

Travelling without a helmet: tourists' vulnerabilities and responses to disasters in Indonesia

Erda Rindrasih, Thomas Hartmann, Patrick Witte, Tejo Spit, and Annelies Zoomers¹

Tourists are particularly vulnerable when natural disasters occur in regions that they are visiting. It is assumed that they lack awareness and understanding of the actions that they need to take in such circumstances. This study examines the responses of tourists in times of disaster, building on empirical data collected through large-scale surveys conducted in Bali and Yogyakarta, Indonesia, in 2015. Both are important tourist destinations in the country that have suffered major disasters in recent years. The different types of responses to these events are framed using a grid/group analysis stemming from cultural theory. The study resulted in three key findings: (i) current disaster management planning largely follows a single rationale; (ii) tourists are not a homogeneous group, but rather a complex, diverse, and dynamic body of stakeholders; and (iii) the focus of disaster management planning should shift from a single rationale to a poly-rational methodology. Disaster managers need to consider, therefore, these different aspects in the context of preparedness.

Keywords: behaviour, cultural theory, disaster management, disasters, Indonesia, responses, tourists

Introduction

The tsunamis in the Indian Ocean and off Tōhoku, Japan, on 26 December 2004 and 11 March 2011, respectively, are just two examples of natural disasters that have affected tourist destinations severely over the past decade. These cases, which claimed the lives of many tourists, highlight the vulnerability of visitors to hazard-prone areas. Tourism is one of the largest industrial sectors in the world in terms of employment and revenue, and it faces great tests in coping with the consequences of disasters, particularly in developing strategies to ensure the safety of tourists (Cioccio and Michael, 2007).

There is general agreement within academia that currently no technique is available to prevent effectively a disaster from occurring. The best that one can do is cope with its negative impacts (Muskat, Nakanishi, and Blackman, 2014). Natural disaster management is a complex field because many different actors from myriad different organisations have to cooperate under great pressure with respect to time (Lauras, Truptil, and Bénaben, 2015). The situation is even more complicated when natural disasters happen in tourist destinations, where visitors lack an awareness of

the dangers and an understanding of the specifics known to local residents (Phillips and Morrow, 2007). Problems include those stemming from a poor command of the local language and a dearth of knowledge of safe places. It is difficult for tourists to be familiar with such disaster-related information because they comprise a dynamic group that is constantly moving and changing. As a result, the integration of disaster management into the usual operations of civic governance and the coordination of disaster response across actors are recognised as central challenges to increasing disaster resilience in tourist destinations (United Nations Office for Disaster Risk Reduction, 2013).

Notwithstanding the risk that devastating natural and man-made disasters can pose to tourism, some disaster management strategies include measures pertaining to preparedness, mitigation, emergency, and recovery (Cassedy, 1991; Ghaderi, Som, and Henderson, 2012). A study by Drabek (1992) of tourism industry enterprises in the United States revealed that although there was a high degree of preparation among tourism executives, disaster management strategies were not well documented and thus poorly communicated to tourists. Research has focused to date on tourists' decision-making in selecting a destination, such as how disasters affect future travel plans. There has been very little consideration of their reactions to safety issues during a disaster, and even less of their diverse behavioural responses to such an event. From the standpoint of tourism management, tourists' responses have been studied mainly to develop strategic ways of tempting them to visit (Sirakaya and Woodside, 2005). By contrast, from the perspective of disaster management planning, tourists' responses and behaviour have been scrutinised less well, especially in comparison to the responses and behaviour of local residents (see, for example, Paton and Johnston, 2006; Campiranon and Scott, 2007).

This paper aims to fill this gap by exploring tourists' behavioural responses and actions in different (hypothetical) disaster situations, including earthquakes, floods, storms, tsunamis, and volcanic eruptions. Indonesia was selected as a case study area because it is located in the 'Ring of Fire' in the Pacific Ocean, where the frequency and intensity of natural disasters increase annually. Two research questions are at the centre of the discussion:

- How do tourists perceive the risk of a natural hazard at their destination during a visit and what are their responses to such a possibility?
- What recommendations can be made to the disaster risk reduction programme in light of the complexity of tourists' responses?

The next section examines the importance of the preparedness phase in disaster management and draws attention to the role of tourists as stakeholders. The third section analyses the level of knowledge of tourist vulnerability and behavioural responses and introduces the rationalities of cultural theory. The fourth section outlines the methodology and contains the results of the research. The final section presents the practical and theoretical implications of the study.

Tourists’ vulnerability, disaster management, and cultural theory

Tourists’ vulnerability in the context of disaster management

Tourists’ safety and satisfaction influence the success of tourism destinations. Disaster preparedness is not only about providing safety as a human right, therefore, as outlined in Article 3 of the Universal Declaration of Human Rights (United Nations General Assembly, 1948), but also about safeguarding the socioeconomic performance of a region’s tourism sector. The link between the image of a location and the loyalty of tourists shows that impression is a large determinant of satisfaction (Abdullah, Al-Nasser, and Husain, 2000; Kandampully and Suhartanto, 2000; Cai, Wu, and Bai, 2003; O’Leary and Deegan, 2005). The protection of tourists is an essential and important issue inside and outside of destinations.

Disaster management is a circular cycle, with no clear start or end point (see Figure 1). The US National Response Framework (United States Department of Homeland Security, 2013) illustrates that the disaster lifecycle is composed of five variables: prevention; preparedness; response; recovery; and mitigation (United States Department of Homeland Security, 2015). Furthermore, an intervention at any point will influence the entire cycle, implying that each phase has a bearing on the next one. *Prevention* is about measures to stop an event from occurring, such as the use of advanced meteorological detection technology. *Preparedness* is about the responsibility of individuals, families, and community members to anticipate a disaster by increasing awareness, which would guide preparations in terms of provisions and supplies of food, medicine, shelter, and water. Aside from the tangible element of preparedness, the intangible elements, that is, awareness, knowledge, perception, and response, also have to be emphasised. The matter that garners the most attention is *response* because it is unique and different vis-à-vis scale, scope, and the area, people, and government

affected. *Recovery* is about returning to normal conditions, as things were before the disaster. Sometimes the process takes months or even years, depending on the level of destruction. *Mitigation* involves an assessment of the lessons learned, to plan better for future disasters.

Disaster management includes the planning and decision-making processes of an organisation with a view to managing its risks and its responses to and recovery from crises. Social scientists have studied the human aspects of disaster management. Variables such as leadership style and personality have been appraised extensively, whereas individual or group

Figure 1. The disaster lifecycle



Source: authors’ illustration, adapted from FEMA (2015).

differences in cultures, and rationalities as influential factors, have been underexplored (Bernhardsdóttir, 2015). Understanding the effect of human interaction on crisis management in the tourism sphere is more complex than in other industrial sectors because tourists are dynamic in time and geography. They are also a diverse and plural group that bring with them their own culture. In-depth understanding of this fact is key to reducing risks in hazard-prone areas (Jang et al., 2015).

Disaster management faces several challenges. Campiranon and Scott (2007) and Ritchie (2009) refer to the determinants of disaster management in tourism destinations, including cultural differences concerning, inter alia, avoidance of uncertainty, decision-making, long- or short-term orientation, power, and resources such as planning infrastructure and tourism organisation. Kelman et al. (2008) underline the role of tourists in disaster risk reduction education, drawing on the case of the Indian Ocean tsunami. This means that disaster management requires the active involvement of tourists themselves. A new theory of disaster management needs to be developed that takes account of their vulnerability and behavioural responses.

