
Impact of overtourism on sustainable development and local community wellbeing in the Himalayan region

Sheetal Kapoor*

Department of Commerce,
Kamala Nehru College,
University of Delhi,
New Delhi, India
Email: skapoor@knc.du.ac.in
*Corresponding author

Jigmet Wangdus

Department of Commerce,
Delhi School of Economics,
University of Delhi,
New Delhi, India
Email: jwangdus30@gmail.com

Abstract: Globally, key tourist destinations are facing the challenges of overtourism. In recent times, with modern technology and the establishment of affordable airlines has given a boost to mass tourism, the unrestrained demand has a negative impact on tourist spots and local communities. This paper adds to the literature by presenting a comprehensive model and an empirical framework to better understand the environmental challenges due to rapid growth of tourism in the Himalayan region over the short span and explains how locals are dealing to overcome these challenges. An exploratory research design was carried to achieve the research objectives empirically to understand the perception of local resident towards overtourism and the impact of tourism on environment. In recent past Ladakh is experiencing global warming in the form of rising temperature, lesser snowfall, strain on water resources, etc. Results validate that local community are concerned about the negative impact of overtourism and systematic efforts and policy formulation is required to protect the fragile ecosystem of Ladakh.

Keywords: environmental impact; sustainable tourism; Ladakh; ice stupa; artificial glacier.

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Biographical notes: Sheetal Kapoor serves as a Professor in the Department of Commerce at Kamala Nehru College, University of Delhi. Her teaching experience of 26 years includes teaching under graduate, post-graduate, MPhil and PhD courses. She did her MPhil and PhD in Marketing at Department of Commerce, Delhi School of Economics, University of Delhi. She has authored

seven books and more than 40 research papers in reputed journals. She worked as the Principal Investigator on six research projects. She presented papers and chaired sessions in more than 100 international and national conferences. She is a recipient of a teaching excellence award in research and innovation from DU.

Jigmet Wangdus is a research scholar at the Department of Commerce, University of Delhi. He is currently also teaching as an Assistant Professor at Shaheed Sukhdev College of Business Studies, University of Delhi. He has presented papers in national and international conferences in India, the USA and Russia.

1 Introduction

Travel and tourism are world's leading sectors providing huge job opportunities and empowering all sections of societies including women and generating prosperity across nations. Tourism being a multi-segmented industry creates good job opportunities in allied sectors like, handicrafts, handlooms and transport (Singh and Unjum, 2016). World Travel and Tourism Council's research uncovers that the tourism sector accounted for 10.4% of global GDP and provided 319 million jobs accounting for 10% of total world employment. The growth of the tourism industry was 3.9% (during 2018) which is more than the increase of the global economy by 3.2%. In the last five years one out of five jobs has been created in the travel and tourism sector.

Unfortunately, economic benefits due to development activities are often followed by some negative externalities in terms of social and environmental costs. Travel and tourism accounts for about 8% of global greenhouse gas emissions with consumer travel accounting for about 4% (Skift, 2019). There is a paradox with the current economic model followed by major developing and developed nations of flushing tourists into the countries even when the sufficient resources are not there to support their future existence. It creates continuous challenges in preservation of socio-cultural and ecological environment such as culture heritage, natural resources, waste management and maintaining good relationship between visitors and locals. Because of COVID-19 additional debates have sparked amongst academicians and policy makers to move from current status quo towards a prospect of better sustainability, equity and justice (Higgins-Desbiolles, 2020). Moreover, to achieve long term sustainable growth and especially during the times of pandemic like COVID all countries should cooperate and work towards strengthening multilateral relationships (Seroshtan and Akimova, 2020). The talks about green economy focus on understanding the relationship between ecological, social and economic dimension (Vatolkina and Levkina, 2016).

Businesses are going to face additional challenges in the form of global warming and pandemic if all the developmental and business activities are not carried in a strategic and sustainable manner by protecting biodiversity and natural resources such as, freshwater, forests, wildlife and marine life (Rabbany et al., 2013). Unrestrained mass tourism in the recent past has put extensive pressure on natural resources in many tourist destinations around the world. Sustainable tourism as an alternate to mass tourism explains the need to find a balance between positive and negative impact on tourism on society, economy and environment and also between the interest of different stakeholders (tourists, local community, government, etc). Vu et al. (2020) in their recent study have discussed the

concern of mass tourism which has reduced the quality of life of local residents and deteriorated the resident-tourist relationship. One important factor which plays a crucial role in sustainable development is the awareness level which is dependent upon quality of higher education.

