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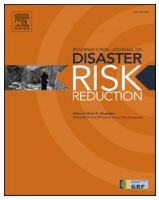

Disasters in the 'abode of gods'—Vulnerabilities and tourism in the Indian Himalaya

Daniel F. Lorenz *, Cordula Dittmer

Disaster Research Unit (DRU), Freie Universität Berlin, Carl-Heinrich-Becker-Weg 6-10, 12165, Berlin, Germany

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ABSTRACT

In June 2013, the "Himalayan Tsunami" occured in the Indian Himalayas. Heavy rain triggered a lake outburst flood, landslides and flash floods. An estimated several thousand people were killed, mainly around the Hindu temple in Kedarnath, and the tourist infrastructure between four Hindu temples was massively destroyed along with the source of income it had provided for the local population. This article addresses the nexus of tourism, vulnerabilities and disasters and analyzes its manifestations during and after the events of 2013. What role did tourism play in the disaster as a driver of social vulnerability during and especially after the events of 2013? To answer this research question, the paper describes the historical development of tourism in the region, tourism-related vulnerabilities and their actualization by the "Himalayan Tsunami" and in the process of reconstruction. The research shows that the disaster continues years after its supposed end due to tourism-related vulnerabilities, and the significance of secondary effects of the disaster threatens livelihoods more than the immediate events.

1. Introduction

In June 2013, the "Himalayan Tsunami" occurred in the Indian Himalaya. Heavy rain triggered a lake outburst flood, landslides and flash floods. An estimated several thousand people (tourists, pilgrims and local workers) were killed, mainly around the Hindu temple in Kedarnath, a famous Hindu pilgrimage site, and the surrounding tourist infrastructure was massively destroyed along with the main source of income it had provided for the local population for generations. The effects on the pilgrimage site and pilgrims from all over India turned the event into a national disaster.

Just a few days after the events, broad public discussion began in the media, accompanied by a "blame game" in search of culprits [1–3]. Climate researchers discussed links to global warming, with the Himalayas warming twice as fast as the rest of the earth [4–6]. Environmentalists complained about the destruction of nature by the massive construction of dams for hydropower projects as well as deforestation through the provision of access roads for construction sites [7–12]. Others noted that disaster management had not been sufficiently prepared [8,13–17]; the state of Uttarakhand, for instance, did not adopt its State Disaster Management Plan [18] until 2014, i.e., after the events of 2013. Information regarding weather extremes had not been sufficiently transferred, although there were corresponding warnings from the Indian Meteorological Institute [19,20]. Among the population of the region—especially the very religious population—religious patterns of explanation circulated: for example, the idea that the disaster was punishment for moving Dhari Devi, a statue of the goddess Kali that was forced to succumb to a hydropower project on the Alaknanda River [21], and a fundamental desecration of the holy sites, which had transformed them into "honeymoon spots" and profane tourist destinations [22].

While both research and the media discussed many contributing factors of the disaster, the historical and ongoing development of tourism and the socioeconomic dependencies and vulnerabilities it created were rarely debated. This seems all the more remarkable because tourism plays the most prominent role in the region, many pilgrims and tourists were among the victims, and the social and economic consequences for the local population were overwhelming due to the loss of tourism. Therefore, our research question for the following analysis of the "Himalayan Tsunami" is what role tourism played in the disaster as a driver of social vulnerability during and especially after the events of 2013. In the following section, the case is introduced in more detail, the relevant literature is reviewed and the research methods are presented. The historical development of tourism in the region and its role as a driver of economic development are then discussed. Subsequently, we describe the different social vulnerabilities and how they revealed themselves as tourism-related secondary effects of the

* Corresponding author.
E-mail addresses: daniel.lorenz@fu-berlin.de (D.F. Lorenz), cordula.dittmer@fu-berlin.de (C. Dittmer).

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"Himalayan Tsunami". The role of tourism and the associated aggravation of existing vulnerabilities as well as the production of new vulnerabilities in the reconstruction process are presented. The findings and the nexus of vulnerabilities, tourism and disaster are critically discussed, and conclusions are drawn.

2. The "Himalayan Tsunami" 2013 in Uttarakhand

The Indian state of Uttarakhand, founded in 2000 by the separation of Uttar Pradesh, is located in the northern India in the border triangle of Nepal, Tibet and India. In the south, the state is flat in the plains; over the colonial Hill Stations, the terrain evolves into a high mountain region with peaks over 7,000 m above sea level, which flows into the Tibetan highlands. The state is sparsely populated and offers only limited possibilities for agriculture; together with a high poverty rate and the remoteness of rural villages, the result is high outmigration in the region [23–25]. In addition to employment in the Indian armed forces or the Indian-Tibetan Border Police (ITBP), the main income of the local population lies in tourism, specifically the pilgrimage of thousands of Hindu pilgrims (yatris) from all over India to Uttarakhand, mainly in May and June, to complete the Chota Char Dham or Char Dham Yatra (four abodes pilgrimage). This pilgrimage is a journey to the abodes of the gods, Yamunotri (Yamuna), Gangotri (Ganga), Kedarnath (Shiva) and Badrinath (Vishnu), which are located in four neighboring valleys of the same name (see Fig. 1) and which all Hindu believers should visit in their lifetime [26].

The fact that the holy Ganges River originates in this region is also of great importance for Hindu pilgrims [27]. In addition, the Hemkund Sahib Temple near the Badrinath Valley is an important pilgrimage site for Sikhs.

The region is characterized by various natural hazards, such as earthquakes, landslides, avalanches, (flash) floods and heavy rainfall, which have always represented dangers for the pilgrims and inhabitants of the region [17,28]. However, the events in June 2013, which were subsequently named the "Himalayan Tsunami" in the public discussion, exceeded the historical events that had previously occurred.

In 2013, the monsoon began by mid-June, which was unusually early [29,30]. Especially in the period from June 14 to 17 [31], long and heavy rainfalls occurred in the region, amounting to approximately "375% more than the benchmark rainfall during a normal monsoon" [27]. Heavy rainfall caused unusually large masses of snow from the previous winter to melt [29], the rivers swelled, and 4873 landslides ensued [32] that together destroyed villages, agricultural areas and dams [27].

In the immediate vicinity of the Kedarnath Temple (see Fig. 2), the increased level in Lake Chorabari at the foot of the Chorabari Glacier—from which one of the source rivers of the Ganges feeds—caused the moraine dam of the lake to break down (see Fig. 3). The Kedarnath Temple is the most remote of the four temples along the Chota Char Dham—only accessible via an 18-km-long hiking trail—and is on a plateau at 3,583 m above sea level at the foot of the nearly 7,000 m Kedarnath Massif.

In the resulting lake outburst flood, large masses of water poured into the valley, destroying the settlement around the temple and nearby hiking trails [5]. At that time, tens of thousands of people—some say approximately 35,000 pilgrims, tourists and people working there [30, 33] [1]—were in Kedarnath or on their way to or from there [35].