Tourists and disaster-related behaviour

Studies of tourists' behaviour during a disaster are rare and relatively new (Ritchie, 2009). Đeri, Plavša, and Čerović (2007) looked at tourist behaviour with respect to decision-making and an unpredictable situation such as a disaster. They found that all age ranges between 26 and 35 and 56 and 65 years consider factors such as economic instability and terrorist action prior to travel. In contrast, Hunter-Jones, Jeffs, and Smith (2008) discovered that the threat of a natural disaster has little impact on backpackers' decision to travel: 'natural disasters were considered unpredictable, uncommon and not worth worrying about' (Hunter-Jones, Jeffs and Smith, 2008, p. 246). Moreover, Van Hoving et al. (2010) investigated the existence of new form of tourism activities in Haiti following the earthquake in 2010, as reported by a medical disaster team on duty in the area. Their research showed that, in some cases, a disaster will not discourage people from visiting after a lengthy period of recovery.

Most studies of the relationship between tourist behaviour and disasters have been conducted with a view to finding out about behaviour in the wake of the event and understanding the resilience of victims. Only a small number have been carried out with the intention of predicting behaviour in order to improve preparation, especially with regard to tourists.

There is a need for cross-cultural research on disasters. Cross-cultural studies of disaster behaviour in a time of emergency are needed to comprehend the mobility pattern of people with respect to safety. The culture approach has an important role to play in determining the behaviour of affected people.

Quantarelli (1979) initiated a conceptual framework to systematise cross-cultural studies of disasters, but almost all of the comparative works that have followed his cross-cultural approach have tended to focus on recovery strategies in different settings (Kearns, 2011). Kasdan (2016) revealed a relation between the socio-cultural context and disaster risk, such as correlations with levels of individualism, self-expression,

and secular–rational values. In addition, Phillips and Morrow (2007) underline that travellers are part of a community that often lacks an awareness of particular dangers and an understanding of specifics known to locals. Comprehension of tourists’ behaviour may play a pivotal role in preparedness for disasters, especially different behaviours depending on the origin and type of disaster.

A cultural theory to understand the behaviour of tourists

The theory of polyrationality, or cultural theory, was first called grid/group typology and was introduced by Douglas (1978), and subsequently developed by Ellis and Thompson (1997) (see also Douglas and Wildavsky, 1983; Thompson, 1997; Lockhart, 1999). It assumes that, in every social situation, two basic dimensions of sociality determine the behaviour of actors, namely grid and group. ‘Grid’ indicates the extent to which an actor functions within an externally imposed structure (that is, rules or regulations); a high grid refers to heteronomy, whereas a weak grid refers to self-determination. ‘Group’ indicates the extent to which an actor behaves as part of a defined group. A high group dimension means a group-bounded action, whereas a low group dimension means that an actor is ego-focused. These two dimensions are independent of each other, so a scheme composed of four distinct types of rationalities (sometimes called cultures, social solidarities, or ways or life)² emerges from them: egalitarianism; fatalism; hierarchism; and individualism (see Figure 2).

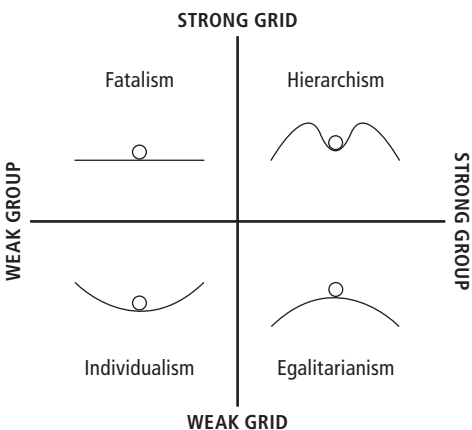
The term rationality means that all four responses are rational on their own, although they contradict each other. Cultural theory predicts that these four rationalities will always materialise in every social situation and are in a constant state of tension with one another (Ellis and Thompson, 1997; Bernhardsdóttir, 2015).

Each rationality has its own way of dealing with a situation, related to the grid and group dimension and to its perception of the world. The latter usually is depicted as a

ball in a landscape. The ball represents the world, whereas the landscape represents behavioural characteristics (Thompson, Ellis, and Wildavsky, 1990). A diagram of the ball and the landscape is used to explain the characteristics of each rationality below, as derived from cultural theory literature (Thompson, Ellis, and Wildavsky, 1990; Hartmann, 2012).

Egalitarianism visualises the world on top of the hill in an unstable equilibrium. At this stage, any action—even with a low risk—is perceived as dangerous as it threatens the equilibrium. This rationality prefers self-determined and group-oriented actions. *Egalitarianism* types thus

Figure 2. Cultural theory’s grid/group scheme with four rationalities



Source: Hartmann (2012).

tend to work collaboratively to fulfil objectives. For them, output is more imperative than process. They prefer to make community, democracy, equality, and moral responsibility the basis for actions.

Similar to egalitarianism, *hierarchism* perceives the world as a threat. However, the ball in the landscape is not in an unstable equilibrium and there is some room for management. As long as the ball stays on top of the envisaged hill, everything is fine. Beyond these boundaries, the world is different owing to its fragile state. In this position, the rational response is to figure out the scope of the balance and to establish procedures and rules to keep the ball (that is, the world) on top. This correlates with the high grid (externally determined) of this rationality. Hierarchism types prefer clear structures within defined boundaries.

Individualism views the world as being in a quite stable equilibrium. Accordingly, trial and error is a possible mode of governance, and there is no inherent need to act as a group. Instead, self-determination and individual liberty are important. Some failures can be a trigger for future improvement. Individualism types are free of the obligations presented by bureaucracy and rules. They move liberally without a need to collaborate with other people inside or outside of the group. This rational response to the world is best understood by picturing a market-driven libertarian society, in which bravery, performance, and risk-taking behaviour pays off.

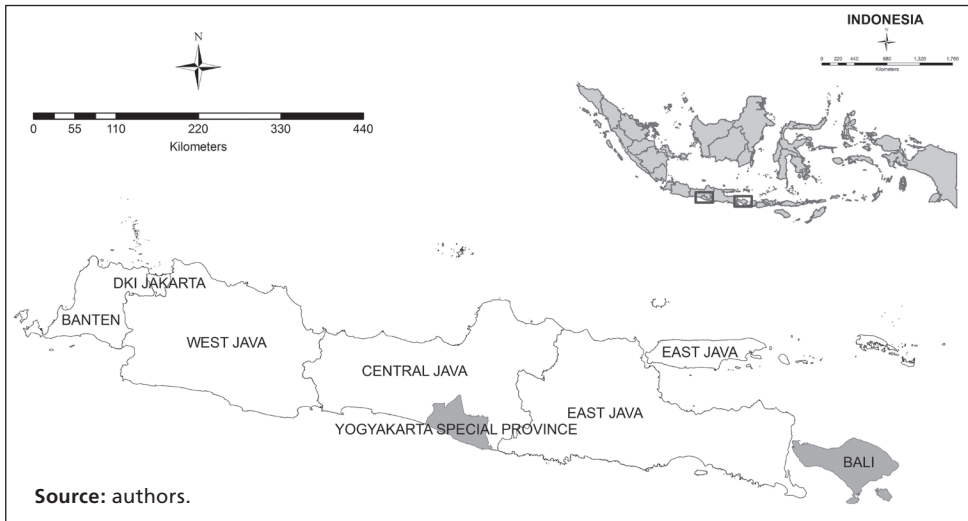
Fatalism believes the world to be too complex, so any reaction is difficult to predict. Fatalism is based on the idea that the world cannot be managed. Instead, fate, fortune, or luck determine outcomes. Fatalism, which typically is depicted by a ball in a flat landscape, is categorised as passive rationality where people mostly act alone, without asking to collaborate with the group.