A number of research studies have been carried in the past on ‘mass tourism’ (Aramberri, 2010; Vanhove, 1997, Vainikka, 2013), studies on pilgrimage tourism (Vijayanand, 2012; Shuo et al., 2009; Raj and Griffin, 2015; Collins-Kreiner, 2018), evolution of tourism research (Telfer, 2002; Butler, 2015; Akama, 1999) and resident and visitor attitude towards tourism (Raymond and Brown, 2007; Simpson, 1999; Cheung and Li, 2019; Chao and Chao, 2017). Studies have been conducted on green tourism, eco-tourism, responsible tourism, sustainable tourism in the West and developed nation by researchers (Swarbrooke, 1999; Hunter, 1997; Harris et al., 2012; Clarke, 1997) but petite research have been undertaken in the developing nations. The current study extends the existing literature and focuses on the Himalayan region which is very sensitive to human activities like deforestation, over-utilisation of resources, over population (both resident and tourist), change in the lifestyle, etc. The authors added knowledge to the existing literature by focusing on Ladakh which is a popular tourist destination. As the existing literature studies primarily focus on the West especially the European countries where the infrastructure facilities are well developed but tourist destination like Ladakh lack infrastructure so the challenges here are different from the West. Ladakh region situated in the Himalayan region is more intensive and hugely impacted with the influx of tourists the overall affecting its ecological system. The study tries to understand these impacts and find the road ahead for a sustainable future.

Ladakh known for high passes and beautiful landscape is also on the same track. Tourism in Ladakh contributes to economic benefits of more than 82 million US dollars annually providing livelihood to many individuals including local people, but its negative impact on society and environment faced by local people cannot be ignored. Many people support mass tourism for short-term gains without realising and understanding its long-term impact on industry and society at large. As a result, depletion of the water resource, problems of waste management and adverse climate change began aggravating. The authors have focused the current study on how local residents perceive the impact of overtourism on environment. The environmental impact was divided into negative and positive impact. The negative impact covers items like tourism destroys natural environment, increases pollution, encourages deforestation and positive impacts cover tourism strengthens environmental conservations, promote protection of wildlife and their natural habitat etc. The positive impacts of tourism cannot nullify the negative impact so we studied both positive and negative impact of tourism separately and tried to understand the means to control the negative impact. The current study suggests that there is more of negative impact of tourism on environment as compared to positive impact. Therefore, all the stakeholders have a greater role to play in framing sustainable policies and implementation of the policies for benefit in short run as well as long run.

2 Theoretical background: impact of overtourism on sustainability

United Nation World Tourism Organization describes sustainable tourism as “tourism that takes full account of its current and future economic, social and environmental

impacts, addressing the needs of visitors, the industry, the environment and host communities". The framework of approaches towards sustainable tourism is formed into two parts. The first part treats sustainable tourism as a current possession of a particular scale of tourism and the second treats it as a goal to be striven for (Clarke, 1997).

Overtourism is defined "as the excessive growth of visitors leading to overcrowding in areas where residents suffer the consequences of temporary and seasonal tourism peaks, which have enforced permanent changes to their lifestyles, access to amenities and general well-being". Overtourism is a global problem and it is discussed at International Forums, like, G20 in Japan in 2019. Mass tourism destroyed the coral reefs in Honolulu, where 412 pounds of toxic sunscreen was left in the ocean by beachgoers (Granada, 2019). Many tourist destinations in Europe are also facing challenges, where Barcelona estimated 30 million overnight visitors in 2017 as compared to a resident population of 1,625,137 (The Conversation, 2018). The term overtourism is a new term and it is still in its infancy stages and limited studies have been carried in the recent past to analyse its impact (Milano et al., 2019a; Seraphin et al., 2018; Higgins-Desbiolles, 2020; Capocchi et al., 2020). The concept of overtourism and issues related to it are discussed in media, academia and by policy makers at nation and international platforms (Koens et al., 2018). Most of the past researches have focused on popular tourist destination in the west especially in Europe which has experienced overtourism (Milano et al., 2019a). Due to overtourism in many of these popular tourist destinations there is a conflict between local communities and tourist and also between human and natural capital, Venice is one such example (Seraphin et al., 2018; Milano et al., 2019b).

