
BALANCING RECOVERY GOVERNANCE WITH DISASTERS IN CLOSE PROXIMITY: THE KAIKOURA RECOVERY

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Abstract

On November 14 2016 a magnitude 7.8 earthquake struck the south island of New Zealand. The earthquake lasted for just two minutes with severe seismic shaking and damage in the Hurunui and Kaikōura districts. Although these are predominantly rural areas, with scattered small towns and mountainous topography, they also contain road and rail routes that are essential parts of the national transport infrastructure. This earthquake and the subsequent recovery are of particular significance as they represent a disaster following in close proximity to another similar disaster, with the Canterbury earthquakes occurring in a neighboring district five years earlier.

The research used an inductive qualitative case study to explore the nature of the Kaikōura recovery. That recovery process involved a complex interplay between the three parties; (a) the existing local government in the district, (b) central government agencies funding the recovery of the local residents and the national transport infrastructure, and (c) recovery leaders arriving with recent expertise from the earlier Canterbury disaster. It was evident that three groups: locals, government, and experts represented a multi-party governance debate in which the control of the Kaikōura earthquake recovery was shared amongst them. Each party had their own expertise, agenda and networks that they brought to the Kaikōura recovery, but this created tensions between external expertise and local, community leadership.

Recent earthquake research suggests that New Zealand is currently in the midst of an earthquake cluster, with further seismic disasters likely to occur in relatively close succession. This is likely to be compounded by the increasing frequency of other natural disasters with the effects of climate change. The present study investigates a phenomenon that may become increasingly common, with the transfer of disaster expertise from one event to another, and the interface between those experts with local and national government in directing recoveries. The findings of this study have implications for practitioners and policy makers in NZ and other countries where disasters are experienced in close spatial and temporal proximity.

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1. Introduction

Large magnitude earthquakes are generally viewed as low probability, high consequence events which present a high risk to many New Zealand communities. Although Geonet locates about 10,000 magnitude 2 or greater earthquakes per year (Geonet, 2018), only two of those, the 1987 magnitude (M) 6.5 Edgecumbe and M7.1 1968 Inangahua earthquakes have caused significant damage to New Zealand communities and infrastructure in the 50 years prior to 2010 (Nicol, Van Dissen, Stirling, & Gerstenberger, 2016). Following this period of seismic quiescence, the 2010-2011 Canterbury and 2016 Kaikōura earthquakes occurred in a decade notable for its earthquake damage in New Zealand (Kaiser et al., 2017). These earthquakes required lengthy recovery programmes, which are ongoing today. The Canterbury earthquakes (particularly the M6.3 February 22nd 2011 Christchurch earthquake) occurred in, or close to, the Christchurch urban area, the main urban centre of New Zealand's South Island and, prior to the earthquakes, had a population of 366, 700 (Statistics New Zealand, 2016). Damage during the Canterbury earthquakes was mainly to urban infrastructure, commercial buildings, domestic housing, and to the well-being of individuals. While there has been considerable attention given to the Canterbury earthquakes, the 2016 Kaikōura Earthquake provides an opportunity to study post-disaster recovery in a different setting to that of the Canterbury earthquakes.

New Zealand may currently be in the midst of an earthquake cluster. Examination of the historical written record following the signing of the Treaty of Waitangi in 1840 shows that these events are often clustered in space and time (Nicol et al., 2016). In the time period between 1917 and 1942, for example, New Zealand experienced eight M6.8 or greater earthquakes in the eastern North Island and Westcoast of the South Island (Downes & Dowrick, 2015; Nicol et al., 2016). Large damaging seismic events in New Zealand were rare in the time period from 1942 to 2009, with just two damaging earthquakes mentioned above. After 2009, New Zealand experienced three damaging seismic events as part of the Canterbury and Kaikōura earthquake sequences and Kaiser et al. (2017) have proposed that New Zealand is presently in the midst of an earthquake cluster. If New Zealand is presently in an earthquake cluster, then more large-magnitude earthquakes can be expected in the

next 5-10 years. This proposition gives essential context to the present study, meaning that the Kaikōura earthquake and subsequent recovery process may not be a stand alone event.

Natural disasters are not restricted to seismic events. Many national and international agencies are acknowledging the effects of climate change with the significant increases in the frequency of extreme weather events. NASA (2018) cite an increase in frequency, intensity and duration of extremely damaging hurricanes and tropical storms, more frequent wildfires, and changes to weather patterns, as being due to global climate change. This study considers the consequences of two natural disasters occurring in close temporal and spatial proximity. Given the emerging data on both earthquake clusters, and the frequency of climate change events mentioned above, this may have particular relevance for both national and international events in the foreseeable future.

1.1 The Kaikōura Earthquake

On November 14 2016 the M7.8 Kaikōura Earthquake struck the northeastern south island of New Zealand (e.g., Kaiser et al., 2017; Hamling, et al., 2017; Holden et al., 2017). The earthquake was centred in North Canterbury near the township of Waiau and propagated to the northeast for about 200 km, rupturing at least 17 separate geological faults along the way (Litchfield et al., 2018; Nicol et al., 2018). The earthquake lasted for just two minutes with seismic shaking and damage being greatest in the Hurunui and Kaikōura districts which are predominantly rural, with scattered small towns and mountainous topography (Kaiser et al., 2017). These districts contain the South Island's main transport route State Highway 1, which was badly damaged by the earthquake in the Kaikōura District. This study focuses on the damage and subsequent recovery process in the Kaikoura District.

In the Kaikōura District the Kaikōura Earthquake affected a small population of 3740 distributed over an area of 2,046.41 km² with most of the population (2080 people) residing in the township of Kaikōura (Table 1; Kaikōura District Council, 2018). The destruction in Kaikōura produced widespread damage to infrastructure (e.g., roads, bridges, port facilities and railway tracks), public buildings, farm properties and private residences (Kaiser et al., 2017; Holden et al., 2017; Power et al., 2017). From a national perspective, the Kaikōura

earthquake did not affect a large portion of New Zealand's population with Kaikōura making up only ~0.08% of the New Zealand population. In contrast however, the destruction and subsequent closure of the main transport route State Highway 1, had critical impacts for New Zealand.

The local economy of the Kaikōura District is dominated by agriculture, tourism (Table 1), fishing and forestry. The array of economic activities reflect the mainly rural setting and were all impacted to some degree by the Kaikōura Earthquake. Disruption of tourism and primary industries in the Kaikōura District following the earthquake partly arose due to destruction of the road and rail transport routes, which resulted in isolation of communities that were cut off for up to one year (The Treasury, 2016).

Table 1

Population and tourist visitor statistics for Kaikōura Township (Ministry of Business, Innovation & Employment, 2018).

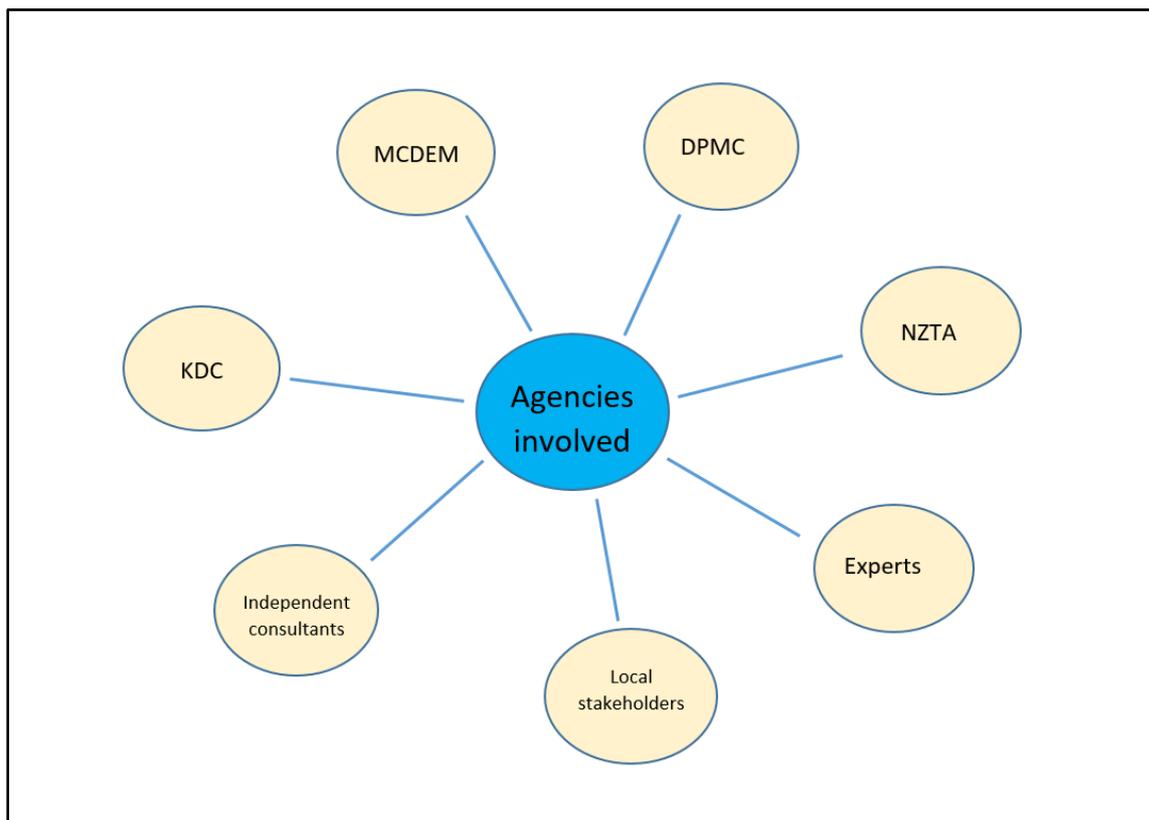
Permanent residents	International visitor nights per annum (5 year average)	Tourism spend (year ended September 2016)
3,740 (2,080 in Kaikōura township)	260,086 (4% of visitors to NZ stay overnight in Kaikōura)	\$120m (0.5% of NZ total)

State Highway 1 (SH1) and the main trunk railway line are vital for transport and shipping along the South Island between the Cook Strait ferry and the main urban centres of Christchurch and Dunedin. SH1 is also vital for the supply of goods and services to the township of Kaikōura and for the movement of tourists into (and out of) the Kaikōura District. Therefore, the integrity of SH1 and of the road network not only affects the national infrastructure, but also provides essential support for the local economy. The damage to the roads which saw State Highway 1 closed both north and south of Kaikōura, with limited access 18 months on from the earthquake, has meant that businesses in Kaikōura have suffered due to a lack of tourists.

1.2 The Kaikōura recovery

Recovery encompasses a range of areas: social, infrastructure, roading, residential and business. In Kaikoura, the restoration of rail and highway links were major factors, requiring many months of repair. In Kaikoura itself, recovery tasks involved repairing local infrastructure, the marina, residential housing, rural and land issues, and social issues of stress and psychosocial health. The Kaikōura recovery was managed by a mixture of central government, local government, and local stakeholders. One of the main players in this recovery was the Kaikōura District Council (KDC). At the time of the earthquake, KDC was the second smallest local council in New Zealand, with only twelve full-time equivalent staff (Kaikoura District Council, 2018a). In the wake of the Kaikōura earthquake, the KDC created several new positions within the council to facilitate the recovery including a recovery manager, rebuild director, and a communications and engagement manager. As at the submission of this thesis, the KDC now has 44 full-time equivalent staff working in 53 different roles, some permanent, and some fixed term to facilitate the recovery (Kaikoura District Council, 2018a). Due to the large recovery task that was in front of the KDC, and their limited financial resources, they required help to plan and deliver their recovery. Agencies such as the New Zealand Transport Agency (NZTA), the Department of Prime Minister and Cabinet (DPMC), Ministry of Civil Defense and Emergency Management (MCDEM), local stakeholders such as local businesses and individuals, and independent contractors and consultants, all worked to assist the KDC in delivering their recovery (see Figure 1).

Figure 1 Agencies involved in the Kaikōura recovery



In addition to these agencies, KDC received valuable input from ‘experts’ or people who had knowledge and recovery experience from the Canterbury earthquakes. A number of people who had been involved in the Canterbury recovery provided assistance, knowledge and expertise to Kaikōura locals, and to the KDC in particular. These ‘experts’ came from a variety of agencies including local and national government, national roading, and social services. Furthermore, many of these experts had pre-existing relationships amongst themselves as a result of five years of close involvement in the Canterbury recovery. This means that they had both considerable experience and connections with other experts /professionals. Until now, such transfer of knowledge and expertise directly acquired from recovery experiences has been rare for natural disasters both in New Zealand and internationally. If geologist’s interpretation of the available seismological data is correct, and we are indeed in a period of high seismological activity (i.e. in an earthquake cluster), the transfer of people and their knowledge directly from one earthquake event to another may occur again in the future. Therefore, understanding this transference process and how

it promotes recovery, may have application to future natural disasters in New Zealand and elsewhere.

1.3 Research Background

Post-disaster recovery has been addressed in contexts such as Japan (Kobayashi, Onoda, Hirano, & Ubaura, 2016), The Netherlands (Kalkman & de Waard, 2017), America (Bundy & Jensen, 2016), and Australia (Hallwright & Brady, 2016). Within New Zealand, recent studies following the 2011 Christchurch earthquake have addressed a range of issues including the recovery of organisations (Ardagh, et al., 2012; Bell, et al., 2016; Breetzke, King, & Fabris-Rotelli, 2016; Fergusson, Horwood, Boden, & Mulder, 2014; Kuntz, Naswall, & Bockett, 2013; Stevenson, Brown, Seville, & Vargo, 2017; Vallance, 2014). In the case of Kaikōura earthquake, publications are beginning to emerge, with some studies comparing the Canterbury and Kaikōura events (Carter & Kenney, 2018), and others addressing its impact on the rural community (Cradock-Henry, Fountain & Buelow, 2018).

A common theme for many post-disaster recovery studies is that they typically consider individual events. There is limited literature considering the effects of one disaster on the recovery of another, with the data available currently providing little opportunity to consider how first-hand experience may impact the recovery process. One study was found that considered the interplay between multiple disasters; Birkland (2006) studied the relationship between Hurricane Katrina and 9/11 in the U.S, finding that Hurricane Katrina had negative, compounding impacts on the recovery from 9/11. This thesis will augment these previous studies by considering how temporal and spatial proximity of the Canterbury and Kaikōura earthquakes influenced the expertise of the governance group and its response to the recovery process (see section 1.4 for further discussion).

1.4 Research objectives

The primary aim of the present research is to understand the dynamics of earthquake recovery in the Kaikōura District setting, where the population is predominantly rural, critical national transport infrastructure was severely damaged as well as significant impacts

on tourism. Recovery dynamics are considered from the perspective of recovery leaders, both those within the local community, and experts from outside the recovery zone. A particular focus of this study is to examine how experts with knowledge from the Canterbury earthquakes contributed to the Kaikōura recovery and how these contributions were perceived by the local Kaikōura community.