A few people managed to descend into neighboring valleys after days of marches and brought themselves to safe areas [34]. For days, constant rain impeded rescue operations for days, which are extremely difficult to carry out in the high alpine region. On June 18, rescue operations began from the air; on the ground on June 19 [31]. The deployed army rescue forces, the ITBP, the Border Security Forces (BSF) and the National Disaster Response Forces (NDRF), aid organizations such as the Indian Red Cross Society (IRCS), and volunteers from the Nehru Institute of Mountaineering (NIM), among others, were able to save 6817 persons by air and 18,182 persons on the ground [31].

The official number of fatalities is 169 and the number of missing persons (whose deaths are assumed) is 4021 [27], but other sources [29] assume more than 10,000 deaths. There are even estimates of up to 30,000 deaths since as many bodies have never been found, and certain groups, such as sadhus (Hindu monks) and migrant workers, for instance, from Nepal, are not systematically recorded [35].

The total number of people affected is estimated at 900,000 [36]. Approximately 70,000 tourists and 100,000 locals were trapped in higher mountainous areas, 3000 houses were damaged, and 4200 villages were cut off because over 2100 roads, 85 bridges for vehicles and 140 pedestrian bridges were damaged [36]. Thousands of farm animals, which supported the livelihood of the population, were killed. The evacuation measures ended on June 23 [31]. Kedarnath was reopened in the beginning of October 2013 [34].

3. Literature review: vulnerability, disaster and tourism

Disasters can be understood as an interaction of vulnerability and hazards [37–39]. Social science research on disasters over the past decades [37,40] has sufficiently demonstrated that vulnerability is a key driver of disasters since disasters can cause "the actualization of social vulnerability" [41]. Vulnerability makes clear that in "every phase and aspect of a disaster […], the contours of disaster and the difference between who lives and who dies is to a greater or lesser extent a social calculus" [42]. Thus, vulnerability is not a characteristic of individual persons but rather is created by various social, economic and political processes [43,44]. In their seminal work on vulnerability, Wisner et al. [37] stress the progression of vulnerability from root causes as temporally and spatially separate factors (e.g., economic systems) that create dynamic pressures (e.g., rapid urbanization) that translate into unsafe conditions or fragile livelihoods (e.g., employment conditions) [45]. They put groups at risk differently [46] and are perceived differently by various groups [47]. Oliver-Smith [40], for instance, has shown that social, political and economic developments, such as colonialism, can produce vulnerabilities over the course of centuries. Accordingly, the investigation of vulnerability can serve both to clarify the causes of disasters and to improve disaster prevention and preparedness [48].

The interplay of vulnerability, tourism and disasters has rarely been discussed in the literature. Shakya [49] examines the relationship between vulnerability and tourism in rural regions of Nepal and argues from a developmental perspective that tourism basically reduces vulnerability because it generates relatively stable income in the long term, despite possible fluctuations due to crises or disasters. Although the author integrates a risk perspective, her focus is not on the interaction of disaster and vulnerability as social processes. After the tsunami of 2004, which hit many popular holiday resorts in Southeast Asia and affected a large number of tourists, the question of the relationship between disasters and tourism became a subject of disaster research [50, 51]. Neef and Grayman [52] identify four strands of research on the relationship between disasters and tourism: (1) tourism as a trigger and accelerator of disasters; (2) impacts of disasters on the tourism industry; (3) the role of tourism in reconstruction processes and (4) DRR strategies for the tourism sector. According to Neef and Grayman, however, the integration of vulnerability into the abovementioned strands occurs only very peripherally. The authors observe that with regard to (1), the role of tourism in the emergence of social vulnerability and as a cause of disasters has received too little attention. Referring to Wisner et al. [37],

[1] For Kedarnath, the fact that the horsemen—who transport pilgrims on horseback on the 18 km hiking trail—were on strike to protest the increasing competition from helicopters was an exacerbating factor in these days of June 2013. The result of the protest was that many visitors had to change their plans or stayed longer in Kedarnath than originally planned: "Kedarnath was exceptionally full" [34].

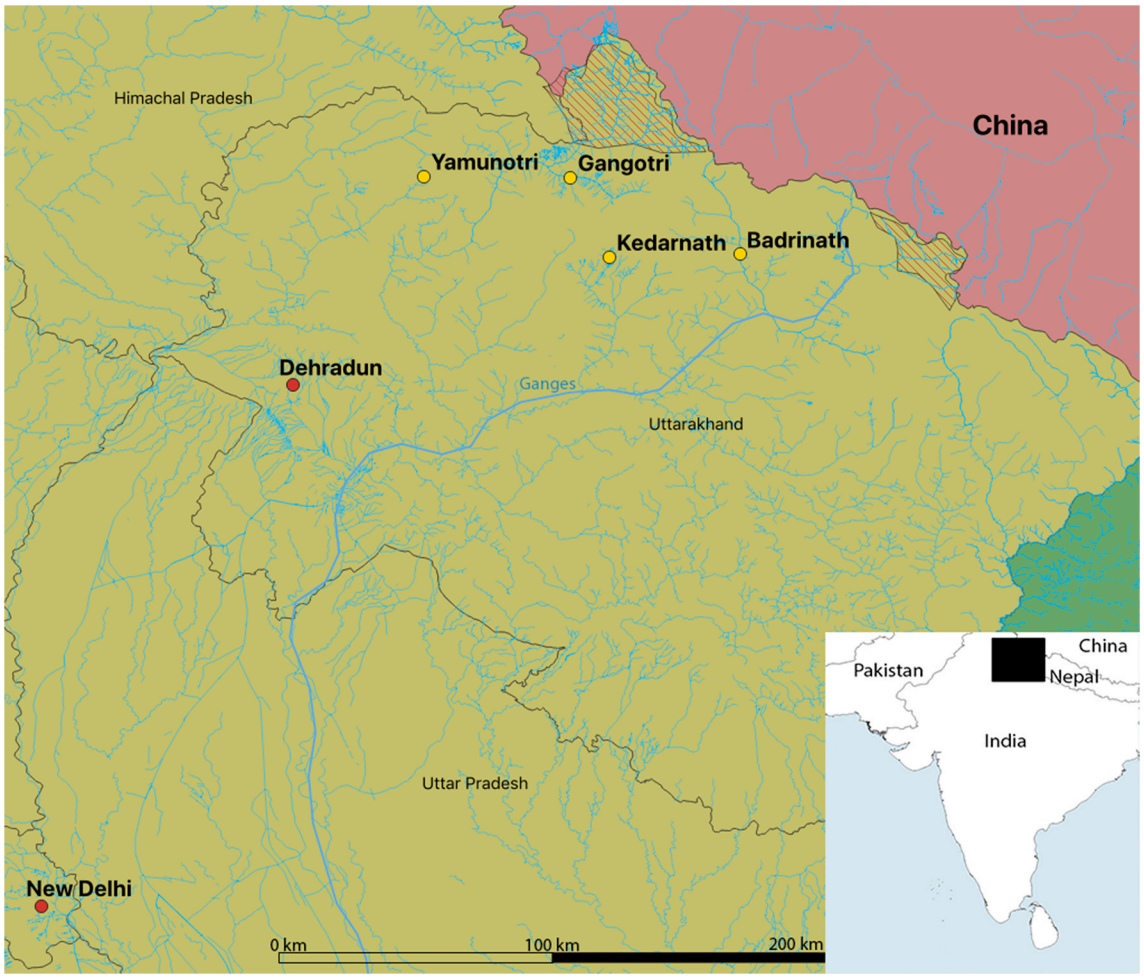

Fig. 1. Map of Uttarakhand with the four abodes. Map: ©Hendrik Schnittker; Geodata: GADM, OSM.

