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RESEARCH ARTICLE

Tourism geographies and disaster risk: a state-of-the art review and agenda

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ABSTRACT

This 'State-of-the-Art in Tourism Geographies' contribution examines trends and gaps in research on disaster risk and tourism geographies intersecting to offer future research directions. First, a concise summary of disaster risk theory is provided, framed to apply to tourism geographies. Then, key trends in bringing together tourism geographies and disaster risk are suggested as being tourists in disasters, tourism after a disaster, and tourism to disasters. Finally, key gaps for future work are suggested as identifying and overcoming scholastic hegemony, so that people affected make decisions about themselves while delving more deeply into both local/everyday and planetary/existential analyses.

The tourism disaster?

From overtourism to undertourism, and from tourists becoming disaster casualties to tourists visiting disaster sites, tourism geographies examine many disastrous aspects of various forms of travelling and visiting. This 'State-of-the-Art in Tourism Geographies' contribution examines trends and gaps in research on disaster risk and tourism geographies intersecting to offer future research directions. Just as the definitions of 'tourism' (Leiper, 1979) and 'geography' (De Geer, 1923) are ever-contested, 'disaster risk' has extensive definitional scholarship. The next section provides a concise summary of disaster risk theory, framed to apply to tourism geographies. Then, current trends in disaster risk and tourism interactions are summarised. Finally, gaps in and future directions for tourism geographies are suggested.

Summarising disaster theory for tourism geographies

For decades, scholars have asked 'What is a disaster?' (Quarantelli, 1998) and 'What is risk?' (Adams, 1999). A clear answer is typically absent, making it formidable to define 'disaster risk'. Most straightforwardly, disaster risk could be the potential for dangerous circumstances to arise in which external support is needed.

Resulting questions include who is and who is not 'external', what support is needed, how the potential for these dangerous circumstances could be identified or calculated, and why these dangerous circumstances and the need for support arise.

Answering these questions divides 'disaster risk' into two components, articulated in two ways (Adams, 1999; Hewitt, 1983; Lewis, 1999; Wisner et al., 2004). First, risk is a function of the probability of a dangerous situation (such as an earthquake or hurricane) arising and the adverse consequences of that situation if it arises. The consequences depend on how people, communities, livelihoods, ecosystems, and infrastructure in the location deal with the dangerous situation. The second way of articulating 'risk' parallels the first: Risk combines hazard, such as an earthquake or a hurricane, and vulnerability, being the adverse effects and why they occur.

What makes probability-consequence or hazard-vulnerability either disaster risk or non-disaster risk? This question is an ongoing struggle across risk-relevant research fields, including tourism geographies. A strong wind, such as from a hurricane, knocking down a tree onto a proprietor's sole bed-and-breakfast building is a disaster for that business even if no one is injured or killed. Everyday sexism (Bates, 2014) and racism (Essed, 1991) inhibit the pursuit of preferred livelihood and leisure activities, such as for business or adventure travel. The risk of harassment can be disastrous for affected people's day-to-day lives.

The same definitional conundrum emerges from risks chosen directly by affected individuals. A poker player can lose all their assets and accrue debt, while a backcountry skier can be killed by an avalanche, both of which are certainly individual disasters, extending to their networks. Consequently, no clear delineation exists between risks expressed as disaster risk and risks expressed as non-disaster risk. The 26 December 2004 tsunamis around the Indian Ocean would definitely involve disaster risk. The risk involved in poker for fun with nothing real being bet, a frequent leisure activity, would unlikely to be considered disaster risk. In between, ambiguities and overlaps exist.