In order to achieve these objectives this research was conducted as a case study of Kaikōura. An inductive, emergent approach was deemed most appropriate. Data was gathered through the use of thirteen semi-structured interviews, conducted with those close to the delivery of the recovery effort in Kaikōura. Thematic analysis was utilised as it was the most suitable.

1.5 Thesis outline

This thesis consists of six chapters. Chapters 1 & 2 provide context for the project, chapter 3 describes the methods and data utilised, chapter 4 outlines the findings of the thesis, chapter 5 discusses the implications of the study and chapter 6 draws the thesis together. More detailed contents for each chapter are provided below.

Chapter one, Introduction: introduces the region of study, the topic of research and the theoretical grounds for the chosen subject. The aims and objectives of this research were presented, alongside the academic and practical contributions of this research for which justification is provided.

Chapter two, Literature review: The literature review contains a background of New Zealand earthquake recovery, rural studies, social capital, and post-disaster governance. The literature review concludes with a discussion of the main findings, summarising the research gaps, and justification for this research.

Chapter three, Methodology: This chapter outlines the methods chosen to meet the aims of this research through the gathering of data. It contains details of the chosen approach, participant selection, interview process, and data analysis.

Chapter four, Findings: The findings of this research are presented.

Chapter five, Discussion: Key research findings are discussed in addition to the limitations, and the academic and practical implications of this study. Suggestions for future research are presented at the end of chapter five.

Chapter six, Conclusion: The thesis culminates with a conclusion summarising the important aspects.

The next section provides an account of the literature relating to the key topics of interest to this thesis

2. Literature review

This literature review aims to explore various streams of research in order to provide a context for the present study and to aid interpretation of the results. Multiple strands are present in the wider literature, as “understanding the causes and impacts of disasters requires comprehensive, systematic and multi-disciplinary analysis” (Djalante, Holley, Thomalla, & Carnegie 2013, p 2105). This review begins with an exploration of earthquake recovery in New Zealand, including both the recent Canterbury earthquakes, and the 2016 Kaikōura Earthquake. These New Zealand-specific earthquake recovery studies are augmented by a review of key topics, including disaster recovery in rural settings, social capital and post-disaster governance.

2.1 Disasters

Disasters are defined as “a potentially traumatic event that is collectively experienced, has acute onset, and is time delimited; disasters may be attributed to natural, technological, or human causes” (Norris, 2006, p 4). Post-disaster research offers the opportunity to improve the recovery process and the outcomes for affected stakeholders (Birkmann, et al., 2010). Natural disasters in a given country or region are generally rare (usually greater than ten years apart) and, as a consequence, research into these events and the resulting recovery process typically comes in waves following each major event.

It is known from research that disasters are generally considered to comprise three primary stages: i) pre-disaster, which includes preparing for future events by introducing mitigation measures to reduce their impact; ii) during disaster, which includes the emergency response; and iii) post-disaster, which is mainly focused on the recovery process (Lettieri, Masella, & Radaelli, 2009). While these three stages have been widely used in the international disaster management literature, the duration of each stage may vary depending on the type of disaster, the country in which it occurred, and the resources applied to achieving societal functionality. In addition to these three stages, Shaluf (2007) proposes the introduction of a fourth stage, which they refer to as “mitigation”. This fourth stage has not been widely adopted in the disaster recovery literature, in part because it is

encapsulated in the first stage, and recognizes the value of post-disaster recovery research in the disaster cycle.

2.2 Background

2.2.1 Canterbury earthquakes recovery

The September 2010 M7.1, and February 22 2011 M6.2 Canterbury earthquakes occurred several years prior to the Kaikoura quake and, have been researched extensively (Beavan et al., 2011; Gledhill et al., 2011; Kaiser et al., 2012). The earthquakes produced an estimated \$15 billion of damage to the Canterbury region, which was subjected to some 3,800 aftershocks of M3 or greater in the two years following the September 4 2010 event (Hayward, 2013; Stevenson et al., 2011). The research covers a range of topics including the geology and seismology of the earthquakes; the human resource effects; media responses; psycho-social impacts; infrastructure damage; and relevance to legislation (Bassett, Wilkinson, & Mannakkara, 2017; Battisti & Deakins, 2017; Beavan et al, 2011; Carter & Kenney, 2018; Cooper-Cabell, 2013; Hayward, 2013; Kaiser et al., 2012; Stevenson et al., 2011).

A common focus in the literature is challenges and issues faced by individuals, organisations and recovery leaders in the Canterbury earthquakes recovery effort (Gjerde, 2017). Issues such as physiological stress, structural damage to buildings, and maintaining cash flow, were all cited as challenges for Cantabrians dealing with earthquake recovery (Whitman, et al., 2013). Many challenges were faced by organisations including, “business interruption, restricted access to their sites, changes in customer flow and behaviour, and helping staff to cope and retain productivity” (Stevenson et al., 2011; p.69).

The Canterbury earthquake sequence experience also provided an opportunity for a great deal of learning, with much of the literature written with the intention of documenting this information for future generations. The effects of this particular earthquake sequence on future disaster recovery in New Zealand are also discussed (Potter, Becker, Johnston, & Rossiter, 2015), with Liu, Scheepbouwer & Giovinazzi (2016) detailing six critical success

factors for optimising recovery, based on new learning from the Canterbury earthquakes. These factors are: i) formulation of a flexible funding plan, ii) community engagement, iii) selection of a rebuild driver, iv) establishment of a recovery vehicle, v) determination of rebuild project prioritisation methodology and vi) standardisation of data management. Other researchers highlight insights from particular elements of the Canterbury recovery process as key, such as the importance of communication (Gjerde, 2017), citizen participation (Cretney, 2016; Vallance, 2015), and managing legitimacy (Kerkin, 2017; Mamula-Seadon & McLean, 2015). Collectively these studies highlight the complexity of the recovery process and the need to draw on a range of disciplines and expertise for restoring affected areas.

2.2.2 Kaikōura Earthquake recovery

In comparison, the literature on the Kaikōura Earthquake mainly focuses on geological and seismological aspects of the event (e.g., Hambling et al., 2017; Holden et al., 2017; Kaiser et al., 2017; Litchfield et al., 2018; Shebalin & Baranov, 2017). However, a smaller number of studies have been published on the response to, and recovery from, the Kaikōura Earthquake. These studies for example, emphasise the rural setting of the earthquake and compare the post-earthquake response to the Canterbury earthquakes. Carter and Kenney (2018) examine the media depiction of Maori involvement in both earthquakes and conclude that there was an increase in media coverage of Maori response capabilities from the 2010 earthquake sequence to the 2016 sequence. Such comparative studies are key for understanding how the recovery process can vary between earthquakes and also for highlighting how the Canterbury earthquakes experience shaped the response to the Kaikōura Earthquake. The examination of how key learning from the Canterbury earthquakes have influenced the response to the Kaikōura Earthquake is a key theme of this thesis that will be expanded on in later chapters (Chapters 4 & 5).

Cradock-Henry, Fountain & Buelow (2018) explore post-quake transformations in a rural context with a focus on sustainability of farming operations. The main aim of Cradock-Henry et al. (2018) was “to gain insight into the distinctive dynamics of disaster response mechanisms” (p.1) for the Kaikōura event. Cradock-Henry et al. (2018) have a strong focus

on sustainability, including crop harvesting, agricultural operations, and power usage during the response stage immediately post-quake. The Cradock-Henry et al. (2018) paper emphasises the importance of Kaikōura as a case study in a rural setting of damage and disruption. As the Kaikōura earthquake occurred in a largely rural environment, the following section will address rural disaster studies.

2.3 Rural studies

The international literature explores many forms of rural disasters including geological disasters (Jiang, et al., 2016), chemical disasters (Solecki, 1992), bushfires (Whittaker, Handmer, & Mercer, 2012), and floods (Boon, 2014). In New Zealand, the rural sector accounts for \$3205 million of annual GDP (Trading Economics, 2018) and is key to the performance of the national economy. Given New Zealand's geological and climatic setting, natural disasters are part of the rural fabric and minimising their impact on the economic performance of the sector is important for the New Zealand economy. These disasters and their impact on rural communities have been the subject of a number of studies. Whitman et al. (2013) discuss the impacts of the Canterbury earthquakes on rural organisations, finding that "farming and non-farming organisations are impacted and respond to an earthquake in ways that are fundamentally distinct" (p.1849). Additionally, Jakes & Langer (2012) explore adaptive capacity in response to wildfire, in a case study of a rural New Zealand community. In addition to the local rural studies, there are many international studies of rural disaster recovery in countries such as America (Solecki, 1992), Samoa (Le De, Gaillard, Friesen, & Smith, 2015), China (Chen, Tan, & Luo, 2017), Australia (Freeman & Hancock, 2017) and Italy (Imperiale & Vanclay, 2016). Although the makeup of the rural sectors in these countries is different, they universally highlight the importance of collaboration, community engagement and resilience for effective rural recovery.

Cox and Hamlen (2015) examine the need for community resilience in the face of disasters and have developed the Rural Resilience Index (RRI) as a relative measure of rural disaster resiliency. The RRI was designed to increase a community's capacity to meet the growing challenge of disasters and emphasises the value of citizen resources, skills and engagement in resilience planning (Cox and Hamlen, 2015). Their results echo the sentiments of both the

disaster recovery and resilience components of the literature, emphasising the importance of acknowledging differences in rural and urban environments.

2.4 Social capital

Social capital is a developing theme in post-disaster research, with increasing recognition that when undertaking disaster recovery, communities should not only focus on their physical resources, but also on their social resources (Chandra & Acosta, 2010; Wei & Han, 2018). Social capital is a form of economic and cultural capital in which social networks are key; with cooperation, trust and reciprocity being central to the operation of the network (Nakagawa & Shaw, 2004). Social capital refers to both tangible (public spaces and private property) and intangible ("actors", "human capital" and people) aspects of a society, together with their inter-relationships. Through the work of Burt (1992), Coleman (1988), Portes (1998) and others, a consensus has emerged that "social capital represents the ability of actors to secure benefits by virtue of membership in social networks or other social structures" (Inkpen & Tsang, 2005, p.150). Therefore, social capital is often considered to be a form of capital that produces outcomes for the good of a community. The usefulness of social capital is recognised by Putnam (1995) who summarises; "For a variety of reasons, life is easier in a community blessed with a substantial stock of social capital" (p.66) and describes what he terms 'civic engagement' (referred to here as community involvement), social interaction (relationships), and dense networks, as key contributors to social capital within a community (Putnam, 1995).

The application of these factors to a disaster recovery environment has also been addressed in research. Presenting a definition of social capital in a disaster setting, Melo Zurita et al., (2018) describe social capital as an analytic tool "for making sense of the human relations at the core of disaster management operations." Additionally, Nigg (1995) proposes that community recovery is not an outcome, but more a social process that begins before a disaster occurs and encompasses "decision making, emergency response, restoration and reconstruction activities following the disaster." (p 3). People are at the centre of communities and recovery, and as such, social capital is an input that can significantly

influence disaster recovery outcomes. Community involvement, relationships, and networks all are extensively discussed as contributing factors to a successful disaster recovery. The evolution and importance of social capital for disaster recovery is widely recognised, based on experience from a range of natural disasters including tsunamis, earthquakes and storm events. The influence of social capital on communities is discussed frequently in case study scenarios, such as Consoer and Milman's 2016 examination of how social capital shaped Vermont's recovery from tropical storm Irene, and Adger's (2003) article presenting two case studies of extreme weather events. These further demonstrate the importance of social capital. Social capital is discussed as both something that can be built post-disaster to aid recovery, and something pre-existing that is drawn on in a disaster. In addition, a number of studies examine generic aspects of social capital with reference to multiple natural disasters. For example, drawing on research from the 1995 Kobe and 2011 Tōhoku earthquakes in Japan, the 2004 Indian Ocean tsunami, and the 2005 Hurricane Katrina in USA, Aldrich (2012) highlights the significance of social capital in disaster recovery, and proposes that the difference between resilience and despair lies in the depth of community's social capital. Aldrich concludes that the level of pre-existing social capital within a community, for example, relationships with neighbours, has a positive relationship with recovery effectiveness. In Aldrich's study, those communities with high pre-existing social capital were found to recover faster and more effectively. This study is significant as it distinguishes between pre-existing social capital within a community, and building social capital to aid a disaster recovery.

This literature presents two alternate views of social capital, one being that it is a pre-existing factor that if present in a community, has a positive influence on the quality of the recovery, and two, that it is built post-disaster to speed and aid the recovery. In both cases research indicates that social capital has a positive relationship with effective disaster recovery.

Networks are an aspect of social capital that are seen as influencing the effectiveness of recovery. Networks are characterised by the key feature of repeated and enduring exchange relationships between the actors in the network (Podonly & Page, 1998). Utilising networks in disaster recovery is important for reducing the impacts of natural hazards and adapting to

the post-event environment (Stevenson, et al., 2014). The role of social networks in disaster recovery is explored, in the context of flood events in Bangladesh by Islam and Walkerden (2014) who conclude that in the long term, recovering communities need support through social networks, NGO's, local government and community based organisations. A range of longstanding topics in the disaster recovery literature share commonalities with social capital, but focus on the processes by which communities have input into their recovery. Although social capital has been subject to a lot of attention, its application to disaster recovery is still a developing field within the literature.

2.4.1 Community involvement

Community involvement is defined as the act of involving the unified body of individuals such as people with common interests (Orsman, 1997). There is a growing body of research to suggest that involving and supporting the community in a recovery effort is an important aspect within recovering communities. In the way that high levels of social capital have a positive relationship with an effective recovery, Community involvement can also be interpreted as a tool for enhancing a recovery. The increasing attention given to community involvement and participation in recent years is discussed by Head (2007), who proposes that the main reason behind this shift is a result of international trends in governance and the political environment (Head, 2007). More broadly, Arnstein (1969) discusses community involvement in terms of her model 'the ladder of citizen participation' in which each rung of the ladder corresponds to the extent of citizens' power in determining the plan and/or program. The ladder of citizen participation has eight rungs comprising of 'degrees of citizen power' which includes citizen control, delegated power, and partnership, 'degrees of tokenism' which includes placation, consultation, and informing, and 'non-participation' which includes therapy and manipulation (respectively) (Arnstein, 1969).

