



DEPARTMENT of the
PRIME MINISTER and CABINET

Te Tari o Te Pirimia me Te Komiti Matua

Greater Christchurch Group

Whole of Government Report

Lessons from the Canterbury earthquake sequence

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1. Minister's Foreword

In November 2016, I commissioned the Department of the Prime Minister and Cabinet to undertake a review of the published material and put together a report that takes a whole-of-government perspective on the lessons from the Government's recovery efforts in the Canterbury earthquake disaster.

This report references more than 200 published reports, resulting in around 50 lessons identified across five topic areas: Recovery Governance Arrangements, Recovery Legislation, Land Decisions, Insurance Response and the Horizontal Infrastructure Rebuild Programme.

A disaster on the scale of the Canterbury earthquakes has rarely been witnessed in New Zealand. The resulting complexities that arose from this disaster have also been unprecedented.

This report opens with a quote: *"Recovery after great disaster is always complex, takes a very long time, and never occurs fast enough for affected residents"*. While experience tells us that this is true, it does not preclude us from seeking opportunities to learn from the experiences, achievements and challenges we have faced during the six years following the initial September 2010 earthquake.

Given the unique circumstances, there has been limited experience for us to draw on at a national level when managing the long and complex recovery process. This has created a learning curve for both the Government, its partners, all the other organisations and agencies, as well as the communities that have been involved in the recovery effort. The sheer size of the disaster meant a closely coordinated, collaborated approach was necessary to guide Canterbury through the recovery phase.

When engaging with the public during this phase, we collectively continued to be mindful of the ongoing impacts on the community. Therefore, many of the Government-led interventions were designed to enable those impacted by the earthquakes to move forward with their lives.

The total Crown investment in response to the Canterbury earthquakes is estimated at \$17.5 billion. This includes investment into innovative support services such as the Residential Advisory Service, the Earthquake Support Subsidy and the Canterbury Earthquake Temporary Accommodation Service.

Another notable government intervention was the process of land zoning decisions and the subsequent offers by the Government to purchase red zoned properties. This intervention gave homeowners the ability to move on with their lives, by giving them the option to quickly settle with the Crown and avoid lengthy negotiations with their insurers. The Canterbury Wellbeing Surveys tell us that insurance settlement delays is one of the factors that can have significant impact on psychosocial wellbeing.

The Canterbury Earthquake Recovery Learning and Legacy Programme was established by the Department of the Prime Minister and Cabinet to ensure that the lessons from our shared experiences are not lost.

Large parts of the Programme are now complete and a wide range of material is available on the EQ Recovery Learning website (www.eqrecoverylearning.org), which was launched in mid-2016. This website provides a platform for sharing recovery tools, information and lessons with both national and international recovery leaders and researchers. I'd like to acknowledge the many agencies, academic institutions and other organisations who have contributed to the vast material available on the website to date.

I hope that this report will be used as a basis for further work to apply the critical lessons from the 2010 and 2011 Canterbury earthquakes, and thereby better prepare New Zealand for the next disaster.



Minister supporting Greater Christchurch Regeneration

2. Executive Summary

“Recovery after great disaster is always complex, takes a very long time, and never occurs fast enough for affected residents”¹.

Managing the long and complex recovery from the devastating Canterbury earthquake sequence has been a learning curve for the New Zealand government and all its recovery partners. There was limited experience in dealing with the complexities of such an event, as disasters of this scale are rare.

There have been a number of research studies published on the government’s responses to the Canterbury earthquake sequence that began on 4 September 2010. This report synthesises the lessons captured from the published material related to the government’s actions following the earthquakes. It encompasses lessons focusing on five specific areas: Recovery Governance Arrangements, Recovery Legislation, Land Decisions, Insurance Response and the Horizontal Infrastructure Rebuild Programme.

This report contributes to the Department of the Prime Minister and Cabinet’s overall programme of work, and captures the many lessons from the Canterbury earthquake sequence in order to strengthen resilience for the benefit of all New Zealanders.

Much of the commentary from the material published to date on the government’s involvement with the earthquakes focuses on a specific area or issue, and largely reflects a subjective viewpoint. This report on the other hand takes a wider, whole-of-government perspective, drawing on studies that meet international research standards, i.e. are objective, analytical and evidence based. The studies from which the lessons are drawn were published, or commissioned by a government agency or research institution. In addition, as part of the whole-of-government effort, the following agencies provided the Department of the Prime Minister and Cabinet with their studies regarding their specific agency role in the recovery that were incorporated into this report:

- Canterbury Earthquake Recovery Authority (through the material published on the “EQ Recovery Learning” website);
- Department of Internal Affairs;
- Land Information New Zealand;
- Ministry of Business, Innovation and Employment;
- Ministry of Education;
- Ministry for Social Development;
- Ministry for Women; and
- The Treasury.

These studies largely derived lessons from reviews of published literature and interviews with key informants involved in the government response.

EQ Recovery Learning website

The EQ Recovery Learning website (<http://www.eqrecoverylearning.org/>) brings together the knowledge, insights, case studies, and real-life stories garnered from those involved directly in the Canterbury earthquakes. The Ministry of Civil Defence & Emergency Management will continue to manage this online resource for the benefit of New Zealanders and the wider international community.

2.1. Summary of the chapters

This section of the report provides a short summary of the individual chapters: Recovery Governance Arrangements; Recovery Legislation, Land Decisions, Insurance Response and the Horizontal Infrastructure Rebuild Programme.

¹ Johnson, L.A. & Olshansky, R.B., “After Great Disasters: How Six Countries Managed Community Recovery”, (Lincoln Institute of Land Policy, Cambridge, Massachusetts, USA, 2016).

Recovery Governance Arrangements

The Civil Defence Emergency Management Act 2002 provides a national governance framework in the event of a civil defence emergency, including national direction and coordination, while allowing for locally-led delivery. Prior to the earthquakes in Canterbury, it was recognised that the legislation would not be adequate to deal with recovery from a large-scale disaster. It is within this context, along with ongoing local governance problems in Canterbury, that governance structures were developed and evolved in response to the Canterbury earthquakes.

Following the September 2010 earthquake, a dedicated Minister for Canterbury Earthquake Recovery was appointed and the Canterbury Earthquake Response and Recovery Act 2010 enacted, setting up the Canterbury Earthquake Recovery Commission. The Commission comprised local mayors and government appointed commissioners, and its responsibilities included advising government on recovery priorities and coordinating recovery activities. Its Terms of Reference noted the role of local authorities in leading the recovery in accordance with the civil defence emergency management framework. However, the Commission did not function as well as had been intended and the 22 February 2011 earthquake presented an opportunity for government to make changes to the governance arrangements.

It was recognised that the recovery task ahead would involve more difficult decisions, more parties and more resources, than the recovery journey envisaged following the 4 September 2010 earthquake. The key lesson learned from international experience, and from recovery planning following the 4 September 2010 earthquake, was that a single entity with a clear leadership and coordination role in the recovery would remove local confusion and provide the greatest certainty. The government considered the governance options, and decided that a new public service department (the Canterbury Earthquake Recovery Authority) would be established in Christchurch to lead and coordinate the recovery effort. The Canterbury Earthquake Recovery Authority was intended to have a finite life, after which governance arrangements would transition to 'business as usual'.

The Canterbury Earthquake Recovery Authority was expected to be collaborating, engaging and supporting the wide range of stakeholders within the recovery community. It set up a range of formalised partnerships and structures to assist in coordinating recovery efforts and enabling input into decision-making. The Canterbury Earthquake Recovery Act 2011 provided that the Recovery Strategy must be developed in consultation with Christchurch City Council, Environment Canterbury, Waimakariri District Council, Selwyn District Council, and Te Rūnanga o Ngāi Tahu. These entities became known as the Strategic Partners. As the Canterbury Earthquake Recovery Authority's role evolved over time, uncertainty and confusion amongst the recovery community grew. As it took on more delivery roles and released overarching strategic plans such as the Recovery Strategy and the Christchurch Central Recovery Plan, recovery partners and the public began to see the Canterbury Earthquake Recovery Authority as 'owning' the recovery and being responsible for solving all problems. The kinds of tensions that arose could have been expected, and mechanisms put in place to manage them.

The Canterbury Earthquake Recovery Authority recognised the need to communicate and engage effectively with a number of organisations, communities, and individuals. The development of the Recovery Strategy and Christchurch Central Recovery Plan are examples where challenges arose. The Recovery Strategy was informed by a public engagement process that included workshops and written feedback, however some people who attended the workshops found it difficult to engage in long-term thinking of the strategy because they were still dealing with the ongoing aftershocks.

Christchurch City Council was the initial lead for developing a recovery plan for the central city. It organised a number of public engagement activities as part of their 'Share an Idea' campaign, including a 'Community Expo' that attracted 10,000 people. In total, over 106,000 ideas were received from the public. In considering the draft Central City Plan in early 2012, the government was assessing the additional information coming through about the extent of the damage to the central city, and the level of market confidence about returning business and investment to the central city. While acknowledging the widespread community support for the vision and key changes proposed in the draft Central City Plan, the government considered the plan needed more specific information about how it would be implemented. The government decided at that time that it would need to intervene in order to implement the finalised plan and mandated the Canterbury Earthquake Recovery Authority as the delivery entity to lead and facilitate the recovery of the central city. While the finalised Christchurch Central

Recovery Plan was informed by ideas and feedback generated through the 'Share an Idea' engagement process, there was a perception that central government interfered with, and took over from, a local government-led initiative leading to feelings of disempowerment and disillusionment within some parts of the Christchurch community. The Canterbury Earthquake Recovery Authority acknowledged that there was a communications vacuum after the release of the Christchurch Central Recovery Plan, which likely contributed to this public perception.

With the Canterbury Earthquake Recovery Act 2011 due to expire in April 2016, the Canterbury Earthquake Recovery Authority developed a transition plan to enable a smooth transfer of responsibilities at the time that it ceased to exist. The Canterbury Earthquake Recovery Authority wound down and transferred some of its responsibilities to other government agencies before being disestablished in April 2016. The Canterbury Earthquake Recovery Authority's reflection on the transition process found that taking a more strategic approach to disestablishment earlier on would have reduced its workload, as some recovery activities could have been transferred or wound down earlier.

New Zealand's governance arrangements after the 22 February 2011 earthquake combined top-down and bottom-up approaches, providing centralised leadership with formal community input into decision-making, however there is no consensus on the effectiveness of these governance arrangements in driving community participation. The Canterbury Earthquake Recovery Authority acknowledged that it missed opportunities to build local capacity partly due to public perception that it was responsible for everything recovery-related, and partly due to a strong culture of problem solving and 'doing' recovery.