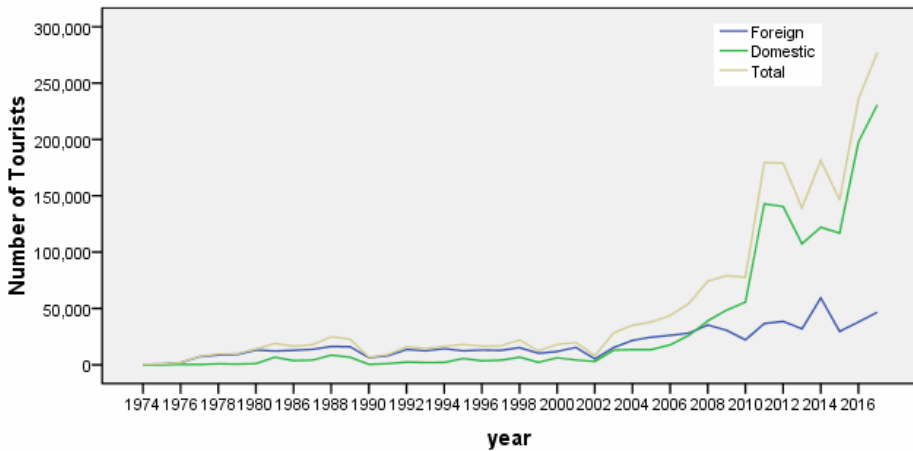
According to CNN Report in May 2019 the massive crowding and queuing of more than 320 mountaineers on Mt. Everest resulted in death of two people. Overtourism exploits everything in nature and there is no direct relation between welfare standards and increasing demand. In Canada, more than 100 husky dogs were slaughtered by sledding companies because of a downturn in bookings following the 2010 Olympic Games (Hollingsworth, 2019). With the current economic model in tourism there is a paradox where no one actually wins (WEF, 2019a). The problem of overtourism comes with the developmental activities creating improved connectivity with cheap flights to reduce the cost of travel, disintermediation has already created problems in housing market and displaced people with lower incomes. People employed in tourism generally work on temporary basis and are also relatively paid minimal (Goodwin, 2017). Gormsen (1990, 1997) discusses how mass tourism adversely affects environment including water supply, coastal landscapes. Due to increasing human activities the ocean biodiversity is degrading, every year more than 8 million tonnes of plastic ends up in oceans and scientists have predicted that 90% of the world coral reefs would die by 2050 (WEF, 2019b). Overtourism highlights short term economic goals of all stakeholders like rapid development and profit maximisation without consideration for social and environmental aspects and the industry is controlled by few industrialists.

2.1 Tourism history in Himalayan Region Ladakh

Ladakh was first opened for tourism in 1974 and it recorded 527 tourists, out of which 27 were domestic and 500 were foreign tourists. The growth of tourism industry of Ladakh took a boom, a decade ago, with two important events, firstly, the release of the blockbuster Bollywood movie '3 Idiots' in December 2009, which was shot in Ladakh and the other was the tragic cloudburst of 2010 which killed 254 people and 800 were

injured (Gupta et al., 2012). Both these events helped in promotion of the region among both domestic and international tourists. As a result, in 2011 the number of domestic tourists increased by almost three times from 55,685 in 2010 to 142,829 in 2011, during the same year the foreign tourists increased from 22,115 to 36,662. In 2018, the total number of tourists reached 327,336 out of which 277,899 were domestic tourist and 49,477 were foreign tourists.

Figure 1 Tourist inflow (see online version for colours)



Source: Tourism Department Leh

As a result of massive growth of tourism industry, the people of Leh have already shifted from agricultural activities and other profession, towards tourism industry, and today more than 50% of their total income is generated through tourism industry.