Disaster risk is further complicated by additional vocabulary. Climate change analyses differentiate 'exposure' from 'vulnerability'. Exposure refers to elements potentially being harmed while vulnerability explains the propensity for those elements to be harmed, effectively how they would be harmed (IPCC, 2021–2022). This description bypasses the question 'Why are elements harmed?', more to the point 'Why are elements placed in positions in which they could be harmed?' In any case, vulnerability includes exposure, because describing how and why harm happens must include describing the elements being harmed. Meanwhile, 'hazard' is untranslatable directly into many languages, including Spanish and Norwegian. 'Hazard' might not explain exactly the concern without also explaining why hazardousness manifests (Hewitt & Burton, 1971). Without a skier's potential for injury or death (part of vulnerability including exposure), an avalanche is not necessarily a hazard.

Similarly, an earthquake, even a powerful one, is not necessarily a disaster or even a hazard, if no damage results. During powerful tremors on 26 September 2003 and 11 March 2011, Japan experienced limited casualties. 2011's subsequent tsunami killed over 15,000 people and knocked out a nuclear power planet. Japan's two earthquakes were dozens of times more powerful than those in Haiti on 12 January 2010 killing over 200,000 people and Iran on 26 December 2003 killing over 25,000 people.

These examples show how the disaster is not the earthquake, avalanche, or hurricane. Instead, with 'hazard' being a nebulous concept and intricately interwoven into vulnerability, the disaster is caused by vulnerabilities and inabilities to redress them. These inabilities emerge when those with resources and political power force others into situations where they lack resources and political power, and hence they cannot redress their vulnerabilities (Hewitt, 1983; Lewis, 1999; Wisner et al., 2004). This point ties back into the everydayism of discrimination, oppression, inequity, inequality, and marginalisation.

Since nature's phenomena cannot be blamed for disasters, the phrase 'natural disaster' is a misnomer (Hewitt, 1983; Lewis, 1999; Wisner et al., 2004). Rather than creating an artificial division of 'natural' and 'human-made', only the word 'disaster' is used. Examples of reducing disaster risk are evacuating and rebuilding, sheltering in place with robust infrastructure, purchasing insurance which pays out promptly and fully, improving home and work conditions, supporting and being supported by others, being flexible in livelihoods, and maintaining uninterrupted healthcare and education.

Successes are documented. Death tolls from cyclones in Bangladesh have declined from over 100,000 in 1970 and 1991 to dozens in recent years. Programmes involved crisis training, local warnings, accepted evacuation and shelter measures, and protecting livelihoods, among many other factors. Colorado enacts programmes for homeowners to implement wildland fire damage reduction measures. These houses survive conflagrations while neighbours' homes transform into ash. Although disasters are never precluded anywhere, successes demonstrate how disaster theory appears in reality, also helping to keep tourists and tourism livelihoods safe.

Current trends

Tourism geographies are inevitably present when dealing with disaster risk. Visitors get caught in disasters and are helped by a location having reduced vulnerabilities; for instance, through robust infrastructure and a population able and willing to assist non-locals. Tourism, as with all livelihoods, has vulnerabilities, with workers in the industry losing income and jobs when people stop travelling. Recent, intercontinental stoppages of much air passenger transport (including tourists) due to disasters:

- For several days to and from the USA after the 11 September 2001 terrorist attacks.
- For several days to and from Europe during the April-May 2010 eruptions of an Icelandic volcano.
- On-and-off around the world from March 2020 into 2021 due to the COVID-19 pandemic.

How could tourism improve dealing with disaster risk? Three overlapping trends in tourism geographies emerge from disaster risk contexts: tourists in disasters, post-disaster tourism, and tourism to disaster sites.

Since disasters happen everywhere on Earth, tourists inevitably experience them. Research emerges in topics as diverse as body identification and repatriation

(van den Bos, 1983) and tourists trapped by a disaster who then maintain lifelong friendships with their hosts (Scanlon, 2003). Debates surrounding definitions of 'tourist' and 'disaster' recur when examining the spatial and temporal geographies of tourists in disasters. During plague outbreaks, would travellers bringing infection, being quarantined, or locked out of towns (Dyer, 1978) be considered tourists (or just travellers) in a disaster? Would the numerous nineteenth century deaths and injuries while climbing Mount Vesuvius when it was not erupting (Brewer, 2021) refer to disasters or just potential volcanic hazards?