The importance of community input in disaster recovery has been underscored and expanded in recent literature. There is increasing acknowledgement that people and communities are a central element, and this highlights the need to involve and support people affected by the disaster (Pearce, 2003). The importance of community involvement is a key theme of the work of writers such as Cretney who, in recent years, has advocated

strongly for the importance of consultation, citizen engagement and active participation by citizens in disaster response and recovery (Cretney, 2016 & 2018). Djalante, Holley, Thomalla, & Carnegie (2013) support this view, and argue for placing the community at the centre of an integrated and adaptive approach to recovery. Additionally, Kweit and Kweit (2004) provide empirical evidence in favor of community involvement, examining case studies with, and without, citizen participation to demonstrate its impact on the recovery process. In this study, one case for example, used extensive citizen participation and experienced political stability and high levels of citizen satisfaction, whereas a second example employed no citizen or community involvement and experienced adverse effects. These case studies offer support for the notion that community involvement and participation in disaster recovery programs result in superior outcomes (Kweit & Kweit, 2004).

Community involvement in disaster recovery is important as it allows citizens to feel supported and included in the recovery process, leading to greater satisfaction and perceived legitimacy within the community (Kweit & Kweit, 2007). Community involvement is also supported by Kerkin (2017) who lists participation as a key component of building legitimacy. Walker, de Vries, & Nilakant, (2017) identify the role that the effectiveness of an organisations' communication and response to disaster recovery plays in influencing the perceived legitimacy of an organisation. They conclude that, if an organisation involved in the disaster recovery is not perceived as being a legitimate, authentic and trustworthy entity, they are more likely to face suspicion and difficulties in their recovery endeavours.

Supporting and involving the people needs to be a core focus of a recovery effort. Although these factors are not overly difficult to deliver, they are less obvious than the physical damage caused by the disaster, and in some cases may be overlooked. Consideration needs to be given to how people are affected by disaster and recovery actions. Nigg (1995) also recognises the importance of community participation, detailing four key factors that are important in social disaster recovery. These are: i) how decisions are made, ii) who is involved in the decision making, iii) the consequences of decisions on social groups within disaster communities, and iv) who benefits from decisions and who does not. These factors

emphasise the importance of community in disaster recovery, a point that is repeatedly presented in the literature.

Also discussed in research is the idea that community-based groups can have a great deal of influence with others in the community (Tagliacozzo & Magni, 2016). The community can play an important role in sharing recovery related information, clarifying legal acts and regulations to residents. Additionally, when recovery organisers are involved in engaging, interacting and communicating with residents and locals, this can build trust and confidence with the recovery process (Shaw, Gupta, & Sarma, 2003). Trust in the recovery processes can have positive implications for the integration of aspects of the recovery (Shaw, Gupta, & Sarma, 2003).

Communication is an area where the community can be actively involved in disseminating information quickly and cost effectively. Community participation in providing, receiving and disseminating information has a positive effect on stress levels (Johnston, Becker, & Paton, 2012). These authors conclude that, “central to recovery is how society organises, mobilises and coordinates the diverse range of organisational and professional resources that can be called upon to assist recovery” (Johnston, Becker, & Paton, 2012, p.252). In this respect, newer social media forms such as Facebook and twitter have been identified as valuable tools for the community to use and increase the flow of information and ensure many members of society are reached in a timely and effective manner. Social media can be used by recovery organisations and the public to share recovery information and queries (Tagliacozzo & Magni, 2016).

This research suggests that although some authors doubt the applicability of community involvement and participation, there is wide consensus that it is desirable within the disaster recovery field. Collectively the studies on community involvement indicate that there can be many positive effects of community participation in disaster recovery, but this does not mean it is easy to implement or achieve.

2.4.1.1 Community participation in rebuild planning

Within the subject of community involvement in disaster recovery, there is research discussing the specific area of community participation in rebuild and recovery planning. The concept of collaborative planning is seen as a 'recent' approach to public participation (Gunton & Day, 2003), and can be traced back to the 1960's. It was at this time that planners and authors alike began to recognise the importance of democratically determined goals as the primary force directing planning (Chadwick, 1971; Chapin & Kaiser, 1979; Davidoff, 1965; Hall, 1974; McLoughlin, 1969). Collaborative planning is defined by Gunton & Day (2003) as a "civics-based model of planning that delegate's responsibility for preparing plans directly to affected stakeholders" (p 6). Healy (1997) champions the concept of collaborative planning, stating that it has "offered a way forward in the design of governance processes" (Healy, 1997, p 5).

With disaster recovery planning, Berke, Kartez & Wenger (1993) suggest that stakeholder participation in, and contribution to, re-development planning is crucial for the success of the recovery programme. As Kusumasari and Alam (2012a) describe; "it is the people themselves who should decide how to rebuild their houses" (p 351). Stakeholder involvement during planning coordination, as part of a feedback process, can be a good way to handle community participation (Dynes & Aguirre, 1979). Berke et al. (2014) propose that an increase in the diversity of stakeholder groups that are involved in recovery planning can have a "positive influence on plan quality" (p 5). Inviting a wide range of stakeholders is important, and this extends to include those that are often neglected and may feel disenfranchised by their lack of voice. Broad stakeholder involvement is thought to contribute to stronger plans and implementation of proposals through the increase in education and consensus, coupled with a decrease in opposition and an increased commitment to the plan (Burby, 2003). Communities with strong participation in rebuild planning are more likely to be satisfied with town planning initiatives because they have a greater buy-in to the process and its outcomes (Berke & Campanella, 2006; Nakagawa and Shaw, 2004).

Collectively, this literature reflects increased attention given to community participation in recovery planning in recent years, and the growth of stakeholder involvement in recovery planning. In general, this literature suggests a positive relationship between community participation in recovery planning and positive plan outcomes for the community or stakeholders affected.

While community involvement in recovery is desirable, there are practical issues affecting the extent to which involvement in high-level disaster recovery, particularly decision making, can be achieved. For example, Vallance (2015) takes a pragmatic view of community participation, describing it as desirable but difficult, and discusses the notion of “token participation”, whereby the community participates in specific activities as opposed to contributing to key decision making. Token participation may still reap the rewards of community participation, as satisfaction comes from a belief that the recovery management group attempted to involve citizens and that these citizens made a tangible contribution to the process (Kweit & Kweit, 2007). In cases where there is community engagement and their role in recovery is token, there is potential for the community to recognise the tokenism and withdraw support for the recovery process, highlighting the complexity of their involvement and requiring a more nuanced understanding of the process (Vallance, 2015). This sentiment is echoed by Cornwall (2008), in which models of participation are unpacked, and the author advocates for clarity and specificity in who is participating, and for whose benefit.

While the literature identifies that stakeholder involvement in planning processes is critical, a potential downside is that it can be arduous and may slow the process of planning and implementation. Stakeholder involvement must be balanced with the need to advance recovery in a timely fashion. The issue for planners is achieving the balance between consideration of stakeholder views and the speed of the recovery process (Olshansky, Johnson, & Topping, 2006). Rebuilding is an opportunity to gather community input regarding the form they would like their environment to take, but on the other hand, people need rebuilding to happen swiftly. This debate needs to be carefully managed, so as not to waste an opportunity to rebuild communities in a way that maximizes the benefits to all stakeholders.

2.4.2 Relationships

The nature of the relationships between stakeholders, in terms of the essential networks and connections involved, is important for building social capital. Successfully coordinating a disaster recovery relies on robust social networks to disseminate information, organise financial and physical aid, and rebuild ties within the community post disaster. These networks may vary in relation to the income levels of the participants, with Aldrich (2012, p 2) indicating that “Damaged communities with low income... benefit from denser social networks and tighter bonds with relatives, neighbors and extra local acquaintances”.

2.4.2.1 Trust

Trust is seen as an essential element of relationships and social capital, and consequently has an impact on recovery. Although a consensus seems difficult to reach on the definition of trust, most agree that positive expectations, and willingness to become vulnerable, are critical elements (Bijlsma-Frankema & Costa, 2005). Many authors describe this trust as an essential element in recovery, describing a positive relationship between trust and recovery with high levels of trust having a positive effect on recovery effectiveness.

The tension between trust and control has been subject to a lot of attention. Trust is rarely mentioned in the literature without discussion of the concept of control. Control is defined as “establishing task reliability by designing a set of rules that specify an actor’s work and enforcing the actor’s compliance with these prescribed standards” (Bijlsma-Frankema & Costa, 2005, p 259). For collaborative disaster recovery, there are significant tensions between trust and control, with both trust and control seen as necessary to cope with uncertainty in the post-disaster environment (Kalkman & de Waard, 2017). Literature places importance on balancing trust and control measures, and suggests that the mechanisms and structure of power in a recovery can affect the trust and control equilibrium (Kalkman & de Waard, 2017). Governments must decide on a balance between their level of control in the disaster recovery, and having the trust to place control in the hands of local people. The

balance between trust and control is another important dimension in the type of recovery approach, as part of the balance between a top-down approach, and a locally-led recovery. Trust is required if governance of the disaster recovery is to be given to local authorities and leaders. During the Canterbury disaster in a media article, disaster researcher Glavovic discusses trust in the context of the Canterbury earthquakes, stating that locals “need to be able to trust those making pivotal recovery decisions” (Glavovic, 2011).

2.5 Post-disaster governance

These themes are present in the choice of recovery model, the question of post-disaster governance; whose responsibility is it to lead and delivery the disaster recovery? Governance in this setting, refers to the question of who holds the decision making authority for post-disaster recovery decisions. The issue becomes complicated when decision making authority can reside in regional government and local government, while community members, volunteers, and state actors can play roles in post-disaster governance (Bundy & Jensen, 2016; Chang, Wilkinson, Potangaroa & Seville, 2012; Lassa, 2011; Serrao-Neumann, Crich & Low Choy, 2018). The nature of disaster governance becomes of greater significance in more complex, large-scale disaster events (Tierney, 2012).

One framework of post-disaster governance discussed in the literature is ‘collaborative governance’ (Ansell & Gash, 2008). There are two forms of collaborative governance. The first is the collaboration of stakeholders including public, private, non-profit organisations and citizens, and second is the collaboration of stakeholders across geographic boundaries (Kapucu, 2014). The goal of collaborative governance is ‘cross-sector governance arrangements’ (Beaven, 2018). It is based on the concept that effective recovery “requires effective intergovernmental and cross-sector collaboration and cooperation” (Kapucu, 2014, p 41). Collaborative governance has gained support in recent years due to its ability to manage transboundary threats; large scale disasters, such as earthquakes, frequently transcend geographic and functional boundaries (Emerson, Nabatchi, & Balogh, 2012).

The key descriptors that are used in differentiating recovery governance models are the level of government intervention compared to the extent of local governance. Birkland (2006) proposes the role of government in a post-disaster setting is to ensure that lessons have been learned from the disaster through policy change. He focusses on three types of policy change that he believes generates lessons learned; “change in the larger social construction of the issues surrounding the disaster; instrumental change, in which laws and regulations are made; and political change, in which alliances are created and shifted” (Birkland, 2006, p 1). The role of central government in post-disaster governance is strongly debated, with some indicating that government response and intervention are key for disaster recovery projects (Chang, Wilkinson, Potangaroa, & Seville, 2012), while others advocate that recovery should be locally led by the community (Kweit & Kweit, 2004; Leadbeater, 2013; Mamula-Seadon & McLean, 2015). While there has been extensive international debate around post-disaster governance, writers argue that in the Canterbury earthquakes, recovery authority seemed to be centralised at a national level which expedited policy and decision making, however the downside was that coordination between different levels of government, and public engagement may have been lacking (Johnson & Mamula-Seadon, 2014). This tension is reflected again in Mamula-Seadon & McLean’s 2015 examination of societal resilience and the role of governance following the Canterbury earthquakes, where they asserted that the conflict between central control and local empowerment remained unsolved. Gjerde and de Sylva (2018) for example, propose that there is value in a community based approach, and go on to say that top down central control approaches “do not provide opportunity for community participation and engagement in vital decision making” (p 532). These authors also argue that “leaders should consider minimising distances between central government and the local context” (p 533). Gjerde and de Sylva recognise the practical difficulties of their recommendation and temper it by saying that; “achieving this is going to be much easier said than done, as some levels of bureaucracy will be necessary to provide organisational legitimacy, efficiency and accountability” (Gjerde & de Sylva, 2018, p 533).

These are areas of ongoing debate, and further research is required in this emerging field of study to determine best practice, or present guidelines or factors that consistently contribute to effective governance. Collectively, the literature affirms that that both central

government and local community groups will often be necessary for effective recovery. For example, Johnson (2011) compares the role of the government, and community input in disaster recovery, suggesting that; “disaster recovery and risk reduction are most effective when the state can provide an enabling environment to support community action” (p 415).

2.5.1 Locally-led recovery

A common proposition is that there are many benefits from a community-led, or locally-led recovery effort which draws on social capital and utilises the benefits of community involvement. This stream advocates for the empowerment of locals to lead their own recovery, emphasising the role of community leadership in disaster recovery projects (Lin, Kelemen, & Kiyomiya, 2017). For such a model “understanding the mechanisms for integration and empowerment of local communities is essential for effective recovery and resilience” (Mamula-Seadon & McLean, 2015; p 82). This locally led approach to disaster recovery is intertwined with the concept of local leadership. Leadbeater (2013) highlights the importance of “locally-endorsed community leaders in the complex, post-disaster environment” (p 41). Utilising local leadership is seen as an important tool making locally informed decisions which facilitate effective recovery (Usdin, 2014).

2.5.2 Role of local government

Local government has an important role in disaster recovery (Ollerenshaw, Graymore, & McDonald, 2016). However, the understanding of ‘local’ varies based on country, and political or governing structures. For example, in a smaller setting such as New Zealand, there are fewer levels of governing structures, whereas in larger settings such as North America, there is a complex interplay between federal, state and local structures and agencies. Some writers assert that local government organisations should play the primary role in the recovery process with Bundy and Jensen (2016, p 259) arguing that the “Disaster recovery literature suggests that local governments are primarily responsible for the disaster recovery processes within their communities”. While the role of local governments is commonly recognised as being important for managing and coordinating disaster recovery, the scope and content of this role is debated at length (Kusumasari & Alam,

2012b). Although there is general agreement that the role of local government in disaster recovery is a key element, it is recognised that they are not solely responsible (Melo Zurita, Cook, March, & Harms, 2015).

The role of local government in disaster recovery has been examined in many countries including the United States, Australia and China (Bundy & Jensen, 2015; Col, 2007; Ollerenshaw et al., 2016). The USA and China distribute functional responsibilities between central and subnational governments differently (Col, 2007). In the USA, federal and state governments provide support for local governments in the recovery process and may receive additional support from nonprofit organisations and the private sector (Bundy and Jensen, 2015 & 2016, Col, 2007; Rubin, 2007). By contrast, in China, recovery response tends to be led by central government (Col, 2007). New Zealand differs from both USA and China in its size (geography, population and GDP), governance structures and access to non-government support and therefore, the role of local government in disaster recovery may also differ from these two countries. The role of local government in disaster recovery is yet to be explored in the New Zealand context.