These four rationalities provide a system of plausible rationalities, rather than demonstrably and empirically true rationalities (Dake, 1992; Hartmann, 2012). Like most social theories, cultural theory uses generalisations and simplifications to understand complexity and pluralism. The four rationalities make it possible to comprehend different rational ways of responding in various situations.

This study assumes that the responses of tourists can be distinguished using the four rationalities of fatalism, egalitarianism, hierarchism, and individualism. To analyse their behaviour in a time of disaster a methodology is required that encompasses the phenomena adequately.

Methodology

Indonesia was selected as the study area owing to its high frequency of natural disasters. The country ranks 12th among the top 35 countries with high mortality risks owing to multiple hazards. Approximately 40 per cent of the total number of inhabitants is prone to relatively high vulnerability indices, such as vulnerability to earthquakes (10 deaths per one million inhabitants per year) and tsunamis (8 deaths per one million inhabitants per year). What is more, average annual economic losses are close to USD 250 million and slightly more than USD 440 million owing to

Figure 3. Map of Bali and Yogyakarta

earthquakes and forest fires, respectively (United Nations Office for Disaster Risk Reduction, 2010). Lessons learned from the Indonesia case study regarding loss and risk could be applied to other regions.

Bali and Yogyakarta were chosen as the data collection sites because these two provinces have been promoting the tourism sector as their main economic driver, while at the same time being threatened by similar crises caused by natural disasters (see Figure 3). According to Widjaja (2015), natural hazards in Indonesia are of two types: geological, such as earthquakes, tsunamis, and volcanic eruptions; and hydro-meteorological, such as droughts, floods, forest fires, landslides, and storms. This paper uses five types of disasters to differentiate between the behaviour of tourists: cyclones; earthquakes; floods; tsunamis; and volcanic eruptions.

Individuals were selected for data gathering via quota sampling, as random sampling could not be conducted because it was impossible to delineate the whole population of tourists. To minimise bias, respondents were categorised based on their continent of origin, producing a pool of about 40–60 people for each study site. Surveys were done in the low season—one should note the possibility of a different result if the research was performed at a different seasonal time. The sample was gathered at random by considering the dimensions of age, gender, and nationality, with a proportional allocation of tourists in each. The interviews took place at popular spots in the tourist destinations, such as beaches, cafés, and temples. This approach ensured that the research was done under conditions close to a real disaster situation; the tourists were in situ, were engaging in tourism activities, and answered in spontaneous ways.

The questionnaire had two sections: general information; and tourist responses. The general information section included questions on age, education, gender, length of stay, origin, and reason for and time of visit, whereas the tourist response section included questions on the possibility of a natural disaster at the location, such as a

cyclone, earthquake, flood, tsunami, or volcanic eruption. An open question was posed about reactions should a disaster occur during a trip to Bali or Yogyakarta. The individual responses were linked using the categorisation of rationalities.

The respondents completed 800 questionnaires in total. However, only 537 were answered completely—by 295 respondents (55 per cent) in Bali and 242 (45 per cent) in Yogyakarta. The tourists were not bound geographically since many of them said that they had visited Bali and Yogyakarta during their trip. Indonesian tourists were not included in the Asia category, but they were classified independently as a single

Table 1. Sample distribution

| | Percentage of respondents | Number of respondents |
|------------------------|---------------------------|-----------------------|
| Gender | | |
| Male | 56.2 | 302 |
| Female | 43.8 | 235 |
| Total | 100 | 537 |
| Age | | |
| < 20 | 16.9 | 91 |
| 20–29 | 49.2 | 264 |
| 30–39 | 16 | 86 |
| 40–49 | 9.1 | 49 |
| 50–59 | 8.4 | 45 |
| > 60 | 0.4 | 2 |
| Total | 100 | 537 |
| Continent | | |
| Asia ^a | 14.3 | 77 |
| Africa ^b | 1.5 | 8 |
| Americas ^c | 12.7 | 68 |
| Europe ^d | 20.7 | 111 |
| Australia ^e | 11.2 | 60 |
| Domestic ^f | 39.7 | 213 |
| Total | 100 | 537 |

Notes:

^a China, Hong Kong, India, Japan, Malaysia, Saudi Arabia, Singapore, South Korea, Thailand, and Vietnam.

^b Democratic Republic of the Congo, Madagascar, South Africa, Sudan, Tanzania, and Tunisia.

^c Argentina, Brazil, Canada, Chile, Czech Republic, Mexico, Paraguay, Peru, United States, and Uruguay.

^d Austria, Belgium, Denmark, Finland, France, Germany, Netherlands, Ireland, Italy, Portugal, Russia, Spain, Sweden, Swiss, Ukraine, and United Kingdom.

^e Australia and New Zealand.

^f Indonesia.

Source: authors.

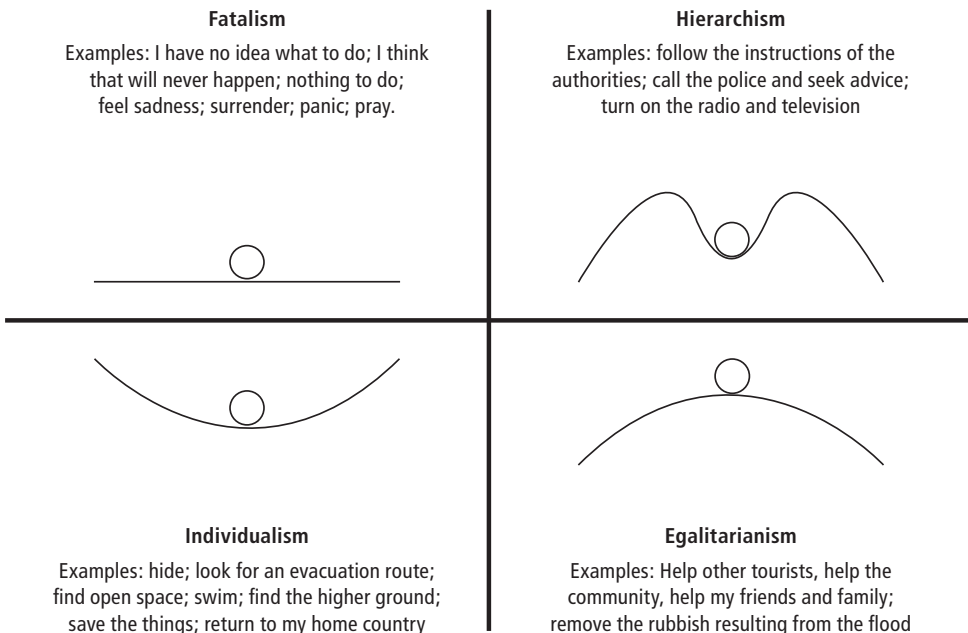
category of domestic respondents. Of the 537, 302 (56.2 per cent) were male and 235 (43.8 per cent) were female, 111 (20.7 per cent) were from Europe, 77 (14.3 per cent) were from Asia, 68 (12.7 per cent) were from the Americas, including Central America, and 60 (11.2 per cent) were from Australia. The majority of domestic and foreign respondents were 20–29 years old (49.2 per cent), followed by less than 20 years old (16.9 per cent), 30–39 years old (16 per cent), and more than 40 years old (slightly more than 18 per cent). Most of the domestic and foreign respondents had completed high school education (99.3 per cent), while 0.7 per cent had not. The majority of respondents were first-time visitors to Indonesia: 325 (56.6 per cent). Of the remainder, 28.1 per cent had visited the country more than three times. Table 1 shows the sample distribution.

This research focuses on the responses of tourists based on the country of origin, education, and gender categorisations. The reactions of foreign and local tourists were analysed in the same way, as they tend to react similarly in emergencies (Pizam and Reichel, 1996).