Recovery Legislation

The Canterbury Earthquake Recovery Act 2011 was the key piece of legislation put in place to expedite and facilitate recovery from the earthquakes. It built and expanded upon the Canterbury Earthquake Response and Recovery Act 2010, which was in place within 11 days following the 4 September 2010 earthquake. Both of these Acts explicitly recognised and reflected the fact that, in line with international experience, the status quo legislative arrangements in New Zealand were not sufficient to expedite and ensure long-term recovery from events of the magnitude experienced in Canterbury.

The Canterbury Earthquake Response and Recovery Act 2010 attracted significant criticism due to the inclusion of an emergency regulation-making power that allowed the executive branch of government to make changes to other legislation through regulations without the usual oversight of the whole Parliament. Although this type of regulation-making power had precedents, in the context of response and recovery from emergencies (e.g. the Hawkes Bay Earthquake Act 1931), academics and members of the legal profession were vocal in their criticism that the powers were ripe for misuse.

Following the 22 February 2011 earthquake, the government recognised that the Canterbury Earthquake Response and Recovery Act 2010 was not fit for purpose, and replaced it with the Canterbury Earthquake Recovery Act 2011. This time, a less truncated Parliamentary process (including a brief select committee consideration) and the inclusion of additional checks and balances on the use of the regulation-making power contributed to a more muted critical response to the new legislation.

By the time the Canterbury Earthquake Recovery Act 2011 expired, over 60 Orders in Council had been made to amend other legislation in order to remove barriers to the recovery. The regulation-making power proved to be an effective recovery tool, pinpointing and resolving short-term or specific problems with primary legislation. The power was allowed to expire with the Canterbury Earthquake Recovery Act 2011 in April 2016. It was not carried forward into the Greater Christchurch Regeneration Act 2016 because the government determined it was no longer needed to support the next phase of the recovery and regeneration process in greater Christchurch.

In addition to the emergency regulation-making power, there were a number of specific powers included in the Canterbury Earthquake Recovery Act 2011 to expedite recovery that were not present in the Canterbury Earthquake Response and Recovery Act 2010. These included two statutory forums for input into decision-making (the Community Forum and Cross-Party Parliamentary Forum), planning instruments and works powers (e.g.

demolition, acquisition of land) and the power to alter Resource Management Act 1991 processes and documents (e.g. district plans) if necessary. The Canterbury Earthquake Recovery Act 2011 also included some relatively routine powers and obligations that related to matters of delegation, information gathering and dissemination, investigation and reporting, and ensuring compliance with the legislation.

The independent annual reviews of the Canterbury Earthquake Recovery Act 2011 found that, while the frequency of use of powers increased over time, the use of the powers as a whole was restrained. The use of special powers by the Minister for Canterbury Earthquake Recovery to expedite adaptation of territorial authority regulatory frameworks was seen as essential to expedite recovery. The annual reviews also found that the existence of the powers encouraged more pragmatism to be demonstrated in the face of disputes and contested issues. The reviews concluded that delays or impediments to recovery observed could not be attributed to the legislation or the way the powers were used.

There was a measured approach to the use of the regulation-making power to amend other legislation where it had a negative impact on recovery. This power was a necessary and effective recovery tool for resolving specific or short-term problems, but was appropriately in place for a limited time only.

The provisions in the Canterbury Earthquake Recovery Act 2011 for input into decision-making (including the Community Forum, the Cross-party Parliamentary Forum and the processes for consultation in the development of recovery plans) were put in place in recognition of the importance of local participation in long-term recovery. Notwithstanding that the two statutory forums worked well to advise government, and the recovery plan consultation processes set out in the Canterbury Earthquake Recovery Act 2011 were used as intended, over time the public expressed increasing concerns about the level of community engagement in key recovery decisions.

Overall, the Canterbury Earthquake Recovery Act 2011 worked as intended to expedite and facilitate recovery, and the checks and balances on the powers in the Act were appropriate.

Land Decisions

Following the Canterbury earthquake sequence, it soon became clear that in some residential areas the land damage was so severe that the land could not be fixed without large-scale remediation works across entire areas. The government decided that intervention was necessary to provide certainty for property owners, insurers, and investors as soon as possible to allow people to make decisions and move forward with their lives. The intervention comprised two key components – making land-zoning decisions to categorise properties based on land damage, and making voluntary offers to purchase properties in the most severely damaged areas.

Using the best geotechnical information available, every residential property in Christchurch was eventually categorised into one of the following 'zones':

- **Red** – land not recommended for continued residential development in the short term, because land repair would be prolonged and uneconomic, or there is an unacceptable level of risk to life from rock fall or cliff collapse; and
- **Green** – land suitable for repairing and rebuilding.

The green zone properties were then categorised according to types of land damage and how land might perform in future earthquakes. The Technical Categories were developed as a way to identify which green zone properties would need more complex geotechnical investigations before rebuilding could commence. This helped concentrate limited geotechnical resources in the worst-affected areas, and allowed the Ministry of Business, Innovation and Employment to develop foundation solutions and the private market to find affordable ways to meet the new standards. As well as setting the basis for the residential repair and rebuild, the decision to categorise land allowed property owners to go ahead with insurance claims relating to land damage and the repair or rebuilding of their properties.

There was some public criticism over the area-wide approach to zoning decisions that the government took, rather than assessing each property individually. This option was rejected as it would likely have been resource

intensive and taken many months for agreements between the Crown and individual property owners to be reached.

The land-zoning decisions were made under tight timeframes, acknowledging that more refined information would become available over time. However, reviews of the decisions were not built in to the zoning policy when it was originally developed. A decision to undertake reviews of the zoning decisions was made, largely in response to a large number of requests from the public for a review of their property's zone status. The review was also an opportunity to address the issues and public criticism that arose from the government's decision to trade off making timely decisions and awaiting perfect geotechnical information. As a result of the reviews a number of properties were rezoned from red to green, and vice versa.

Between June 2011 and July 2015 the government announced a series of offers to purchase properties in the residential red zone. The Crown offers were an emergency social policy response to assist home owners with moving out of the areas severely affected by the earthquakes, so that they could move on with their lives and avoid lengthy negotiations with their insurers. In late 2015, the Canterbury Earthquake Recovery Authority undertook a survey of over 2,000 property owners who accepted a Crown offer. Based on the views of the respondents, the majority (79 per cent) agreed that the Crown offer process gave them certainty and enabled them to move forward with their lives more quickly.

The Crown offer to purchase vacant, commercial, and uninsured red zone properties became the subject of a judicial review, with a group of appellants challenging the lawfulness of the offers made to them on the basis that they were not made in accordance with the purposes of the Canterbury Earthquake Recovery Act 2011. The Courts agreed that the offers were not lawful because the purposes of the Act had not been considered when making this decision. In July 2015, new offers were made to the owners of vacant, insured commercial and uninsured improved red zone properties. As the court proceedings highlighted, it was important to be clear about policy terms and implications from the outset.

In total, approximately 197 hectares of land in the Port Hills, and 600 hectares of flat land were zoned red. The government became responsible for managing and maintaining the properties it had purchased. Regenerate Christchurch is responsible for developing plans for the future use of red zone land. In the interim, the government has approved the use of the residential red zone by a number of third parties; for example, training for emergency services, and foraging for fruit and vegetables for redistribution to local charities.

Insurance Response

New Zealand has a far higher degree of insurance cover for earthquakes (up to 99 per cent for homes and 82 per cent for contents) than is typical for comparable economies. This is largely due to the natural disaster cover provided by the government since 1945, through the Natural Disaster Fund managed by the Earthquake Commission.

Without the Earthquake Commission and the Natural Disaster Fund, many home owners in New Zealand would be left under-insured in the event of a disaster. Earthquake Commission cover includes home contents, improvements (e.g. residential dwellings) and land (partial coverage). The cover the Earthquake Commission provides is up to a value of NZD\$100,000 plus tax for each individual dwelling. This cover keeps private insurance premiums affordable and in turn encourages home owners to take up insurance cover appropriate for their property, while also reducing the financial risk for private insurers and reinsurers.

The Canterbury earthquake sequence damaged approximately 90 per cent of homes across greater Christchurch. In a business-as-usual environment, the Earthquake Commission is managed as a small financial institution, handling relatively few claims. In such a major claims event, there was a need for the Earthquake Commission to rapidly increase its operations, which created a range of challenges. The Earthquake Commission made improvements to its operational processes in response to the changing environment.

The earthquake damage also challenged the Earthquake Commission's and private insurers' understanding of their respective liabilities. For example, the Earthquake Commission Act 1993 had not envisaged a sequence of events that would result in successive (and compounding) losses under single household policies. A number of legal clarifications of the Earthquake Commission Act 1993 were required, contributing to delays for the Earthquake Commission, insurers and home owners.

For the people in Christchurch, the settlement of insurance claims has been a long and complex process. Delays in settlement have been identified as one of the factors that prevented home owners from moving forward with their lives and may have had impacts on their psychosocial wellbeing. The first CERA Wellbeing Survey was conducted in September 2012, and at the time over half of greater Christchurch residents reported high levels of stress and that their quality of life had decreased. A number of the government's policy decisions and initiatives were developed with social and economic recovery in mind.

The government's social and economic interventions and support initiatives identified in this report include:

- Land zoning decisions and the subsequent Crown offer;
- Cordoning of the central city;
- Introducing variations to the Retirement Villages Code of Practice 2008;
- Brokering agreements between home owners and insurers through the Residential Advisory Service;
- AMI Insurance Intervention and the establishment of Southern Response;
- Earthquake Support Subsidy to support small to medium enterprises during the period of disruption;
- Canterbury Earthquake Temporary Accommodation Service; and
- 'Find & Fix' and 'Winter Make it Right' home repair programmes.

The government played a critical role in ensuring that the insurance market could continue to function following the Canterbury earthquakes. At the time, global reinsurers held concerns about the size of their exposure, and the time it would take to quantify final liability. This in turn prompted concerns that reinsurers would not just increase premiums, but could 'walk away from' the New Zealand market. Without the support from reinsurers there would have been either more insurers in financial difficulty as a result of the Canterbury earthquakes, or reduced levels of insurance coverage nationally. In response to the risks, the government implemented targeted interventions to reinstate confidence in the New Zealand market and secure reinsurance for the future. This included engaging with reinsurers, establishing Southern Response and making legislative amendments as required.

Following the Canterbury earthquake sequence, the Treasury stress-tested the Crown's balance sheet and concluded that New Zealand's low government debt, strong financial sector, and good macro institutions provide the flexibility required to manage future crisis situations. Consideration is currently being given to other risk financing instruments, in addition to reinsurance, that may support a more efficient risk financing strategy.