Fig. 2. Pilgrims in front of Kedarnath Temple, May 2017, ©Daniel F. Lorenz.

Fig. 3. Kedarnath at 3,583 m a.s.l. with Lake Chorabari in the background, May 2017, ©Daniel F. Lorenz.

tourism can be understood as dynamic pressure or a key driver of the production of social vulnerability. With regard to (2), there is also a "considerable lack of systematic and in-depth qualitative research into the impacts of disasters on local people and foreign workers employed in the tourism sector" [52]. The role of tourism (3) in recovery processes is a critical point for the aggravation of existing vulnerabilities and the production of new vulnerabilities. For example, research deals with the question of how economic elites or tourism providers use post-disaster situations of partly overburdened administrative and government structures to expand their own profits [52] and how these actions by tourism enterprises cause the displacement of particularly vulnerable populations [e.g., [50, 51, 53]. Strand (4) discusses DRR in the tourism industry, especially following the Tourism Disaster Management Framework by Faulkner [54]. Inter alia, research finds out that the lack of private sector investment is often a critical driver of vulnerability and that tourism operators put people as well as tourism infrastructures at risk or downplay risks to "guarantee a perfect […] experience" [52].

Therefore, although some studies [e.g., [55] discuss vulnerability in the nexus of tourism and disaster, there is a lack of analysis that concretely examines how vulnerability and unsafe living conditions due to tourism develop over time and create conditions that result in disasters. Even less is known about the secondary or indirect effects on other related sectors. This research seems particularly necessary in view of the analysis of the progression of vulnerability and the so-called "ratchet effect" [56], i.e., the aggravation of the vulnerability of already vulnerable persons, for instance, in the recovery processes.

Most studies on vulnerability in the context of the "Himalayan Tsunami" or the region in general are based on so-called generic vulnerability factors, such as gender, caste/class, and education, as drivers of vulnerability without analyzing their social context and conditions of origin. In particular, the role of tourism has received very little attention as an influencing factor. Assessments by various (international) nongovernmental organizations (NGOs) and initiatives [25, 57–63] after the disaster focused primarily on "classical" vulnerable groups such as women, children and older people as well as scheduled castes (SC) and tribes (ST) with the aim of implementing aid programs, but most of these assessments did not analyze the underlying drivers of vulnerability. Gender discourse plays an important role in this aspect because as it places particular emphasis on the vulnerability of widows in very rural areas whose husbands lost their lives while working in Kedarnath [60,61,64]. Some studies [63,65] integrate socioeconomic conditions and their consequences, such as outmigration or urbanization, as drivers of vulnerability in their analysis; in this context, tourism and the dependence of the local population are discussed on the sidelines but without a closer look at the underlying developments and specific impacts with regard to tourism. In summary, it can be said that the role of tourism in the production of vulnerability over time has rarely been discussed, both for the case of the "Himalayan Tsunami" and conceptually.

4. Methodology

To investigate the role of tourism as a driver of social vulnerability during and especially after the events of 2013, three methods were used: 1) a historical reconstruction of the development of tourism in the region, 2) interviews with experts and affected people and 3) participant observations [66].

1) For the historical reconstruction, secondary analyses of existing datasets, e.g., on tourism development in the region, were combined with the general historical development of the state to investigate the long-term developments, especially from the British colonial rule to the disaster in 2013, and their role in the development of vulnerability and the disaster.
2) Empirical research was conducted out in the field to investigate the social impacts of the disaster and newly emerged or aggravated vulnerabilities in 2013 and in the context of the reconstruction process. The data were collected in the periods April–May 2017 and October–November 2018. The first field trip occurred during the main season of pilgrimage tourism, when tourism recovered from the massive slumps of 2013. The second field research stay in 2018 occured during the low season between monsoon season and the onset of winter, when the higher temple regions are still easily accessible and the temple complexes are still open. In 2017, experts from state disaster management and NGOs in New Delhi, Dehradun and Rudraprayag were interviewed with semistructured interview guides, and interviews were conducted with various people affected by the 2013 disaster in the Kedarnath Valley and Uttarkashi District. In 2018, the Kedarnath Valley, adjacent valleys and the region around the Badrinath Temple were visited, this time primarily with the aim of capturing the perspective of the affected population in smaller villages (see Fig. 4).