Findings and discussion

The results show that although tourists respond to disasters in very different ways, they see them as rational. Interviewees provided responses to questions concerning hypothetical disasters and their answers were grouped and assigned to the four rationalities (see Figure 4).

Figure 4. Relating dominant answers to rationalities



Source: authors, adapted from Hartmann (2012).

Rationalities based on type of disaster

The responses of tourists varied considerably depending on the type of disaster (see Table 2). In the case of a tsunami, the most frequent rationality (72.6 per cent) was individualism, with answers such as 'hide' and 'look for an evacuation route'. Many respondents said that they would run as far as they could from the ocean. The next most frequent rationality (20.7 per cent) was fatalism, with answers such as 'panic', 'I don't know', 'surrender', and 'pray'.

Table 2. Respondents' reactions to different types of disasters

| Category of disaster | Behavioural responses | Number | Percentage | Examples |
|----------------------|-----------------------|--------|------------|---|
| Tsunami | Fatalism | 111 | 20.7 | Panic, I don't know, surrender, pray |
| | Hierarchism | 14 | 2.6 | Wait for instructions |
| | Individualism | 390 | 72.6 | Hide, look for an evacuation route, find open space, swim |
| | Egalitarianism | 22 | 4.1 | Help other tourists, help the community |
| Earthquake | Fatalism | 146 | 27.2 | I don't know, pray |
| | Hierarchism | 19 | 3.5 | Call the police and seek advice |
| | Individualism | 350 | 65.2 | Get in the water, lay down, go to an evacuation route, escape from the building, go to an open area, look for a table and protect my head |
| | Egalitarianism | 22 | 4.1 | Helps others |
| Flood | Fatalism | 147 | 27.4 | I think that will never happen, pray, I don't know, let's just see |
| | Hierarchism | 11 | 2.1 | Follow the instructions of the authorities |
| | Individualism | 345 | 64.2 | Stay at home, run away, evacuate, find the higher ground, save the things |
| | Egalitarianism | 34 | 6.3 | Help my friends and family, remove the rubbish resulting from the flood |
| Volcanic eruption | Fatalism | 188 | 35.0 | Very exciting, take a selfie, dive into the sea, I don't know what to do, I never think about that, pray |
| | Hierarchism | 20 | 3.7 | Call the police and authorities |
| | Individualism | 305 | 56.8 | Find higher ground, return to my home country, stay inside, run away |
| | Egalitarianism | 24 | 4.5 | Help others |
| Cyclone | Fatalism | 207 | 38.5 | It will never happen, nothing to do, pray |
| | Hierarchism | 14 | 2.7 | Follow instructions on radio and television |
| | Individualism | 296 | 55.1 | Get in the building, escape and evacuate, stay indoors, run away |
| | Egalitarianism | 20 | 3.7 | Help to evacuate people |

Source: authors.

Similarly, in the case of an earthquake, the most frequent rationality was individualism (65.2 per cent), with answers such as ‘look for a table and protect my head’ (18.8 per cent) and ‘go to an open area’ (15.6 per cent). Interviews revealed that while some of the participants had a good understanding of information on past disasters, most of them had no idea how to react should one occur.

In the case of a volcanic eruption, 45.8 per cent said that they would ‘run away and evacuate the area’. This was followed by ‘I don’t know’ (16.2 per cent) and ‘no answer’ (15.5 per cent), indicating that they did not know what they would do if such an event happened at their destination. Responses such as ‘take a ‘selfie’ and ‘very exciting’ reflect ignorance of the risk in the area being visited. The most common rationality in this category was individualism (55.1 per cent), followed by fatalism (38.5 per cent), egalitarianism (3.7 per cent), and hierarchism (2.6 per cent).

In the case of flooding, the most frequent rationality (64.2 per cent) was individualism, with answers such as ‘stay at home’, ‘run away’, ‘evacuate’, ‘find the higher ground’, and ‘save the things’. The second most dominant rationality (27.4 per cent) was fatalism, with answers such as ‘I think that will never happen’, ‘pray’, and ‘I don’t know, let’s just see’. The remainder was divided between egalitarianism (6.3 per cent), with answers such as ‘help my friends and family’ and ‘remove the rubbish resulting from the flood’, and hierarchism (2.1 per cent), with answers such as ‘follow the instructions of the authorities’.

In the case of a cyclone, the most frequent rationality (55.1 per cent) was individualism, with answers such as ‘get in the building’, ‘escape and evacuate’, ‘stay indoors’, and ‘run away.’ This was followed by fatalism (38.5 per cent), with answers such as ‘it will never happen to me’, ‘nothing to do’, and ‘pray’. Some responses reflected ignorance that a hurricane could strike a small island: visitors thought that such an event could happen only on the mainland.

Finally, the dominant response to all natural disasters was to protect one’s self first. With regard to a cyclone, earthquake, tsunami, and volcanic eruption, the dominant reaction of respondents was linked to individualism, meaning that they would try to secure their own safety. As for flooding, the dominant response was related to fatalism. The fundamental point that can be drawn from the data is that in all types of disasters, there are always four behavioural categories. To prepare tourists better for such events, a planner should thus consider the diversity of behaviour.

Rationalities based on the origin of tourists

The results indicate a different dominant rationality for continent of origin. The study identified two categories: domestic; and foreign. Foreign tourists were further classified into five regions based on their continent of origin, that is, African, American, Asian, Australian and Pacific, and European.

Data from the field (see Table 3) reveals that respondents from Indonesia generally opted for individualism in all types of natural disasters. Fatalism came second, followed by egalitarianism. Only a few chose hierarchism, which means that local travellers

Table 3. Responses of domestic tourists to different types of disasters

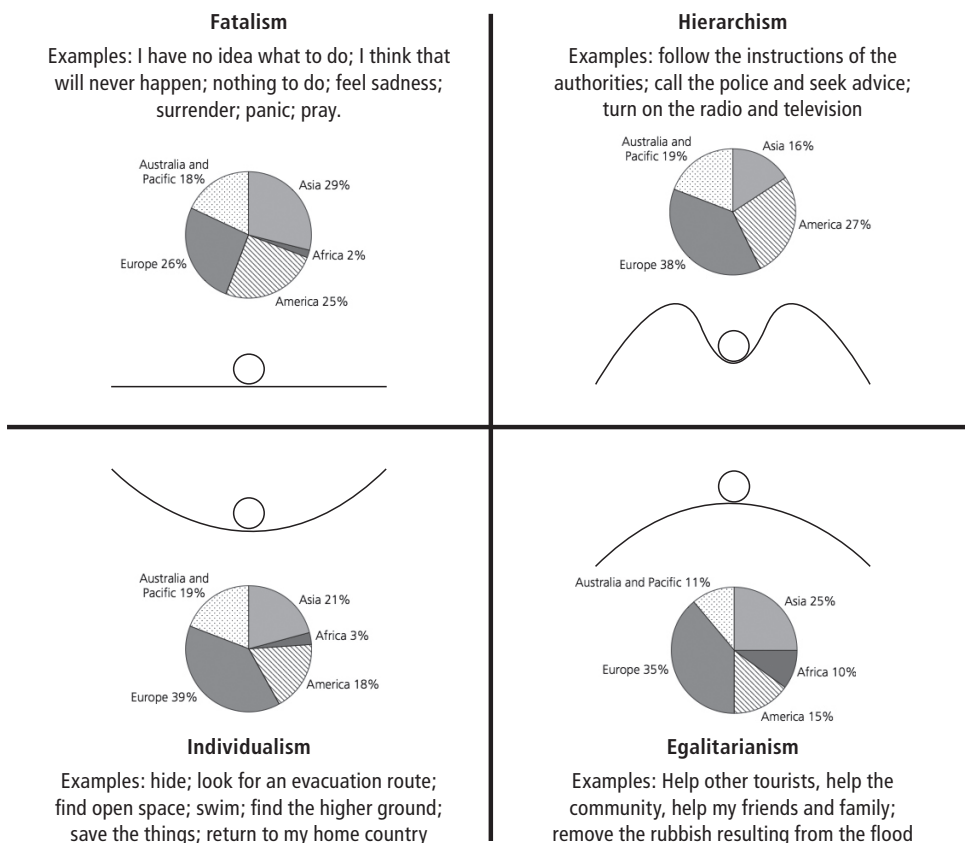
| Disaster category | Fatalism | | Hierarchism | | Individualism | | Egalitarianism | | Total |
|-------------------|----------|-------|-------------|------|---------------|------|----------------|-------|-------|
| | No. | % | No. | % | No. | % | No. | % | |
| Tsunami | 42 | 19.72 | 0 | 0 | 153 | 71.8 | 18 | 8.45 | 213 |
| Earthquake | 51 | 23.94 | 9 | 4.23 | 136 | 63.8 | 17 | 7.98 | 213 |
| Flood | 41 | 19.25 | 2 | 0.94 | 140 | 65.7 | 30 | 14.08 | 213 |
| Volcanic eruption | 49 | 23.00 | 3 | 1.41 | 141 | 66.2 | 20 | 9.39 | 213 |
| Cyclone | 55 | 25.82 | 1 | 0.47 | 139 | 65.3 | 18 | 8.45 | 213 |