Some volcanic eruptions became disasters only because of visitors' presence at the volcano. In 1993 during a volcanology conference, a group of scientists visited Galeras, with some tourists joining. Potential pre-eruptive warning signs were not fully taken on board and a minor eruption became a disaster, killing six scientists and three tourists, with many others requiring a difficult evacuation for medical treatment (Bruce, 2001). Without the trip to the crater coinciding with the eruption, no disaster would have happened. Similarly, on 9 December 2019, 47 guides and tourists were on the uninhabited New Zealand island of Whakaari (White Island) when it erupted killing 22 people and leaving many others terribly burned, far from medical facilities. Several organisations pleaded guilty in court. Additionally, tourist sites are sometimes selected serendipitously or specifically as targets for creating a disaster. Examples are massacres in 1996 at the Port Arthur Historic Site, Tasmania killing 35 people and in 1997 at an archaeological site beside Luxor, Egypt killing 62 people.

Disasters affecting tourists, especially when tourists are targeted, can inhibit post-disaster tourism. Affected tourists can be deemed as being more important than affected locals, so aid and long-term support might be primarily directed at people who do not live in the location immediately impacted. A lack of post-disaster assistance for people living or working in the immediately affected place, combined with fewer tourists—possibly due to damaged facilities and possibly due to correct or incorrect risk perceptions—undermine tourism livelihoods, impeding post-disaster recovery. Zhang and Cheng (2023) demonstrate these types of complexities for Wenchuan Country, China after a 2008 disaster involving an earthquake. Different metrics for aspects such as 'quality of life' and 'recovery' trended in different directions at different times, with these trends partially being a function of the model and data selected.

Tourism livelihoods can be undermined far away from a disaster's immediate location. An example is disaster reporting or travel advice referring to an entire country irrespective of widely varying conditions. Thailand's 2008 political crisis was focused on the capital. The opposition blockaded Bangkok's two main airports with adverse impacts on tourist arrivals for the entire country (Cohen & Neal, 2010). The 2001 USA airspace closure inhibited departures to and arrivals from all other inhabited continents, although the terrorism occurred in the northeastern USA. Subsequent effects included reluctance to travel, leading to a temporary decline in tourism, and difficulties obtaining visas to visit the USA, discouraging travellers.

Disasters, though, can encourage visits through disaster tourism, which refers to visiting a disaster site. In disaster research, the desire to visit an unfolding disaster is termed 'convergence behaviour' (Fritz & Mathewson, 1957). Convergence behaviour includes people wishing to help, gawkers arriving out of curiosity (with some voyeurs today aiming for social media influence), and exploiters through activities such as

looting, price gouging, and souvenir hunting. Once rebuilding begins, disaster tourism continues and perhaps never stops. It can be for remembering disaster anniversaries, even for disasters far beyond living memory. The latter has led to museums and memorial spots, such as the Eyam Museum in England relating the story of one village dealing with the mid-seventeenth century's plague outbreak and the English Heritage sites covering the 1066 Battle of Hastings.

Disaster tourism can therefore bring visitors during active operations to address a disaster, then as reconstruction begins and proceeds, followed by the shift to memorialisation, and eventually when the disaster transitions to heritage. Often, disaster heritage is used for education through entertainment, exemplified by1066 battle re-enactments and re-invention of the location (Strittmatter, 2023). Disaster tourism for entertaining education can further cover disaster risk reduction measures. Wellington's Te Papa Tongarewa, the National Museum of New Zealand, includes one underground display showing how the building's base is designed to reduce earthquake risk.

