plants must be conserved. All the developmental activities including construction of roads, buildings, tourism and recreational facilities etc. must be monitored by the authorities for the minimization of harmful effects on the state forest resources.
- 2) Keeping in view the climate adaptable species, afforestation in the river catchments and nursery development must be encouraged for climate oriented eco-restoration. Appropriate measures for conservation of RET (Rare, Endangered and threatened) species, medicinal and wild edible species must be used.
- 3) Any future projects that may have a negative impact on the environment of the area should be planned and executed sustainably without harming the fragile ecology of the state.
- 4) Enhancement of forest regeneration by planting native plant species can prove to be very effective in controlling soil erosion.

Problem of Air Pollution and Climate Change

Emission of greenhouse gases like carbon dioxide (CO₂), CFCs, etc. from the tourism and housing activities need to be monitored in order to control the rising climate changes and air pollution. Intelligent transportation such as battery-driven boats and other vehicles promoting the use of renewable energy should be established. Encouragement should be given to use public transports and thus reducing traffic burden and emission of harmful gases. All vehicles must be checked for emission level. The increase in the use of solar powered gadgets, CNG and reduction of fuel wood, heating systems should be encouraged.

In addition to the above mentioned points, there should be proper guidance to the visiting tourists to inform them about the eco-sensitive nature of the place and the care it

seeks for. Strict guidelines and laws should be enacted to check the mismanagement of natural resources and action should be taken against the defaulters. This will surely help in sustaining the beauty of Kashmir for future generations.

CONCLUSION

The Himalayan valley of Kashmir has long been regarded as the 'Paradise on Earth' by travelers and adventurers. The valley is bestowed with natural resources that attract millions of tourists every year. The economic impetus developed by the tourism industry has a substantial contribution to the GDP of the state. However, it is been rightly said that with greater opportunities come greater responsibilities. The nature of most of the tourist destinations of Kashmir is fragile and eco-sensitive. In order to cater to the needs of a large number of tourists, environmental stress on natural resources becomes obvious. This stress often leads to irreparable damage to the ecosystem and causes pollution to the resources that it strives upon. As such, tourism management requires special attention. The natural resources and biodiversity of these areas can be seriously threatened if the inflow of people and subsequent infrastructural development is not overlooked by proper policies. The study concludes that the trend in flow of tourists to the valley has been mainly dependent on the law and order situations in the valley. The maintenance of a cordial and peaceful environment will encourage more tourists to visit. The subsequent stress on the environment will create implications for both; locals and tourists. Therefore, the remedies were analyzed and it was concluded that proper management of resources and limiting tourist flow below the carrying capacity of that particular place can help in safeguarding its resources. Finally some valuable recommendations were provided to assist the policy makers in sustaining the resources of the valley for the present and future generations.

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