2.6 Discussion and implications

The English speaking disaster literature covers a range of geographic locations and disaster types including a number of studies in rural settings. Until recently, New Zealand has received limited attention as a setting for disaster recovery research, perhaps because few small towns have experienced a disaster of the magnitude of the Kaikōura Earthquake in recent decades.

The Kaikōura post-disaster environment provides a valuable opportunity to explore recovery dynamics in a partly-rural, first world setting that is distinctly different from North American and European settings. The specific circumstances of the Kaikōura post-disaster situation differ from research conducted in other countries and environments, in terms of the political and economic systems, and the associated disaster recovery structures. In particular, the complexity of having regional needs of a semi-rural setting juxtaposed with

the urgent needs of restoring critical national roading infrastructure, provide a comparatively uncommon context. In this context, having local government coordinating the recovery provides valuable insights into the way this plays out in an actual recovery process. Furthermore, the close temporal and spatial proximity of the Canterbury and Kaikōura earthquakes provides a rare opportunity to examine how the transition of expertise from one disaster event to another closely following second event.

This study presents an in-depth exploration of the Kaikōura recovery, providing a detailed and unique case study that will supplement the existing literature on disaster recovery in New Zealand and internationally. This research aims to understand the dynamics involved in earthquake recovery in the specific setting of Kaikōura, with the results having direct practical implications and providing direction for New Zealand disaster recovery in the future.

3. Methodology

3.1 Introduction

The primary goal of this study is to understand the dynamics involved in earthquake recovery in the case of Kaikōura, including the demands placed on organisations involved and subsequently, how those organisations interacted.

Kaikōura presents as a valuable environment to study due to: the geographic factors being partly rural, isolated; the political contact with central government; and the social environment. In addition to this, the Kaikōura event presents a relevant case to study due to its proximity to the Canterbury earthquakes, both chronologically and geographically. These factors have influenced the research methods that were employed for this study.

This chapter explains the approach for meeting those research goals. Crotty (1998) describes a methodology as an underlying strategy or plan of action used to develop an understanding of the topic being examined. This chapter begins by outlining the setting of this research before detailing the specifics of the methods chosen.

3.2 Research design

The phenomenon under investigation is little explored, but of significance. To date, there has been very little published research on the Kaikōura recovery. As a result, hypotheses and theories about the dynamics involved in the Kaikōura recovery could not be derived prior to beginning the research. The aim of this study is to capture rich data and participant insights to meet the primary goal of developing an understanding of the dynamics involved in earthquake recovery in the setting of Kaikōura. The complex nature of the Kaikōura recovery requires the gathering of in depth, detailed data from those parties directly involved in the recovery. The requirement for rich data confines the possible choices of method and data collection method. For example, quantitative surveys would not be

applicable as they wouldn't provide rich enough data to capture the phenomenon under investigation.

As little is known about the phenomenon under investigation, research that is exploratory in nature requires an inductive approach. Inductive by definition is "characterised by the inference of general laws from particular instances" (Oxford English Dictionary, 2018). An inductive approach is one in which new theories emerge from the data. Conversely, a deductive approach is concerned with testing a pre-established theory. There is no certainty that a particular theory will address the insights applicable to this case, due to the need to capture dynamics and the interplay between parties involved. Using deductive, quantitative methods would risk missing specific aspects, dynamics or factors that could be present in this setting, whereas inductive research is able to uncover unexpected or unusual possibilities through the collection of open-ended emerging data (Flick, von Kardorff & Steinke, 2004). The case centred nature of this study also required a flexible approach be taken.

3.2.1 The notion of qualitative research

The concept of qualitative research is not one that can be defined simply. It is best understood as an 'umbrella term' that is not exclusive to one methodological practice (Guba & Lincoln, 1994; van Maanen, 1983). The basic definition of qualitative research is any type of research that is non-quantitative, that produces findings not arrived at by statistical techniques (Strauss & Corbin, 1990). Creswell (2003) describes a qualitative approach as one in which the inquirer makes knowledge based claims primarily driven by constructivist perspectives (examining multiple meanings of individuals experiences with the intent of constructing a pattern or theory), or participatory perspectives (examining collaborative or change oriented) or both. Qualitative research focusses on gathering a better understanding of specific phenomena to contribute to the development of structures and patterns of their particular rationale (Flick, von Kardorff & Steinke, 2004). Some of the more interpretive perspectives propose that the implementation of qualitative research is subjective and relies on the researchers "beliefs about the nature of the social world and what can be known about it (ontology), the nature of knowledge and how it can be acquired

(epistemology)” (p 2) and situational factors such as the audience and funders for the research (Ritchie, Lewis, Nicholls & Ormston, 2013). As a concept, inductive using qualitative approaches allows researchers to “develop concepts, insights and understandings from patterns in the data rather than collecting data to assess preconceived model, hypotheses or theories” (Taylor & Bogdan, 1998, p 7). Creswell (2014) summarises eight characteristics of qualitative research, that correspond to the aims of this study: research is conducted in the natural setting; researcher as a key instrument; multiple sources of data; inductive and deductive data analysis; consideration of participants meanings; emergent design; reflectivity; and holistic account. Data gathering strategies such as narratives, grounded theory studies, case studies and ethnography are common within the realm of qualitative research.

This thesis topic required an exploration of processes, social constructions and capturing the perspectives involved, to gather rich insights. Additionally, the number of people involved in this small recovery, would not lend themselves to quantitative research methods (Creswell, 2013). The aim is to achieve theoretical, rather than statistical outcomes, gathering in depth information from a smaller number of parties. It is for these reasons that an inductive, qualitative approach was essential to meet the aims of the study.

3.3 The Strategy of Inquiry- the Case Study

Yin (2003) suggests that three conditions guide the selection of a suitable research strategy. The first condition being the type of research question. The present study has a fundamentally exploratory nature, due to the limited prior research on the recovery in a setting such as Kaikōura. Such exploratory work constitutes a research question that lends itself to case studies due to their ability to capture the scope of the phenomena. The second and third conditions are the degree of control that a researcher has over behavioural events, and whether the focus is on a contemporary, as opposed to historical, phenomena. A case study research strategy has clear advantages when an exploratory enquiry is being made about “a contemporary set of events over which the investigator has little or no

control” (Yin, 2003, p 9). The present study is exploring a contemporary phenomenon in which the researcher has no control and therefore a case study approach is well suited to this study.

The unique combination of environmental, political, historical, and economic factors evident in Kaikōura presents as a valuable case study. Kaikōura faced unique challenges when presented with a disaster of this magnitude. The factors outlined earlier, regarding the small town, partly rural nature of Kaikōura, and in particular, its proximity to the Canterbury earthquakes, create an opportunity to study the Kaikōura recovery as a relatively unique case study. Qualitative case study methodology provides a strategy to study complex phenomena within their context (Baxter & Jack, 2008). The goal of this study is to understand a real-life phenomenon in depth (the dynamics involved in the Kaikōura recovery), encompassing the important contextual considerations of this case (Yin, 2009). The case study allows a researcher to “retain the holistic and meaningful characteristic of real life events” (Yin, 2003, p 2). Case study design is relevant when; i) the focus is to understand ‘why’ or ‘how’, ii) you cannot manipulate the behaviors of those involved, iii) the boundaries between case and phenomena are not clear, or most applicable to this study, iv) you want to cover contextual conditions because you believe they are relevant to the phenomena under study (Yin, 2003). It is for these reasons that a case study was deemed the most appropriate strategy of inquiry.

This case study is a single case study of the Kaikōura district’s earthquake recovery experience. A single case study is justified (rather than multiple case study) by the rare combination of factors that create this unique context as discussed previously (Yin, 1994). Attempting to capture the dynamics involved in all areas affected by the earthquake (Kaikōura, Hurunui, Marlborough and Wellington) would require separate cases due to the diverse geographical, political and social environments in each of these locations, and this was not possible with a single researcher. Choosing to focus on just one district, such as Kaikōura, provides a unique perspective that adds value to the research on small town disaster recovery. Single case studies can provide a nuanced and empirically rich account of a specific phenomenon. Levy (2008) discusses two advantages of single case studies; i) whereby the case is highly descriptive, taking the form of “total history”, and ii) they can

operate as theory guided case-studies seeking to understand a single historical episode. This study utilises the second advantage, as it seeks to understand the single event of the Kaikōura earthquake recovery.

There are a number of limitations and critiques of case study methodology, the most common of which is in regard to methodological rigor. Some authors argue that “the case study absolves the author from any kind of methodological considerations, and that case studies have in many cases become a synonym for freeform research where anything goes” (Maoz, 2002, pp 164-165). Additionally, there can be criticisms that single case study research is not generalisable. Yin (2009) rebuts these, noting that the goal is to “expand and generalise theories” (p 15), also known as analytic generalisation, not to generalise to populations or universes.

3.4 Data collection

Interviews are one of the most prevalent data gathering techniques in human and social research (Brinkmann, 2013; DiCicco-Bloom & Crabtree, 2006; Taylor & Bogdan, 1998). In-depth interviews aim to understand participants “perspectives on their lives, experiences, or situations as expressed in their own words” (Taylor & Bogdan, 1998, p 88). Interviews are most commonly divided into structured, semi-structured, and unstructured interviews, based on the extent to which the researcher must direct the interview (DiCicco-Bloom & Crabtree, 2006).

A semi-structured interview approach provides a framework within which to gather information from respondents while also permitting for topics to be examined as they arise during the interview of each individual. A semi-structured interview “typically reflects variation in its use of questions, prompts, and accompanying tools and resources to draw the participant more fully into the topic under study” (Galletta & Cross, 2013, p 2). Furthermore, semi-structured interviews allow for the exploration of the opinions and perceptions of the participants regarding complex and at times sensitive issues and enables probing for clarification of answers or more information (Barriball & White, 1994). The semi-structured nature of the interviews allows the researcher to ask follow up questions and

explore the views and thoughts of participants. Hopf (2004) describes the uses of semi-structured interviews as imparting expert knowledge about the research field in question, the collection of data relating to their biography, or the recording and analysis of the participant's subjective perspective. These features mean the use of semi-structured interviews suits the aims of this study.

Semi-structured interviews apply a number of fixed questions which are used as a flexible guideline throughout the interview, as the participant's responses direct the conversation (Cavana, Delahaye & Sekaran, 2001). The interview guide used in this study can be found in Appendix D. It builds rapport by encouraging participants to discuss their recovery experience, before exploring various aspects such as the challenges faced and their learning. Additionally, the use of open ended questions allowed the researcher to explore topics as they arose, in line with an inductive approach. This approach provided a comprehensive overview of the participant's recovery experiences, which suited the exploratory nature of the research. These information gathering techniques are in line with methods present in other similar exploratory disaster recovery research (de Vries, Nilakant, Walker, & Baird, 2015; Hatton, 2015; Johnston, Becker, & Paton, 2012; Kusumasari & Alam, 2012; Von Meding, Wong, Kanjanabootra, & Taheritafti, 2016).

Face-to-face interviews were the preferred method of interviews in order to build rapport with participants, and read visual cues that may be given by the participant. Gillham (2000) suggests that face-to-face interviews are most suited when "questions are 'open' and require an extended response with prompts and probes" (p 11). The researcher travelled to the participant's place of work, and interviews were conducted in a quiet and private room or office. Where face-to-face interviews were not appropriate, or could not be arranged, a small minority of interviews were conducted over the phone.

Background research was conducted prior to the interview to ensure the researcher was well informed about any publicly available knowledge relating to each participant and their environment. This aided the collection of data as the researcher had further insight into the setting and situation for each participant. Interviews were audio recorded on a recording device, and later transcribed into a secure computer database.

3.4.1 Participant selection

In-depth interviews were conducted with thirteen people involved in coordinating the recovery. Interviewees were selected from those close to the recovery, and sought to represent each of the main stakeholder groups. Initial access to the interviewees was negotiated with the assistance of a contact in a central role within the recovery agencies. These recovery leaders had potential knowledge, overview, and insight of the delivery of the Kaikōura recovery.

Participant recruitment was purposeful and deliberate, with all participants needing to meet the selection criteria. Criteria are essential to guide decisions so that future studies can arrive at a similar result, or to rationalise case construction (Merkens, 2004). The criteria for participant selection included two components; i) participants must have been involved in the Kaikōura recovery within its first six months, and ii) participants must have held some form of leadership role within the recovery, be it formal or informal. Participants were selected based on their proximity to the disaster recovery coordination. Additionally, participant recruitment partly utilised convenience sampling, in terms of participant's willingness to be interviewed. Further, a question was posed to interviewees during each interview; "Do you have any recommendations of people that might add to my understanding of this topic?" The goal of this technique was to use a snowballing effect, which could be used in conjunction with official lists, to ensure that it identified all of the relevant parties involved in the recovery. The recovery was ever evolving throughout the duration of this research, and thus the use of snowballing allowed the researcher to keep up to date with the current people in the relevant roles.

The thirteen participants were selected from among local government, central government agencies, local community leaders, and independent consultants, who met the criteria that they had been involved in some form in the Kaikōura recovery in its first year, before 14th November 2017.

Most participants were from one of two different divisions of leadership here referred to as consumer leaders (N=5) and expert leaders (N=8). Consumer leaders were classified as Kaikōura residents who were leading the recovery and, as citizens, were also recipients of the recovery. These citizen leaders had strong attachments to the Kaikōura community, providing a valuable local perspective of how the recovery unfolded and the key factors that it involved. The goal of these consumer leaders was very community focused, with aspects such as preserving relationships, and ensuring the Kaikōura community comes through this disaster successfully. The second division of leaders interviewed were the expert leaders (here also referred to as “experts”) who, by and large, were people with previous earthquake recovery experience from the 2010-2011 Canterbury earthquakes. These experts were not Kaikōura locals, primarily being based in Christchurch prior to the earthquake, and were imported to assist the consumer leaders with recovery. Expert leaders brought a wealth of experience gleaned from recovery following the Canterbury earthquakes, providing a rare opportunity to examine how the availability of experts with recent practical knowledge (not acquired from the literature or third parties) facilitated recovery.

Table 2

Participant details

Participant	Kaikoura Local	Experience from Canterbury
1		Y
2	Y	
3	Y	
4		Y
5		Y
6		Y
7		Y
8		Y
9	Y	
10		Y
11	Y	
12	Y	
13		Y

Individuals were first contacted through email and provided with an information sheet and consent form. Where appropriate, individuals were then followed up via a phone call with an explanation of the research. If they were comfortable with, and formally consented to, the conditions of the research, they were then invited to participate in the research. A date and time for an interview was then arranged with the participant.

Interviews were conducted between September 2017 and December 2017. During the interviews participants were asked to describe:

- Their involvement and experience with the Kaikōura disaster recovery.
- Challenges faced throughout the recovery experience.
- Insight from those experiences in this disaster recovery.