Horizontal Infrastructure Rebuild Programme

The Canterbury earthquake sequence of 2010 and 2011 damaged greater Christchurch's horizontal infrastructure network, including damage to hundreds of kilometres of underground pipes (fresh water, wastewater and stormwater), and to an estimated 52 per cent of Christchurch's sealed roads. The total cost of damage was estimated to be NZD\$2.7 billion, as at November 2015.

An Alliance model was selected to undertake the repair and rebuild of earthquake-damaged horizontal infrastructure. Alliance models are used by the New Zealand Transport Agency for urgent fast-track works, when the scale of the works is beyond local capability and experience, and where innovation and non-cost performance are important. In September 2011, an alliance was established between central and local government agencies and five major construction companies, the Stronger Christchurch Infrastructure Rebuild Team (SCIRT), and work commenced.

The construction firms in within SCIRT took time to adjust to the collaborative elements of the model. There were also challenges related to programme governance, the funding arrangements, and agreement over which works were 'in-scope'. A refreshed governance framework clarified roles and responsibilities and provided more effective leadership and clearer strategic direction. The governance arrangements continued to evolve as the programme moved through the immediate response, recovery, and transition phases. One of the outcomes from SCIRT was lifting the capability of the construction sector and its workforce. For example, a joint approach between the government, employers and training providers to increase the number of women in trades in Canterbury resulted in a 50 per cent increase in the number of women in trades at SCIRT between 2013 and 2014. In September 2016 it was reported that there were 2,700 more women employed in construction nationally than the same period two years prior.

SCIRT set a positive example for health and safety, exceeding the New Zealand benchmark, as reported by the Business Leaders' Health and Safety Forum. The New Zealand Transport Agency and other external organisations have adopted a number of safety initiatives developed by SCIRT; for example, their drug and alcohol policy, standards for minimum personal protective clothing, and incident reporting definitions. The programme also generated a number of innovations, which have been shared and adopted by others.

Overall, the Office of the Auditor-General's follow-up audit concluded that SCIRT demonstrated many of the good practice characteristics of Alliance contracts. As SCIRT began to reach its conclusion, the Christchurch City Council announced that it would establish a new Hybrid Delivery Model to deliver its major capital project works. The new model draws on many of the learnings from the SCIRT model.

3. Context

3.1. The Canterbury earthquake sequence

At 4.35 am on 4 September 2010, a magnitude (M_w) 7.1 earthquake struck 40 kilometres west of Christchurch near the small town of Darfield in the Canterbury plains of the South Island, causing no fatalities but significant land damage. This marked the beginning of a series of earthquakes that caused loss of life and damage at a scale not seen since the Hawkes Bay earthquake in 1931. This included a M_w 6.3 earthquake on 22 February 2011 at a depth of 5 km beneath the city of Christchurch, killing 185 people and injuring more than 7,000 people. There was widespread damage to land (including liquefaction), housing, and infrastructure across the region. Air and water quality were also affected. For example, the national air quality standard was exceeded on 32 days during 2011 and there was deposition of silt and contaminants in the waterways². Around 167,000 homes were damaged³, representing approximately 90 per cent of greater Christchurch's housing stock⁴. The accumulated cost of insured losses from the Canterbury earthquake sequence was NZD\$29 billion⁵.

Population movement across the region was significant in the aftermath of the earthquakes. In the first two years after the first earthquake, the total population of greater Christchurch fell by 14,900 from 464,900, or approximately three per cent. The population of greater Christchurch has since exceeded pre-quake levels, with 488,900 residents estimated in 2016⁶.

The Canterbury earthquake sequence also had an impact on the mental wellbeing of residents as well as their reported quality of life. The first CERA Wellbeing Survey was conducted in September 2012, and at the time 54 per cent of greater Christchurch residents reported that over the previous 12 months their quality of life had fallen⁷. Over time, greater Christchurch residents reported that their quality of life had improved. In April 2016, 82 per cent of survey respondents stated that their overall quality of life was good or extremely good⁸. While there were many negative psychosocial impacts from the Canterbury earthquake sequence, there were some positive impacts reported. For example, in the first CERA Wellbeing Survey 41 per cent of survey respondents stated that they had pride in their ability to cope under difficult circumstances and 36 per cent reported that their family's increased resilience have had a positive impact on their everyday lives⁹.

Following the earthquakes, 11 schools were merged and 13 schools were closed. The government committed to rebuilding and renewing 115 schools in greater Christchurch over 10 years. When the Christchurch Schools Rebuild Programme is complete, more than 80 per cent of teaching spaces in greater Christchurch will have been repaired and/or modernised¹⁰.

In 2015, the University of Canterbury reported 11,931 equivalent full-time students, a drop of 3,563 students from 2010. In 2016, student numbers started to recover, with 12,492 equivalent full-time students enrolled at the University. While at a total level student numbers are still behind pre-earthquake levels, postgraduate student numbers rose during the same period. In 2016, there were 2,777 postgraduate equivalent full-time students; 659 more than reported in 2010 (2,118 equivalent full-time students)¹¹. The University is currently undertaking a redevelopment programme over 10 years, with new science and engineering facilities due for completion in 2017¹².

² Potter, S., Becker, J., Johnston, D. & Rossiter, K., "An overview of the impacts of the 2010-2011 Canterbury earthquakes", (International Journal of Disaster Risk Reduction 14, 2015).

³ Department of the Prime Minister and Cabinet, "Future Christchurch Update – October 2016", (Department of the Prime Minister and Cabinet, 2016).

⁴ Ministry of Business, Innovation and Employment, "Housing Pressures in Christchurch", (Ministry of Business, Innovation and Employment, 2013).

⁵ Deloitte Ltd, "Four years on: Insurance and the Canterbury Earthquakes", (Vero Insurance, 2015).

⁶ Statistics New Zealand, "Subnational population estimates", (Statistics New Zealand, 2017).

⁷ Nielsen, "CERA Wellbeing Survey 2012 Report", (Canterbury Earthquake Recovery Authority, 2012).

⁸ Nielsen, "Canterbury Wellbeing Survey April 2016", (Canterbury District Health Board, 2016).

⁹ Nielsen, "CERA Wellbeing Survey 2012 Report", (Canterbury Earthquake Recovery Authority, 2012).

¹⁰ Canterbury Earthquake Recovery Authority, "Canterbury Wellbeing Index June 2015", (Canterbury Earthquake Recovery Authority, 2015).

¹¹ University of Canterbury, "University of Canterbury Annual Report 2016", (University of Canterbury, 2016).

¹² Canterbury Earthquake Recovery Authority, "Canterbury Wellbeing Index June 2015", (Canterbury Earthquake Recovery Authority, 2015).

In economic terms, the earthquakes represented a significant shock from pressures on the labour market, shifts in value and use of land, business disruption, loss of capital, and the stimulus from the rebuild. It was clear that the earthquake recovery would also mean significant costs to the Crown. However, economic activity proved more resilient than initially expected. Businesses proved more adaptable, production and commerce changed to meet new circumstances, and business and consumer confidence came back quickly¹³. In the September 2012 CERA Wellbeing Survey, 18 per cent of respondents felt that potential or actual loss of employment or income was having a moderate or major negative impact on their everyday lives¹⁴. This fell to 4 per cent in April 2016¹⁵. The unemployment rate has also been favourable with 3.7 per cent reported in Canterbury in the quarter ending December 2016, 1.5 per cent lower than the national unemployment rate¹⁶.

3.2. Value of identifying lessons

The recovery has been a learning curve for the government and all its partners, and there was limited precedent to fall back on, as each disaster requires a tailored response. There are, therefore, lessons that can be learned from the government's recovery efforts for this disaster.

In August 2014, Cabinet directed the Department of the Prime Minister and Cabinet to undertake a programme of work that would draw on the recovery lessons from the Canterbury earthquake sequence in order to strengthen resilience for the benefit of all New Zealanders. Cabinet noted that the government needed to ensure that the many recovery lessons from Canterbury were captured, so New Zealand can effectively respond to, and recover from, future disasters. In September 2016, the Department of the Prime Minister and Cabinet's *EQ Recovery Learning* website went live (www.eqrecoverylearning.org). This website brings together the knowledge, insights and real-life stories garnered from those directly involved in the Canterbury earthquake response.

In addition to the website, the Minister supporting Greater Christchurch Regeneration commissioned government officials to undertake a report synthesising the recovery lessons captured from the published material related to the government's actions following the earthquakes. This report encompasses lessons focusing on five specific areas:

- Recovery Governance Arrangements;
- Recovery Legislation;
- Land Decisions;
- Insurance Response; and
- Horizontal Infrastructure Rebuild Programme.

4. Methodological Approach

The Department of the Prime Minister and Cabinet undertook a thorough review of the published material related to the recovery from the Canterbury earthquake sequence. The synthesis of the material has highlighted lessons, which we included under the individual topic areas listed above.

The literature, from which the lessons were derived, had to meet the following criteria to be considered for inclusion in this report:

- The report was published by, or commissioned by a government agency or research institution; and
- The methodology of the report is clear and robust.

Any published material where the methodology was unclear, or was not based on a sound quantitative or qualitative research methodology, was either excluded from the report, or used to provide supporting context only.

¹³ The Treasury, "Lessons from Treasury's role in the Canterbury earthquakes", (The Treasury 2016).

¹⁴ Nielsen, "CERA Wellbeing Survey 2012 Report", (Canterbury Earthquake Recovery Authority, 2012).

¹⁵ Nielsen, "Canterbury Wellbeing Survey April 2016", (Canterbury District Health Board, 2016).

¹⁶ Statistics New Zealand, "Household Labour Force Survey December 2016 Quarter", (Statistics New Zealand, 2017).

The lessons identified are derived from the literature reviewed, and therefore do not necessarily reflect the Department of the Prime Minister and Cabinet's view on the lessons from the Canterbury earthquake sequence. Looking ahead, it is anticipated that this report will be used as a basis for further work to help the Government prepare for recovery from future large-scale earthquake and natural hazard events, as well as other highly complex challenges.

5. Recovery Governance Arrangements

The purpose of this chapter is to consider the effectiveness of the governance arrangements put in place to expedite and facilitate recovery from the Canterbury earthquake sequence, and any lessons recorded from a whole-of-government perspective. It does not consider the effectiveness of the Canterbury Earthquake Recovery Authority's organisational systems, controls and processes.

5.1. Context

This section outlines New Zealand's civil defence emergency management framework and the context of local governance arrangements in Canterbury at the time of the earthquakes.

5.1.1. Civil defence emergency management framework

Amendments to the civil defence emergency management framework since the Canterbury earthquakes have improved the legislative framework for recovery, particularly from New Zealand's most frequent emergencies – those of small to moderate scale.