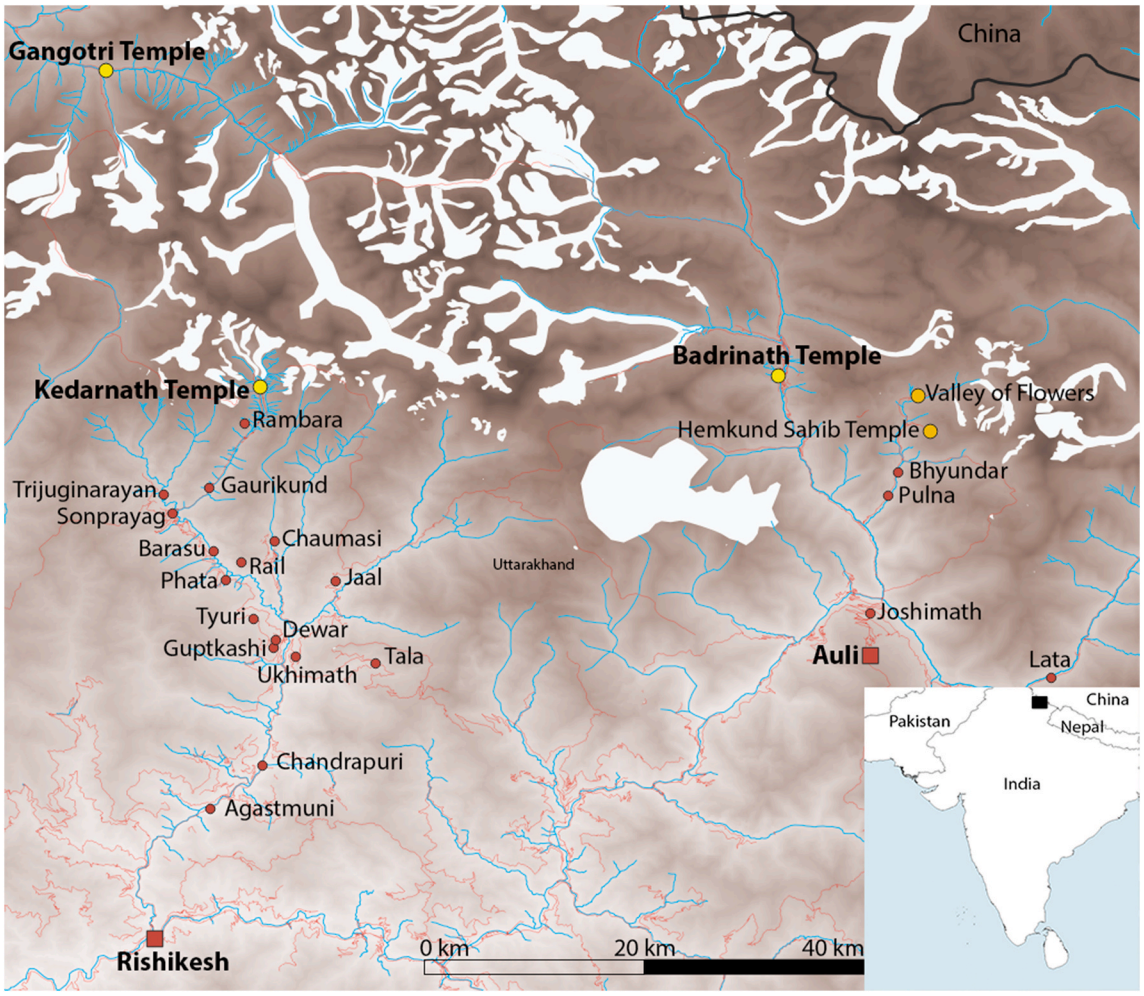

Fig. 4. Map of the research area with villages where research was conducted. Map: ©Hendrik Schnittker; Geodata: GADM, CIAT, OSM.

A slightly different semistructured interview guide was used during the second field trip. Both the expert interviews and interviews with the local population focused on the development of tourism in the region and vulnerabilities after 2013 and in the process of reconstruction but also embedded these issues more comprehensively in everyday challenges and socioeconomic developments. Interviews were conducted until a saturation point was reached. A total of 53 guideline-based interviews were conducted with experts, affected people and the local population involved in tourism, particularly in the villages around the temples. The expert interviews were conducted in English, and the majority of the guideline-based interviews with the population were conducted in Hindi and/or Garhwali, the local language, and were translated into English by a trilingual interpreter. The experts were chosen due to their involvement in disaster management at the federal and local levels, and contacts were made by the snowball system and recommendations. The selection of the interviewees in the villages was made by chance; in many cases, the first point of contact was one of the numerous tea shops and its owner, who was joined by other men after a short time, so individual interviews often ended in group discussions with up to 15 participants. The interviews lasted between 15 min and 60 min (approximately 30 to 40 min on average). The majority of the interviewees were male. The ages of the interviewees were between 16 and 75 years. A table presenting all (group) interviews can be found in the annex. In the following the paper will refer to the interviews with Roman numerals. The content of the interviews was summarized in interview portrayals, and significant individual statements within the interviews were transcribed.

3) In addition, passive participant observations [66] were conducted mainly in the Kedarnath Valley and villages in the region. The observations were recorded in 11 memos and contributed to a better understanding of the situation on site.

All 53 interviews and 11 memos were analyzed following the concept of rule-based qualitative content analyses by Mayring [67,68]. The interview portrayals with the individual statements as well as the memos were coded using the data analysis software MAXQDA.

5. Results

The following sections will focus on the role tourism played in the disaster as a driver of social vulnerability during and especially after the events of 2013. The results are presented chronologically. First, historical development is presented on the basis of historical reconstruction. Then, the vulnerabilities in 2013 and in the reconstruction process are presented on the basis of the interviews and observations, supplemented by further sources, e.g., newspaper articles and statistics.

5.1. From historical pilgrimage to pilgrim tourism as a means of economic development

Pilgrimage journeys (tirtha yatra) in India have a tradition that extends over two thousand years [69,70]. The Char Dham pilgrimage is

said to have already taken place in the Middle Ages [71]. Until approximately 60 years ago, the visit to Kedarnath was still an extremely hardscrabble journey; there was an increased probability that the pilgrims would not return alive, and they therefore set off on their way only after the "completion" of their earthly tasks and bid farewell to the community. These pilgrims had to supply themselves with food, other necessary porters or mules, so a corresponding infrastructure was formed. Many of the families living in the region had lived on pilgrimage tourism for generations: "Until 1954, there was only one road to Rudraprayag, then porters had to carry on to Kedarnath, which took about six days" (XXXI). Another person added, "My father, who was born in 1909, already had a shop here on the way to Kedarnath to supply the pilgrims who passed by, mostly on palanquins" (XXXV).

The British colonial government regulated and supported pilgrimage on the Indian subcontinent through a variety of special administrative practices, such as a number of transport infrastructure projects [72]. This process was accelerated in the mid-20th century by geopolitical and military strategic goals: the China-India war of 1962 served as a major catalyst for considerable government efforts in building roads. The Indian government attempted to establish a defensible buffer zone between the Chinese border and the Indian plains by developing infrastructure especially suitable for motor vehicles [73–75]. Accordingly, there has been modern road construction in the region since the early 1960s [70].

In the middle of the 19th century, less than 10,000 people visited Badrinath every year. No figures are available for Kedarnath, but it can be assumed that the numbers were significantly lower due to remoteness [69]. Since the 1970s, "a new shift towards defining Uttarakhand through the 4-Dham as network of four pilgrimage sites" [75] can be observed. Recently, since the 1990s, "Yamunotri, Gangotri, Kedarnath, and Badrinath had amalgamated into the (unqualified) '4-Dham' pilgrimage network and became established as the pre-eminent Himalayan Hindu pilgrimage circuit" [75]. Therefore, the four holy temples of Char Dham are today closely linked both symbolically and economically. Estimates assume that almost 80% of all tourists want to complete the Char Dham Yatra [33]. Today, the 4-Dham pilgrimage also includes more than 1000 km of roads and tourism facilities. Other cities in the region, such as Dehradun, Rishikesh, Haridwar, Rudraprayag and Uttarkashi, as well as other tourist attractions that are not necessarily (Hindu) religious, such as Hemkund or the Valley of Flowers, are also included (see Fig. 4). From the 1970s, there was a massive increase in the number of visitors to Kedarnath; in 1989, there were approximately 116,000 people [69]. In 2000, more than 215,000 people caused "an accelerated spatialization of capital, a rapid influx of money connected to pilgrimage tourism that spread throughout the economic catchment area of the Uttarakhand Four Abode Pilgrimage" [34] (see Fig. 5).

