A Study on the Impact of Uttarkashi Flood on the Tourism of Uttarkhand

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Introduction

Natural disasters are powerful forces that cause considerable loss of life and property. Human life, economic infrastructure, and natural resources in and around the affected areas are severely impacted. More number of people will be relocated and are should struggle to re-establish their homes and recover their livelihoods. Kedarnath is one of the oldest and most important worshipping place for the people of hindu religion located in Uttarakhand state of India. It is situated in the snow cover region of Himalayas at the height of 3,583 meters approximately above sea level in the Mandakini valley of Rudraprayag District, Uttarakhand. This area is seismically and ecologically very susceptible and subtle even a minute change in terms of anthropogenic or natural can produce a dangerous catastrophe. The brittle nature of oldest crystalline basement of the Himalayan is extremely sensitive in case of landslides and any catastrophe. The Rudraprayag district where Kedarnath is located has previously faced the trouble of natural disasters for about eight times for last 34 years. During 2013, Okhimath area of Rudraprayag has also met unprecedented damage to the life and property, infrastructure and landscape during 16th to 17th of June due to pouring rainfall and cloud burst accident. The complete area, which accommodated around 100 to 150 shops and five hotels, to serve the needs of the pilgrims, was wholly washed away leaving no trace of them. This research paper is an analysis on the impact of Uttarkashi flood on the tourism of Uttarkhand.

The excessive loss of life and obliteration of assets and livelihood has considerably raised public wakefulness among the people in Uttarakhand and other people living in similar geographic locations around the world about the defencelessness of natural and human environments to natural disasters. These impacts also created a demand, especially among the people located in hill stations in India, for more information about how natural disaster affect the tourism sector which is said to be a major contributor to Indian GDP and how best to look after recovery.

The primary goal of this research paper is to examine the impacts of the June, 2013 flood at Kedarnath area of Rudraprayag district in Uttarakhand, India, including how these impacts were addressed in the following years to recover this key resource for the tourism sector. A secondary goal was to develop guidelines for hazard vulnerability assessment and mitigation in order to promote more pliant pilgrimage services and more rapid and effective recovery following future disasters. The objectives identified to achieve these goals include, to study the impacts of the Uttarkashi on pilgrimage visitors and how they affected the tourism economy; to understand the recovery efforts undertaken and their effectiveness; to find out other actions that, if taken, might have improved preparedness and made recovery efforts more effective; and to bring out how pilgrimage centers might be made more pliant to natural disasters in the future.

Literature Review

Bouwer et. al. (2007) besides clarifies that wellbeing episodes don't just endanger the general level of people's prosperity additionally material protests and in addition nature may be influenced. Also she contends that occurrences inside the field of security are regularly impromptu criminal acts that get from a negligent activity. For this situation, a great many people act purposely without the goal to accomplish a specific impact. Because of the way that these dangers are frequently unmistakable and noticeable it makes it less demanding to get a general thought of the issue and in this manner makes it less demanding to counteract or if nothing else control them. (Bouwer et. al., 2007)
The results of surge allude to the wide impacts that flooding can have on individuals, to property and to nature. These outcomes can be both positive and negative, particularly in connection to human wellbeing, where wellbeing sway evaluations are led (Fewtrell et al., 2008). Harm is the adverse aftereffect of the spatial and fleeting effect of an occasion on societal components (individuals, structures, and so on.), societal procedures (intrusion of creation, administrations, and so on.) and the earth (Vetere Arellano et al., 2003).

Downton and Pielke (2005) considered surge harm gauges in the US, and inferred that there were frequently noteworthy contrasts between evaluations made by various offices. These distinctions were more intense for surges that had happened in little, confined zones, while these distinctions were arrived at the midpoint of out over bigger and more broad surges. The harm gauges utilized as a part of this review had been gathered utilizing an assortment of strategies, incorporating working with nearby authorities, protection specialists and daily paper reports, and in addition point by point overviews that may take up to five years after an occasion to finish.

It has been contended that a typical system for the evaluation of harm, led in a reliable way, including an assortment of correlative models, would bolster approach and basic leadership (Jonkman et al., 2008). Such a strategy would mirror the many-sided quality and assortment of effects of flooding upon society. Absence of such an approach may prompt to lacking surge chance administration methodologies, and in this way restricted readiness and the failure to advance recuperation taking after a flooding occasion.