These multiple, overlapping disaster, risk, and disaster risk contexts offer multiple, overlapping tourism geographies contexts. Travellers, including many tourists, grounded in Newfoundland after the 2001 terrorist attacks in the USA were experiencing a disaster. They became tourists in Newfoundland while waiting to resume their journeys. They then segued into disaster tourists, often revisiting Newfoundland due to the bonds developed while some of their Newfoundlander hosts visited New York City's 9/11 memorial sites (Scanlon, 2003). The Port Arthur Historic Site documents people's tragedies (personal disasters) and was one gateway for the invasion of Tasmania's indigenous peoples, so it represents disaster tourism. Tourists were then caught in a disaster there, impeding post-disaster tourism to the site since it was a crime and memorial scene. Disaster tourism related to the massacre followed, often for voyeurism. In such situations, an oft-neglected context is respecting people who lost someone in the disaster.

People who are directly affected by disasters and efforts to avoid disasters ought to be involved in understanding and managing related tourism. This point is sought from and for tourism geographies within multiple (disaster) risk contexts. Not involving affected people perpetuates the long-term vulnerability process that is, in effect, the disaster. It also undermines potential benefits that constructive disaster-related tourism could bring. Transparent mechanisms are paramount for involving affected people in tourism-related decisions and for resolving differences among them, since no group of people is homogenous (e.g., Erdmenger, 2023). Tan et al. (2022) demonstrate this circumstance for rebuilding tourism in Aceh, Indonesia after the 2004 tsunami and the end of the main conflict. Specific participatory mechanisms and how to avoid recurrent mistakes in them emerge from disaster research (e.g., the disagreements over the memorial for the 2011 massacre in Utøya, Norway), from tourism research (e.g., managing overtourism); and from many other fields including development studies and urban studies (e.g., siting a new airport).

Involving people fairly and equitably is a process, just as disasters and tourism are processes. Mechanisms require time, might require regular consultations and feedback without a specific end, and would need to take place at multiple places and times, including online fora. This defines the essence of geography: space, time, people, and places. Everyone agreeing and being satisfied is unlikely, particularly as memories and

'truths' about disasters can vary widely (Paris, 2015). Eventually, decisions will need to be made to act on disaster risk and tourism intersections. To support these processes, the next section examines current gaps in research and possible future directions.

Gaps and future directions

Within its rich history of documenting disasters avoided, disaster research recognises the continuing prevalence of vulnerabilities. It thus questions its own baselines and framings. Gaillard (2019, 2022) identifies and critiques hegemonic scholastic viewpoints within disaster research, discernible even in realms where participation, inclusivity, and equity are meant to be prioritised. Baseline notions can be reinforced, notably blaming the environment for disasters, rather than aiming to understand disasters and address their causes on the terms of affected people. Implications for tourism geographies could be similar: Identify and critique hegemonic scholastic viewpoints within tourism research, irrespective of purported participation, inclusivity, and equity. This critique would contribute to determining whether or not standard (and perhaps outdated) paradigms or baselines prevail, even among scholars aiming for critiquing approaches.

Tourism geographies and disaster risk work could learn from each other's lengthy and deep theoretical and practical explorations of and engagements with people's experiences. Of particular relevance would be the everyday difficulties that everyone faces alongside their needs for overcoming these difficulties. As tourism geographies have long theorised, evidenced, and critiqued, tourism can be a boon, a barrier, and both simultaneously, depending on its contexts and implementation. After all, some tourists use tourism to seek (disaster) risk, as with backcountry recreation (Neumann & Mason, 2023), war tourism (Bigley et al., 2010), and mountaineering (Miller & Mair, 2020). These activities can support local tourism livelihoods through creating and encountering these risks.