New Zealand's civil defence emergency management framework is governed by the Civil Defence Emergency Management Act 2002 and supporting statutory documents (including the National Civil Defence Emergency Management Strategy 2008 and National Civil Defence Emergency Management Plan Order 2015).

The Civil Defence Emergency Management Act 2002 introduced the 4Rs of risk management (reduction, readiness, response and recovery) and placed a greater emphasis on planning and preparation than previous emergency management legislation in New Zealand¹⁷. The framework centres on local authorities and their communities as the first level of response following an emergency¹⁸. This devolution of responsibility represented a shift in the overarching philosophy of emergency management in New Zealand, which had previously taken a 'top down' approach¹⁹.

Under the Civil Defence Emergency Management Act 2002, 16 Civil Defence Emergency Management Groups across the country are responsible for planning, preparing for and responding to disasters. In addition, the Civil Defence Emergency Management Act 2002 has a national framework that provides for central government and ministerial roles and responsibilities. This provides for national direction and coordination, if it is necessary, whilst allowing for locally-led delivery.

The Civil Defence Emergency Management Act 2002 includes a range of powers that can be exercised during a state of local or national emergency, including response and early recovery powers²⁰. The Director of Civil Defence Emergency Management can, for example, direct and coordinate the resources available during a national state of emergency or national transition period²¹. The Civil Defence Emergency Management Act 2002 also provides the Minister of Civil Defence with the power of direction in certain circumstances, which can be used to direct a locally appointed person or Group. This approach could be used as a form of step-in power if there are concerns about the performance of functions, duties or powers.

The Ministry of Civil Defence & Emergency Management is responsible for setting strategic direction and providing guidance, guidelines, technical standards and support for the Civil Defence Emergency Management Groups.

¹⁷ Gobbi, M., Gordon, B. & Lincoln, F., "Managing Emergency Management: A Look at New Zealand's Legislative Approaches", (Australasian Drafting Conference, 2011).

¹⁸ Brookie, R., "Governing the Recovery from the Canterbury Earthquakes 2010-11: the Debate over Institutional Design", (Institute for Governance and Policy Studies, Victoria University of Wellington, 2012).

¹⁹ Gobbi, M., Gordon, B. & Lincoln, F., "Managing Emergency Management: A Look at New Zealand's Legislative Approaches", (Australasian Drafting Conference, 2011).

²⁰ New Zealand Government, "Civil Defence Emergency Management Act 2002", (New Zealand Government, 2002).

²¹ New Zealand Government, "Civil Defence Emergency Management Act 2002", (New Zealand Government, 2002).

In the event of a disaster, Civil Defence Emergency Management Groups can declare a state of local emergency within its area. The Minister of Civil Defence may declare a state of national emergency if the Minister considers that the emergency is beyond the resources of the Civil Defence Emergency Management Group(s) affected.

Issues with the framework in relation to recovery were identified prior to the earthquake sequence in Canterbury. Some considered the powers in the Civil Defence Emergency Management Act 2002 would not be adequate to deal with recovery from a large-scale disaster, because they were available only during a state of emergency (which had brief statutory time limits)²². There was also a risk of perverse incentives to keep a state of emergency in place longer than strictly necessary in order to access the emergency powers available²³. Other issues with the wider recovery framework that were identified prior to the earthquakes included a concern that a strict application of the Resource Management Act 1991 would slow down recovery, and that the volume of consent applications would overwhelm local authorities' capabilities. After the earthquakes, the Canterbury Earthquake Recovery Act 2011 provided for expedited decision-making processes to facilitate recovery. A number of orders in council relaxed certain Resource Management Act 1991 requirements so that earthquake recovery could proceed without being unduly impeded²⁴ (see Chapter 6 for more information about the Canterbury Earthquake Recovery Act 2011).

Prior to the earthquakes, a nationwide capability assessment of all Civil Defence Emergency Management Groups undertaken by the Minister for Civil Defence & Emergency Management identified recovery was the Groups' weakest area of capability within the 4Rs (reduction, readiness, response and recovery)²⁵. Recent amendments to the Civil Defence Emergency Management Act 2002 now require Civil Defence Emergency Management Groups to undertake strategic planning for recovery.

Changes made since the earthquakes

Since the Canterbury earthquakes, amendments to the Civil Defence Emergency Management Act 2002 have partly addressed the issues identified with the framework. The amendments brought into force in 2016 improved the legislative framework for recovery, by providing a mandate for recovery managers and by strengthening the requirement to plan for recovery²⁶. The focus of the 2016 amendments was recovery from New Zealand's most frequent emergencies – those of small to medium scale²⁷.

A new statutory mechanism, a transition period, was introduced, which can be declared at a national or local level²⁸. Powers to manage, direct and coordinate recovery activities are available during a transition period. Transition periods are time limited (90 days for a national transition period and 28 days for a local transition period), and can be extended. A transition period could be used in a large-scale emergency as an interim measure to enable access to recovery powers during the initial recovery period, but is not intended to be a suitable mechanism to support recovery from large-scale emergencies in the longer term.

²² Rotimi, J.O., Wilkinson, S., Zuo, K. & Myburgh, D., "Legislation for effective post-disaster reconstruction", (International Journal of Strategic Property Management, 2009); Rotimi, J.O., "An examination of improvements required to legislative provisions for post disaster reconstruction in New Zealand", (PhD thesis, University of Canterbury, 2010).

²³ New Zealand Government, "Civil Defence Emergency Management Amendment Bill 88-1", (New Zealand Government, 2015).

²⁴ New Zealand Government, "Canterbury Earthquake (Resource Management Act) Order 2010 (SR 2010/318)", (New Zealand Government, 2010); New Zealand Government, "Canterbury Earthquake (Resource Management Act) Order 2011 (SR 2011/34)", (New Zealand Government, 2011); New Zealand Government, "Canterbury Earthquake (Resource Management Act Permitted Activities) Order 2011 (SR 2011/36)", (New Zealand Government, 2011); New Zealand Government, "Canterbury Earthquake (Resource Management Act Port of Lyttelton Recovery) Order 2011 (SR 2011/148)", (New Zealand Government, 2011); New Zealand Government, "Canterbury Earthquake (Resource Management Act—Burwood Resource Recovery Park) Order 2011 (SR 2011/254)", (New Zealand Government, 2011); New Zealand Government, "Canterbury Earthquake (Resource Management Act—Electricity Network Recovery) Order 2011 (SR 2011/309)", (New Zealand Government, 2011).

²⁵ Ministry of Civil Defence & Emergency Management, "CDEM National Capability Assessment Report", (Ministry of Civil Defence & Emergency Management, 2015); Ministry of Civil Defence & Emergency Management, "CDEM Capability Assessment Report", (Ministry of Civil Defence & Emergency Management, 2012); Mamula-Seadon, L. & McLean, I., "Response and early recovery following 4 September 2010 and 22 February 2011 Canterbury earthquakes: Societal resilience and the role of governance", (International Journal of Disaster Risk Reduction, 2015).

²⁶ New Zealand Government, "Civil Defence Emergency Management Amendment Act 2016", (New Zealand Government, 2016).

²⁷ New Zealand Government, "Civil Defence Emergency Management Amendment Bill 88-1", (New Zealand Government, 2015).

²⁸ New Zealand Government, "Civil Defence Emergency Management Amendment Act 2016", (New Zealand Government, 2016).

The National Civil Defence Emergency Management Plan Order 2015 sets out the roles and responsibilities of those involved in reducing risks, preparing for, responding to and recovering from emergencies to ensure that agencies can plan and prepare for this role²⁹. This approach is in line with international guidance on developing disaster recovery frameworks, identifying benefits in planning for recovery prior to an emergency³⁰.

Internationally, many jurisdictions have used a similar approach to New Zealand, in that generic emergency management legislation has been used until bespoke legislation is required to deal with large-scale emergencies. However, jurisdictions that have experienced a large-scale emergency (e.g. Queensland, USA, Japan) have found it becomes the impetus to review their frameworks³¹.

Lesson: Further work needs to be done to ensure that New Zealand is prepared for long-term recovery from future large-scale disasters.

5.1.2. Local governance in Canterbury

The government's recovery governance decisions were made in the context of local governance problems being experienced in Canterbury at the time.

In March 2010, the government had replaced the elected Environment Canterbury councillors with Crown-appointed Commissioners³². This decision followed an independent review of Environment Canterbury that had been initiated in response to significant concerns raised by the local authorities, Te Rūnanga o Ngāi Tahu and communities about its poor performance. One of the issues identified in the review was the breakdown in the relationship between Environment Canterbury and the local authorities. Despite the fact that the community's loss of confidence in Environment Canterbury was one of the drivers for the independent review, the government decision to appoint commissioners has been seen by some Cantabrians as a loss of their democratic rights³³.

At the time of the earthquakes, the local civil defence emergency management structures were also dysfunctional and divided³⁴. Independent reviews of the emergency response following both the 4 September 2010 and 22 February 2011 earthquakes noted that there was friction in the working relationships between the local authorities that formed the Canterbury Civil Defence Emergency Management Group³⁵.

5.2. Findings

There are a number of valuable findings that have emerged in relation to the following key areas:

- 1) Governance arrangements after the 4 September 2010 earthquake;
- 2) Governance arrangements after the 22 February 2011 earthquake;
- 3) Ensuring collaboration across the recovery sector;
- 4) Public participation and community engagement;
- 5) Transition to new governance arrangements; and
- 6) Effectiveness of the governance arrangements.

²⁹ New Zealand Government, "National Civil Defence Emergency Management Plan Order 2015", (New Zealand Government, 2015).

³⁰ Global Facility for Disaster Reduction and Recovery, "Guide to Developing Disaster Recovery Frameworks: Sendai Conference Version", (Global Facility for Disaster Reduction and Recovery, 2015).

³¹ Law Library of Congress, "Japan: Legal Responses to the Great East Japan Earthquake of 2011", (The Law Library of Congress, United States, 2013); Congressional Research Service, "Federal Emergency Management Policy Changes After Hurricane Katrina: A Summary of Statutory Provisions", (The Library of Congress, United States, 2006); Queensland Government, "Queensland Reconstruction Authority Act 2011", (Queensland Government, 2011).

³² New Zealand Government, "Response to Review of Environment Canterbury", (New Zealand Government, 2010).

³³ Ministry for the Environment, "Environment Canterbury Review: Summary of submissions on Environment Canterbury Review: a discussion document", (Ministry for the Environment, 2015); New Zealand Parliamentary Debates (Hansard), "Environment Canterbury (Transitional Governance Arrangements) Bill", (New Zealand Government, 2016).

