Disaster resilience in Wellington's hotel sector: Research update and summary

Nancy A. Brown[1]
Jane E. Rovins[1]
Caroline Orchiston[2]
Shirley Feldmann-Jensen[3]
David Johnston[1]

[1] Joint Centre for Disaster Research, Massey University, New Zealand

[2] Centre for Sustainability, University of Otago, New Zealand

[3] School of Criminology, Criminal Justice, and Emergency Management, California State University, Long Beach, California, USA

Author correspondence:
Nancy A Brown
21391 Lemontree Lane
Huntington Beach, CA 92646
USA
Email: nancyalcalabrown@gmail.com

Abstract

Summarizing a research project exploring disaster resilience in the hotel sector, this update provides highlights of the different research components and presents a summary of findings. Disaster resilience in the hotel sector is studied from a mixed methods approach to develop the Disaster Resilience Framework for Hotels (DRFH). The DRFH uses a six capital (economic, social, human, physical, natural, and cultural) model to define predictors of disaster resilience for hotels. Exploration of the predictors within the DRFH uses survey data, semi-structured interviews, and secondary data to examine not only the framework but also lessons learned by Wellington hotels from the 2016 Kaikōura earthquake. Strengths for the studied hotels include social networks, economic fortitude, building standard compliance, and a developing culture of safety. Identified gaps for future emphasis include a need to approach disaster management from a multi-hazard perspective and integrate staff in disaster management planning.

Keywords: *Tourism, resilience, capital, hotels, disaster*

The tourism sector is growing in Aotearoa New Zealand (NZ). Wellington, the capital city, captures 9% of the nation's tourism market and acts as one of the entry points for tourists to New Zealand (Ministry of Business Innovation & Employment, 2016; Tourism Industry Aotearoa, 2018). Tourism in NZ and Wellington includes a combination of domestic and international travellers with both leisure and business objectives. Resilience in the hotel sector is an important and multifaceted topic (Brown, Rovins, Feldmann-Jensen, Orchiston, & Johnston, 2017). The economic value of resilience is evident when reviewing industry statistics. However, hotels' value as key infrastructure for recovery purposes is also noteworthy (Jiang & Ritchie, 2017). Hotels are an integral part of their community and so their resilience enhances the resilience of their communities (Brown et al., 2017).

Research examining disaster resilience measurements for the hotel sector summarized in this paper was conducted over three years from 2015 to 2018. Lessons learned from the Kaikōura earthquake, a $M_W7.8$ event on November 14, 2016, became embedded in the research through post-earthquake surveys and interviews conducted in 2017; these lessons from direct, recent disaster experience present a unique and informative aspect of the research. This research update seeks to summarize the different components of the research project as well as the key findings. Citations for the full-length articles detailing the different aspects of the project are provided within the body of this paper.

The 2016 Kaikōura earthquake shook Wellington, 258 kilometres from the epicentre, severely enough to cause physical damage to several buildings in the city centre (Elwood, 2016). As a result, people were cautioned to stay off the city streets following the earthquake until inspections could be made to understand damage and city blocks were cordoned off in the city centre (Stevenson et al., 2017). Ultimately, nine buildings housing government agencies and several other buildings and structures were identified as unsafe and scheduled for demolition (Stevenson et al., 2017). This research summary highlights the findings from research exploring disaster resilience in Wellington's hotel sector and lessons learned from Wellington hotels responding
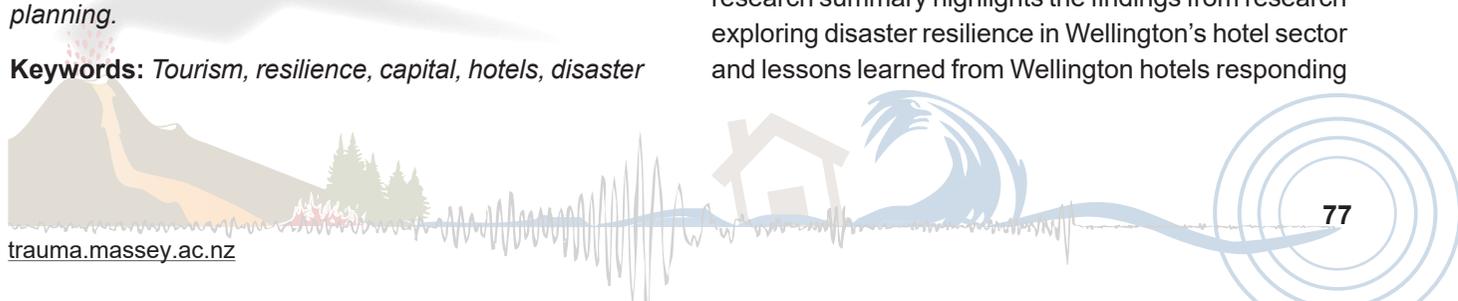
to disruptions caused by the Kaikōura earthquake. Wellington provides a particularly unique backdrop for hotel resilience research in the post-Kaikōura timeframe; hotels have a recent and fresh perspective of actual response to disruption. The quantitative and qualitative data collected from hotel managers and staff therefore became less theoretically based (i.e., "if this happened then we would…") than similar past research. Instead, a practical understanding of what happened and what the response included is part of the data. Furthermore, Wellington hotel managers and staff had a unique perspective of lessons learned to share.