Studies have been undertaken about the social impact of tourism, the change in the name of modernity where the locals start losing interest in their traditional culture and tries to adapt to the western and Indian culture through continuous interaction with tourists as discussed by Norberg-Hodge (1991). Lundup (2013) studied how the tourism industry is affecting the lifestyle of local people. He discussed about the commoditisation of culture in Ladakh. Over the period, Ladakh has lost the meaning and the significance of the local events and the festivals as almost all festival which were celebrated in winter have now moved to peak tourist's season.

Only few scholars and academicians studied the socio-culture and environmental impact of tourism in Ladakh. Eppler (1983), Erdmann (1983) discussed about the impact of tourism on the society in terms of economic changes and cultural changes. Joldan (1985) wrote many essays about Ladakh, which includes an essay on tourism and its impact. Studies also discusses about the traditional Ladakhi society which has much to offer to the rest of the world.

2.2 Objectives of the study

To provide deeper insights from literature and the need for a shift from economic model to a more sustainable response towards tourism, the objectives of the study are grouped as follows:

- 1 to understand how residents, perceive the impact of tourism on environment
- 2 to examine the potential threats of mass tourism to the physical environment of Ladakh and to suggest corrective measures to ensure sustainable tourism in Ladakh
- 3 to infer how the local community in Ladakh deals with the problem of water shortage due to influx of tourists.

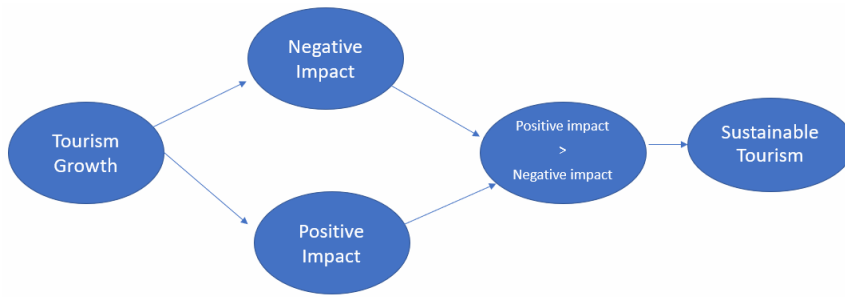
3 Research methodology

After a systematic literature review (SLR), wherein relevant studies were identified using electronic database from Springer, J Store, Emerald, and Wiley between 2010–2020, keywords such as, ‘overtourism in Ladakh’, ‘sustainable tourism’ and ‘environmental impact of mass tourism’. The selection of the published literature was based on title, keywords and abstracts of the articles and chapters of merit and high quality. In case of ambiguity for selection, the introduction and scope were further reviewed. Further, the highly cited papers in the relevant journals and chapters were identified and were then considered for review.

Research hypothesis:

- H1 Tourism has negative impact on environment.
- H2 Tourism has limited positive impact on environment.
- H3 Tourism has more negative impact on environment than positive impact.

An exploratory research design was chosen to achieve the research objectives empirically to understand the perception of local resident towards the impact of tourism on environment. Data was collected through convenience sampling method from 97 local residents with the help of questionnaire which was floated through social media platform. The sample size is adequate as some statistical experts suggest a data range between 5–10 times the number of items used in the scale (Hair et al., 2010). The Kaiser-Meyer-Oklun measure of sampling adequacy (KMO) value of 0.836 also suggests that data is adequate (KMO value between 0.8 and 1 indicate the sampling is adequate). The scale developed by Poudel et al. (2016) in their paper ‘Stakeholders’ perspectives of sustainable tourism development: a new approach to measuring outcomes’ which is based on sustainable scale developed by Choi and Sirakaya (2005), was used to measure both negative environmental impact and positive environmental impact of tourism. The perceived positive and the negative were measured separately as we cannot set-off the positive and negative impact and conclude that there is zero impact on environment (Poudel and Nyaupane, 2013). The positive impact was measured on four items and negative impact on six items. Five-point Likert-type scale was used to rate each item with response categories ranging from strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly agree (5). The instrument also included socio-demographic questions like, age, gender, education and occupation of the locals of Ladakh.