This development conflicted with the ideas of sustainable development of the region that existed when the state was founded [30] but at the same time resonated with the general policy of the Indian government to promote tourism as a means of economic development [71]. By the end of the 1980s, the Indian government had developed tourism into one of the most important economic sectors [71]—still with a focus on foreign tourists—and liberalized this sector and large parts of the economy in the 1990s [76,77]. This period also saw an increase in the number of domestic tourists due to the general rise and mobility of the Indian middle class in the 1980s, so the corresponding infrastructure was increasingly geared to the needs and demands of this group of pilgrims [34,78]. While the trip to Kedarnath and Badrinath in the middle of the 20th century still took the best part of a month, the 4-Dham pilgrimage, with its package tour offers, is now easy to manage in eight to ten days in buses or taxis[2] or even in one day by helicopter with all necessary tourist infrastructures in the form of restaurants, hotels, tea stands, and carriers.

Kedarnath experienced a building boom in 2007/2008; in 2007, there were already 10,000 pilgrims per day in the high season. Shortly before the disaster of 2013, Kedarnath was expanded to accommodate 15,000 pilgrims per day [17]. Accordingly, there was also a shift in the expectations associated with the trip to Kedarnath on the part of the pilgrims, who no longer necessarily wanted to engage in a journey full of privations but had increased expectations of hotels and restaurants. This also led to a changed perception of the yatra: "In the early twenty-first century, the Uttarakhand Char Dham Yatra was beginning to feel modern and safe—a Himalayan family vacation that connected people with their traditional religious values and obligations" [34]. In reality, a "lucrative religious tourism trade that has evolved largely without regard for safety" [35,79,80] developed. Until 2013, pilgrimage tourism provided regular income for a large number of households in the region and migrant workers from other regions of India or Nepal. While it can be argued that tourism reduced their everyday vulnerability before the events of 2013, it also made them particularly vulnerable during and after the "Himalayan Tsunami", as the following paragraphs show.

5.2. *Vulnerabilities revealed: secondary effects of the "Himalayan Tsunami"*

At the time of the disaster, tourism was "the largest provider of livelihood in Uttarakhand, and this disaster that hit during the peak tourist season [...] had a devastating impact on the sector" [14]. Before 2013, tourism accounted for up to 27% of the GSDP from Uttarakhand [30,33,36]. Eleven percent of the (expected) GSDP in the form of future tourism revenues was not generated by the events [33]. In one of the interviews, one man described the significance of tourism as follows: "Actually, all men from the village have been working in Kedarnath since they were teenagers. Just like their fathers did" (XXXIII). The livelihoods of 83,320 households were dependent on tourism [36]: for instance, at the time of the disaster, there were 6500 hotels or restaurants and 23,000 small traders with small shops, tea stands or food stands and porters. It is assumed that approximately 8000 people were directly employed in the transport sector [36]. In the years after the disaster in 2013, due to the close interlocking of all four temples, other pilgrim places and even other tourist places of the state, the number of tourists collapsed massively. The state recorded more than 28,470,000 visitors in 2012, only approximately 21,131,000 in 2013 and 22,630,000 in 2014 [81]. In Kedarnath[3] itself, the decline was even more dire, from approximately 573,000 visitors in 2012 to approximately 333,000 in 2013 and fewer than 41,000 visitors in 2014 [81]. It took more than three years for the number of tourists to return to pre-disaster levels [81] (see Fig. 5).

The numbers might have increased, but large gaps were left for people who depended on tourism: "More than 70% of the people in our village were working in tourism. Now we're all unemployed. Many younger families left to the bigger cities because schools hadn't been rebuilt" (XXXVII). Indebted small traders were particularly hard hit [36]: "As per estimates, all the petty traders, hotels and restaurants, bus operators and taxis have lost their livelihoods as a result of the disaster. Almost all the petty shop owners' businesses have been hit and the ones located in the Kedarnath valley routes have seen their physical infrastructural assets washed away" [36]. While persons with material losses in the form of formally registered shops or hotels would have received state compensation [64], this did not apply to ordinary workers or day laborers in this sector (XV, XII, XXXVI, XXXIX, XXXXII, XXXXVI).

The social effects of the disaster therefore affected more or less every part of the region because men from almost every village worked in

[2] It is estimated that vehicle traffic grew by 1,000% between 2005 and 2013 due to the pilgrimage industry [30].

[3] Due to the close connection of all four temples, shop owners in Badrinath (XXXXII, XXXXV) as well as places along the road (XXXXVI, XXXXVII) reported comparable effects.

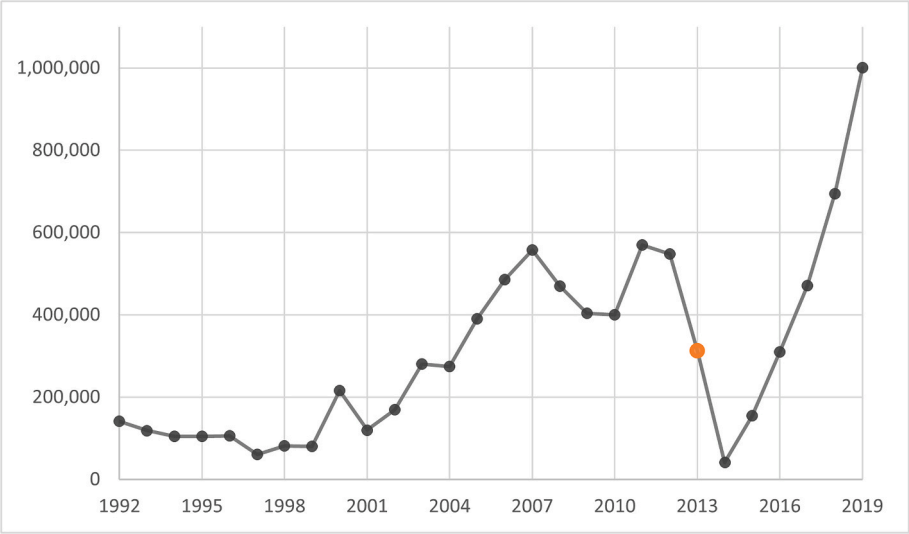

Fig. 5. Development of visitors per year in Kedarnath before and after the disaster of 2013, own illustration, source of numbers [82].

Kedarnath during the pilgrim season. A study by Goyal [52] shows that in some villages, "pilgrimage was the main source of income for more than 90% of the families", and this work provided comparatively good income opportunities: "There are no alternatives to working in Kedarnath if you want to feed your family. You can work there for some weeks and earn more than whole year in any other job available" (XXXX).