Research Methods

This project studying hotel disaster resilience utilised a mixed methods explanatory platform. A literature review was conducted to define disaster resilience in a hotel context and better understand research into measures and methods of determining resilience (Brown et al., 2017). The definition of hotels used in this research was the definition used by the NZ accommodations sector from Qualmark:

> "The Hotel category includes properties with at least one licensed bar and restaurant, on the premises or adjacent, with charge-back facilities…All rooms have tea and coffee-making facilities and there is on-site management at all times. All provide breakfast whether in a restaurant or breakfast room, or via room service."

> (Qualmark, 2013).

Disaster resilience is a complex and multifaceted concept (Cutter, Burton, & Emrich, 2010). The research developed a definition of disaster resilience from a literature review of articles at the intersection of tourism, disasters, and resilience. The definition used is as follows:

> "A dynamic condition describing the capacity of a hotel, together with its stakeholders, to assess, innovate, adapt, and overcome possible disruptions that may be triggered by disaster."

> (Brown et al., 2017, p. 365).

Through literature analysis of measures and frameworks regarding resilience, the Disaster Resilience Framework for Hotels (DRFH; Figure 1) was developed (Brown, Orchiston, Rovins, Feldmann-Jensen, & Johnston, 2018). Frameworks reviewed and analysed examined resilience from community and organisational perspectives,
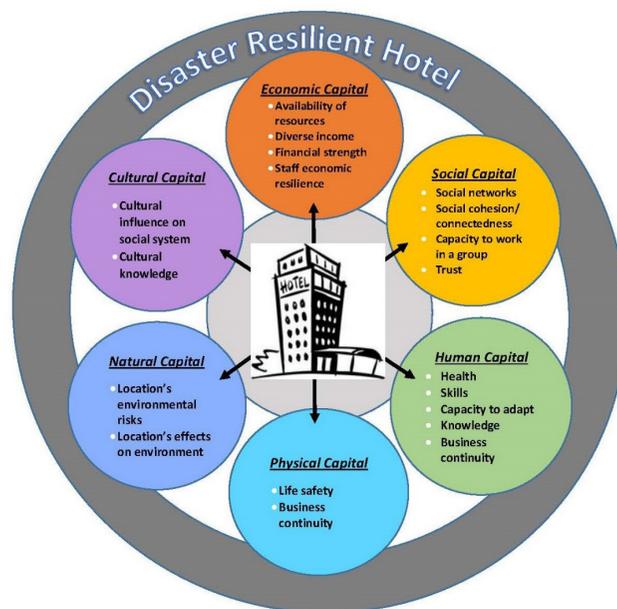
Figure 1. Disaster Resilience Framework for Hotels (DRFH: Brown, Orchiston et al., 2018, p. 70).

disaster preparedness and planning, and tourism crisis management. A detailed look at frameworks used in the development of the DRFH can be found in Brown, Orchiston et al. (2018). The DRFH expands capitals-based frameworks by Mayunga (2007) and Cutter et al. (2008) by adding constructs of organisational resilience by Lee, Vargo, and Seville (2013) and work published by a number of other authors (Brown, Orchiston et al., 2018). The DRFH has been used recently in work by Ivkov et al. (2019) which explores the resilience of hotels quantitatively in 12 European countries.

The DRFH builds on research examining resilience in communities, the tourism sector, and organisational resilience, blending the previous research into a capitals-based understanding of predictors of resilience for the hotel sector. For the purpose of this study, capitals were weighted equally, although a case could be made for refining the framework in the future through adding weight to capitals (Mayunga, 2007) based on the specific study area. The DRFH includes economic, social, human, physical, natural, and cultural capital groups, defining 18 predictors of resilience as well as suggesting measures from the literature (Brown, Orchiston, et al., 2018).

To explore the framework, a survey of 72 questions for staff and 84 questions for General Managers (GMs) was developed. The survey used the DRFH predictors and suggested measures to gauge the state of disaster resilience in hotels in Wellington (Brown, Rovins,

Feldmann-Jensen, Orchiston, & Johnston, 2019). Managers are often the sole source of information when investigating questions within the hotel sector (Albattat & Ahmad, 2015; Chan & Hawkins, 2010; Nguyen, Imamura, & Iuchi, 2018). The inclusion of staff perspectives in this study allows for analysis of resilience from multiple organisational layers. All 28 hotels in Wellington were invited to participate in the data collection. The online survey links were sent to GMs both so that they could participate themselves and to distribute links to staff. Ultimately, 74% of GMs participated by answering questions, forwarding surveys to staff members, or both. Data collected were analysed using descriptive statistics, appropriate for the small sample size and total number of inquiries. While the data are not appropriate for inferential purposes (Gray, 2014), they do provide an exploratory view of disaster resilience in the sample. Data tables and further details regarding the survey can be found in Brown et al. (2019).