In addition to these topics, the semi-structured nature of the interviews allowed for exploration of further topics, and allowed the researcher to ask follow-up questions and clarify vague or unclear answers. Interviews were structured around a set of questions, themes and foci, and additional questions emerged from both the interviewer and interviewee as discussion progressed. If participants offered the interviewer the opportunity to view supplementary documentation or reports, this was accepted to aid an in depth understanding of the dynamics involved for each participant. Interview duration was between 30-90 minutes.

3.5 Data analysis

Thematic analysis is a tool to use across different research methods (Boyatzis, 1998). Clarke & Braun (2013) describe thematic analysis as a tool for identifying and analysing patterns in qualitative data. It involves the identification of themes through careful reading and re-reading of the data (Rice & Ezzy, 1999). Thematic analysis has a flexible approach to analysing qualitative data, and has the ability to generate unanticipated insights and summarise key features in large bodies of data (Braun & Clarke, 2006). The theme development that thematic analysis provides allows researchers to expand the range of

study past individual experiences. This is an analytic technique that fits well with an inductive approach.

Braun and Clarke (2006) highlight two different approaches to thematic analysis; inductive and theoretical thematic analysis. Inductive thematic analysis is a 'bottom-up' approach, in which the themes identified are strongly linked to the data and involves a process of coding without trying to fit data into a pre-existing coding frame (Braun & Clarke, 2006; Patton, 1990). Thomas (2006) describes one of the purposes for using an inductive approach to data analysis is the ability to "develop a framework of the underlying structure of experiences or processes that are evident in the raw data" (Thomas, 2006, p 237). In contrast, theoretical thematic analysis is "driven by the researchers theoretical or analytic interest in the area, and thus is more explicitly analyst-driven," (p 96) generating significantly less rich data (Braun & Clarke, 2006). The richness of data generated, and the open and emergent style makes inductive thematic analysis the most appropriate method of analysis for this study.

The limitations of this method of analysis have been considered in the selection of thematic analysis. Care was taken to ensure that in the discovery and verification of codes, codes did not overlap or duplicate. Additionally, it is commonly claimed that thematic analysis is not a highly reliable method due to a variety of interpretations from multiple researchers (Braun & Clarke, 2006). This was not an issue in this study as there was a single researcher conducting data collection and analysis.

3.5.1 Data analysis process

A range of criteria are used for conducting good qualitative data collection and analysis (e.g., Elliot, Fischer & Rennie, 1999; Parker, 2004; Seale, 1999; Silverman, 2000; Yardley, 2000). Following the thematic analysis process as described by Braun & Clarke (2006), transcriptions were proofread multiple times prior to beginning analysis. Raw data (transcribed interviews), were prepared as described by Thomas (2006), closely reading the text to gain an understanding of its content. The raw data was imported into the software NVivo after being transcribed in Microsoft Word. NVivo was used to open code the data, and this coding was used to identify themes.

Data was reviewed line by line and examined for every possible meaning in a similar manner to the types of processes described in Strauss & Corbin (1990) and Charmaz (2006). In this stage, coding is the initial stage of constant comparison where raw data is scrutinised for every possible meaning (Glaser, 1998). This initial coding was used to allow for constant comparison and the opportunity for saturation (Goulding, 2002). Memos of initial thoughts and insights were also attached to documents, and a research journal was also kept to document reflections (Charmaz, 2006). Coding allowed the development of codes and categories and sub-categories where a category required one. From this information initial codes were developed and defined. As analysis progressed, definitions continuously evolved due to continual evaluation and examination of codes and their meanings. Each code was defined through constant comparison with the data until themes became clearly defined. Following detailed analysis, the final set of codes were developed.

3.6 Ethical considerations

Esterberg (2002) states that researchers must consider ethical issues surrounding a study. This study adheres to the University of Canterbury Human Ethics Committee standards, and received approval from this entity prior to the commencement of this research (see Appendix A). All participants were required to give informed consent with the information sheet and consent form prior to taking part in the study. The researcher discussed key aspects of the consent with each participant before commencing the interview to ensure each participant was fully aware of the processes involved and their rights and responsibilities. No deception was involved, and all interviewees were explained the research aims and intended outcome.

All participants were assured confidentiality, and as such, interviewees were referred to by their interview number. Quotations of a sensitive manner have had their interview number removed as an additional method of ensuring confidentiality. Risks were minimised for all participants, and no participant was required to discuss something they were uncomfortable talking about. All data was stored confidentially and participants were

offered the opportunity to view the findings upon completion of the study. In addition, participants were offered the opportunity to review the transcribed audio recordings of their interview. No inducements were offered.

4. Findings

The recovery of the north-eastern South Island following the Kaikōura Earthquake in November 2016 involved multiple factors (Cradock-henry et al., 2018). Before the Kaikōura earthquake the town of Kaikōura was characterised by its small nature and the relationships within the town that this facilitated. Participants described it as a generic small town that thrived on tourism. From interviews, the collaborative nature of the town was evident, and the majority of participants described the way that everyone in the Kaikōura community was familiar with each other. When the earthquake struck, participants reported feeling overwhelmed with amount of help that poured in and the task of coordinating their recovery. While participants were overwhelmed by the size of the task of recovery, it was unanimously echoed from the locals that they felt the responsibility of recovery fell on them, and they wanted to deliver. Post-earthquake the recovery leaders interviewed experienced a call for information from members of the Kaikōura community. The tight knit nature of the town meant that secrets could not be kept surrounding the recovery effort, and therefore transparency and inclusion was demanded by the community, from those coordinating the recovery.

This thesis has studied the recovery process using the perspectives of 13 people in leadership positions for key stakeholders affected by the earthquake or charged with the responsibility of facilitating recovery. These were experts or consumer leaders (locals) (see Chapter 3- methods, for more details of the interviews and interview processes). These two groups of leaders provided different perspectives on the recovery process. It was found that the agenda of these experts was to impart their knowledge onto the consumer leaders, with the ultimate goal of assisting with the Kaikōura recovery. These two groups, with the addition of central government make up the parties involved in the governance of the recovery.

The sentiments and perspectives of the interview participants were used to explore the dynamics involved in the Kaikōura recovery, including how members of the two governance groups experienced recovery processes following the earthquake. The findings that emerged from the data were divided into three main categories. These categories are; i) the

recovery and roles of the local leaders, government and expert leaders, ii) the role of social capital, and iii) learning from the recovery process. The findings are both generic and specific to the Kaikoura case study and have the potential to provide direction for disaster recovery in the future. Using this data, I find that the specific nature of the Kaikōura setting has significantly influenced the way in which the recovery was conducted.

4.1 Recovery ethos

The type of recovery influences the cost and speed of recovery together with the satisfaction and emotional state of the affected community. Therefore, the ethos for recovery selected for a specific natural disaster is one of the central elements for the recovery process. In section 4.1 I discuss the recovery ethos adopted for the Kaikōura Earthquake (section 4.1.1) and the themes that emerged as reported by participants pertaining to the recovery model (sections 4.1.2- 4.1.6).

The design of the recovery programme, and how it was perceived by the governance group and Kaikōura citizens, was discussed in this study by both local community leaders and external expert leaders. It was uncovered that the approach to recovery that was taken in Kaikōura emerged through a variety of contributing factors. Firstly, it was advocated that Kaikoura locals should have a strong role in planning and delivering the recovery due to their knowledge of the community and the connection they could bring. Secondly, a lack of recovery experience in Kaikoura meant that central government had to be involved on some level. And finally, people with recovery experience from the recent Canterbury earthquakes provided input and guidance to apply lessons learnt in the Canterbury earthquake recovery. These factors led to an approach being developed that was collaborative and included the perspectives of all stakeholders involved.

4.1.1 Kaikōura recovery

According to the study participants, the specific model of recovery used in Kaikōura was characterised by its strong locally led component. The locally-led recovery, with a primary focus on the Kaikōura community, and the secondary role of government repeatedly

emerged as important themes, particularly for participants in local leadership roles. In overview participants said that a community-centred recovery model was adopted for the Kaikōura Earthquake in which collaboration, community consultation, locally-led recovery, and communication are key elements of the recovery effort. Although this attitude was typical of most participants, one local participant summarised their attitude of the recovery succinctly;

“The success of a recovery is measured by the success [in] which the community comes through this and responds and restores” (interview 3).

The approach to recovery, its design, how it operated and how it was perceived by the governance groups and Kaikōura citizens, was discussed by many of the interviewees in this study. A central element that recurred throughout interviews was the participant’s perception that the community-led nature was of great importance to them. The adopted model of recovery utilised local council and community leaders to lead a ground-up recovery centred strongly in the community. One participant likened the manner of the recovery to a pebble in a pond where the community is at the centre and the formal organisations sit in ripples around them;

“So, actually what the structure should be is, think of a pebble in a pond and actually where the real focus is, is [] local recovery. They are the centre and it's the community that sits in the middle of that that is actually where the focus is, and you have regional and other bodies like ourselves who are sitting there offering support and assistance and what have you, and out here you [] have national government and support. Their role should be again thinking about how do they support and assist local recovery. They should be at the centre of the framework not stuck in some bottom corner box [where] it will be done to them, and that is the [] mind-set of those who haven't been involved in these exercises.” (Interview 6)

Local agents felt that they were empowered to lead their own recovery, and therefore felt positively about it. In the context of Kaikōura, a locally led approach has fostered a model of

support and empowerment for locals leading the recovery effort. Participants widely reported government support and encouragement for local agents to lead their own recovery, and the affect this had on how locals were feeling about delivering their recovery. Participants reported strong support of the locally led attitude taken to the Kaikōura recovery and felt strongly that the participation that this model allowed, gave locals input into the decision making process. The community led recovery model has support amongst those study participants who were Kaikōura locals, with many suggesting that local people have an enhanced understanding of the complexities of the local community and superior knowledge of the local people.

Participants felt strongly that a recovery with no local leadership would be detrimental to the recovery. This strong community and local focus is a reoccurring theme throughout the interviews, with all participants indicating that community wellbeing and values were at the heart of the culture of this small town. Participants reported that external (non-local) recovery leadership may not have the same understanding of social complexities, or local norms *“because they don’t know your community”* (interview 12). Such norms reflect a number of factors including the small population size, the long-standing relationships between many community members, their strong connection to the land and sea, and a preference for face-to-face communication. The strong community focus was discussed by all participants with community wellbeing and values considered by most to be at the heart of the culture of this small town. The strong sense of community appears to have been maintained post-earthquake leading some participants (both expert and consumer leaders, interviews 6 & 12) to suggest that, in their view, community-led recovery was in some circumstances preferable to a top-down government driven model such as a command and control recovery model. Interviewee 12, for example, indicated that;

“I do think that there is definitely room for ensuring that recovery and post-disaster management is locally led with support, rather than being driven from other places”
(interview 12).

One of the central elements that kept recurring throughout the interviews was the perception of participants’ that the community-led approach was of great importance to the

community and to the success of the recovery programme. Most participants reported that locally-led recovery was strongly supported by both government and local residents which, in turn, fostered support and empowerment for the local residents leading the recovery effort. Participants in the local leadership group (e.g., interviews 3 & 12) noted that their empowerment gave the locals a voice in the recovery, input into the decision making and a sense that they were integral to the process. There was concern amongst the interviewees that a recovery effort led from outside of the Kaikōura community would decrease the involvement of the community and reduce the effectiveness of the recovery. Although none of the participants had experienced top-down disaster recovery, they felt strongly from their Kaikōura experience, that such an approach was likely to produce a recovery that was out of touch with the community and the local context in Kaikōura. Eight participants concluded that a command and control approach to recovery can lack local understanding and, consequently, reinforced their preference for a locally-led approach. This view was captured by interview 6, who stated that:

“The needs and requirements to help recovery is either subtly or vastly different community to community. So, to me, it's just reinforced the need for local led recovery, best understanding needs, supported by others” (interview 6).

Looking at this in more detail in terms of the parties involved and their roles it becomes apparent that there is tension surrounding the governance of the Kaikōura recovery. Whose responsibility is it to deliver the recovery, and who is the best group to lead it?

4.1.2 Tension inherent in the multi-party governance

In the disaster literature, a locally-led recovery is described as best practice (Leadbeater, 2013; Mamula-Seadon & McLean, 2015). However in practice, constraints such as a small local council with limited resources may mean that locally-led recovery is not always possible, and external advice and assistance will be required. This represents a tension between local involvement and speed in the recovery process. Governance in this setting, refers to the question of who holds the decision-making authority for post-disaster recovery decisions. The amount of locally-led recovery was described by some participants

(interviews 5 & 6) as a balancing act between central government's commitment to empower local community governance groups, and the need for specialist skills and knowledge to supplement the local agencies and facilitate the recovery.

“The level of [government] support actually provided to the councils is dependent on the capability that was there” (interview 5).

Participants reported that in the case of Kaikōura, an entirely locally led recovery was not possible due to Kaikōura locals having no prior experience of post-disaster management. Consequently, the recovery model utilised in Kaikōura post earthquake was, in practice, not entirely locally led, and with the involvement of national governmental agencies such as the Department of the Prime Minister and Cabinet (DPMC) and the National Recovery Office (NRO). Additionally, all participants made mention of the assistance to Kaikōura locals received from those experienced from the Canterbury earthquakes. These experts provided assistance where possible, with some filling official recovery roles and some volunteering, all sharing their knowledge from the Canterbury earthquakes. These three groups: locals, government, and experts represent a multi-party governance framework (figure 2) in which the control of the Kaikōura earthquake recovery was shared amongst them. Each party had their own expertise, agenda and networks that they brought to the Kaikōura recovery, creating a unique dynamic in the interplay between the three groups. Consequently, the governance of the recovery was consistently discussed by participants.

Figure 2 Multi-party disaster governance framework



4.1.3 Government involvement

Participants recognised central government as playing a key role in the Kaikōura recovery. Multiple participants referred to the small size of the Kaikōura District Council (“the local council”), suggesting that they lacked the financial resources to deliver the recovery and as such, government support and intervention was essential or inevitable. Despite recognising that central government involvement was needed, some participants (both expert and locals) emphasised that this didn’t necessarily mean that the central government should drive and control the recovery – instead it should resource and assist as a way of supporting the local community. They perceived the role of the government as one of support, and repeatedly reaffirmed their preference for a locally-led recovery.

Many participants spoke of the ways in which central government input covered a wide range of areas, addressing the widespread needs following the disaster. It was a common theme that participants felt this was a vital and valued element in their recovery. Most participants expressed their gratitude for the government support available to them for assisting the coordination of the recovery effort. In the opinion of interviewees 7 and 13, financial government support for the Kaikōura recovery has allowed local agents to deliver a recovery program without a significant financial burden on the local council and in a timely fashion. Government support came in the form of grants, wage subsidies, and expertise (from the National Recovery Office) in the post-earthquake recovery process.