Lim (2011) demonstrated that the most prevalent illustrative factors utilized as a part of tourism request models are pay, relative costs, and transportation costs, by inspecting distributed reviews. Lim (2011) gathered the major observational reviews on the relationship between universal tourism request and macroeconomic factors (pay, transportation expenses, and tourism costs).

Chavanich et. al. (2005) concentrated on the significance of possibility wanting to evade receptive administration and the tourism business being 'a pawn out in the open discernment'. Dubois, Peeters, and GÖssling (2009) analyzed two genuine occasions that influenced tourism in Miami and suggested that harm can be limited if a group has an emergency administration arrange. Analyzing the bushfires in Victoria, Australia, that happened around the same time,

Instantly after the floodwaters retreated the Katherine people group built up a remaking team to deal with short to medium term issues and this was trailed by a local coordination board for the more drawn out term (Dubois, Peeters, and GÖssling, 2009). Hagerman and others (2010) inspected vital basic leadership amid and after an emergency contrasted and that embraced in a steady domain. In an emergency circumstance the basic leadership was more instinctive, less logical and consultative, streamlined and fast while, in a steady domain, it was more helpful, formal and scientific, far reaching and moderate. Furthermore, difficulties can emerge if there is worry about consequential convulsions and Hagerman and others (2010) found there was a propensity for slower reaction if more wave movement was normal. Until the circumstance is totally steady there is hesitance to move to recuperation.
Figure-1: The wide-ranging damage Kedarnath suffered after the June 16 floods. Infrastructure like roads, houses, etc., were badly damaged

Method of Analysis

This study employed some methods and techniques which includes field investigations by the author; a review of documents about the event and about disaster mitigation generally; application of the Delphi technique to gather and synthesize expert opinion; supplemental interviews with key informants; and evaluation and adaptation of existing risk and vulnerability assessment.

The first field observation was conducted in the tourist areas in the Rudraprayag district provided the opportunity to explore and document immediate response actions that the state and local authority and other related sectors undertook to recover tourism. The investigations in the field provided on-the-ground information and a sensible point of view as to whether response and recovery efforts were fruitful, wasteful, or even worsened the situation.

Results and Discussion

This study sought to explore the impact of Uttarkashi flood on the tourism of Uttarkhand. This was done by exploring the indicators of post-flood effect on the tourism sector by estimating the vulnerability level. Generally this study reports that the flood has adversely impacted on tourism resources, activities, infrastructure, services and facilities.

Delphi panelists were asked to list out and estimate the extent to which each type of impact affected tourism. The rating scores from Delphi Rounds 1 and 2 are presented and simple statistical tools like mode, median and inter-quartile range (IQR) are used to reveal trends and skewness of the opinion of the panelists (Table 1).
Rating scale for effects of flood on tourism ranged from 1 (lowest effect) to 10 (highest effect). Generally, the panelists reached a high degree of consensus about how tsunami damage to natural resources and ecosystems affected MNP tourism, identifying and rating 12 significant impact types (Table 1). Half of the panelists agreed that “Reduced length and quality of tourism” had the most impact on Kedarnath tourism (mode = 10). People simply hesitate to go to this pilgrimage where they had to watch their every step; it was essential that the entire area be thoroughly cleaned before allowing tourists back in. They also agreed that “Affected destination image” also highly impacted tourism; they thought that many tourists would perceive this as a place where there would be no safety and there would lot of inconveniences after the flood (mode = 8). However, this statement has high IQR value (IQR = 4, based on the 10-level rating scale). This means the panelists had divergent opinions regarding this impact, perhaps related to differences in panelists’ expertise and their experience at different study sites.

An increase in the cost of clearing the flooded areas, cleaning and bringing back the natural sceneries, also was judged to highly effect Kedarnath tourism (mode = 7). The panelists agreed as well that the “Cost of adaptation” and “Loss of cultural heritage” also highly impacted tourism (mode = 7). Panelists also agreed that certain identified impacts did not have significant impacts on tourism, in particular “Additional emergency preparedness” (mode = 2) and “Increase in disease” (mode = 1). Again, all of these results are summarized in Table 1.