Source: authors.

prefer to take action personally and individually when a disaster strikes an area. Hardly anyone considered contacting the authorities.

Table 4 and Figure 5 show foreign tourist responses to different types of disasters. The dominant preference of Asian tourists was individualism, such as evacuating the

Figure 5. Distribution of country of origin for each rationality



Source: authors.

Table 4. Responses of foreign tourists to different types of disasters

| Disaster category | Fatalism | | Hierarchism | | Individualism | | Egalitarianism | | Total |
|------------------------------|----------|-------|-------------|------|---------------|-------|----------------|-------|-------|
| | No. | % | No. | % | No. | % | No. | % | |
| Asia | | | | | | | | | |
| Tsunami | 16 | 20.78 | 3 | 3.90 | 57 | 74.03 | 1 | 1.30 | 77 |
| Earthquake | 24 | 31.17 | 1 | 1.30 | 51 | 66.23 | 1 | 1.30 | 77 |
| Flood | 31 | 40.26 | 2 | 2.60 | 42 | 54.55 | 2 | 2.60 | 77 |
| Volcanic eruption | 39 | 50.65 | 1 | 1.30 | 36 | 46.75 | 1 | 1.30 | 77 |
| Cyclone | 50 | 64.94 | 3 | 3.90 | 24 | 31.17 | 0 | 0.00 | 77 |
| Africa | | | | | | | | | |
| Tsunami | 1 | 12.50 | 0 | 0.00 | 7 | 87.50 | 0 | 0.00 | 8 |
| Earthquake | 1 | 12.50 | 0 | 0.00 | 6 | 75.00 | 1 | 12.50 | 8 |
| Flood | 1 | 12.50 | 0 | 0.00 | 7 | 87.50 | 0 | 0.00 | 8 |
| Volcanic eruption | 4 | 50.00 | 0 | 0.00 | 4 | 50.00 | 0 | 0.00 | 8 |
| Cyclone | 5 | 62.50 | 0 | 0.00 | 3 | 37.50 | 0 | 0.00 | 8 |
| America | | | | | | | | | |
| Tsunami | 21 | 30.88 | 3 | 4.41 | 44 | 64.71 | 0 | 0.00 | 68 |
| Earthquake | 26 | 38.24 | 3 | 4.41 | 38 | 55.88 | 1 | 1.47 | 68 |
| Flood | 32 | 47.06 | 3 | 4.41 | 32 | 47.06 | 1 | 1.47 | 68 |
| Volcanic eruption | 29 | 42.65 | 5 | 7.35 | 33 | 48.53 | 1 | 1.47 | 68 |
| Cyclone | 34 | 50.00 | 3 | 4.41 | 31 | 45.59 | 0 | 0.00 | 68 |
| Europe | | | | | | | | | |
| Tsunami | 15 | 13.51 | 7 | 6.31 | 88 | 79.28 | 1 | 0.90 | 111 |
| Earthquake | 23 | 20.72 | 2 | 1.80 | 84 | 75.68 | 2 | 1.80 | 111 |
| Flood | 24 | 21.62 | 3 | 2.70 | 83 | 74.77 | 1 | 0.90 | 111 |
| Volcanic eruption | 42 | 37.84 | 7 | 6.31 | 60 | 54.05 | 2 | 1.80 | 111 |
| Cyclone | 43 | 38.74 | 5 | 4.50 | 62 | 55.86 | 1 | 0.90 | 111 |
| Australia and Pacific | | | | | | | | | |
| Tsunami | 16 | 26.67 | 1 | 1.67 | 41 | 68.33 | 2 | 3.33 | 60 |
| Earthquake | 21 | 35.00 | 4 | 6.67 | 35 | 58.33 | 0 | 0.00 | 60 |
| Flood | 18 | 30.00 | 1 | 1.67 | 41 | 68.33 | 0 | 0.00 | 60 |
| Volcanic eruption | 25 | 41.67 | 4 | 6.67 | 31 | 51.67 | 0 | 0.00 | 60 |
| Cyclone | 20 | 33.33 | 2 | 3.33 | 37 | 61.67 | 1 | 1.67 | 60 |

Source: authors.

area, finding shelter, and running away. For a cyclone, though, it was fatalism, including not knowing what to do and responding with apathy. Egalitarianism and hierarchism were selected by less than four per cent of all respondents.

Tourists from Africa responded in two ways to a tsunami and a flood: 87.5 per cent chose individualism and 12.5 per cent chose fatalism. For an earthquake, 75.0 per cent would respond on the basis of individualism, whereas 12.5 per cent would respond on the basis of fatalism and egalitarianism in either instance. For cyclones, 62.5 per cent would respond on the basis of fatalism while 37.5 per cent would respond on the basis of individualism.

American tourists would respond mostly on the basis of individualism in the case of an earthquake (64.7 per cent), tsunami (55.9 per cent), and volcanic eruption (48.5 per cent). They would respond mainly on the basis of fatalism to a cyclone (50.0 per cent) and on the basis of fatalism (47.1 per cent) and individualism (47.1 per cent) to a flood.

Tourists from Europe would respond primarily to a disaster on the basis of individualism, followed by fatalism, hierarchism, and egalitarianism. However, the individualism percentage is higher than that for American, Asian, and Australian tourists, but lower than that for African tourists.

The pattern for Australian and Pacific tourists was similar to that for American tourists: individualism scored highest, followed by fatalism. Egalitarianism was higher for a tsunami than other types of disasters and higher than hierarchism.

The findings reveal that tourists from Indonesia would have a more egalitarianism response to a disaster, such as helping a family and the people around them, whereas foreign tourists are more individualistic, particularly those from Africa and Europe. The majority of fatalism and hierarchism responses came from American tourists; the majority of egalitarianism responses came from Asian tourists.

Response rationalities of tourists

Individualistic: run and find the safest place

Individualistic tourists will run and find the safest evacuation site in the event of a disaster. These respondents, which gave answers such as 'find a firm table to hide under' when an earthquake occurs, have a lot of confidence in their own ability to solve problems in an emergency and to look after themselves, without seeking assistance from other people or from the authorities. They will react individually and as soon as possible to diminish a problem. The variety of answers, such as finding a safe and high building in the case of a tsunami, and staying indoors in the case of a cyclone, showed the nature of their intuition, guiding them to take action to survive.