4.1.4 Role of expert leaders in recovery

In addition to government support, many (including the expert's themselves) discussed the way in which those with previous earthquake recovery experience (expert leaders) shared their knowledge with Kaikōura locals (consumer leaders). A number of experts offered their assistance in an official and unofficial capacity to the Kaikōura recovery. It was a notable and unique aspect of the recovery to have people with recent earthquake recovery experience available to contribute to this recovery. Some experts filled official recovery roles within the disaster, while others volunteered their time and knowledge. This meant that scattered throughout the recovery effort are people with these pockets of knowledge who make up just over half of the participants of this study. Almost invariably participants noted the benefits of having experts with recovery experience assisting locals in developing the recovery plan. In addition to this, many participants reported that the knowledge these experts brought with them from Canterbury aided Kaikōura locals' understanding of what was needed, the tasks that required completion and a timeline for completing them. This view is articulated by interviewee 6 (an expert leader) below;

*I've played a little part in helping share the lessons and the same with the likes of *Bob¹ and others who have come in from the Christchurch event in particular, understanding what is likely to be more successful than not. It certainly has made a difference.” (Interview 6).*

¹ Name changed for confidentiality

Adding to the equation of the Kaikōura recovery model, many participants reported a consequence of this assistance from experts provided assurance for recovery funders (i.e. central government and its agencies) that funds allocated to the recovery were being appropriately spent. As Kaikōura locals had no previous experience in disaster recovery, some participants reported funder uncertainty with a purely locally-led recovery. To secure funding, participants discussed the requirement to ensure recovery funders were satisfied with the intended use of the funds. Some participants detailed the process of planning and reporting the intended use of the funds, which highlighted their views that clearly articulated business cases backed up by expert input was key for receiving the funds necessary to achieve recovery. The three quotes below from interviews 5, 3 and 1 support the importance of expert involvement for securing funding.

“The government is not going to send good money after bad. They want to know. They've got to have confidence in the organisation” (interview 5).

“We're looking to make sure that we instil a sense of confidence and assurance in those providers” (interview 3).

“So when they come to us [] to do something, we say ‘well where’s your business case?’”
(Interview 1).

For the most part, participants experienced a greater recovery funder confidence with the added expertise and specialist skills that the experts from the Canterbury earthquakes provided. Some participants describe this as bringing capability into Kaikōura. This is a reoccurring theme throughout the data which is supported by the quote from interview 9 below,

“There’s now a programme director looking after that whole Kaikōura thing in terms of delivering for that. So that brings in capability into Kaikoura to deliver on all of these

projects. It gives the funders ourselves and others, some assurance that the money is being well spent and directed towards the programme that we thought it should be.” (Interview 9)

Whilst participants reported that, in general, assistance from experts was received positively, some participants reported a tension between Kaikōura locals, and the experts coming to Kaikōura to assist. Throughout interviews, a reoccurring theme was the discussion of whether a locally led, ground-up recovery with associated benefits, including local knowledge, outweighs the benefits associated with an externally-driven approach with non-local experts leading the process. Participants noted a tension, that although an externally driven approach can come with experience and expertise from previous recovery efforts, it can lack understanding of the complexities of the local community. Additionally, some participants alluded to a perception of newcomers (experts) coming to Kaikōura and taking over the jobs of locals. Many participants reported the need to find a balance between having enough expertise to manage the recovery process and local knowledge as key factors in the Kaikōura recovery process.

“(We need to) understand in essence that model of where does government intercept to support local recovery and make a difference as opposed to absolutely come in with a size 10 boot and lead and run it all.” (Interview 6).

4.1.5 Community consultation

It was a constantly repeated theme that recovery leaders purposefully consulted with the Kaikōura community. Some Kaikōura locals interviewed implied that they knew the community and it was expected by the community that they would be consulted. Participants reported that a range of mechanisms were used to foster consultation and the spread of information with the Kaikōura community during the planning and delivery of the recovery. The first and most commonly mentioned mechanism was the re-imagine Kaikōura campaign conducted by the local council to provide direction for the rebuild and re-creation of Kaikōura. Many participants described the process whereby the council gathered and collated opinions on the future direction of the town in an effort to consult with the

community on what they wanted. These sentiments are reflected in the comments in interview 9 below;

“So we went back out again and consulted with the town, with the community, and that was a massive task and [] that was put together basically by a series of meetings asking the people what they want, and to write [it] down. We were doing mail drops and also Facebook stuff, but we tried to cover everybody in the community. It was pretty successful with a population of what, 4050 here. We got 2600 wishes and wants of people” (interview 9).

Participants echoed the goal of the consultative planning process was to instil feelings of trust and involvement amongst the community, build relationships between recovery leaders and communities and, ultimately, keep public unrest to a minimum. Participants describe how the mechanism of community consultation provided an opportunity for the public to contribute to recovery in the hope that this would increase community ‘buy-in’ and reduce discontent. The community for their part showed some enthusiasm for participating in the consultation process, as indicated by the quote from interview 7,

“It was clear to me that the community, either in smaller groups, whether voluntary or whether businesses, were clearly motivated to be part of the recovery process and potentially contribute” (interview 7).

The second strategy reported by participants as being used to enhance community consultation was public community meetings. Participants suggested that the purpose of these community meetings was to consult with, and inform, the community. Many interviewed referred to these community meetings as an imperative aspect to the way in which the recovery model chosen was conveyed to the community. Participants discussed how these meetings let the community know that recovery coordinators were open and inclusive in their style; see comments from interviews 3 and 8 that follow;

“In the earthquake response, we met with the community every day for about an hour up at the clock. We did that for close on two months and then we started with monthly meetings, or fortnightly meetings with the community. We went down to monthly meetings and we're now starting to do probably every couple of months a meeting” (interview 3).

“If you're in a small community, the grapevine works pretty efficiently and so you tend to sort of have quite an open consultative way of working. Just by looking on the Kaikōura District Council website you can see how open they have been with their processes and live streaming public meetings and that sort of thing” (Interview 8).

Thirdly, the use of ‘convenors’ was reported by some participants as a strategy to enhance community consultation. The convenors were responsible for consulting with groups of the public and relaying that information to recovery leadership. It was the experience of the participants (as recovery leaders) that these convenors were well received, and facilitated the recovery through the development of relationships, and the feedback of communities’ thoughts, queries and concerns to those agents directing the recovery (see quote below from Interview 9).

“So what we wanted with those convenors was[] to actually go out and have regular fortnightly meetings in the early stage, trailed off to a month. But they were the ones who were in charge of actually consulting with the wider group, and they fed that back to us” (interview 9).

4.1.6 Communication

Communication, both with the community and between those facilitating the recovery is a common theme reported by participants as a key factor in the chosen approach to recovery. As previously discussed, the recovery in Kaikōura is one grounded in a locally led recovery, utilising outside assistance, and emphasising the importance of communication. Two types

of communication are prevalent in the data; first, recovery leaders-to-community, and second, recovery leaders-to-recovery leaders.

Participants noted communication with the community had an impact on the way the recovery was perceived by the public. Mediums such as social media, town meetings, release of plans, door knocking, and a dedicated communications resource at the Kaikōura District Council were all given as examples by participants of the steps taken by recovery coordinators to communicate with the community. Some participants emphasised the importance of the way in which messages were communicated. For example, one participant (interview 9) discussed the use of door knocking as a communication strategy. They believed that the small town aspect of Kaikōura's demographic provided a unique situation where door knocking was an effective way to communicate with the community in a personalised manner, often not possible (or as relevant) in larger communities. Independent of the precise mechanism of communication one participant discussed the importance of the language, indicating that,

“Language I think is incredibly powerful, and it’s how we brand what we do that sends really strong messages” (interview 10).

Some participants believe this communication had the desired impact on the Kaikōura community by increasing the patience, belief and trust of the community in the recovery leadership at a trying time. Therefore, a key aspect of the success of such communication during the recovery process is ensuring that it is both honest and open (see comments from interview 9);

“And if you’re wanting a community, and we were encouraging every time we talked, ‘stay together, believe in us’ you know, and they did. But to do that, the communication needed to be honest and open” (interview 9).

In addition to communication with the community, inter-agency communication between facilitating agents and recovery leaders was regarded as being an important facet of the

recovery programme. Interviewees 3, 6 and 9 (both expert and local) all indicated that face-to-face meetings, telephone conferences, video conferences and forums were methods used successfully for communicating amongst themselves. Some participants hypothesise that communication between facilitating agents can increase understanding, and knowledge flow, and has encouraged and facilitated collaboration between recovery coordinators. Such communication was also critical for ensuring that the members of the leadership group clearly understood the needs of other members of the group, as indicated by interview 3;

“I guess it's really making sure that there is a two-way communication and regular and timeliness communication between all those agencies so one, they understand our needs, they understand our requirements and two, we understand their needs and we're delivering on that and we also understand our community's needs and they understand that as well and the different sectors” (interview 3).

4.2 Social capital

Social capital in the Kaikōura disaster recovery is widely referred to throughout interviews by participants. In the context of disaster recovery, social capital is defined as the social resources, social networks and social structures that actors have access to within recovery to secure benefits (Inkpen & Tsang, 2005; Melo Zurita et al, 2018; Wei & Han, 2018). Participants reported a high level of social capital being present in the Kaikōura recovery. Some participants suggested this high social capital was a result of the small number of people in the Kaikōura district, with strong relationships and networks established in the community prior to the earthquake. Additionally, it could be conceived that the concept of pre-existing social capital could be applied to the social capital that was pre-existing amongst those in the disaster recovery profession (the experts). Participants also recognise this alternate explanation for the high social capital in the Kaikōura recovery, suggesting instead that it is a transference of the high level of social capital amongst the expert recovery coordinators, who had previous experience in Canterbury. Although participants could not reach consensus on the cause of the high social capital in Kaikōura, it is clear that

many participants recognise and acknowledge its presence and importance (interviews 2, 3, 5, 6, 8 and 13).

Relationships are an example of social capital that is reported by participants as a significant element of the Kaikōura recovery. Many participants report how in their experience, relationships have facilitated the delivery of the recovery through enhancing communication, collaboration, and timeliness.

“Really important that you do build those relationships and partnerships with those people because you can't do it alone” (interview 3).

4.2.1 Experts personal connections

One form of the above-mentioned relationships are the strong personal connections between the experts with experience from the Canterbury earthquakes that was reported by many participants. During interviews participants were asked about the inter-agency coordination that they employed to deliver the recovery. The question was referring to the mechanics of how different recovery agencies were working together, and the researcher was expecting to hear about professional networks. Instead, almost all participants recounted the inter-personal connections and relationships that they had with others coordinating the recovery (interviews 1, 8 & 12). For example, interviewee 11 indicated that;

“We had very good working relationships so we all knew each other and knew how things worked and what needed to be done” (interview 11).

The experts discussed the value of being able to transfer strong working relationships from one disaster to another. Participants theorised that these inter-personal connections between experts were formed, or significantly strengthened, during the recovery phase of the Canterbury earthquakes (interviews 1, 8 & 13). The geographic and temporal proximity of the 2016 Kaikōura and 2010/2011 Canterbury earthquakes meant that many experts

were involved in both events with the relationships and personal connections being transferred (and in some cases developed further) to the Kaikōura recovery efforts (interviews 4, 5 & 6). Further, it was some participant's view that a consequence of experiencing two events in such close space and time facilitated (and benefitted) the Kaikōura recovery through the transference of knowledge, relationships, connections and social capital. Benefits of these inter-personal relationships as discussed by participants include; enabling networking, support for those coordinating the recovery and encouraging collaboration. Additionally, participants noted the ability to communicate openly and freely with those experts that they had previously worked with. This point is emphasised by the following statement from interview 10;

“We know each other well enough now to just simply pick up the phone and say, ‘I want to give you a heads up, this is what I’ve heard, what’s the story?’” (Interview 10).

Many participants reported consequences of the transference of experts from Canterbury to Kaikōura; some expected and others less obvious at the start of the process. For example, the experts increased the post-earthquake disaster recovery knowledge of the leadership group following the Kaikōura event. An unexpected consequence reported by participants was the level of community interaction that transpired between the Kaikōura community and the community of disaster recovery experts. This interaction had the consequence of ensuring that the community were engaged with the governance group and instilled confidence of the community in the non-local experts. It also provided a ‘reassurance’ factor that experts were contributing to the process and working for the community. Additionally, it also provided the opportunity for experts to gauge the ‘state-of-mind’ of community members and to assess how the community perceived the status of the recovery process. Interview 10 (an expert) described this interaction between locals and non-local experts;

“So because our team have been there since the emergency, they are accepted as part of the community. I mean it’s funny if you like as our team are asked sometimes to go to the dog trials, or to the community consultation forums, of the local school barbeque, or we get local shoppers discounts” (Interview 10).

4.2.2 Collaboration of recovery facilitators

It was echoed amongst participants that they felt collaboration was a central aspect to any recovery. The importance of collaboration was recognised by the participants with the respondent for interview 3 stating that;

“I think one of the biggest learnings is that you can't do it alone. One of the biggest learnings is that you've got to build relationships and you've got to build partnerships and that you are going to rely on a lot of people to help you get through” (interview 3).

Participants in this study perceived there was a high level of collaboration between recovery facilitators in general. Interviewees stated that local agencies, government, the community, and volunteers worked together to deliver the recovery creating inter-district, government-local, and coordinator-community collaboration (interviews 3, 6 & 11). It is the experience of many participants that greater collaboration leads to increased buy-in and engagement, which in turn gets more done, and locals are happier. Additionally, it was suggested by participants that the consequences of collaboration, and the relationships and partnerships that emerge from it, are the support and assistance for all involved in coordinating the recovery effort.

“You can't run a recovery on your own. It takes a lot of partners, both locally and also nationally to help you co-ordinate it” (interview 3).

Throughout interviews participants alluded to additional demands that collaboration created, such as a requirement for strong role clarity between those involved. Role clarity surrounding processes and command was important where multiple agencies were coordinating, and the participants stated that collaboration during the recovery programme highlighted the need for this clarity. Such clarity of roles enabled the governance group to work collectively and efficiently towards common goals with each clearly understanding what the other will do, when it will happen, and what the consequences for their contribution might be. The importance of role clarity was signalled in interview 13;

“From a process perspective we’re hoping that you know we get a little bit more clarity around you know what the NRO’s expected to do, versus what a group recovery manager is, [] is expected to do in supporting the impacted T.A’s” (interview 13).

4.3 Learning

Most of the contributors to this study expressed the view that they and/or others had learnt from the Kaikōura Earthquake recovery process. Phrases such as ‘I have learnt’ or ‘the biggest learnings were’ are prevalent in the data, indicating that participants were aware of this new learning. Learning emerging from the participant’s personal reflections could mainly be divided into three main groups; i) evidence of new learning from participants, ii) the transference of learnings from Canterbury to Kaikōura, and iii) the documentation of learning for the future.