Figure 2 Theoretical model (see online version for colours)**Table 1** Perceived environmental impact of tourism

<i>Negative environmental impact</i>	
EnvNeg1	Tourism destroys the natural environment
EnvNeg2	Tourism increases air, water, and noise pollution
EnvNeg3	Tourism increases environmental problems such as littering and wastewater discharge
EnvNeg4	Tourism produces long-term negative effects on the environment
EnvNeg5	Construction of hotels and other tourist facilities destroy the natural environment
EnvNeg6	Tourism development encourages deforestation
<i>Positive environmental impact</i>	
EnvPos1	Tourism development strengthens local environmental conservation efforts
EnvPos2	Tourism promotes greater protection of the natural environment
EnvPos3	Tourism development promotes protection of wildlife and their natural habitat.
EnvPos4	Tourism provides incentive for conservation of natural areas

3.1 Result and findings from empirical study

Further an empirical study was carried to understand the perceived positive and negative impact of tourism by local residents. The data from demographic variables are presented in the table given below in the form of frequency distribution (Table 2).

Principal component analysis method of extraction was used to identify the number of factors based upon 10 items and loading of each item on different factors. Two factors were extracted in accordance to the researches carried by Poudel et al. (2016). The loadings were measured after using orthogonal rotation method, i.e., varimax with Kaiser normalisation and all the items were found to be highly loaded with minimum factor loading of .683. The total variance explained by all the factors extracted was 66.57%. The environmental impact of tourism was measured separately as positive impact and the negative impact instead of clubbing into one variable as factor analysis helps to identify the factors based upon degree of similarity in responses to all the items and each and every factor identifies a different dimension. Thus, level of agreement and disagreement to items of factors are not explained by factor analysis.

Table 2 Profile of respondents

<i>Demographic variables</i>		<i>Frequency</i>	<i>Percent</i>
Gender	Male	68	70.1
	Female	29	29.9
Age	20–30 years	55	56.7
	30–40 years	30	30.9
	40–50 years	10	10.3
	More than 50	2	2.1
Education level	Less than 10th grade	5	5.2
	10th grade	3	3.1
	12 Grade	11	11.3
	Graduate	38	39.2
	Post graduate (master)	37	38.1
	PhD	3	3.1
Occupation	Businessman	18	18.6
	Farmer	1	1.0
	Govt employed	29	29.9
	Retired	2	2.1
	Student	28	28.9
	Unemployed	19	19.6

The level of agreement and disagreement to the questions was measured by the mean and percentage values in the table. For the calculation of percentage agree and disagree, we have clubbed responses agreed and strongly agreed and represented as agreed and disagreed and strongly disagreed as disagreed. The data in Table 3 shows that resident in general agree on perceived negative impact of tourism on environment. Whereas on average 73.88% of the respondent agree on the six items and only 12.03% disagree on these items. Maximum resident agreed (88.67%) on the third item: Tourism increases environmental problems such as littering and wastewater discharge and minimum (56.70%) on sixth item: tourism development encourages deforestation. The major reason for agreeing on the third item is the traditional lifestyle of the people of local communities. Himalayan is eco-friendly and every waste produced is recycled, including human waste and used as a manure for agriculture purposes. Moreover, the traditional Ladakhi toilets are compost dry toilets which require zero consumption of water. But, construction of Western and Indian toilets in hotels and guesthouses has started for the first time for tourists only. At present also in each and every household local's have their traditional compost toilets. The major reason for people not agreeing on sixth item is due to lack of vegetation in the region as Ladakh is considered a cold desert. Most of the hotels and guest houses in Ladakh do not use the traditional Ladakhi architectures, which comprise of wooden ceilings, rather they are constructed with minimum use of wood and heavy use of concrete which are less sustainable. The overall average mean of negative impact is 3.95 which support our first hypothesis that tourism has negative impact on environment. The research is supported by existing research by Holder (1988), Cohen (1978) and Ikiara and Okech (2002), which suggests that vegetation has been degraded,

wildlife behaviour disrupted, pollution increased, and resources have generally been overutilised due to overtourism.