Some respondents would prefer to return to their home country as soon as possible after a disaster. Owing to uncertainty concerning infrastructure and the availability of facilities following a disaster, this preference represents a challenge. Notably, almost all of the infrastructure and facilities in Aceh, Indonesia, were damaged by the Indian Ocean tsunami in 2004, making it difficult for tourists to go home.

Nonetheless, individualistic responses are consistent and rational in themselves, although they might not be in accordance with disaster management plans. It is crucial to understand this fact before reacting to these types of disasters.

Hierarchical: wait for instructions

Hierarchical tourists will stay in place and wait for the authorities to tell them what to do when a disaster occurs. They tend to follow procedures and not to take action without guidance or instructions from the authorities, such as community leaders, police officers, or rescue teams. They are of the belief that institutions will solve their problems.

As non-local residents, the dependency of tourists on local authorities is quite high. The highest incidence in this regard was for a cyclone, followed by a volcanic eruption and an earthquake. Interestingly, in the case of a tsunami, a majority of respondents said that they would take action themselves, rather than waiting for instructions from the authorities. A key reason here appears to be the limited time available for evacuation.

That various tourists generally depend on local authorities means that the government should provide the necessary systems to safeguard them. With respect to a tsunami, for example, the early warning system and signage should meet tourists' needs. Some tourists said that they would not know to where to escape, but that they believe that the local authority would have the necessary evacuation plan in place. Some said that they would use a list of contacts to call the police and ambulance service, while others said that they would turn on the radio and television to obtain information about what to do.

The authorities have put physical signs on several beaches in Bali, such as Kuta, Sanur, and Tanah Lot, to highlight evacuation routes and meeting points in the area, especially in the most popular destinations. A number of signs for tourists are also on display in hotels, with many of them listing the important numbers to call in an emergency. However, some tourists said that only very limited signs and information were available in unclassified hotels.

Hierarchism is therefore a rationality that is highly responsive to disaster management procedures. However, standard operating procedures need to be developed and promoted among tourists, otherwise these types of people will be seriously vulnerable. It is important to recognise that a lot of disaster management preparations only target this group.

Egalitarianism: help others

Tourists who visit an area with a family or a group tend to react in an egalitarian way, showing responsibility for others. A typical response in an emergency would be: 'I will help my family, my friends, and the people around me'. Some tourists said that they would also help to raise funds to aid local people with post-disaster recovery.

They would not only think about themselves in such a situation; they would try to survive through collective, rather than individual, action.

Some respondents answered questions from the perspective of being a member of a rescue team, rather than a victim. Their tendency was to think about the safety of others. Responses included: 'I would escape and help people to escape'. The proportion of 'help others' answers ranged from around 2.5–3.7 per cent in all disaster categories, with the lowest being for a cyclone and the highest being for a flood. Helping others reveals interaction between tourists and local residents. Some respondents said that they would assist not only friends made while on holiday, but also local residents in surrounding areas.

Helping others can indicate higher social capital. A stronger interrelation between tourists and local residents is important for community resilience and for decreasing the vulnerability of tourist destinations. While tourists are not bound by responsibility for local residents, the tourism provider has a responsibility to keep tourists safe.

That tourists would help local residents in a disaster is an interesting finding and one that should be explored further, not least because of the type of assistance that tourists can provide. Notably, they tend to have relatively limited knowledge of the destination areas, except for returning visitors, and local community members face different threats and have different needs to them. According to Magis (2010, p. 402), collective action is an important determinant of community resilience, which is defined as the 'existence, development, and engagement of community resources by community members to thrive in an environment characterized by change, uncertainty, unpredictability and surprise'.

Fatalistic: pray, feel sad, panic, and take a picture

Fatalists see nature as complex and unpredictable, and hence their disaster response is ad hoc. This type of tourist is unprepared for a disaster. When asked what they would do in the event of a tsunami, they answered: 'it is difficult to predict and depends on my faith'. This reflects their low awareness of anything that might happen in an emergency, owing to them ignoring the consequences. While a tsunami may not impact on a hotel, there may be some indirect ramifications for a city, such as power cuts and road failures. These tourists believe that a tsunami will not affect them, so precautions are unnecessary.

Several respondents said that they would pray if a disaster occurred during their trip. They said that a natural disaster could not be predicted, but if one were to happen, they would stay put and pray, rather than panic. Many reported that they would 'pray to God'.

Fatalistic tourists do not rely on the government or local authority in these circumstances. They trust in fate as a response to world phenomena, and believe that prayer is the solution to unpredictable happenings, because disasters are unplanned and beyond human control. Praying is seen as a way to minimise the panic and the stress. This is part of an individual capacity that can also be a determinant of strength in an emergency.

To understand resilience, according to Smit and Wandel (2006), one needs to change the paradigm from governing seemingly steady community systems to managing the capacity of dynamic communities to cope with, adapt to, and shape change.

Those in charge could reduce panic and stress among tourists by including, for instance, a religious symbol in various languages on an evacuation sign. This idea has already been taken up by some airlines operating in Indonesia. Lion Air, for instance, inserts a poster in seat pockets on how to pray in five religions.

Another discussion focused on religious beliefs as a way of eliminating panic in an emergency concerns their association with cultural capital, including the interplay of norms as individuals interact with the world system (Magis, 2010). Cultural capital is symbolised by art, beliefs, customs, and language. Those respondents who stated that they ‘pray and do *adzan*’³ demonstrated a belief in *adzan* as part of their approach to confronting problems. They believe in the power of the call to prayer to create calm and to prevent panic and encourage followers to be composed. Furthermore, when they hear the *adzan*, Muslims find peace in their hearts, which may augment their chances of finding evacuation routes and following the instructions of local authorities, thus increasing their chances of survival.

Generally, the reactions of tourists revolved around finding a way to survive and evacuate. However, the number of ‘I don’t know’ and ‘I have no idea’ answers across all types of disasters pointed to a lack of disaster response knowledge and education. The percentage of those answers in each disaster category was also relatively high (approximately 10–15 per cent). Some tourists said that they did not know what they would do if a disaster happened, since they lacked knowledge of previous disasters in the area. They do not plan for a disaster or expect anything untoward to happen: ‘I have no idea’ or ‘I’ll just see and whatever happens, just happens’ were common answers. Some respondents also underlined that they did not want to reflect on what might occur. Besides saying ‘I don’t know’, some respondents were pessimistic about the possibility of a natural disaster, believing that the probability was low. As noted, some tourists thought that a hurricane could not strike the small islands of Indonesia because it only happened on the mainland. A hurricane certainly could hit the whole of Indonesia, of course. In the case of a volcanic eruption, they thought that there was sufficient distance between the mountain and their hotel, meaning that they were probably safe. While it was true in some cases that tourists would be less directly affected, some indirect impacts are possible, such as airports having to close owing to the presence of pyroclastic material that makes flying dangerous.

It is essential, therefore, that disaster management cover all rationalities. No response is irrational or ignorant per se; each one is highly consistent from an internal standpoint and is logical in itself, although irrational from all other perspectives. In addition, disaster management should incorporate all parties that may be affected by a disaster. In residential areas, the parties in question are the community members living there. At tourist destinations, though, the parties are not only local community members, but also foreign visitors.

Conclusion

The different responses of tourists to disasters should be at the heart of a disaster management strategy, as they are an essential stakeholder group. This research reveals, however, the inhomogeneous nature of tourists' responses to disasters and provides a framework, based on cultural theory, which not only avoids labelling their different responses as irrational, but also helps to structure them. Ultimately this can contribute to more tailored and effective disaster management.