The aggregated Delphi findings and results were coded and analyzed with the statistical software packages (Statistical package for the Social Science [SPSS]). The moderator applied paired-samples t-test with a 95% confidence interval (level of significance, \( P < 0.05 \)) for two purposes: (1) to indicate consensus or the stability of opinion, i.e., when there is no more change from Round 1 to Round 2 (the t-test tested the null hypothesis that there was no significant difference in the variance of the panelists’ responses during the two final rounds using mode, median and mean values); and (2) to identify significant convergence or divergence of opinion from Round 1 to Round 2, i.e., the t-test tested the null hypothesis that there is no significant difference in the variance of Inter-Quartile Range (IQR) and Standard Deviation (SD) values during the two rounds.

Different perceptions on the causes of floods opined by the experts in the study.. One of the main causes of rainfall highlighted by them is God. But along with that they explained the practical cause. Automatic weather station at Chorabari recorded 315mm rain on June 15th and 16th. This level of
rainfall is unprecedented and at the same time, there was snow on the ground. Thus the combination of heavy rainfall on melting snow is the tailor-made for landslides.

The Delphi team have given their suggestions with respect to what they should do after the incident. In future, the state government should forecast the weather accurately and early warning information should be given to residents and tourists. They should be able to quantify the number of people affected and those likely to be most affected due to age and gender. They should be able to assess the nature and extent of flood emergency and should be able to provide immediate needs like food, shelter, medicines, clean water and sanitation.

Table 2. Results of paired samples t-test of Delphi Round 1 and Round 2

<table>
<thead>
<tr>
<th>Compared Values between Round 1 - Round 2</th>
<th>Paired Differences (2-tailed)</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Mean</td>
<td>Standard Deviation</td>
<td>Std. Error Mean</td>
<td>Lower</td>
<td>Upper</td>
</tr>
<tr>
<td>MODE</td>
<td>0.0117</td>
<td>1.1219</td>
<td>0.1209</td>
<td>0.2289</td>
<td>0.2522</td>
</tr>
<tr>
<td>MEDIAN</td>
<td>0.0058</td>
<td>0.5450</td>
<td>0.0588</td>
<td>0.1110</td>
<td>0.1227</td>
</tr>
<tr>
<td>MEAN</td>
<td>0.0566</td>
<td>0.3035</td>
<td>0.0327</td>
<td>0.1217</td>
<td>0.0084</td>
</tr>
<tr>
<td>IQR</td>
<td>0.5930</td>
<td>0.6709</td>
<td>0.0723</td>
<td>0.4492</td>
<td>0.7369</td>
</tr>
<tr>
<td>SD</td>
<td>0.2219</td>
<td>0.2097</td>
<td>0.0226</td>
<td>0.1770</td>
<td>0.2668</td>
</tr>
</tbody>
</table>

Note: d.f. = degree of freedom; n = 86; Sig. = Level of Significance

Although this study did not reach the stability of opinion which is an ultimate goal for Delphi study, adding more rounds to reach the convergence is not a practical option in this case. Alternatively, the moderator considered IQR and SD value of each item between the two rounds to indicate the degree of convergence and divergence. The t-test analysis significantly revealed the reduction of IQR and SD values as panelists moved from Round 1 to Round 2 ($P < .05$). Thus, the smaller IQR and SD value indicated a significant increase in the level of agreement or convergence between these two rounds. Based on the observations made and Delphi study certain fruitful findings have been made on the impact of Kedarnath flood on the tourism in that area. In general this flood reduced length of tourism, reduced quality of tourism, affected destination image, and reduced tourist satisfaction. The government and tourism authorities of this pilgrimage have to build the image of this place by some developmental activities and promoting the renovated area. This study also founded some factors like cost of adaptation, water restrictions, weather disaster preparedness, loss of biodiversity, loss of livelihoods and reduced landscape beauty. The state and central government allocated funds are properly being utilized in developmental activities and reconstruction of water and drainage flow facilities in the pilgrimage area. Some other indications like loss of cultural heritage, damage of attractions, increase in disease, reduced agricultural production, increased water stress, reduced competitiveness, damage to infrastructure, loss of revenue and additional emergency preparedness are made by the Delphi panel members. Though they are not much weighed by them, they still seem to have some impact on the tourism.