³⁴ Mamula-Seadon, L. & McLean, I., "Response and early recovery following 4 September 2010 and 22 February 2011 Canterbury earthquakes: Societal resilience and the role of governance", (International Journal of Disaster Risk Reduction, 2015).

³⁵ McLean, I., Oughton, D., Ellis, S., Wakelin, B. & Rubin, C.B., "Review of the Civil Defence Emergency Management Response to the 22 February Christchurch Earthquake", (Ministry of Civil Defence & Emergency Management, 2012); Middleton, D. & Westlake, R., "Independent Review of the Response to the Canterbury Earthquake, 4 September 2010", (Ministry of Civil Defence & Emergency Management, 2011).

5.3. Governance arrangements after the 4 September 2010 earthquake

5.3.1. Civil Defence Emergency Management response and early recovery

Immediately after the earthquake, an emergency response took place within the Civil Defence Emergency Management framework, as expected. On 4 September 2010, the Mayors of the Christchurch City Council, Waimakariri District Council and Selwyn District Council each declared a state of local emergency³⁶. All three local authorities are members of the Canterbury Civil Defence Emergency Management Group. The Group activated the regional emergency coordination centre, but did not declare a state of local emergency over the region³⁷.

At the national level, on 4 September 2010 the Ministry of Civil Defence & Emergency Management activated the National Crisis Management Centre to assist with support and coordination³⁸. The National Director of Civil Defence coordinated the national response to the earthquake. As expected, local Civil Defence Emergency Management Groups implemented response activities.

Within two days of the earthquake, the civil defence emergency management recovery mechanisms were up and running. On 6 September 2010, the Canterbury Civil Defence Emergency Management Group activated its recovery structure and began recovery planning³⁹.

5.3.2. Establishment of the Canterbury Earthquake Recovery Commission

On 6 September 2010, the Prime Minister Rt Hon John Key announced that he had appointed a dedicated Cabinet Minister responsible for recovery, the Minister for Canterbury Earthquake Recovery Hon Gerry Brownlee. He also announced the establishment of a new Cabinet Committee, the Ad Hoc Cabinet Committee on Canterbury Earthquake Recovery, to coordinate government decision-making on recovery⁴⁰.

The government began drafting legislation intended to address the gap that would be left after the state of emergency and (along with it) the powers available under the Civil Defence Emergency Management Act 2002 expired⁴¹. The Canterbury Earthquake Response and Recovery Act 2010 was enacted on 14 September 2010. The Act established the Canterbury Earthquake Recovery Commission and provided the government with regulation-making powers to amend existing legislation if needed to expedite the recovery (*see Chapter 6 for more information about the development and effect of the Canterbury Earthquake Response and Recovery Act 2010*).

The Canterbury Earthquake Recovery Commission comprised the Mayors of Christchurch City Council, Waimakariri District Council and Selwyn District Council and four commissioners appointed by the government. The composition of the Canterbury Earthquake Recovery Commission demonstrates that the government understood the importance of ensuring local leadership in the recovery process. The Canterbury Earthquake Recovery Commission's primary functions were to provide advice to government on recovery priorities, identify and advise on impediments to the recovery, coordinate the government's recovery activities, and facilitate between local authorities, government agencies, Ministers and other key stakeholders⁴². The Canterbury Earthquake Recovery Commission's Terms of Reference note that the recovery was being led by local

³⁶ Middleton, D. & Westlake, R., "Independent Review of the Response to the Canterbury Earthquake, 4 September 2010", (Ministry of Civil Defence & Emergency Management, 2011); Johnson, L.A. & Mamula-Seadon, L., "Transforming Governance: How National Policies and Organizations for Managing Disaster Recovery Evolved Following the 4 September 2010 and 22 February 2011 Canterbury Earthquakes", (Earthquake Spectra, 2014).

³⁷ McLean, I., Oughton, D., Ellis, S., Wakelin, B. & Rubin, C.B., "Review of the Civil Defence Emergency Management Response to the 22 February Christchurch Earthquake", (Ministry of Civil Defence & Emergency Management, 2012).

³⁸ Mamula-Seadon, L. & McLean, I., "Response and early recovery following 4 September 2010 and 22 February 2011 Canterbury earthquakes: Societal resilience and the role of governance", (International Journal of Disaster Risk Reduction, 2015).

³⁹ Mamula-Seadon, L. & McLean, I., "Response and early recovery following 4 September 2010 and 22 February 2011 Canterbury earthquakes: Societal resilience and the role of governance", (International Journal of Disaster Risk Reduction, 2015).

⁴⁰ Brookie, R., "Governing the Recovery from the Canterbury Earthquakes 2010-11: the Debate over Institutional Design", (Institute for Governance and Policy Studies, Victoria University of Wellington, 2012).

⁴¹ Gobbi, M., Gordon, B. & Lincoln, F., "Managing Emergency Management: A Look at New Zealand's Legislative Approaches", (Australasian Drafting Conference, 2011).

⁴² Mamula-Seadon, L. & McLean, I., "Response and early recovery following 4 September 2010 and 22 February 2011 Canterbury earthquakes: Societal resilience and the role of governance", (International Journal of Disaster Risk Reduction, 2015).

authorities in accordance with the civil defence emergency management framework, and that the Commission would undertake its role within that framework⁴³.

5.3.3. Challenges with the governance arrangements after 4 September 2010

Prior to the 22 February 2011 earthquake, it was clear that the governance arrangements put in place were not functioning as well as had been intended. There were concerns that the organisation of the recovery was struggling to make progress, and that local Canterbury civil defence emergency management structures remained as dysfunctional as they had been prior to the 4 September 2010 earthquake⁴⁴.

The creation of the Canterbury Earthquake Recovery Commission led to confusion about who was responsible for leading the recovery⁴⁵, and the Commission itself was seen as ineffective⁴⁶. During this period, the Christchurch City Council was not seen as taking an effective leadership role in the recovery, and it had not produced a recovery plan by the time of the 22 February 2011 earthquake⁴⁷.

The 22 February 2011 earthquake presented an opportunity for the government to learn from this situation and make changes to the governance arrangements.

5.4. Governance arrangements after the 22 February 2011 earthquake

5.4.1. Civil Defence Emergency Management response and early recovery

On 22 February 2011, less than two hours after the earthquake, the Mayor of the Christchurch City Council declared a state of local emergency⁴⁸. On 23 February 2011, the Minister of Civil Defence declared a state of national emergency covering Christchurch City⁴⁹. This was the first time a state of national emergency had been declared in New Zealand under the Civil Defence Emergency Management Act 2002⁵⁰. The declaration was a demonstration of the government's commitment to assist Canterbury, and showed the government recognised that cooperation and coordination between central government and local authorities would be critical for responding to the disaster⁵¹. The government decided that the Director of Civil Defence Emergency Management would go to Christchurch as National Controller to lead and direct the emergency response. This was unprecedented, as prior planning for a state of national emergency had envisaged the National Controller remaining in Wellington at the National Crisis Management Centre⁵².

⁴³ Canterbury Earthquake Recovery Commission, "Canterbury Earthquake Recovery Commission: Terms of Reference", archived electronic resource, (National Library of New Zealand, <http://ndhadeliver.natlib.govt.nz/ArcAggregator/arcView/frameView/IE4331348/http://www.cerc.govt.nz/>, harvested May 2011, retrieved April 2017).

⁴⁴ McLean, I., Oughton, D., Ellis, S., Wakelin, B. & Rubin, C.B., "Review of the Civil Defence Emergency Management Response to the 22 February Christchurch Earthquake", (Ministry of Civil Defence & Emergency Management, 2012).

⁴⁵ Dalziel, Hon L., "Turning Disaster into Opportunity", speech delivered at Australian and New Zealand Institute of Insurance & Finance Conference, (<http://www.scoop.co.nz/stories/print.html?path=PA1111/S00521/dalziel-turning-disaster-into-opportunity.htm>, published 30 November 2011, retrieved May 2017); Brookie, R., "Governing the Recovery from the Canterbury Earthquakes 2010-11: the Debate over Institutional Design", (Institute for Governance and Policy Studies, Victoria University of Wellington, 2012).

⁴⁶ Mamula-Seadon, L. & McLean, I., "Response and early recovery following 4 September 2010 and 22 February 2011 Canterbury earthquakes: Societal resilience and the role of governance", (International Journal of Disaster Risk Reduction, 2015).

⁴⁷ Dalziel, Hon L., "Turning Disaster into Opportunity", speech delivered at Australian and New Zealand Institute of Insurance & Finance Conference, (<http://www.scoop.co.nz/stories/print.html?path=PA1111/S00521/dalziel-turning-disaster-into-opportunity.htm>, published 30 November 2011, retrieved May 2017); Brookie, R., "Governing the Recovery from the Canterbury Earthquakes 2010-11: the Debate over Institutional Design", (Institute for Governance and Policy Studies, Victoria University of Wellington, 2012).

⁴⁸ McLean, I., Oughton, D., Ellis, S., Wakelin, B. & Rubin, C.B., "Review of the Civil Defence Emergency Management Response to the 22 February Christchurch Earthquake", (Ministry of Civil Defence & Emergency Management, 2012).

⁴⁹ McLean, I., Oughton, D., Ellis, S., Wakelin, B. & Rubin, C.B., "Review of the Civil Defence Emergency Management Response to the 22 February Christchurch Earthquake", (Ministry of Civil Defence & Emergency Management, 2012).

⁵⁰ Mamula-Seadon, L. & McLean, I., "Response and early recovery following 4 September 2010 and 22 February 2011 Canterbury earthquakes: Societal resilience and the role of governance", (International Journal of Disaster Risk Reduction, 2015).

⁵¹ McLean, I., Oughton, D., Ellis, S., Wakelin, B. & Rubin, C.B., "Review of the Civil Defence Emergency Management Response to the 22 February Christchurch Earthquake", (Ministry of Civil Defence & Emergency Management, 2012).

⁵² McLean, I., Oughton, D., Ellis, S., Wakelin, B. & Rubin, C.B., "Review of the Civil Defence Emergency Management Response to the 22 February Christchurch Earthquake", (Ministry of Civil Defence & Emergency Management, 2012).

5.4.2. Establishment of the Canterbury Earthquake Recovery Authority

The government realised that the scale of the devastation after the 22 February 2011 earthquake would mean a longer, more costly and more complex recovery, and that the arrangements put in place after 4 September 2010 were no longer fit for purpose. International experience informed the governance arrangements chosen – a new public service department responsible for leading and coordinating the recovery.