The most crucial points for discussion are, first, that current disaster management planning largely follows a single rationale. Existing plans see tourists as one community and do not consider the foundations of their behaviour. The response scenarios have largely provided solutions for *hierarchical* tourist behaviour—that is, those who tend to wait for the local authorities to provide equipment, facilities, and infrastructure. These people have not considered other rationalities and are travelling without having made any safety preparations—in other words, 'without a helmet'. In the study areas, the government had created evacuation routes and erected directional signs and nine tsunami towers close to the beaches of Kedongan, Kuta, Nusa Dua, Peti Tenget, Sanur, Seminyak, Serangan, Seririt, Tanah Lot, and Tanjung Benoa (Hasan, 2006). The Bali provincial government (regional disaster preparedness board) had also established disaster readiness certification for hotels on the island, which provides them with the necessary equipment, infrastructure, and staff training to cope with a disaster (Sukarelawanto, 2014). Several questions remain, though, such as how many people will recognise the infrastructure and how many people will be familiar with the sound of a tsunami tower siren, signalling that they need to evacuate the ocean area. The results of the survey indicate that less than 10 per cent of respondents would follow the instructions of the authorities in an emergency. This finding raises questions about the effectiveness of such expensive investments.

Second, tourists are not a homogeneous group, but rather a complex, diverse, and dynamic body of stakeholders. Four categories of tourists have been identified: those dependent on the local authority (hierarchy); those who act for themselves (individualism); those who do not act and do not know how to act (fatalism); and those who act for other people (egalitarianism). Consequently, there is no single catch-all response for tourists who confront natural hazards. Each tourist thinks that he or she will react differently and has reasons for their behaviour. Future research should explore more of these determining factors, both with regard to the tourism discipline and to other realms such as psychology. Masten (2001) and Luthar (2015), for instance, note that, in the face of a grave threat or adversity, the ability to continue thinking and planning is important for the resilience of children and adults. This is difficult to apply in relation to planning for tourists, however, owing to their dynamic mobility pattern. Moreover, it could lead researchers to make too many generalisations in interpreting the results of the survey. Nevertheless, this study found that tourists are likely to react in different ways to similar disasters in another area,

and may react in similar ways to different types of hazards, increasing the level of complexity, as reactions to every event occur in congruently helpful ways. For instance, people are encouraged to leave a building during an earthquake whereas people are encouraged to remain indoors during a cyclone.

Tourists' behavioural responses can be framed using the four rationalities of cultural theory. Employing the grid/group scheme and the corresponding rationalities helps one to understand the thinking behind tourists' behavioural responses.

Third, the focus of disaster management planning should shift away from a single rationale to a polyrational methodology. The four types of responses require that disaster management incorporate approaches not only for hierarchism, but also for egalitarianism, fatalism, and individualism. This essentially requires rethinking contemporary approaches to bring them more in line with polyrational disaster management. According to Masten and Obradovic (2008), macro systems, such as governments, media, and religions, have a functional presence in the expectations, knowledge, hopes, training, and values of the person in the adverse situation. This research extends this argument by adding that the human perspective must be elaborated upon and different responses adopted in order to alter an existing planning paradigm.

Moreover, the human perspective is diverse and polyrational, suggesting that disaster management should shift from focusing only on the tourists who are in the egalitarianism and hierarchism categories and also consider those who are in the fatalism and individualism quadrants. A reasonable approach to tackle the polyrationality of disaster preparedness is to incorporate plans for the egalitarianism, fatalism, and individualism types of tourists. This will necessitate the transfer of attention from only one or two groups and require, too, an understanding of the rationale behind the behaviour of tourists.

This paper contends that tourism planners should collaborate with disaster management practitioners to make changes. Yet, considering other kinds of tourist behaviour and not concentrating on just one rationale may not go down well with tourism planners. Thompson (1997) points out that this suggests a move from single solidarity (neoclassical economics) to two solidarities (new institutional economics) to four solidarities (cultural theory), so the incorporation of individuals at the micro level becomes more and more of an issue.

This paper enhances one's understanding of the complex, diverse, dynamic, and unique responses of tourists by reassessing the preparedness phase in the disaster life-cycle (Baker, Cormier, and Cormier, 2014) and disaster management planning for tourism (Ritchie, 2008). All tourists would be better off if they were prepared when they travel—in other words, with their helmets on. Further studies are needed to investigate the individual determining factors of the rationality, such as the country of origin and the number of previous visits to a particular destination, as well as knowledge of hazards among tourists and their preferences when visiting cultural or natural attractions.

Acknowledgements

The research was funded by the Indonesian Endowment Fund for Education.

Correspondence

Erda Rindrasih, Willem C van Unnikgebouw, Heidelberglaan 2, 3584 CS Utrecht, Netherlands. E-mail: erdarindrasih@gmail.com

Endnotes

- ¹ Erda Rindrasih is a PhD candidate at the Department of Human Geography and Spatial Planning, Faculty of Geosciences, Utrecht University, the Netherlands, and is a founder of Tourism Watch, Indonesia; Thomas Hartmann is an Associate Professor of Environmental Science at the Land Use Planning Group, Wageningen University and Research, the Netherlands; Patrick Witte is an Assistant Professor at the Department of Human Geography and Spatial Planning, Faculty of Geosciences, Utrecht University, Netherlands; Tejo Spit is a Professor at the Department of Human Geography and Spatial Planning, Faculty of Geosciences, Utrecht University, the Netherlands, and a Professor at the Department of Environmental Science, Wageningen University and Research, the Netherlands; and Annelies Zoomers is a Professor at the Department of Human Geography and Spatial Planning, Faculty of Geosciences, Utrecht University, the Netherlands.
- ² The term rationality is preferred here as it avoids misinterpretation with respect to cultural contexts in tourist destinations.
- ³ A call to prayer in Islam, usually *adzan*, is issued five times per day.

References

- Abdullah, M., A.D. Al-Nasser, and N. Husain (2000) 'Evaluating functional relationship between image, customer satisfaction and customer loyalty using general maximum entropy'. *Total Quality Management*. 11(4–6). pp. 826–829.
- Baker, L., L.A. Cormier, and L. Cormier (2014) *Disasters and Vulnerable Populations: Evidence-based Practice for the Helping Professions*. Springer Publishing Company, New York, NY.
- Bernhardsdóttir, Á.E. (2015) *Crisis-related Decision-making and the Influence of Culture on the Behavior of Decision Makers: Cross-cultural Behavior in Crisis Preparedness and Response*. Springer International AG, Cham.
- Cai, L.A, B.T. Wu, and B. Bai (2003) 'Destination image and loyalty'. *Tourism Review International*. 7(3–4). pp. 153–162.
- Campiranon, K. and N. Scott (2007) 'Factors influencing crisis management in tourism destinations'. In E. Laws, B. Prideaux, and K.S. Chon *Crisis Management in Tourism*. Centre for Agriculture and Biosciences International, London. pp. 142–156.
- Cassedy, K. (1991) *Crisis Management Planning in the Travel and Tourism Industry: A Study of Three Destination Cases and a Crisis Management Planning Manual*. Pacific Asia Travel Association, San Francisco, CA.
- Cioccio, L. and E.J. Michael (2007) 'Hazard or disaster: tourism management for the inevitable in Northeast Victoria'. *Tourism Management*. 28(1). pp. 1–11.