The concerned authorities should built upon the belief that this pilgrimage with mitigation and preparedness in place will be more resilient to hazards in the future, resulting in fewer deaths and injuries, less damage to property, and businesses, and less trauma for people and visitors.

**Recommendations and Conclusion**

There are two realistic steps the state government needs to take to avoid occurrences in future. One, it needs to generate a pilgrim and tourist management system and, two, it have to to give over more attention and funds to regulating tourism infrastructure. The Central Water Commission on which the entire country depends for information on likely river related floods does not have flood forecasting
stations in many flood-prone river basins. The people there are clueless to impending disaster. Latest technology based forecasting stations need to be implemented in flood-prone river basins. Asked how the misfortunes in the Uttarakhand surges could have been lessened, the Delphi specialists told that, "to avoid high setbacks in avalanche inclined territories, the legislature needs to constrain advancement to safe spots, stop the wanton ecological devastation, particularly loss of trees, the development of inadequately designed streets and the working of hydroelectric plans without legitimate slant administration." There are sound rules about street development in slope regions, as well, composed into the National Mission for Sustaining the Himalayan Ecosystem. Be that as it may, there are not really any cases of these rules being taken after. The outcome is that when a street is manufactured, it disturbs the common slant down which water used to stream to the base of the valley. There is additionally much to be learnt from customary information, particularly in a fiasco inclined ranges.

Tourism represents between 25-30% of the state's gross state local item. A current provide details regarding tourism in India said that disregarding facilitating 4% of India's visitors, Uttarakhand spends just 1.5% of its financial plan on tourism. There has been staggering increment in the quantity of vehicles that employ amongst Haridwar and upper ranges of the Himalaya. While around 50 vehicles left for scorch dhamyatra five years back, it has shot up to 200 every day. As indicated by the state tourism division the visitors going to the locale went up from 1.11 crore 10 years back to 2.90 crores in 2016. While there were 4000 vehicles enlisted in 2005-6 the number in 2015-16 is 48,000. The yatra administration board of trustees ascribed the expansion to the destinations to the way that numerous more youngsters come rushing in swarms – it has transformed into an outing spot now they said. With the traveler come the streets, inns, squander, contamination that the slopes can't adapt to. It may appear to be intelligent to top the occasional number of vacationers itself. In any case, such a framework will at last deteriorate into a permit, allow and pay off game plan. At the point when even a marginally above typical rain can toss matters in confuse in such a delicate district as Uttarakhand, it is vital for the state to set up a fast reaction framework that can quickly restrict trekkers and pioneers from continuing on their hazardous visits.

It is simple, looking back, to accuse the extent of harm for the few inns and structures that infringe the surge plain. It is similarly simple to accuse the development of stores that have made the tricky geography of the area more unsteady. It will, in any case, be well worth considering that these exist on account of their significance to the neighborhood economy. Therefore, unless the state ups its consumption in having the capacity to offer an abundantly upgraded bolster framework for travelers, a Sisyphean cycle of astonishment, annihilation and demise will keep on surfacing. Uttarakhand and Kerala depend vigorously on nature tourism that gets the genuinely necessary financial support for them and in addition to the general population who rely on this industry. In spite of the fact that they confront the anger of nature frequently — surges in Uttarakhand and ocean disintegration in Kerala are turning into a typical element — they for the most part take a gander at the common world with altogether different needs. They firmly and successfully advertise their common world yet their contradicting any move towards the assurance of nature, be it the execution of existing laws, for example, distinguishing proof and warning of eco-delicate zones or tolerating the assessments of specialists who have drudged for a very long time in the field of condition protection.

Building a culture of prevention is not easy. While the costs of prevention have to be paid in the present, the benefits lie in distant future. Moreover, the benefits are not tangible; they are the disasters that did not happen. It is vital to note that this paper did not address the implications of flood on any particular segment like tourism operators. Neither has it considered the effects of flood impacts and policies in other parts of the world and their potential effects on tourist arrivals through an expert review. A study with a quantitative analysis of visitors and tourist operators will give a complete analysis of the impacts of flood on tourism.
Reference