It was quickly recognised that the scale of the devastation following the 22 February 2011 earthquake meant that the recovery would be significantly bigger, involving more difficult decisions, more parties and more resources, than the recovery from the 4 September 2010 earthquake⁵³. Although the Civil Defence Emergency Management Act 2002 provided a framework for response and early recovery activities, the government did not consider it would be an appropriate vehicle for long term recovery⁵⁴. Similarly, it recognised that the governance arrangements put in place following the 4 September 2010 earthquake would also be inadequate to deal with the scale of the recovery task ahead⁵⁵. The status quo arrangements would not provide certainty about the leadership or coordination of the recovery effort, and the government's ability to influence recovery would be limited to approving funding⁵⁶.

The government decided that a new public service department (the Canterbury Earthquake Recovery Authority) would be established to lead and coordinate the recovery effort, and to provide advice to the Minister for Canterbury Earthquake Recovery. The Minister would be responsible for coordinating the planning, expenditure, and rebuilding activity necessary to affect the recovery⁵⁷. The government also decided that additional legislative powers would be needed to expedite and facilitate the recovery, and agreed to repeal the Canterbury Earthquake Response and Recovery Act 2010 and introduce new legislation, the Canterbury Earthquake Recovery Act 2011 (*see Chapter 6 for more information about the development and effect of the Canterbury Earthquake Recovery Act 2011*).

The government took into account a range of factors in reaching these decisions. The recovery would require timely and effective decision-making processes, stronger governance and leadership, and increased coordination across multiple agencies⁵⁸. Due to the political risks, and the much greater Crown financial investment needed (than following the 4 September 2010 earthquake), a high degree of Ministerial control over the governance of the recovery would be required⁵⁹.

The governance and funding arrangements put in place following a range of international disasters were also considered, including the Napier earthquake (1931), Hurricane Katrina (2005), Victorian 'Black Saturday' bushfires (2009) and Queensland floods (2011)⁶⁰. The key lesson learned from international experience, and from recovery planning following the 4 September 2010 earthquake, was that a single entity with a clear leadership and coordination role in the recovery would remove local confusion and provide the greatest certainty⁶¹.

International experience also reinforced the importance of local engagement in the recovery effort. To assist with local engagement, the government decided to locate the Canterbury Earthquake Recovery Authority in

⁵³ State Services Commission, "Regulatory Impact Statement: Canterbury Earthquake Response and Recovery Bill [later the Canterbury Earthquake Recovery Act 2011]", (State Services Commission, 2011).

⁵⁴ State Services Commission, "Regulatory Impact Statement: Canterbury Earthquake Response and Recovery Bill [later the Canterbury Earthquake Recovery Act 2011]", (State Services Commission, 2011).

⁵⁵ New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011).

⁵⁶ State Services Commission, "Regulatory Impact Statement: Canterbury Earthquake Response and Recovery Bill [later the Canterbury Earthquake Recovery Act 2011]", (State Services Commission, 2011).

⁵⁷ New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011).

⁵⁸ New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011).

⁵⁹ New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011).

⁶⁰ New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011).

⁶¹ New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011); State Services Commission, "Regulatory Impact Statement: Canterbury Earthquake Response and Recovery Bill [later the Canterbury Earthquake Recovery Act 2011]", (State Services Commission, 2011).

Christchurch with an expectation of staff secondments from organisations within greater Christchurch⁶². This was the first time a government department was based in a location outside of Wellington⁶³.

At the time it was established, the Canterbury Earthquake Recovery Authority was intended to have a finite life (five years, to be reviewed after three years), after which the recovery arrangements would transition to 'business as usual' activities for government and local authorities⁶⁴.

Other governance arrangements considered

Prior to reaching the decision to establish a new public service department, the government considered a range of alternative governance options:

- A Crown agent;
- A new business unit within an existing department; or
- Replacing elected local authorities with government-appointed commissioners.

In line with the State Services Commission's guidelines on organisational form, if an entity needs a high degree of Ministerial control or oversight the two options are a public sector department or a Crown agent⁶⁵. A Crown agent (e.g. the Accident Compensation Corporation, district health boards) would be responsible to a board, and therefore at arm's length from Ministerial control. It would be less effective than a public sector department in its ability to coordinate across other government portfolios and agencies. For these reasons it was considered and rejected⁶⁶.

The option of establishing a new business unit within an existing government department was rejected because the government considered it critical that the recovery authority had a sole focus on earthquake recovery⁶⁷. Another option considered, but discounted early on by officials, was to replace elected local officials with government appointed commissioners (similar to the Environment Canterbury governance arrangements). This option was rejected because it would have unnecessarily overridden local democracy⁶⁸ (*see section 5.1.2 for more information about Environment Canterbury's governance arrangements*).

5.4.3. Canterbury Earthquake Recovery Authority's roles and responsibilities

The Canterbury Earthquake Recovery Authority was tasked with leading and coordinating the recovery, but it was never intended to manage or deliver Canterbury's recovery alone. The government's expectation was that a critical part of the Canterbury Earthquake Recovery Authority's role would be collaborating, engaging and supporting the wide range of players within the recovery community⁶⁹.

The importance of ensuring local engagement in recovery was reflected in both the responsibilities given to the Canterbury Earthquake Recovery Authority, and the powers conferred on it (and the Minister for Canterbury Earthquake Recovery) in the Canterbury Earthquake Recovery Act 2011. The Canterbury Earthquake Recovery Act 2011 included a number of statutory requirements for consultation and engagement (*see section 6.3.3 for more information about the provisions for input into decision-making in the Canterbury Earthquake Recovery Act 2011*).

⁶² New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011).

⁶³ Smart, J., "The role of post-disaster institutions in recovery and resilience: a comparative study of three recent disasters – Victorian Bushfires (2009), Queensland Floods (2010-2011), and Canterbury Earthquakes (2010-12)" (Institute for Governance and Policy Studies, Victoria University of Wellington, 2012).

⁶⁴ New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011)

⁶⁵ State Services Commission, "Reviewing the Machinery of Government", (State Services Commission, 2007).

⁶⁶ New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011).

⁶⁷ New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011).

⁶⁸ State Services Commission, "Regulatory Impact Statement: Canterbury Earthquake Response and Recovery Bill [later the Canterbury Earthquake Recovery Act 2011]", (State Services Commission, 2011).

⁶⁹ New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011).

Evolution of roles and responsibilities

The role of the Canterbury Earthquake Recovery Authority evolved over its five years of existence. It became increasingly responsible for the delivery of recovery work over time.

At the time of its establishment in March 2011, the key roles and functions of the Canterbury Earthquake Recovery Authority included:

- **Leadership and coordination:** coordinate and prioritise the recovery efforts of local authorities and central government;
- **Collaboration, engagement, and communication:** with local authorities, Te Rūnanga o Ngāi Tahu, the private sector, non-governmental organisations and the community;
- **Advisory:** provide advice to the Minister for Canterbury Earthquake Recovery (including on the use of Ministerial powers under the Canterbury Earthquake Recovery Act 2011)
- **Delivery:** develop an overarching Recovery Strategy, support the Christchurch City Council in developing a recovery plan for the central city and exercise any other powers conferred on the chief executive under the Canterbury Earthquake Recovery Act 2011⁷⁰ (see section 5.6 for more information about the development of the Recovery Strategy and the Christchurch Central Recovery Plan).

Although the Canterbury Earthquake Recovery Authority was originally envisaged primarily as a leader and coordinator, rather than a 'doer' of recovery, from early on it became responsible for more and more delivery work⁷¹. As its role expanded, so too did its size. When it was established, the Canterbury Earthquake Recovery Authority had six staff members and was expected to grow to 50 staff members. By 2014, the Canterbury Earthquake Recovery Authority had over 300 staff and 150 contractors leading or involved in 24 major programmes and more than 130 projects⁷².

Government decisions were responsible for the majority of the additional roles⁷³. Two examples of this are the establishment of the Christchurch Central Development Unit to lead the delivery of the Christchurch Central Recovery Plan in 2012, and the government's land zoning decisions and offers to purchase properties in the most damaged areas (the residential red zone). These decisions led to a large amount of new work for the Canterbury Earthquake Recovery Authority that was not anticipated at the time it was established.

For example, the Residential Red Zone Recovery Programme, responsible for implementing the government's land zoning decisions and the Crown offers, included a diverse range of work including:

- providing policy advice to government on reviews of the land zoning decisions and legal challenges;
- engaging with affected property owners through community meetings, workshops, technical seminars and one-on-one meetings with experts;
- managing a contact centre to manage calls and information requests from affected property owners;
- establishing two 'one stop shop' Earthquake Assistance Centres located in the red zone (staffed by the Canterbury Earthquake Recovery Authority, insurers, local authorities, legal experts and others);
- brokering with psychosocial support service providers to ensure that affected property owners had access to appropriate services;
- purchasing properties where owners chose to accept the Crown offer;
- working with private insurers to settle claims inherited from property owners; and

⁷⁰ New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011); Canterbury Earthquake Recovery Authority, "Walking the Recovery Tightrope: Learning and insights from the Canterbury Earthquake Recovery Authority", (Canterbury Earthquake Recovery Authority, 2016).

⁷¹ Canterbury Earthquake Recovery Authority, "Benefits of a strategic approach to recovery: CERA's lessons on the journey from emergency to regeneration", (Canterbury Earthquake Recovery Authority, 2016).

⁷² Canterbury Earthquake Recovery Authority, "Walking the Recovery Tightrope: Learning and insights from the Canterbury Earthquake Recovery Authority", (Canterbury Earthquake Recovery Authority, 2016).

⁷³ Canterbury Earthquake Recovery Authority, "Walking the Recovery Tightrope: Learning and insights from the Canterbury Earthquake Recovery Authority", (Canterbury Earthquake Recovery Authority, 2016).

- demolition and clearance of red zone properties⁷⁴ (see Chapter 7 more information about the land zoning decisions and the Crown offers to owners of property in the residential red zone).

5.4.4. Setting up from scratch

The Canterbury Earthquake Recovery Authority was established within weeks of the 22 February 2011 earthquake. As there was no pre-existing plan for setting up a disaster recovery authority in New Zealand, the Canterbury Earthquake Recovery Authority had to design and establish its organisational systems and processes at the same time as dealing with immediate tasks, such as demolitions and land zoning decisions⁷⁵.

Over time, systems and processes were established, such as procedures for responding to official correspondence and managing government processes, and programme and project management⁷⁶. The Ministry of Social Development provided financial systems and infrastructure for information communications technology⁷⁷.

Annual audits of the Canterbury Earthquake Recovery Authority identified that the time it took to establish adequate corporate services and the financial and management controls expected of a government department created risk⁷⁸. Although the Canterbury Earthquake Recovery Authority improved many of its systems and controls over time, there continued to be improvements needed in its management and performance information controls right up to the time it was disestablished⁷⁹.