Table 3 Negative impact of tourism on environment

<i>Items: perceived negative impact</i>	<i>Factor loading</i>	<i>Eigenvalues</i>	<i>Mean</i>	<i>Percent agree</i>	<i>Percent disagree</i>
EnvNeg1 Tourism destroys the natural environment	.683	3.636	3.87	69.07	9.28
EnvNeg2 Tourism increases air, water, and noise pollution	.767		4.06	80.41	10.31
EnvNeg3 Tourism increases environmental problems such as littering and wastewater discharge.	.807		4.23	88.66	9.28
EnvNeg4 Tourism produces long-term negative effects on the environment	.803		3.87	72.16	11.34
EnvNeg5 Construction of hotels and other tourist facilities destroy the natural environment	.792		4.12	76.29	8.25
EnvNeg6 Tourism development encourages deforestation	.708		3.57	56.70	23.71

Table 4 shows that majority of the residents disagree (39.69%) on the four items measuring perceived positive impact and only 34.79% agree. The overall average is also 2.91 (neutral, near to 3). The data shows tourism does not support or promote protection of wildlife and natural environment which support our second hypothesis. Overall, the results clearly show local residents perceive more negative impact of tourism on environment than the positive impact, which explains that on one hand the growth of tourism can provide economic benefits, but residents are concerned about the negative impact of tourism on ecology and resources. This study supports the existing literature that there is a universal concern about negative impact of tourism specially in protected and sensitive regions (Poudel et al., 2016; Liu et al., 1987) Being susceptible towards climate change, it is imperative that Ladakh Government focuses on sustainable growth which supports in providing livelihood to locals in a sustainable manner but not at the cost of depletion of natural resources. All the stakeholders including residents, tourists, government, travel agencies need to cooperate and implement sustainable policies which safeguard the interest of all stakeholders. The negative impact (mean of 3.95) is significantly different from the positive impact (mean of 2.9) of tourism on environment (T-test, P-value = 0.000) which supports our third hypothesis. It suggests that the recent growth of tourism is not sustainable as people perceive more negative impact than the positive impact.

Table 4 Positive impact of tourism on environment

<i>Items: perceived positive impact</i>		<i>Factor loading</i>	<i>Eigenvalues</i>	<i>Mean</i>	<i>Percent agree</i>	<i>Percent disagree</i>
EnvPos1	Tourism development strengthens local environmental conservation efforts	.703	3.021	3.10	35.05	28.87
EnvPos2	Tourism promotes greater protection of the natural environment	.893		2.66	27.84	48.45
EnvPos3	Tourism development promotes protection of wildlife and their natural habitat.	.800		2.90	40.21	46.39
EnvPos4	Tourism provides incentive for conservation of natural areas	.826		2.98	36.08	35.05

4 Discussion: need for action from stakeholders

Tourism industry is extremely vulnerable to environmental impact like climate change (Saarinen and Tervo, 2006; Hall, 2006). The impact of climate change is visible around the globe but situation in the Himalayan region which is considered as the third pole is getting worse. Shrinking of glaciers due to climate change is one of the biggest challenges faced in both highlands and lowlands. The problem of water shortages is faced in highlands whereas lowlands are flooded by increasing sea level. Majority people of Ladakh are farmers who are totally dependent on glacier water for irrigation purposes. But the problem of shrinking glaciers and low precipitation during winter has led to newer innovations in water management, such as, artificial glacier and ice stupa are sophisticated response to social, environmental and cultural constraints posed by mass tourism (Clouse, 2017).

The study shows how local community from Himalayan Region perceive more negative impact of tourism on environment than the positive impacts. Little has been done for the conservation and protection of natural resources and environment. This further justified with the recent changes in the environment and ecological system due to excess pressure on resources. Over the last one decade due to mass tourism and unsustainable patterns, the people of Ladakh are facing many ecological problems such as, cloud burst, uneven temperature, less snowfall in winter, shortage of water in summer, contamination of groundwater, drainage problem, no solid waste management and many more. The changes in environment are caused by greenhouse gas (GHG) emissions, and these gases are emitted mainly from transportation (aviation and automobiles especially taxi's) and consumption of coal and petroleum products for generation of electricity to meet the huge demand of tourism industry. Other problems include poor solid waste management and over exploitation of natural resources like water by tourism industry.