Localism (the spatial element) and everydayism (the temporal element) are important ways forward for better melding disaster risk and tourism geographies. People who are directly affected by tourism ought to have opportunities for making decisions regarding it, just as people who are directly affected by disaster risks ought to have opportunities for making decisions regarding them. Yet no group of people, localised or otherwise, dealing with the everyday or otherwise, present the same viewpoints, interests, or needs. Processes and mechanisms are required to proceed within different, possibly irreconcilable, opinions, expectations, and desires. Examples where disaster risks and tourism geographies intersected and led to bitter differences about post-disaster reconstruction in the context of disaster tourism were decisions about:

- The damaged cathedral after the 2011 earthquake in Christchurch, New Zealand (Sorkin & Zukin, 2013). A key debate was to restore it or demolish it. It could also have been left damaged as a memorial and monument.
- Developing poorer New Orleans, USA neighbourhoods after Hurricane Katrina in 2005 (Seidman, 2013). Should tourism be used to support community development? How could people be supported to return to and rebuild in a place expected to flood again?

In some locations, people affected by disaster risks and tourism might never before have been asked their viewpoints and might not know how to express their thoughts—or might be afraid to do so. People are frequently forced off their land for tourism, as in Tiantangzhai, China for alpine tourism (Han et al., 2014), and/or ostensibly to reduce their disaster risk, as in Barbuda after Hurricane Irma in 2017 (Perdikaris et al., 2021). Tourism and disaster risk merge when people's properties are seized apparently to reduce their vulnerability, but then tourism developments are constructed. This occurred in Sri Lanka after the 2004 tsunami (Rajasingham-Senanayake, 2005). Many people must navigate such abuses on an everyday, local basis. It typically increases their vulnerabilities and hence disaster risks over the long-term, while reducing the rewards for them from tourism-based livelihoods.

Research gaps in intersecting disaster risk and tourism geographies are also evident at the opposite end of spatial and temporal scales: planetary (and beyond) and exceedingly rare (and potentially existential) hazards. Off-Earth tourism is in its infancy with analyses beginning of risks and risk reduction (Cohen, 2022). These discussions demonstrate plenty of work remaining for dealing with disaster risk for outer space tourism. Parallels emerge for other extreme environments. Antarctica experienced multiple tourist casualties from large waves during the 2022-2023 cruise season. Deep sea tourism made headlines when OceanGate's Titanic-exploring (disaster tourism) submersible imploded on 18 June 2023, killing all five passengers. Examining risk-taking within and for tourism is long-established (e.g., Miller & Mair, 2020) and could be further extended into other extreme environments on and off the Earth.

Tourism as an extreme risk for destinations is another future direction for more work. This situation is often framed as overtourism (Milano et al., 2019) damaging heritage, undermining local life, and ensnaring people in unwanted livelihoods. This form of disastrous tourism can create tourism dependency, meaning that reduced tourism then becomes a tourism disaster. That is, undertourism fails to meet the destination's expectations for income and visitors (Cairns & Clemente, 2023). Tourists also follow a 'disaster risk' pathway *via* 'last-chance tourism' to entities stated as being threatened existentially, notably glaciers, sea ice, polar wildlife, and atolls. Both theory and empirics in all these areas are identified as important future research directions (Schweinsberg et al., 2021).

Thus, research in tourism geographies and disaster risk needs to navigate within and around this wide gamut of connections. They will each learn from the other's positive and negative examples to support the former while bettering the latter.

Conclusion

This 'State-of-the-Art in Tourism Geographies' contribution examines aspects of disaster risk and tourism geographies intersecting to indicate gaps in and future directions for research. Key trends are tourists in disasters, tourism after a disaster, and tourism to disaster sites. Key gaps are identifying and overcoming scholastic hegemony, ensuring that people affected are making decisions about themselves, and delving more deeply into both local/everyday and planetary/existential analyses.

Many other areas overlap with and could be better integrated into the work described here, being worthy of their own state-of-the-art reviews. Examples are tourism's contributions to human-caused climate change and wider pollution,

perceptions of climate change's and pollution's impacts affecting tourism choices, the meaning and implementation of 'resilient tourism', the meaning and implementation of 'sustainable tourism', and tourism's continuing expansion into increasingly risky activities and places. Tourism geographies have plenty to learn from and plenty to offer all these other fields, helping to advance the discipline while simultaneously leading the way beyond disciplinary silos.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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