The Office of the Auditor-General has recommended that the government should prepare a plan to allow any future recovery authority to be established quickly and effectively, including service level agreements for corporate services⁸⁰. Pre-arranged service level agreements with a large government department including policies, systems, and processes across core corporate services (including financial controls and management, performance management and reporting, human resources, information services and technology, and Ministerial services) would reduce risk, cost, and complexity in setting up and running any future recovery authority.

Lesson: Prepare for quickly establishing a recovery authority (if needed) by setting up pre-arranged service agreements to provide systems and processes across the core corporate services, including:

- financial controls and management
- performance management and reporting
- human resources
- information services and technology
- Ministerial services, including official correspondence.

5.5. Ensuring collaboration across the recovery sector

5.5.1. Working with recovery partners

The Canterbury Earthquake Recovery Authority set up a range of formal partnerships and structures to assist in coordinating across multiple stakeholders within the recovery community. Building on and adapting existing local structures worked well.

International literature recognises that one of the key challenges for recovery from large-scale disasters such as the Canterbury earthquake sequence is in organising, managing and coordinating the numerous and diverse

⁷⁴ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016); Canterbury Earthquake Recovery Authority, "Engaging with communities in a recovery context", (Canterbury Earthquake Recovery Authority, 2016).

⁷⁵ Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017).

⁷⁶ Canterbury Earthquake Recovery Authority, "Walking the Recovery Tightrope: Learning and insights from the Canterbury Earthquake Recovery Authority", (Canterbury Earthquake Recovery Authority, 2016).

⁷⁷ Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017).

⁷⁸ Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017).

⁷⁹ Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017).

⁸⁰ Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017).

agencies and stakeholders comprising the recovery community⁸¹. In Canterbury, the recovery community comprised a wide range of groups, including:

- **Local authorities:** the Christchurch City Council, Waimakariri District Council, Selwyn District Council and Environment Canterbury;
- **Iwi:** Te Rūnanga o Ngāi Tahu and Papatipu Rūnanga;
- **People:** residents of greater Christchurch and the wider New Zealand public;
- **Public service departments:** including the Ministry of Business, Innovation and Employment, Ministry of Education, Ministry for Culture and Heritage, the Treasury, etc;
- **Crown agents:** including the New Zealand Transport Agency and the Canterbury District Health Board;
- **Insurers:** the Earthquake Commission, private insurance companies, Southern Response;
- **Private sector:** businesses, investors, commercial developers, building and construction sector, tourism sector, etc;
- **Community groups:** including churches, volunteer groups, community boards and residents' associations;
- **Non-governmental organisations:** for example, the New Zealand Red Cross⁸².

The Canterbury Earthquake Recovery Authority set up a range of formalised partnerships and structures to assist in coordinating recovery efforts and enabling input into decision-making. When these formal partnerships built on existing local structures, the Canterbury Earthquake Recovery Authority found they were particularly successful⁸³. For example, in 2007 the Christchurch City Council, Waimakariri District Council, Selwyn District Council, Environment Canterbury, Te Rūnanga o Ngāi Tahu, the New Zealand Transport Agency, and the Canterbury District Health Board formed a partnership to implement the Greater Christchurch Urban Development Strategy. Following the earthquakes in 2011, the partners expanded the Urban Development Strategy Implementation Committee to inform recovery decision-making, including recovery plans and programmes⁸⁴. The Canterbury Earthquake Recovery Authority established a Recovery Strategy Advisory Committee that had the same membership, and often had the same agenda items, as the Urban Development Strategy Implementation Committee. This dual approach created some inefficiencies, and the Recovery Strategy Advisory Committee was eventually disestablished.

Lesson: Where possible, it is useful to build on or adapt existing local structures when establishing new recovery partnerships and structures.

The Strategic Partners

The concept of 'strategic partners' emerged during the development of the Recovery Strategy. The Canterbury Earthquake Recovery Act 2011 provided that the Recovery Strategy must be developed in consultation with Christchurch City Council, Environment Canterbury, Waimakariri District Council, Selwyn District Council, and Te Rūnanga o Ngāi Tahu⁸⁵. These entities, which became known as the Strategic Partners, played a key role in ensuring that the views of local authorities and iwi were included in government decision-making. This role was formalised in the Recovery Strategy⁸⁶.

⁸¹ Smith, G. & Birkland, T., "Building a Theory of Recovery: Institutional Dimensions", (International Journal of Mass Emergencies and Disasters 30: 2, 2012); Ginter, P.M., Duncan, W.J., McCormick, L.C., Rucks, A.C., Wingate, M.S. & Abdolrasulnia, M., "Effective Response to Large-Scale Disasters: The Need for High-reliability Preparedness Networks", (International Journal of Mass Emergencies and Disasters 24: 3, 2006).

⁸² Office of the Auditor-General, "Roles, responsibilities, and funding of public entities after the Canterbury earthquakes", (Office of the Auditor-General, 2012).

⁸³ Canterbury Earthquake Recovery Authority, "Walking the Recovery Tightrope: Learning and insights from the Canterbury Earthquake Recovery Authority", (Canterbury Earthquake Recovery Authority, 2016).

⁸⁴ Greater Christchurch Urban Development Strategy, "Greater Christchurch Urban Development Strategy Update", (Greater Christchurch Urban Development Strategy, 2016).

⁸⁵ New Zealand Government, "Canterbury Earthquake Recovery Act 2011", (New Zealand Government 2011).

⁸⁶ Canterbury Earthquake Recovery Authority, "Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha", (Canterbury Earthquake Recovery Authority, 2012).

5.5.2. Confusion and tensions about roles and responsibilities

The complexity of the recovery community, and the evolution of the Canterbury Earthquake Recovery Authority's role over time, caused confusion about who was responsible for what. Clearly defining and communicating respective accountabilities would have reduced confusion. Anticipating tensions and dedicating resources to managing relationships would have improved collaboration.

When the Canterbury Earthquake Recovery Authority was established, there were already many local entities with existing recovery roles. Some of the responsibilities that the Canterbury Earthquake Recovery Authority was given might otherwise have been the responsibilities of local entities⁸⁷. This led to some tension and lack of clarity early on about who was responsible for what⁸⁸.

As the Canterbury Earthquake Recovery Authority's role evolved over time, uncertainty and confusion amongst the recovery community grew⁸⁹. A spider diagram showing the network of governance groups⁹⁰ was colloquially called the 'horrendogram' by Canterbury Earthquake Recovery Authority staff, in recognition of the complexity of the relationships and the challenges that navigating them presented⁹¹. As it took on more delivery roles and released overarching strategic plans such as the Recovery Strategy and the Christchurch Central Recovery Plan, recovery partners and the public began to see the Canterbury Earthquake Recovery Authority as 'owning' the recovery and being responsible for solving all problems⁹².

The Canterbury Earthquake Recovery Authority reflected on the challenges and identified the following lessons from its experience in working with recovery partners:

- Define and clearly document the accountabilities of the recovery coordinating agency in relation to those of other agencies, and manage the changes in these responsibilities over time;
- Dedicate and prioritise resources to manage partnership and interagency relationships at multiple levels (i.e. not just at senior leadership level);
- Anticipate and manage the inevitable tension that will arise between different recovery partners;
- Manage stakeholder expectations about the role of the coordinating agency⁹³.

The kinds of tensions that arose could have been expected, and mechanisms put in place to manage them⁹⁴. The Office of the Auditor-General, while acknowledging that any recovery authority needs to adapt to changing circumstances over time, suggests that the governance arrangements should have been reviewed when the Canterbury Earthquake Recovery Authority took on new roles and responsibilities⁹⁵. It argues that the lack of role clarity, and increasing focus on delivery, made it more challenging for the Canterbury Earthquake Recovery Authority to exercise its influence and coordination role⁹⁶.

International guidance on disaster recovery emphasises the importance of ensuring that the roles and responsibilities of agencies and stakeholders are made clear from the outset⁹⁷. Other elements of an effective

⁸⁷ Canterbury Earthquake Recovery Authority, "Benefits of a strategic approach to recovery: CERA's lessons on the journey from emergency to regeneration", (Canterbury Earthquake Recovery Authority, 2016).

⁸⁸ Canterbury Earthquake Recovery Authority, "Walking the Recovery Tightrope: Learning and insights from the Canterbury Earthquake Recovery Authority", (Canterbury Earthquake Recovery Authority, 2016).

⁸⁹ Canterbury Earthquake Recovery Authority, "Walking the Recovery Tightrope: Learning and insights from the Canterbury Earthquake Recovery Authority", (Canterbury Earthquake Recovery Authority, 2016); Glavovic, B., "Disaster Recovery: The particular governance challenges generated by large-scale natural disasters", in *Future-Proofing the State: Managing Risks, Responding to Crises and Building Resilience*, edited by J. Boston, J. Wanna, V. Lipski & J. Pritchard, (Australian National University Press, 2014).

⁹⁰ Office of the Auditor-General, "Roles, responsibilities, and funding of public entities after the Canterbury earthquakes", (Office of the Auditor-General, 2012).

⁹¹ Canterbury Earthquake Recovery Authority, "Walking the Recovery Tightrope: Learning and insights from the Canterbury Earthquake Recovery Authority", (Canterbury Earthquake Recovery Authority, 2016).

⁹² Canterbury Earthquake Recovery Authority, "Benefits of a strategic approach to recovery: CERA's lessons on the journey from emergency to regeneration", (Canterbury Earthquake Recovery Authority, 2016).

⁹³ Canterbury Earthquake Recovery Authority, "Benefits of a strategic approach to recovery: CERA's lessons on the journey from emergency to regeneration", (Canterbury Earthquake Recovery Authority, 2016).

⁹⁴ Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017).

⁹⁵ Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017).

⁹⁶ Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017).

⁹⁷ Global Facility for Disaster Reduction and Recovery, "Guide to Developing Disaster Recovery Frameworks: Sendai Conference Version", (Global Facility for Disaster Reduction and Recovery, 2015).

lead recovery authority are that it should have a clear mandate and that it should be backed by effective political and technical leadership.

Lesson: Define and clearly document the accountabilities of the recovery authority in relation to those of other agencies.

Lesson: Ensure that respective roles and responsibilities within the recovery community are clearly communicated, particularly with the public.

Lesson: Manage expectations about the role of the recovery authority, so that it is not seen as responsible for everything.

Lesson: Build in formal and regular review processes for the governance arrangements to ensure they continue to be fit-for-purpose, particularly as roles and responsibilities evolve.

Lesson: Dedicate and prioritise resources to manage partnership and interagency relationships at multiple organisational levels.