A study by Ladakh Ecological Development Group (Ledeg) found that the average Ladakhi uses 21 litres of water per day, while tourists consume as much as 75 litres of water per day. One of the major reasons is the use of dry (compost) toilets by local which requires zero consumption of water. Traditionally, people of Ladakh used to recycle

everything which resulted in zero waste. Even the human waste is used as a manure for agriculture purposes and farming is 100% organic.

The situation deteriorated in 2018 where the entire region of Ladakh faced an acute shortage of water as there was minimal snowfall during the winters. As a result, most of the agricultural land was left uncultivated which used to be the main source of livelihood a decade ago. In villages people still depend upon agriculture for their livelihood but the externalities of tourism industry have affected the lives of farmers. It has contributed into more income inequality and also created a social gap between haves and have-nots.

4.1 Artificial glacier

Chewang Norphel from Ladakh known as ‘Ice Man of India’ invented artificial glacier in 1987 to address the problem of scarcity of water. Artificial glacier is a technique to harvest the wastewater during the winter to store it in the form of ice. Such glaciers have been created at relatively lower altitudes as a result they melt earlier than natural glaciers and thus provide water for irrigation during the critical first months of the growing seasons, i.e., April and May (Daultrey and Gergan, 2011).

Figure 3 Artificial glacier (see online version for colours)



4.2 Ice Stupa¹

Inspired by Chewang Norphel another social engineer Sonam Wangchuk used the innovative method of storing water in a conical shape which later became famous as ‘ice stupa’. The structure of ice stupa maximises the volume of ice by growing vertically up than increasing the base of ice thus reducing the direct and full exposure to sunlight.

Figure 4 Ice stupa (see online version for colours)



5 Implications of research and way forward

Embedded sustainability efforts to protect the fragile ecosystems of countries having similar ecosystems such as Himalayan region can result in a positive impact only when the number of visitors is restricted by issuing limited number of permits and totally prohibiting the sensitive areas by the government. Moreover, scattering the demand from peak season to non-season is also recommended by promoting cultural festivals adventure sports, culinary fests during non-tourist demand seasons. De-marketing of mass tourism and marketing of alternative tourism like home stay can reduce the pressure on natural resources. Introducing a code of conduct for visitors with the aim of promoting respect for local culture, places and people is the need of the hour. Thus, coordination and implementation of sustainable tourism polices by different stakeholders and by improving environmental, social, and governance (ESG) performance in the areas in which the tourism companies have a substantial ecological or social impact (such as in their operations, value chain, or customers) is required. Awareness programs for local

community as well as tourists and strict monitoring of travel agents, hotels and guesthouses to ensure green endeavours are imperative.

The current study focuses only on the impact of overtourism on the environment, sustainable tourism is a step further which involves finding balance between three aspect of environment, socio-cultural and economic impact. Therefore, future studies be carried on socio-cultural impact and economic impact.

5.1 Conclusions

A wide range of literature shows that massive tourism is increasingly environmentally unsustainable. An innovation in aviation sector has also contributed in emission of greenhouse gases (Peeters et al., 2006). Sustainable development of reduces the impact and pressure from environment and benefits people and grows wealth (Dieterich, 2018).

The results of the empirical study show that local community of Ladakh perceive more adverse impact of overtourism on environment, therefore, focus of the State should be on framing sustainable policies and involving them in decision-making. Collaborations and cooperation among different stakeholders in designing and implementing ecological policies can be a vehicle in achieving a balance development of social, economic and ecological domains (Poudel and Nyaupane, 2013). Overtourism in the recent past is a major challenge for the locals and will continue if actions are not taken to manage the flow of tourists in the regions which are vulnerable. Innovations such as, artificial glacier and ice stupa are short term solutions to cure the problem but much of the work needs to be carried by all the stakeholders to ensure sustainable growth of tourism industry. This requires more vigorous consideration, corrective and mitigation efforts. The authors suggest a need to implement a method that lays an economic value on nature. Which means treating environment as an asset much like, infrastructure and destruction of natural habitats should be considered as a loss of capital. Thus, laying sustainability, resource efficacy and decreased waste, at its core are the need of the hour in order to protect tourist spots and local community.

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Notes

- 1 Ice stupa: a dome shaped building erected as a Buddhist shrine.