“Look after your people in the process because, at the end of the day, they are the ones who are working at the coalface. Those are []s the people that are taking the strain and you can’t do it alone. You need your team and you need a united team” (interview 3).

“Well, I’ve learnt is how a community can be you know, it can pull together in a disaster and how much a community thrives on information” (interview 9).

“How can you enable a small rural town to deal with the scale of something that magnitude, you’re always going to rely on additional help, additional support, and it’s about how that’s managed, and how that interfaces with locals, or some local understanding is really key” (interview 11).

“I think one of the biggest learnings is that you’ve [] actually got to proactively seek help where you need it” (interview 3).

Many participants expressed the importance of reflecting on their recovery experience, and participants showed significant depth of consideration for the things that they have experienced. In addition to this, several participants believed that reflection and the lessons learnt, better prepares individuals for future events. These reflections took one of two forms. Firstly, the aspects that worked well and the aspects of the recovery that, in hindsight, might have been done differently. Both aspects of these reflections provide information and direction for future disaster recoveries. The potential value of the Kaikōura recovery experience for future natural disasters was succinctly stated in interview 3;

“So you can step back and you reflect on what worked well, what didn't work well and how can we do it better next time” (interview 2).

Secondly, participants reported the transference of learning from the recent Canterbury earthquakes to the Kaikōura Earthquake as being an important (and successful) component of the Kaikōura Earthquake recovery programme. Factors such as the transference of individuals (experts and coordinators) from Canterbury to Kaikōura are discussed by participants as a strong element of this transfer, which was facilitated by the temporal and spatial occurrence of the two events. The assistance afforded by experts from the Canterbury earthquakes was highlighted in interview 1, in which it was stated that;

“So those learnings, because they were fresh, and we had the people who already knew them all, really helped, huge help there” (interview 1).

Participants described the content of this learning included both process-related insights, supplemented by anecdotes that participants reported provided an additional level of insight, and awareness for those who were new to disaster recovery.

“So Christchurch people that came to Kaikōura to work were all very respectful of the fact, and all usually said quite clearly ‘our earthquake experience is different to yours, but here are some of things we learnt from our experience’” (interview 12).

Many participants referred to processes and systems that worked well in Canterbury and were replicated (to some extent) in Kaikōura. For example, participants described the North Canterbury Transport Infrastructure Recovery (NCTIR) alliance that has been set up in Kaikōura was modelled off of the Stronger Christchurch Infrastructure Rebuild Team (SCIRT) alliance that was developed in Christchurch. SCIRT was seen to be a success of the Canterbury recovery in the opinion of those in Kaikōura, and as such, a similar model was utilised in the Kaikōura recovery.

“A major part of the work has been natural hazards, helping with that. Another one has been the infrastructure rebuild, helping on that and taking the SCIRT experience into that one (Kaikōura)” (interview 5).

A key theme raised by many participants was the idea that the learnings from Kaikōura should not be lost to future recovery from natural disasters. Several participants were concerned that the transference of learnings that they have experienced in the Kaikōura recovery, may not be replicable to future disaster recoveries where the time and distance between recent disasters is greater.

For permanent, lasting learning to come out of participant reflection, reflections and lessons learnt must be documented in order to transfer those learnings across time, settings, and geographic barriers. There was no evidence in the data of structures in place for the documentation of learnings for the future. Although no specific recommendations are made, many participants emphasise that an effort needs to be made to ensure the lessons learnt in the disaster recovery space in the last eight years in New Zealand are appropriately recorded. There is concern that the aspiration of participants for their new learning and reflections to assist future disaster recoveries, may not be met.

“There is a real risk and that's why I mentioned earlier there is a lack of investment still being made to the whole gambit of recovery management...So there is lack of investment in that space and there is a risk that with the passing of time so the knowledge will disappear”
(interview 6).

“I think that one of the key, and the really important things is that there is some really good research done, and there has been some great research done out of Christchurch. That, [] is there, so actually there is some paper or not paper but you know, able to be accessed on the internet, there is [] information is available because it was collated at that time” (interview 12).

In addition to simply recording lessons, participants reported that the form in which these lessons are collected and recorded is also of importance. Some participants discuss that it can be difficult to capture anecdotal and qualitative data post-disaster and in addition, some participants went on to say that from their own experience this type of data can be the information most useful to those who have been thrown in to their own disaster recovery. In particular, participants who were unfamiliar with disaster recovery pre-Kaikōura all discussed the value and significance of the anecdotal and informal stories they heard from experts and experienced recovery coordinators in the early days of their recovery.

“I think it’s not just the research and the data stuff, but it’s the anecdotal, the collecting the anecdotal stuff. You know, well this really worked for our community, it’s not necessarily recorded in any data, but we all felt it worked” (interview 12).

“I think it’s about ensuring that whichever community you deal with has the opportunity to hear the learnings from other people’s experiences and then choose which way they want to go with their own experience” (interview 12).

One participant raised the question whether findings from governmental reviews should be distributed nationally to the public in an easy-to-interpret format that would increase national preparedness for disasters. This was in line with the majority of participants who believed that information should be readily available for the public.

4.4 Summary of findings

The findings of this study suggest that many aspects of Kaikōura's specific situation had an effect on the way in which the recovery was planned and delivered. The recovery ethos used was one grounded in a locally-led approach, and the participants' thoughts and feelings about the recovery model indicated that there was a tension between a locally-led recovery, and the right amount of government involvement to support and assist local agents. Complicating this tension further is the involvement of expert leaders with experience from the Canterbury earthquakes. Although the locally-led recovery model has received strong support from the participants of this study, it has become apparent that it may not always be applicable, and this theme will be discussed further in chapter five. Additionally, factors such as community consultation, and communication are discussed in relation to the recovery model utilised as contributing factors to the local approach taken. Secondly, this research has found high levels of social capital in Kaikōura, with many participants indicating that the pre-existing social capital and a transference of social capital through the disaster recovery field have had an effect on the locally led approach. Finally, this thesis has uncovered a theme surrounding learning from the Kaikoura recovery, with new learning, the transference of learning and documentation of learning presenting as common themes.

The next chapter discussion, will further explore these themes and seek to provide explanation for these findings.

5. Discussion

The Kaikōura case study provides insights into disaster recovery that may be of general application and unique to the setting, location and circumstances of the 2016 event. There are two aspects of this study that are of significance. One, the occurrence of the Kaikōura earthquake in close proximity to the Canterbury earthquakes. In particular, the experience of two events in close temporal and spatial proximity appears to have had a significant impact on the way the recovery was conducted. The generalisability of this occurrence is examined within this chapter, in terms of the ability to repeat actions taken in Kaikōura, if another two events should occur this close together. Addressing this requires an understanding of when inherited expertise is mostly likely to be transferred between disaster events, and the extent to which the Kaikōura setting and recovery experience is applicable to future events. This occurrence of two events in close proximity is an important topic due to the increasing likelihood of further events occurring. Such inherited expertise could become an important aspect in New Zealand disaster recovery, as it is proposed we are in a cluster of earthquake activity (Kaiser et al., 2017; Nicol et al., 2016). In addition globally, there is increasing data to support the notion that global warming is increasing the frequency of climate-related disaster events (NASA, 2018). With the prospect of future events occurring in close temporal and spatial proximity, the outcomes of this thesis could inform disaster-recovery practices. The second significant aspect of this case study is it has unique aspects to it that are not generalisable to wider disaster recovery, or to other cases in New Zealand. Kaikōura is a rural town, in a unique situation regarding their reliance on the main state highway that was closed due to the earthquake.

This chapter discusses the significance of experiencing the Kaikōura and Canterbury events close together, how this influenced the Kaikōura recovery, and the extent to which elements of the recovery process can be generalised. In order to determine which recovery experiences might have general application, and which are Kaikōura specific, the setting and main elements of the Kaikōura recovery process are first outlined. The role of transferred experience through the use of experts and its applicability for future events are then

considered, before finishing with discussions on the limitations of this study and areas for future research on the topic of Kaikōura disaster recovery.

5.1 Kaikōura specific factors

The focus of energy release and damage during the Kaikōura Earthquake occurred in the Kaikōura District (Kaiser et al., 2017). The district is primarily rural with Kaikōura being the largest town in the district with a population of 2080 at the 2013 national census (Ministry of Business, Innovation and Employment, 2016), and forming the hub of the community. The Kaikōura District contains ~0.08% of the New Zealand population and covers 0.764% of the total land area of New Zealand (Kaikoura District Council, 2018b). Aspects of the disaster effects on the Kaikōura environment are in opposition in terms of the level and implications of damage. On one hand, Kaikōura is a rural, small town, of relatively low national importance in terms of the number of people affected and the dollar value of damaged infrastructure. From a national perspective the earthquake did not directly impact a large part of the country or a significant proportion of the population. On the other hand, the national reliance on State Highway one which was destroyed in the earthquake, makes the Kaikōura earthquake significant for the country. Despite the rural setting and small population of the Kaikōura District, it contains State Highway (SH) 1 and the main railway line, which constitute the main transport routes in the South Island. The earthquake and subsequent closure of SH1 has disrupted these primary transport routes, inhibiting the transport of goods, affecting much of the South Island, and the movement of tourists into the Kaikōura District. Therefore, disruption of the transport network impacted a far larger proportion of the resident New Zealand population than the number of residents in the Kaikōura District. This juxtaposition between the Kaikōura event being highly significant for New Zealand, and yet having a smaller resident base is explored repeatedly in this thesis and presents itself in the form of the multi-party governance debate, and the choice of recovery approach.

A complicating factor in this tension is Kaikōura's reliance on road access to sustain tourism, one of the town's largest revenue sources. Although the event could be perceived to not have had significant implications for the Kaikōura township in terms of infrastructure or loss

of life, the closure of the main access roads, both north and south, had significant consequences for Kaikōura's economy and livelihood. It may also have impacted the number of tourists and their planned travel plans while in New Zealand.

The Kaikōura recovery was locally led with assistance from expert leaders. This approach to recovery utilised local council and community leaders to lead a ground-up recovery centered strongly in the community, with the government taking a secondary role. The community-centered recovery approach emphasised collaboration, community consultation, locally-led recovery, and communication as key elements of the recovery effort. Such an approach to recovery is presently considered international best practice and appears to have been effective, with most interviewees in this study recording contentment in the design and operation of the recovery.

One of the key features in the Kaikōura situation was social capital, the strong links between members of the community and members of the recovery. As discussed in the previous chapter, the social capital and the connections that it facilitated were of significance to the recovery. However, the generalisability of this social capital requires examination. The pre-existing social capital present amongst the Kaikōura community would be generalisable to other small-town settings due to the relationships that typically develop in these towns, but it is less clear how well this would apply elsewhere. Questions are raised if this pre-existing social capital in Kaikōura has affected the recovery. For example, does the social capital prevalent in small town Kaikōura demand a level of community consultation that would be less essential elsewhere? Unique aspects of this recovery such as the use of the grapevine for communication with the community is a Kaikōura specific factor in this recovery. The grapevine for example, would not work in a larger city such as Auckland or Wellington, as it relies on the small nature of Kaikōura to make it happen. The Kaikōura recovery raises questions as to which strategies used might be applicable elsewhere, and which have been a result of the unique factors that this recovery presents.

5.2 Transfer of expert knowledge

The transfer of experts from the 2010-2011 earthquakes in Canterbury to the Kaikōura recovery was a key aspect in the post-disaster recovery. In the Kaikōura case these experts assisted in shaping the recovery through sharing their knowledge and experience. For example, participants in the present study noted that in the planning and implementation of the Kaikōura recovery process, leaders drew upon what had worked and what was less successful following the Canterbury earthquakes (Chapter 4). Such input was critical for developing a recovery programme in which ‘mistakes’ were minimised, and knowledge was transferred effectively and efficiently into the recovery zone. Questions remain around the extent to which similar levels of expertise will be available for future natural disasters in New Zealand and whether the transference of experts that occurred in the Kaikōura recovery will be relevant for future events. Participants of this study considered the transference to be a consequence of experiencing two natural disaster events close in time and space. If this is correct, then in order to assess the importance of the Kaikōura recovery experience, it becomes important to estimate the likelihood of two natural disasters occurring in close proximity in the future.

Earthquakes, volcanic eruptions and severe storm events play an important role in shaping the New Zealand landscape and yet occur relatively infrequently over an average human lifetime. For example, since 1840 large (greater than magnitude 7) damaging earthquakes have occurred on average about every 25 years (Nicol et al., 2016). Many of these events caused loss of life and imposed significant financial burden on New Zealand but are likely to be too far apart in time to support the effective transference of experts between events. However, historical data shows large earthquakes in New Zealand do not occur at regular time intervals and are clustered in time periods of frequent earthquake activity separated by periods of time with little activity. For example, from 1922 to 1943 New Zealand experienced seven large magnitude earthquakes that caused damage (i.e., one every 3 years), while in the following 40 years was affected by just one such event (the 1968 magnitude 7.2 Inangahua Earthquake) (Nicol et al., 2016). Therefore, the time to the next large earthquake is dependent on whether New Zealand is presently between, or within, a cluster of earthquakes. Kaiser et al. (2017) have argued that the 2016 Kaikōura Earthquake

is part of an earthquake cluster that also includes the Canterbury earthquakes and, if this is correct, we could expect large magnitude earthquakes in the near future (e.g., within next 10 years). This potential for future earthquakes raises the possibility that the transference of experts experienced in Kaikōura could also occur in the future. Additionally, it is predicted that climate change will produce more frequent storm events in the years to come (NASA, 2018). In both cases, the learning from the Kaikōura recovery programme and, in particular, transference of experts may have application for future events.

Aldrich (2012) argues that co-ordinating disaster recovery relies on robust social networks to disseminate information and acquire financial and physical assistance. In addition, Kusumasari and Alam (2012) discuss the role that networks can play, as a form of social capital, in expanding the capability of local government; this was evidenced in the Kaikōura events. Personal connections and networks have facilitated the delivery of the Kaikōura disaster recovery through support and assistance for the Kaikōura district Council, particularly from Canterbury 'experts'. The transference of experts from the Canterbury to the Kaikōura recovery permitted a rapid transfer of disaster recovery knowledge into the Kaikōura community. This knowledge transfer is considered new learning for people in the Kaikōura community who haven't experienced a disaster of this magnitude before. The transference of experts from Canterbury to Kaikōura could be interpreted as a form of Aldrich's (2012) pre-existing social capital. These experts had previously formed personal connections and social capital in the Canterbury community, and their transference to the Kaikōura community facilitates the transplantation of pre-existing social capital into the local disaster recovery field. In this way it could be conceived that the pre-existing social capital referred to by Aldrich (2012) is a combination of the social capital in the community (as described by Aldrich) plus the social capital amongst recovery professionals, supplied by the disaster recovery experts. Therefore, the transference of pre-existing recovery social capital into Kaikōura builds upon the pre-existing local social capital in Kaikōura.