- Dake, K. (1992) 'Myths of nature: culture and the social construction of risk'. *Journal of Social Issues*. 48(4). pp. 21–37.
- Deri, L., J. Plavša, and S. Čerović (2007) 'Analysis of potential tourists' behaviour in the process of deciding upon a tourist destination based on a survey conducted in Bačka region'. *Geographica Pannonica*. 11. pp. 70–76.
- Douglas, M. (1978) *Cultural Bias*. Royal Anthropological Institute, London.
- Douglas, M. and A. Wildavsky (1983) *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers*. University of California Press, Berkeley, CA.
- Drabek, T.E. (1992) 'Variations in disaster evacuation behavior: public responses versus private sector executive decision-making processes'. *Disasters*. 16(2). pp. 104–118.
- Ellis, R.J. and M. Thompson (1997) *Culture Matters: Essays in Honor of Aaron Wildavsky*. Westview Press, Boulder, CO.
- Ghaderi, Z., A.P.M. Som, and J.C. Henderson (2012) 'Tourism crises and island destinations: experiences in Penang, Malaysia'. *Tourism Management Perspectives*. 2–3 (April–July). pp. 79–84.
- Hartmann, T. (2012) 'Wicked problems and clumsy solutions: planning as expectation management'. *Planning Theory*. 11(3). pp. 242–256.
- Hasan, R. (2006) 'Bali Pasang Enam Tower Peringatan Tsunami'. *Tempo*. 19 July. <https://nasional.tempo.co/read/80352/bali-pasang-enam-tower-peringatan-tsunami> (last accessed on 26 February 2018).
- Hunter-Jones, P., A. Jeffs, and D. Smith (2008) 'Backpacking your way into crisis: an exploratory study into perceived risk and tourist behaviour amongst young people'. *Journal of Travel and Tourism Marketing*. 23(2–4). pp. 237–247.
- Jang, L., J. Wang, D. Paton, and N. Tsai (2015) 'Cross-cultural comparisons between the earthquake preparedness models of Taiwan and New Zealand'. *Disasters*. 40(2). pp. 327–345.
- Kandampully, J. and D. Suhartanto (2000) 'Customer loyalty in the hotel industry: the role of customer satisfaction and image'. *International Journal of Contemporary Hospitality Management*. 12(6). pp. 346–351.
- Kasdan, D.O. (2016) 'Considering socio-cultural factors of disaster risk management'. *Disaster Prevention and Management*. 25(4). pp. 464–477.
- Kearns, C. (2011) 'Review of comparative emergency management: examining global and regional responses to disasters'. *Journal of Homeland Security and Emergency Management*. 8(1). <https://doi.org/10.2202/1547-7355.1969> (last accessed on 1 March 2018).
- Kelman, I., R. Spence, J. Palmer, M. Petal, and K. Saito (2008) 'Tourists and disasters: lessons from the 26 December 2004 tsunamis'. *Journal of Coastal Conservation*. 12(3). pp. 105–113.
- Lauras, M., S. Trupitl, and F. Bénaben (2015) 'Towards a better management of complex emergencies through crisis management meta-modelling'. *Disasters*. 39(4). pp. 687–714.
- Lockhart, C. (1999) 'Cultural contributions to explaining institutional form, political change, and rational decisions'. *Comparative Political Studies*. 32(7). pp. 862–893.
- Luthar, S.S. (2015) 'Resilience in development: a synthesis of research across five decades'. In D. Cicchetti and D.J. Cohen (eds.) *Developmental Psychopathology*. Second edition. John Wiley and Sons, Inc., Hoboken, NJ. pp. 739–795.
- Magis, K. (2010) 'Community resilience: an indicator of social sustainability'. *Society and Natural Resources*. 23(5). pp. 401–416.
- Masten, A.S. (2001) 'Ordinary magic: resilience processes in development'. *American Psychologist*. 56(3). pp. 227–238.
- Masten, A.S. and J. Obradovic (2008) 'Disaster preparation and recovery: lessons from research on resilience in human development'. *Ecology and Society*. 13(1). p. 9.
- Muskat, B., H. Nakanishi, and D. Blackman (2014) 'Integrating tourism into disaster recovery management'. In B. Ritchie and K. Campiranon (eds.) *Tourism Crisis and Disaster Management in the Asia-Pacific*. Centre for Agriculture and Biosciences International, London. pp. 97–115.

- O'Leary, S. and J. Deegan (2005) 'Ireland's image as a tourism destination in France: attribute importance and performance'. *Journal of Travel Research*. 43(3). pp. 247–256.
- Paton, D. and D. Johnston (2006) *Disaster Resilience: An Integrated Approach*. Charles C. Thomas Publisher Ltd., Springfield, IL.
- Phillips, B.D. and B.H. Morrow (2007) 'Social science research needs: focus on vulnerable populations, forecasting, and warnings'. *Natural Hazards Review*. 8(3). pp. 61–68.
- Pizam, A. and A. Reichel (1996) 'The effect of nationality on tourist behavior: Israeli tour-guides' perceptions'. *Journal of Hospitality and Leisure Marketing*. 4(1). pp. 23–49.
- Quarantelli, E.L. (1979) 'Some needed cross-cultural studies of emergency time disaster behaviour: a first step'. *Disasters*. 3(3). pp. 307–314.
- Ritchie, B. (2008) 'Tourism disaster planning and management: from response and recovery to reduction and readiness'. *Current Issues in Tourism*. 11(4). pp. 315–348.
- Ritchie, B. (2009) *Crisis and Disaster Management for Tourism*. Channel View Publications, Bristol.
- Sirakaya, E. and A.G. Woodside (2005) 'Building and testing theories of decision making by travelers'. *Tourism Management*. 26(6). pp. 815–832.
- Smit, B. and J. Wandel (2006) 'Adaptation, adaptive capacity and vulnerability'. *Global Environmental Change*. 16(3). pp. 282–292.
- Sukarelawanto, E. (2014) 'Pariwisata Bali: Baru 15 Hotel Kantongi Sertifikat Bencana'. Bali. 30 October. <http://bali.bisnis.com/read/20141030/17/47623/pariwisata-bali-baru-15-hotel-kantongi-sertifikat-bencana> (last accessed on 16 February 2018).
- Thompson, M. (1997) 'Cultural theory and integrated assessment'. *Environmental Modeling and Assessment*. 2(3). pp. 139–150.
- Thompson, M., R. Ellis, and A. Wildavsky (1990) *Cultural Theory*. Westview Press, Boulder, CO.
- United Nations General Assembly (1948) *Universal Declaration of Human Rights*. United Nations General Assembly, New York, NY.
- United Nations Office for Disaster Risk Reduction (2010) 'Making cities resilient: my city is getting ready'. World Disaster Reduction Campaign, 2010–11. <https://www.unisdr.org/campaign/resilient-cities/> (last accessed on 16 February 2018).
- United Nations Office for Disaster Risk Reduction (2013) *Global Assessment Report on Disaster Risk Reduction 2013*. United Nations Office for Disaster Risk Reduction, Geneva.
- US Department of Homeland Security (2013) *National Response Framework*. Second edition. May. https://www.fema.gov/media-library-data/20130726-1914-25045-8516/final_national_response_framework_20130501.pdf (last accessed on 8 February 2018).
- US Department of Homeland Security (2015) *National Preparedness Goal*. Second edition. September. https://www.fema.gov/media-library-data/1443799615171-2aae90be55041740f97e8532fc680d40/National_Preparedness_Goal_2nd_Edition.pdf (last accessed on 16 February 2018).
- Van Hoving, D.J., L.A. Wallis, F. Docrat, and S. De Vries (2010) 'Haiti disaster tourism—a medical shame'. *Prehospital and Disaster Medicine*. 25(3). pp. 201–202.
- Widjaja, B.W. (2015) 'Kunjungan Pegawai Pemerintah Korea ke BNPB'. Badan Nasional Penanggulangan Bencana. 6 August. <https://www.bnpb.go.id/kunjungan-pegawai-pemerintah-korea-ke-bnpb> (last accessed on 16 February 2018).