The disaster revealed a wide range of tourism-related vulnerabilities. NGOs (XXIII-XXIV) and affected people (XXXI-XXXX) experienced the most vulnerability especially among people who have almost completely lost their income as a secondary result of destroyed livelihoods or the collapse of local markets due to the breakdown of tourism. The interviews also underlined the specific vulnerability of widows whose husbands lost their lives while working in Kedarnath (also XIV, XXII) and suggested that their vulnerability must be expected to continue since culturally, new marriages are rarely possible in the region (XVII, XX, XXII). According to the NGO HelpAge (XIV, XX), an even more vulnerable group is older parents who are dependent on the care of their adult son; in the event of his death, in contrast to his wife, they did not received any compensation. The loss of jobs not only resulted in heavy income losses but also had far-reaching social consequences. For the (young) men affected, the loss of their jobs in Kedarnath also meant a loss of social status and recognition (XX) because they were left without other local socially and culturally recognized employment opportunities and without training (XV, XVI). In this context, interviewees (XX) also referred to an increase in social problems such as gambling, alcohol abuse and domestic violence after 2013, which in turn produced new vulnerabilities.

5.3. *Vulnerability due to the reconstruction of tourism*

The disaster affected not only the major economic sector but also the development path that was enshrined in the foundation of the state. For political and economic reasons, it was therefore most important that the "founding vision of Uttarakhand needed to be visibly upheld in the reconstruction process" [34]. The "building-back smarter" campaign of the World Bank, the Asian Development Bank and the Government of Uttarakhand [36], announced in August 2013 as part of the Joint Rapid Damage and Needs Assessment Report, maintains tourism as the main source of income and driver of economic development in the region. The disaster was positively described as a "window of opportunity to address several underlying developmental and risk reduction issues" [36]. In the medium term, the Joint Rapid Damage and Needs Assessment Report defined the need for "[m]edia campaigns to rebuild the state's image as a safe destination for tourism" [36]. Sixteen months after the disaster, Chief Minister Harish Rawat promised that the "redevelopment plan would make Kedarnath an even better pilgrimage destination than it was before the deluge" [83]. Many persons involved assumed that reconstruction would take years, especially in Kedarnath's case, but due to the importance of tourism for the state economy, the quick reopening of Kedarnath as the most important temple was the goal [34]. This coincided with the election campaign for the 2014 national elections and could be staged accordingly by the subsequent election winner, the Bharatiya Janata Party (BJP), around Prime Minister Narendar Modi to advance the propagation of Hindu nationalism [84].

To resume tourism in the region and at least improve its safety in selected places, a number of measures to reduce disaster risk were also introduced. For example, in Kedarnath itself, a protective wall was erected by NIM to protect the site from renewed floods [34]. The measures also included the establishment of State Disaster Response Force Teams (SDRF) as part of the police force, which were represented with their own bases in the respective valleys and received training from the NDRF [85,86]. In some villages, so-called Disaster Village Response Teams were established set up and trained with the help of NGOs (XVIII, XXII, XXIV, XXXI, L).

Pilgrims are required to register through a biometric procedure so that the security authorities have an overview of the persons in the high-risk area.[4] A rescue app has been developed that can provide information on where people are or how they can obtain food in the event of an emergency [87]. WLAN hotspots have been installed along the route in addition to surveillance by cameras at particularly critical points [87]. With the help of specific satellites, extreme events should be better predicted and announced in the future [88]. The establishment of medical points and rain shelters was also attempted but had barely been implemented by March 2018 [89].

In the course of reconstruction, measures under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) were also applied [90], which enabled people in rural areas to obtain 100 days of paid work as part of a cash-for-work program. However, some of the interviewees (XXXIX, XXXXVI) claimed that the affected parts of the region that did not belong to the direct pilgrimage tourism infrastructure were not sufficiently supported, even though individual sociopolitical

[4] Opinions (XVIII, XXXVI) have been voiced that biometric registration was not introduced primarily to monitor the number of people in area but rather as an improvement in the identification of those affected and killed in the event of accidents and disasters.

support programs were initiated for affected population groups. There was financial aid for those affected, which varied greatly depending on the losses and the (official) title of ownership [64] and value leading to corresponding controversies around the perceptions and definition of vulnerabilities: "Wherever there is a disaster, if the house of an affluent person collapses, he has other resources and can manage, but the person who is vulnerable, below-poverty-level, even if he has just one room, is not able to recover. As a result, those people are more affected than the affluent. But that is not what the government thinks. For them, the affluent are more damaged because their houses are worth more rupees. Ten lakhs [one lakh = 100,000, DFL & CD] was the core damage; ten lakhs will be given to me and just 50,000 will be given to the poor, who are actually more vulnerable" (VIII).

Many interviewees (I, XXI, XXVIII, XXXII, XXXIII, XXXX, XXXVI, LI) noted for Kedarnath as well as beyond, the reconstruction of the touristic infrastructure was tied to economic restructuring processes, which, as far as the government was concerned, would benefit only a few large operators of hotels, helicopter companies, etc. and would displace small traders or provide them only with unprofitable aid activities: "For us, it is hardly possible to open a shop or restaurant anymore. The government has taken over everything; all that remains for us is to work as a carrier or horse-man" (XXXIX).

To make the four temples, especially Kedarnath, more accessible, the so-called Char Dham Highway, also called "All Weather Road", is being built over a length of 900 km. The project was inaugurated by Prime Minister Narendar Modi in 2016 and is advertised as a "tribute to 2013 flood victims" [91]. In general, most respondents (XXIII, XXVIII, XXIX, XXX-XXXVII, XXXXVI, XXXXVIII, L) link high hopes for a (further) increase in tourism to the construction of the Char Dham Highway. However, it is also accepted (XXXIII, XXXVII, XXXIX, XXXXVI, XXXX, LI) that this will lead to a stronger concentration of tourism on the main roads with a few providers of tourism services.

In addition, further helicopter connections to Kedarnath have been established [92]. With approximately 300 flights per day, these are intended to provide better access to the temple and to facilitate evacuation in times of disaster. Many interviewees (XXXII-XXXIII, XXXVI, XXXXVII) contended that helicopter connections pushed traditional means of transport and the associated jobs for horsemen or porters out of business.

6. Discussion

With regard to vulnerabilities, it can be seen that the specific form of pilgrimage tourism to Kedarnath and its close links to livelihoods plays a particular role as a dynamic pressure that links macroeconomic and political root causes to fragile livelihoods and vulnerabilities within the population. As historical reconstruction has shown, pilgrim tourism has changed over centuries, especially in the two decades before 2013. Colonialism and geostrategic interests laid the cornerstone to transform pilgrimage tourism into an economy. National interests and strategic political visions further developed tourism as a means of economic development in times of expanding neoliberalism and an increasingly globalized and upcoming Indian middle class [34]. It becomes clear that tourism, which has been expanding for decades with the support of global and national political and economic powers, has led to a more or less stable and secure income for the local population but has also created a variety of social vulnerabilities throughout the region, which were ultimately responsible for turning a regional extreme weather event into a national disaster.