A downside of this however is that the introduction of experts during the transference process can cause tension in the recovering community. As is often the case in other disasters, the role of experts in the Kaikōura recovery environment was a key point of

discussion in governance debate. The well recognised tension between a government-led recovery and a locally-led recovery is complicated by the addition of experts who typically have no prior connection to the community in recovery mode. The transference of experts, and the potential tension with locals is likely to be repeated in situations where the disaster recovery is taking place outside the main urban centres and the experts are most likely to be non-residents (i.e., outsiders). Given the rural nature of much of New Zealand, this transfer allows these experts to assist where smaller centres may not have existing disaster recovery expertise. One of the key challenges in recovery is creating an approach that integrates three separate parties; (i) government, as the major funders of this recovery, (ii) local people with local knowledge that is vital to guiding the recovery, and (iii) utilising the expertise of specialists and people with experience. This formed a major challenge for Kaikōura. The literature indicates that these challenges are most likely to be overcome by establishing clear, strong and collaborative communication pathways between stakeholders (Shaw, Gupta, & Sarma, 2003). These experts offer an opportunity to improve disaster recovery planning and implementation by bringing their expertise to each disaster. Experts may also improve societal resilience for future disasters, by informing improvements in the field of disaster recovery management. Any such societal improvements require that we critically review how the recovery process was conducted, and closely consider the implications and outcomes of the recovery effort.

5.3 Limitations

This exploratory study aimed to explore the dynamics involved in earthquake recovery in a specific setting that was both rural, yet a vital transport lifeline of national significance. Therefore, the results are likely to be most applicable in rural settings where the main arterial transport routes were severed, and the disaster closely followed an earlier damaging earthquake. More case studies are required to examine how the recovery process would vary in, for example, urban settings or differ in degrees of expert transference. This study does not purport to attempt to directly generalise to large centres, however aspects of the transfer of experts are likely to apply as it is unlikely that a single population centre has a full set of onsite experts. This study demonstrates how these experts function with each other, and with the local community, that could be applicable in other places.

Additionally, this study interviewed people in leadership positions for the Kaikōura Earthquake recovery. A limited number of participants (N=13) were interviewed, in order to gain in-depth insights, and a rich quality of data. This is a trade off in that the study gave rich, detailed insights but does not purport to generalise in a statistical sense. The sample size was not problematic as this study aimed to create theoretical generalisations rather than statistical generalisations (Yin, 2009). As the data gathered in these interviews was rich, detailed and very broad, using the data to its full potential was a considerable challenge within the context of this thesis. The exploratory nature of the topic and the large amount of data meant that becoming intimately familiar with all data, and careful analysis of the data, was necessary for exploring similarities and dissimilarities, between the interviews.

The interviews were mainly conducted 9-12 months post-earthquake when the participants were still very much in the recovery phase. At this point in time the participants were still firmly focused on the recovery, and for many their thoughts had not yet turned to the future. The timing of the interviews meant that the participants were able to recall many of the details of the process, the consequences associated with the various elements of the recovery, and the reasons for the resulting outcomes. The timing of the interviews may also have placed constraints on the outcomes because the participants had limited time for reflection and there was limited documentation available about the recovery process. Consequently, with the passage of time it is possible that some of the interviewee experiences may have developed further, providing a more extended longitudinal perspective of the recovery experiences.

5.4 Directions for future research

Future studies of the Kaikōura recovery may benefit from a more longitudinal study, potentially even revisiting the same participants to monitor the progression of the recovery, extend the insights presented in this study, and potentially add extra depth to the findings from the current set of interviews.

The constraints of the present research, with a single researcher operating within a confined timeframe, precluded the option of exploring the perspective of the residents of the Kaikōura community. Some participants were community members and were also involved in the planning and delivery of the recovery. In particular, examining the wider Kaikōura community could highlight different perceptions and may offer additional insights into aspects of the recovery process. Additionally, time and resource constraints precluded the researcher from exploring other districts affected.

Notable findings such as the transferability of learning from one disaster to another would also provide interesting topics for future research.

5.5 Academic and practical implications

This research presents a valuable case study of the dynamics involved in earthquake recovery in a specific setting. Previously, the effects of two events in such close temporal and geographic proximity on the disaster recovery process has not been extensively studied, most likely due to the rarity of this occurrence. This study adds to the literature on disaster recovery by presenting the consequences of two earthquake events within close proximity, as a valuable case study.

This study has presented the consequences of having two events close together in the case of Kaikōura. The likelihood of further earthquake and non-earthquake events is presented in recent data. Nicol's (2016) work suggesting that New Zealand is entering a period of high seismic activity, or an 'earthquake cluster' provides ample justification to suggest that the findings of this thesis, in particular, the transfer of expert knowledge between two events and the consequences of two events being in such close proximity, could have important practical implications for future disaster recoveries. It is also important to consider that the learning that has emerged from this thesis is not solely applicable to earthquake disasters, and information on disaster recovery models, processes and decision making can be applied across many different disaster types. With the rising number of climate related events (including climactic events such as floods, storms and cyclones), the applicability of these

findings surrounding the transfer of knowledge through 'experts' becomes increasingly relevant and the usefulness of these findings are multiplied.

This study has highlighted the value of transferring disaster recovery knowledge through people, and utilising these people for future disasters. If anything, this disaster has prompted appreciation of the benefits and convenience in having 'experts' with recent experience from Canterbury, and in addition provoked reflection on the importance of the documentation of learnings.

Disasters are harmful, traumatic events that affect the lives of people, communities and economic wellbeing. Learning more about improving ways to manage recovery can benefit society by reducing some of this harm. This study draws attention to disasters that are closely spaced in time, and the need to address the interface between the transfer of specialist disaster knowledge, whilst still achieving community-based recovery.

6. Conclusion

The Kaikōura District was extensively damaged during the magnitude 7.8 Kaikōura Earthquake on November 2016. This study commenced almost a year after the earthquake and focuses on the recovery process using the perspectives of people in leadership positions from the local Kaikōura community and experts with recovery experience from the Canterbury earthquakes. This study used the case of Kaikōura to explore the utilisation of highly experienced people in disaster recovery, seeking a balance of experts while recognising the benefits of a locally-led recovery. The views of these participants provide information about the approach to recovery, the contribution of experts from the Canterbury earthquakes to this recovery and what we can learn from the recovery process. The findings are both generic and specific to the Kaikōura case study.

According to the study participants, recovery used in Kaikōura was characterised by a strong locally-led component. The adopted model of recovery utilises local council and community leaders to lead a ground-up recovery centred strongly in the community. The locally-led recovery was strongly supported by the participants, as they believe that the local leaders had an enhanced understanding of the complexities of the local community and superior knowledge of the local people. Most participants reported that locally-led recovery was strongly supported by both government and local residents which, in turn, fostered communication and collaboration. Participants also believed that the locally-led recovery gave the locals a voice in the recovery, input into the decision making and a sense that they were integral to the process.

The prospect of a top-down recovery process was not favoured by the participants, in part because they believed that it would decrease the involvement of the community and reduce its effectiveness. Despite these views the Kaikōura recovery would not have been possible without some involvement of government and of people with expertise in disaster recovery (no such experience resided in Kaikōura before the earthquake). This expertise was provided by people involved in recovery following the 2010-2011 Canterbury earthquakes. All participants made mention of the invaluable assistance to Kaikōura locals received from

those with recovery experience from the Canterbury earthquakes. The contribution of the experts resulted in a transference of expertise and social capital into the Kaikōura community. These experts provided guidance for local leaders and advice about how best to structure the recovery programme. The transference of expertise and social capital was facilitated by the the close temporal and spatial proximity of the 2016 Kaikōura and 2010-2011 Canterbury earthquakes.

The interplay between these three groups: locals, government, and experts represented a multi-party governance debate who shared in the control of the Kaikōura earthquake recovery. Each party had their own expertise, agenda and networks that they brought to the Kaikōura recovery, creating a unique dynamic between the three groups.

Given that New Zealand is presently within a cluster of large magnitude and damaging earthquakes and that climate change is expected to increase the frequency of weather events, the transference of knowledge and social capital via experts with direct recovery experience is likely to occur in future events. Therefore, this study has implications for practitioners and policy makers in disaster recovery. How relevant the Kaikōura recovery experience is to these future events will depend on their location and impact.

Disasters are harmful, traumatic events that affect the lives of people, communities and economic wellbeing. Learning more about improving ways to manage recovery can benefit society by reducing some of this harm. This study draws attention to disasters that are closely spaced in time, and the need to address the interface between the transfer of specialist disaster knowledge, whilst still achieving community-based recovery.

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Appendices

Appendix A: Human Ethics Approval



HUMAN ETHICS COMMITTEE

Secretary, Rebecca Robinson
Telephone: +64 03 369 4588, Extn 94588
Email: human-ethics@canterbury.ac.nz

Ref: HEC 2017/49/LR

18 August 2017

Lily Nicol
Management, Marketing and Entrepreneurship
UNIVERSITY OF CANTERBURY

Dear Lily

Thank you for submitting your low risk application to the Human Ethics Committee for the research proposal titled "Demands Placed on Local Agencies in Facilitating Post-Disaster Recovery".

I am pleased to advise that this application has been reviewed and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your emails of 17th July and 13th August 2017.

With best wishes for your project.

Yours sincerely

R. Robinson
pp.

Associate Professor Jane Maidment
Chair, Human Ethics Committee

Appendix B: Information sheet

<p>INFORMATION SHEET</p> <hr/> <p>Department of Management, Marketing and Entrepreneurship Telephone: +64 277288870 Email: lily.nicol@pg.canterbury.ac.nz 18th September 2017</p> <p style="text-align: right;">UC UNIVERSITY OF CANTERBURY Te Whare Wānanga o Hāwhaia CHRISTCHURCH NEW ZEALAND</p> <p>The demands placed on local agencies in facilitating post disaster recovery</p> <p style="text-align: center;">Information sheet for interviewees</p> <p>My name is Lily Nicol; I am a Masters student researcher at the University of Canterbury.</p> <p>The aim of this study is to explore post-disaster recovery following the 2016 Kaikoura Earthquake. It aims to look at disaster recovery processes and the role of local agencies in disaster recovery.</p> <p>If you choose to take part in this study, your involvement in this project will be in the form of an interview with the researcher. The interview will last approximately 1 hour and will be recorded on a digital voice recorder. You will be made aware of when the recorder is running. You may be asked to answer follow up questions via phone or email following the interview for clarification and/or elaboration.</p> <p>Participation is voluntary and you have the right to withdraw at any stage without penalty. You may ask for your raw data (i.e. voice recordings) to be returned to you or destroyed at any point. If you withdraw, information relating to you will be removed. However, once analysis of raw data following the interview, it will become increasingly difficult to remove the influence of your data on the results.</p> <p>The results of the project may be published, but you may be assured of the complete confidentiality of data gathered in this investigation: your identity will not be made public without your prior consent. To ensure anonymity and confidentiality, your name and the name of your organisation will be replaced by an unrelated reference code when transcribing and analyzing. Digital voice recordings (raw data) will only be accessed by the researcher, however, transcriptions of voice recordings will be accessible to my supervisor at the University of Canterbury. You will have the opportunity to review and amend the transcript if you wish to.</p> <p>Please note, a thesis is a public document and will be available through the UC Library. Please indicate to the researcher on the consent form if you would like to receive a copy of the summary of results of the project.</p> <p>The project is being carried out as a requirement for a Masters of Commerce by Lily Nicol under the supervision of Bernard Walker, who can be contacted at bernard.walker@canterbury.ac.nz. He will be pleased to discuss any concerns you may have about participation in the project.</p>	
<p>This project has been reviewed and approved by the University of Canterbury Human Ethics Committee, and participants should address any complaints to The Chair, Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human.ethics@canterbury.ac.nz).</p> <p>If you agree to participate in the study, you are asked to complete the consent form and return it to Lily Nicol in person or via email: lily.nicol@pg.canterbury.ac.nz</p> <p>If you are interested in receiving a summary of results, please give your email in the space provided below.</p> <p>.....</p> <p>Many thanks, Lily Nicol</p> <p>Post-graduate researcher University of Canterbury Department of Management, Marketing and Entrepreneurship Mobile: +64 (0)27 728 8870 Email: lily.nicol@pg.canterbury.ac.nz</p>	

Appendix C: Consent Form



 CONSENT FORM

Department of Management, Marketing and Entrepreneurship
 Telephone: +64 27 728 8870
 Email:
 lily.nicol@pg.canterbury.ac.nz

**The demands placed on local agencies in facilitating post disaster
 recovery
 Consent Form for Interviews**

- I have been given a full explanation of this project and have had the opportunity to ask questions.
- I understand what is required of me if I agree to take part in the research.
- I understand that participation is voluntary and I may withdraw at any time without penalty. Withdrawal of participation will also include the withdrawal of any information I have provided should this remain practically achievable.
- I understand that any information or opinions I provide will be kept confidential to the researcher (and her supervisor) and that any published or reported results will not identify the participants or their organisation. I understand that a thesis is a public document and will be available through the UC Library.
- I understand that all data collected for the study will be kept in locked and secure facilities and/or in password protected electronic form and will be destroyed after five years.
- I understand the results of the data may be used for future analysis and publication internationally, and these results will be stored indefinitely.
- I understand that I will receive a copy of my interview transcript, and that this can be amended should I wish to do so.
- I understand I am able to receive a summary of the findings of the study upon completion.
- I understand that I can contact the researcher Lily Nicol (lily.nicol@pg.canterbury.ac.nz) or supervisor Bernard Walker (bernard.walker@canterbury.ac.nz) for further information. If I have any complaints, I can contact the Chair of the University of Canterbury Human Ethics Committee, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz)
- I would like a summary of the results of the project
- By signing below, I agree to participate in this research project.

Name: _____ Signed: _____ Date: _____

Many thanks,
Lily Nicol

Appendix D: Interview guide

Background:

- Walk me through, how did you become involved with the Kaikoura recovery? And what does this involvement look like?
- After the earthquake, what changed? What were you responsible for?

The recovery:

- Who was leading the recovery?
- How did these recovery processes emerge? Were they planned or emergent?
- How has that process evolved throughout the recovery?
- What role do you think the small town and small rate payer base has played in this recovery?

Recovery co-ordination:

- Can you map out some of the other agencies you encountered in facilitating the recovery?
- From your perspective, what does this joint involvement look like?
- What has your experience been like with others involved?

Challenges:

- What has been the biggest challenge for you surrounding the November 17th earthquake?

Learning:

- Looking back now, on the last 12 months, what have you learnt?
- To what extent could you carry across learnings from Canterbury? How applicable was it?
- Do you think the learning that has occurred from Kaikoura will be passed on to future disasters?

Further participants:

- Who else could add to my understanding of this? What other roles/players.