The surveys were followed by semi-structured qualitative interviews designed to clarify and add context to the data collected in the study (Gray, 2014). Three hotel properties that participated in the surveys consented to interviews with managers and staff. A total of 13 staff interviews and four manager interviews were completed in Wellington (Brown, Rovins, Orchiston, Feldmann-Jensen, & Johnston, 2018). Data collected were analysed using both inductive and deductive thematic analysis (Patton, 2015). The DRFH was used to define original themes with continued opportunity for emerging themes based on the interview responses.

Results and Discussion

The exploratory surveys and qualitative data illustrated current levels of disaster resilience for many of the predictors of resilience which were present for all capital groups. However, some gaps and possibilities for improvement were identified. The following section briefly highlights findings in each capital group to provide an overview of the research.

Economic resilience was exhibited by high rates of full-coverage insurance (84%), diverse customer bases and marketing to develop new customer bases (100%), high staff savings rates (87%), and financial reserves (65%; Brown et al., 2019). In support of these findings, secondary data showed increasing tourism projections for NZ (Statistics New Zealand, 2016). Low rates of disaster management budgets as a line item and low levels of staff insurance rates for personal property were identified as areas for improvement.

Social capital resources included strong connections across departments (84%) and team approaches to achieving organisational goals (95%). Team approaches to disaster management were less common but still prevalent (70%; Brown et al., 2019). An area for strengthening identified by GMs and staff was to improve connections with other organizations that may be useful in a disaster (Brown, Rovins et al., 2018). This finding was one of the key lessons learned following the Kaikōura earthquake. Participants mentioned a need for better information regarding the status of their facility and improved links to general disaster information. Further, guests wanted updates when staff had no news to report. Understanding these challenges can help hotels to improve their ability to function during and after disasters.

Human capital resources proved strong from survey and interview data. Staff had regular fire drills to practice evacuation (74%), many have first aid and CPR training (65%), and all understood earthquake protective actions (Brown et al., 2019). A gap identified in surveys showed a large portion of staff lived in the suburban areas of Wellington (60%) and while they were willing to come to work in a disaster, they felt they might encounter challenges travelling via motorways (Brown et al., 2019). Qualitative data indicated that only a few ad hoc staff members were able to provide sufficient support to the staff on duty and meet guest needs (Brown, Rovins et al., 2018).

Overall, hotel premises in Wellington satisfy current earthquake building codes with only two hotels currently on the "Wellington Earthquake Prone Buildings" list (Wellington City Council, 2017). Evacuation routes are well socialised (81%), including outside assembly areas once the building is clear. One important gap identified by the qualitative data was that many hotel staff in the central city do not have a clear idea of the risk posed by tsunami, nor do they have protective actions prescribed in case of a tsunami warning (Brown, Rovins et al., 2018). In some cases, staff did not have a clear idea of directions to give guests regarding tsunami evacuation following an earthquake. These findings illustrate the need to develop multi-hazard training and exercises to familiarize staff with best practices for different and cascading events.

Both natural and cultural capital resources were high. Staff demonstrated high levels (95%) of emergency preparedness in their homes. The vast majority of hotels in Wellington are actively recycling (96%) and NZ has a number of agencies actively monitoring the environment, a key draw for tourism in NZ. For example, the NZ Department of Conservation recently announced it is developing plans to manage tourist numbers and noise from aircraft in some areas to assist in maintaining natural resources (New Zealand Geographic, 2018).

A key area for improvement is the need for Wellington hotels to take an all-hazards approach to disaster planning. Developing budgets for disaster management activities and expanding exercises and trainings to include earthquake and tsunami hazards will increase hotel disaster resilience. Limitations of this study include the limited size of the sample, meaning that generalisations to a larger and broader population are not appropriate. Further, the GMs acted as gatekeepers for access to staff so biases in participant selection is possible (Gray, 2014). Additionally, only full-time staff participated; properties indicated close to 50% of staff were employed part-time. Further research looking at the role that part-time staff play and the particular challenges they face is necessary.

Conclusion

The earthquake activity in Wellington provides a unique opportunity to study hotels' disaster resilience in a post-disruption setting, including the 2016 Kaikōura earthquake. This research exploring Wellington's hotels highlighted that they have many resources contributing to their disaster resilience. While it is not known if these resources existed prior to the Kaikōura earthquake, the capital that these hotels have available can contribute to their ability to function in the face of future disasters. Further developing disaster management planning, guest information, and risk identification will add to their resilience.

The findings summarized above serve as an important starting point to understand disaster resilience from a hotel perspective in the wake of a recent event and illustrates the value of mixed methods for depth of understanding and context when looking at complex problems. Future research objectives include capturing larger segments of staff and expanding study areas to include locations with diverse risk; such research will add to the knowledge of disaster resilience within the hotel sector.

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