It also becomes apparent how the disaster, which continued years after its supposed end, affected pilgrims, and people employed in tourism and households that were dependent on tourism in very different ways due to the tourism-related vulnerabilities revealed by the disaster. Pilgrims expecting a safe tourism experience were highly vulnerable because they were not equipped and prepared for local (extreme) conditions in the high alpine environment. Local men lost their lives in the disaster because work in the tourism industry had become the most important, and for most of them, the only profitable source of income. For the local population, which was largely vulnerable due to its massive dependence on tourism, the disaster meant not only the loss of men working in tourism but also, as a secondary effect, the loss of the primary providers of household income for wives, children and parents, with severe social consequences for whole families. Thus, the loss of jobs and income due to the absence of tourists in the following years affected more than 83,000 households, especially those with people working in the most precarious jobs that did not receive any compensation after the disaster, and gave rise to different kinds of social problems (such as gambling, alcohol abuse and domestic violence) as tertiary effects.

At the same time, tourism played a role in reconstruction that cannot be underestimated. After the events of June 2013, tourism was promoted even more and further developed by powerful political and economic actors. On the one hand, capitalization and displacement effects can be identified with similarities to other cases discussed in the relevant literature [50,51]. On the other hand, it becomes apparent that the intensification of tourism is linked to the production of new social vulnerabilities or the aggravation of existing vulnerabilities (the so-called ratchet effect [56]). While the yatra is advertised as a safe journey, new pilgrim records are achieved, the local population itself is further marginalized in tourism and becomes even more dependent on it.

The even closer link between reconstruction and tourism, with simultaneous concentration on state providers or large hotel chains and tour operators, and the massive expansion of the transport infrastructure (Char Dham Highway) and resulting displacement of small local businesses (teashops, porters, etc.) reinforced the vulnerabilities revealed by the disaster. While previously and for generations, "hanging on the drip of Kedarnath" (XX) secured the livelihoods of a large number of different social groups, the reconstruction process has made this difficult. The secondary effects of the disaster and the emergence of new vulnerabilities and consolidation of old ones via the close link to economic structures have an impact far beyond the events of June 2013.

In view of such a critical approach to tourism, the question of alternatives arises, without simple answers. It must be recognized that most respondents generally welcome pilgrimage tourism both as a religious practice and as a source of economic income.[5] From a Western secular perspective, it is also notable that pilgrimage tourism itself, which is susceptible to disasters, is rarely questioned within the religious-cultural world-view.

Given the specific natural environment of the Himalayas, including its natural hazards, it remains questionable whether there can be a safe form of (pilgrim) tourism at all or whether it will always remain dangerous. Further improvements are certainly possible in DRR, disaster prevention and disaster management, but their impact is always limited: "You pay a price to live in the Himalayas. Most times, it gives you beauty. Sometimes, it gives you hard times" (XVIII, also XXVII, XXXII, L, LIII). Therefore, the effectiveness of disaster prevention and management measures in reducing vulnerability in the region or even making the region more resilient to events such as those that occured in 2013 remains difficult to assess. Some people (VI) view these measures as a security gain, while other people from disaster management and mountaineering associations in Uttarakhand (XVIII, L, LIII) are much more skeptical and regard the measures as primarily symbolic since—especially with regard to tourism—more concrete measures would be expected. Some argue that local knowledge is completely excluded in the process of reconstruction: "There is so much of knowledge within the community, which is based on hundreds of years of experience. However, all that matters is profit" (IX, see also [93]).

[5] Although some excesses are criticized, fundamental criticism is only expressed by environmental lobby groups from New Delhi.

An unpublished report by a commission assigned to evaluate the environmental and social effects of the Char Dham Highway urged in the summer of 2020 "that disaster management plans are required for all the Char Dham locales, particularly marking safe mass evacuation routes in the last stretches" [94] and that it was not understandable why they were not part of the planning. "Though the Char Dham tourism circuit is promoted as religious tourism in Uttarakhand, the widened highways have no footpaths for the devout padyatris, who undertake the devotional form of the yatra, as well as for the local pedestrians" [94]. Precisely for this reason, more transparent communication of the limits of safety and disaster management is necessary, although what has been said so far at least makes it conceivable why the region and the people who depend on it for tourism are attempting to eliminate the stigma as a disaster or high-risk area.

Other forms of tourism, such as sustainable, ecological tourism beyond mass tourism, are seen as an additional possibility, but it is highly questionable whether these types of tourism—which already exist—could even begin to replace the economic significance of pilgrimage tourism. Economically, there are currently few alternatives to mass pilgrimage tourism in the region. Tourism is inscribed in the founding of the state of Uttarakhand because there are few other economic sectors. The possibilities for arable farming are topographically limited, and the yields are therefore often not competitive with other parts of the subcontinent. Without income opportunities, people migrate from the mountains to the cities of the plains, where urban vulnerability agglomerates (XVIII). Uttarakhand—for various reasons [95]—has been struggling with outmigration from mountain regions for years [96].

It therefore seems as if the vulnerabilities associated with the development of tourism are often regarded as less serious than the vulnerabilities and risks of possible alternatives or even everyday life, with the consequence of enabling catastrophic events such as those that occured in 2013. As one interviewee stated: "For us, one future earthquake might be important; for them, every day is an earthquake" (XVIII).

Although the analysis provides new insights into the nexus of vulnerability, tourism and disaster, this study clearly has limitations and thus remains explorative. Due to the heterogeneity of the region and its population as well as its remoteness, valid data, especially on the historical development of tourism (e.g., visitor numbers), are not completely available. Due to the explorative nature of the study and the time limitations of the field research, only 53 persons could be interviewed, with the effect of limiting the generalizability. In addition, significantly fewer women than men could be interviewed; women were rarely present in the public space, which can be explained by the gender-specific division of labor that assigns tasks in agriculture and households to women, whereas men are employed in formal jobs (e.g., in shops, tourism or the public sector) [97]. Therefore, secondary literature was also included. The same is true for other marginalized groups, such as migrant workers, especially from Nepal [98,99], who work in Kedarnath mainly as porters (XI). It must be assumed that some groups of people may be 'doubly' vulnerable due to the discursive suppression of vulnerability [47,100] and, thus, that these groups might have been hit harder by the disaster due to their prior precarity and marginalization and the lack of target aid programs.

For the case study, vulnerability was conceptualized, following the discourses of the literature review, as an exclusively social phenomenon that can be perceived very differently by different groups depending on their biographical, social, and economic background. The results strongly focus on the economic context to explain the importance of tourism in the production of vulnerability before the disaster as well as the (re)production of vulnerability in reconstruction, which thus far still represents a research gap and makes the present case particularly interesting. Other drivers of vulnerability were deliberately omitted (see, for example [25,64]).

The results and limitations outlined above suggest a need for future studies: on the one hand, with regard to the case and the region; on the other hand, for the general relationship between tourism, vulnerability and disasters.

With regard to the specific case, it becomes clear that more in-depth studies would be useful to examine the different vulnerabilities of different groups of people, such as the women who are underrepresented in this study as well as other marginalized groups. Due to the limitations mentioned above, however, this would probably require different methods (e.g., long-term ethnographic research) and access to the field. In relation to the case, the question also arises of how tourism and the vulnerabilities it causes will develop in Uttarakhand in the future. With the reconstruction, the significance of Kedarnath as a religious pilgrimage and tourist destination has also changed: "Journey [sic] to the Himalaya is now officially dangerous again […]. It is clear that journey [sic] to Kedarnath by foot has returned as an emblem of Himalayan yatra to Kedarnath but with a new poignancy" [101]. However, this makes this journey even more attractive (XXI), especially since those who died in a particularly holy place are especially venerated; thus, relatives increasingly make pilgrimages to Kedarnath (V, XXXVI). Thus, tourism in the region is being further developed both in symbolic significance and at the political and economic levels. Not only has the reconstruction opened up new possibilities for intensifying tourism (e.g., with the Char Dham Highway), but the disaster itself forms the basis for new forms of tourism in Uttarakhand in the future. Some considerations of the tourism ministry of Uttarakhand are to erect a memorial in Kedarnath and to promote dark tourism in the state: "[W]e want to build a memorial in Kedarnath giving details of the 2013 floods, what exactly happened there, how people dealt with the tragedy, how and from where all people died. All these will be a part of the dark tourism spot in Kedarnath", said Tourism Minister Maharaj [102,103]. What this might mean for the region remains to be researched.

Beyond Uttarakhand, there is a need for further in-depth studies on the empirical nexus of tourism, vulnerability and disasters that focuses in a comparative way on the vulnerabilities and disasters that are enabled by the development of tourism. Furthermore, the effects of disasters on people who work in and depend on tourism should be investigated in more detail, as called for by Neef and Grayman [52], including secondary and tertiary effects as well as the emergence of new vulnerabilities and future disaster risks in the course of reconstruction measures.

Finally, the nexus of tourism, vulnerability and disasters should be defined more clearly in conceptual terms, with the hope that this will also be taken into account in the development of policies for the sustainable, risk-informed and vulnerability-sensitive design of tourism and DRR, not only in the tourism sector itself but also to address associated vulnerabilities in communities.

7. Conclusion

In the case of the disastrous "Himalayan Tsunami" of 2013, the question of the nexus between tourism, vulnerability and the disaster is particularly relevant. Accordingly, the research question of this paper asked what role tourism played in the disaster as a driver of social vulnerability during and especially after the events of 2013. Based on a historical reconstruction of tourism in the region as well as more than 50 interviews and participant observations on site, it was demonstrated that the specific form of pilgrimage tourism to Uttarakhand and, especially, Kedarnath and its close links to livelihoods play a particular role as a dynamic pressure that links macroeconomic and political root causes to vulnerabilities and unsafe living conditions for both tourists and people living in the region. It was demonstrated how the expansion of tourism over decades, which was supported by political and economic powers, has created a variety of social vulnerabilities in the entire region, which are ultimately responsible for turning a regional extreme weather event into a national disaster with suspected more than 10,000 fatalities. Furthermore, the paper discussed how the disaster affected pilgrims, locals and people dependent on tourism in quite different ways over years. Tourism also played the most prominent role in

reconstruction after the disaster, which seemed to aggravate existing vulnerabilities and create new vulnerabilities that might lay the cornerstone for disasters to come in the region.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Annex

Overview interviews.

Number	Date	Type	Interviewee/Organization	Location
I	April 2017	Group interview	National Institute of Disaster Management (NIDM)	New Delhi
II	April 2017	Interview	South East Asian Network on Dams, Rivers and the People (SANDRP)	New Delhi
III	April 2017	Interview	Indian Red Cross National Headquarter	New Delhi
IV	April 2017	Interview	Indian Red Cross National Headquarter	New Delhi
V	April 2017	Interview	Taxi driver	Dehradun
VI	April 2017	Group interview	Pilgrims	Dehradun
VII	April 2017	Interview	Indian Red Cross Uttarakhand State Branch	Dehradun
VIII	May 2017	Group interview	People's Science Institute	Dehradun
IX	May 2017	Interview	Centre for Ecology Development and Research (CEDAR)	Dehradun
X	May 2017	Interview	Indian Red Cross, District Rudraprayag	Rudraprayag
XI	May 2017	Interview	Hotel owner	Guptakashi
XII	May 2017	Interview	Local guide	Ukimath
XIII	May 2017	Group interview	Pilgrims	Kedarnath
XIV	May 2017	Group interview	Help Age Clinic	Agastmuni
XV	May 2017	Interview	Nehru Institute of Mountaineering	Uttarkashi
XVI	May 2017	Interview	Hotel owner	Uttarkashi
XVII	May 2017	Interview	Shri Bhuvneshwari Mahila Ashram (SBMA)	Uttarkashi
XVIII	May 2017	Group interview	Disaster Mitigation and Management Centre	Dehradun
XIX	May 2017	Interview	Welthungerhilfe	New Delhi
XX	May 2017	Interview	Help Age India	New Delhi
XXI	October 2018	Interview	Hotel owner	Guptakashi
XXII	October 2018	Interview	Appropriate Technology India	Guptakashi
XXIII	October 2018	Interview	Appropriate Technology India	Guptakashi
XXIV	October 2018	Interview	Appropriate Technology India	Guptakashi
XXV	October 2018	Group interview	Appropriate Technology India	Guptakashi
XXVI	October 2018	Group interview	SEWA International	Chandrapuri
XXVII	October 2018	Group interview	Tourists	Trijugi Narayan
XXVIII	October 2018	Interview	Local guide	Tala
XXIX	October 2018	Interview	Farmer	Dewar
XXX	October 2018	Interview	Villager	Dewar
XXXI	October 2018	Interview	Shop owner	Barasu
XXXII	October 2018	Group interview	Villagers	Tyuri
XXXIII	October 2018	Group interview	Villagers	Rail
XXXIV	October 2018	Group interview	Family	Rail
XXXV	October 2018	Interview	Shop owner	Phata
XXXVI	October 2018	Interview	Journalist	Phata
XXXVII	October 2018	Group interview	Villagers	Jaal Mala
XXXVIII	October 2018	Interview	Shop owner	Jaal Mala
XXXIX	October 2018	Interview	Former shop owner in Kedarnath	Chaumasi
XXXX	October 2018	Group interview	Villagers	Chaumasi
XXXXI	October 2018	Interview	Porter	Chaumasi
XXXXII	October 2018	Interview	Shop owner	Badrinath
XXXXIII	October 2018	Interview	Employee of a temple organization	Badrinath
XXXXIV	October 2018	Interview	Shop owner	Badrinath
XXXXV	October 2018	Group interview	Family	Badrinath
XXXXVI	October 2018	Interview	Local farmer	Bhyundar
XXXXVII	October 2018	Group interview	Villagers	Pulna
XXXXVIII	October 2018	Group interview	Family	Pulna
IL	October 2018	Interview	Local taxi driver	Pulna
L	October 2018	Interview	Local guide	Lata
LI	October 2018	Interview	Mountain Shepherds Initiative	Lata
LII	October 2018	Interview	Local guide	Auli
LIII	October 2018	Interview	Local guide	Rishikesh

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