5.6. Public participation and community engagement

From the outset there was significant public demand for information and action from authorities leading the recovery. The Canterbury Earthquake Recovery Authority recognised the need to communicate and engage effectively with a number of organisations, communities, and individuals. It developed a community engagement strategy and framework to guide its work⁹⁸. In the early response stage the focus was on communicating through a top-down approach (i.e. officials informing the public) to deliver as much information as quickly as possible. In the later reconstruction and regeneration phases there was a need for a community-up approach, with communications created with, and tailored to, each community⁹⁹. The development of the Recovery Strategy and Christchurch Central Recovery Plan are examples where bespoke and adaptable approaches to communication and engagement were needed.

5.6.1. Engagement on the Recovery Strategy

The Recovery Strategy was developed by the Canterbury Earthquake Recovery Authority in consultation with the strategic partners, and was informed by a public engagement process that included workshops and written feedback. A significant aftershock on 13 June 2011 delayed workshops and affected people’s ability to engage in long-term thinking on the strategy.

The Canterbury Earthquake Recovery Act 2011 included a requirement for the chief executive of the Canterbury Earthquake Recovery Authority to develop “an overarching, long-term strategy for the reconstruction, rebuilding, and recovery of greater Christchurch”, within nine months after the date the Act came into force. The Recovery Strategy was developed in consultation with multiple local stakeholders, including the Canterbury Earthquake Recovery Authority’s strategic partners¹⁰⁰.

The Canterbury Earthquake Recovery Act 2011 required that the development of the Recovery Strategy had to include at least one public hearing and, once the Recovery Strategy was developed, be publicly notified and the public given an opportunity to comment on the draft document¹⁰¹. The Canterbury Earthquake Recovery Authority engaged social scientists from the Institute of Environmental Science and Research to help develop the

⁹⁸ Canterbury Earthquake Recovery Authority, “Communicating in a recovery: CERA’s approach to communications and engagement”, (Canterbury Earthquake Recovery Authority, 2016).

⁹⁹ Canterbury Earthquake Recovery Authority, “Communicating in a recovery: CERA’s approach to communications and engagement”, (Canterbury Earthquake Recovery Authority, 2016).

¹⁰⁰ Canterbury Earthquake Recovery Authority, “Case study: Developing the Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha”, (Canterbury Earthquake Recovery Authority, 2016).

¹⁰¹ New Zealand Government, “Canterbury Earthquake Recovery Act 2011”, (New Zealand Government, 2011).

community engagement process. Ideas from the Christchurch City Council's 'Share an Idea' engagement process were also fed into the development of the Recovery Strategy¹⁰² (see section 5.6.2 for more information about the 'Share an Idea' engagement process).

Two public engagement rounds were included in the development of the Recovery Strategy. The first was a series of eight workshops that took place over June and July 2011. The purpose of the workshops was to collect ideas from the public on what they wanted to see in the Recovery Strategy, under each of the five categories identified at the time: community wellbeing, culture and heritage, built environment, economy, and natural environment. A thematic analysis of the data collected helped shape the development of the Recovery Plan. Some comments received from the public were not relevant to the Recovery Plan, but were able to be incorporated elsewhere, for example in the Land Use Recovery Plan¹⁰³.

In addition to the difficulty of finding safe workshop venues due to the extensive earthquake damage, the ongoing aftershocks presented a notable challenge for the engagement process itself. A major aftershock on 13 June 2011 delayed workshops and placed pressure on the already tight timeframe. Some people who attended the workshops found it difficult to focus on long-term thinking because they were still dealing with the ongoing aftershocks¹⁰⁴.

The Recovery Strategy was approved by Cabinet and publicly notified on 10 September 2011. The Canterbury Earthquake Recovery Authority setup four information sessions and the public were invited to provide comment online or via post. In total, 463 individuals and organisations provided written comments. The written comments helped inform the final Recovery Strategy¹⁰⁵, which was released in May 2012¹⁰⁶.

While the strategic partners were involved in the development of the Recovery Strategy, it was challenging for the Canterbury Earthquake Recovery Authority to overcome perceptions that it was the 'owner' of the Recovery Strategy. Although the Canterbury Earthquake Recovery Authority was required by legislation to lead the work, it was intended that the strategic partners would 'own' the Recovery Strategy in practice. The strategic partners collaborated closely with the Canterbury Earthquake Recovery Authority to develop the high-level vision and goals, and this helped build strong relationships between the parties involved. The Canterbury Earthquake Recovery Authority suggested that an alternative approach for the future may be to give entities intended to 'own' a document joint responsibility for developing it¹⁰⁷.

In 2015, the Government Department Strategies Index New Zealand ranked the Recovery Strategy as the top Government Department Strategy, having demonstrated all the elements identified as being useful in a strategy document by the McGuinness Institute¹⁰⁸.

¹⁰² Canterbury Earthquake Recovery Authority, "Case study: Developing the Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha", (Canterbury Earthquake Recovery Authority, 2016).

¹⁰³ Canterbury Earthquake Recovery Authority, "Case study: Developing the Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha", (Canterbury Earthquake Recovery Authority, 2016).

¹⁰⁴ Canterbury Earthquake Recovery Authority, "Case study: Developing the Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha", (Canterbury Earthquake Recovery Authority, 2016).

¹⁰⁵ Canterbury Earthquake Recovery Authority, "Case study: Developing the Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha", (Canterbury Earthquake Recovery Authority, 2016).

¹⁰⁶ New Zealand Government, "Canterbury Earthquake (Recovery Strategy Approval) Order 2012, notice number 2012-go3345", (New Zealand Government, 2012).

¹⁰⁷ Canterbury Earthquake Recovery Authority, "Case study: Developing the Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha", (Canterbury Earthquake Recovery Authority, 2016).

¹⁰⁸ McGuinness Institute, "Working Paper 2015/08: Tables Collating and Ranking Government Department Strategies in Operation as at 30 June 2015", (McGuinness Institute, 2015).

Lesson: Public engagement processes, particularly on strategic long-term issues, need to consider that people's ability to think beyond the immediate response phase of a disaster might be compromised by the impact of the disaster.

Lesson: When developing a recovery strategy or plan, manage expectations and clearly communicate roles and responsibilities to mitigate the perception that the temporary recovery authority is the sole 'owner' of the strategy or plan.

5.6.2. Engagement on the Christchurch Central Recovery Plan

The Christchurch City Council developed the draft Central City Plan, informed by the 'Share an Idea' engagement process that generated over 106,000 ideas. The government decided to establish a new unit within the Canterbury Earthquake Recovery Authority to finalise the recovery plan and lead the delivery of the central city anchor projects. This was perceived by some as central government 'taking over' a local government-led initiative and led to feelings of disillusionment.

Early on, central and local government recognised the opportunity to rebuild a central city that was productive, attractive, and innovative. The central city was a large area and prior to the earthquakes the central city was in gradual decline, with availability of commercial property outstripping demand. Satellite centres had developed outside of the central city, further reducing demand for retail and commercial operations in the central city. The Christchurch City Council had created a Central City Recovery Strategy years before the earthquakes, but by 2010 the central city was showing limited signs of improvement¹⁰⁹.

'Share an Idea' and the Christchurch City Council's draft Central City Plan

Recognising the importance of the central city's recovery, and the opportunity to build back better, the Canterbury Earthquake Recovery Act 2011 required that the Christchurch City Council develop a recovery plan for the central city within nine months of the Act coming into force (i.e. concurrent with the development of the Recovery Strategy). As with the Recovery Strategy, the plan was required to be developed in consultation with the affected communities and local stakeholders including the Canterbury Earthquake Recovery Authority, Environment Canterbury and Te Rūnanga o Ngāi Tahu¹¹⁰.

The Christchurch City Council organised a number of public engagement activities as part of their 'Share an Idea' campaign. In addition to the approximate 100 stakeholder meetings and community workshops that took place, the Christchurch City Council organised a 'Community Expo' that was held over a weekend in May 2011. Approximately 10,000 people attended the expo. In total, over 106,000 ideas were received from the public, which were subsequently organised into 130 themes¹¹¹.

In August 2011, the draft Central City Plan was opened to the public for consultation¹¹². The Christchurch City Council received 4,700 written submissions through the consultation process and the feedback was incorporated into the final draft of the plan. The document comprised seven themes that detailed the proposed plans for the central city. In addition to the seven themes, the draft Central City Plan outlined 71 individual projects, with 15 of these being classed as priority projects for the recovery of the central city¹¹³. The Central City Plan stated that the projects would be "fully scoped and funded through the Council's Long-Term Plan [...] and normal consultation process"¹¹⁴.

¹⁰⁹ Canterbury Earthquake Recovery Authority, "Recovering Christchurch's central city: a narrative of the first four years 2011 – 2015", (Canterbury Earthquake Recovery Authority, 2016).

¹¹⁰ New Zealand Government, "Canterbury Earthquake Recovery Act 2011", (New Zealand Government, 2011).

¹¹¹ Canterbury Earthquake Recovery Authority, "Recovering Christchurch's central city: a narrative of the first four years 2011 – 2015", (Canterbury Earthquake Recovery Authority, 2016).

¹¹² Christchurch City Council, "Central City Plan - Draft Central City Recovery Plan for Ministerial Approval", (Christchurch City Council, 2011).

¹¹³ Canterbury Earthquake Recovery Authority, "Recovering Christchurch's central city: a narrative of the first four years 2011 – 2015", (Canterbury Earthquake Recovery Authority, 2016).

¹¹⁴ Christchurch City Council, "Central City Plan - Draft Central City Recovery Plan for Ministerial Approval", (Christchurch City Council, 2011).

The Christchurch City Council provided the draft Central City Plan to the Minister for Canterbury Earthquake Recovery in December 2011 for consideration, as anticipated in the Canterbury Earthquake Recovery Act 2011¹¹⁵.

Government concerns about the draft Central City Plan

In considering the draft Central City Plan in early 2012, the government was assessing the additional information coming through about the extent of the damage to the central city, and the level of market confidence about returning business and investment to the central city. It soon became clear that its recovery would be more complex than originally thought. A large number of facilities in the central city were damaged, including sports facilities, hotels, and the convention centre. Confidence in the central city was dropping, with 25 per cent fewer businesses expressing interest in returning to the central city in February 2012 compared with August 2011. Delays to the rebuild and the prospect of high rents were provided as reasons for those who changed their mind over the six month period¹¹⁶. The Treasury noted that maintaining confidence and providing certainty was important to minimise economic fallout and create the right climate for investment¹¹⁷.

While acknowledging the widespread community support for the vision and key changes proposed in the draft Central City Plan, the government considered the plan needed more specific information about how it would be implemented, including the case for reinvestment in the central city, the availability of funding and coordination with external agencies. In part, this lack of specificity was likely due to the fact that the Christchurch City Council did not have the resources and the statutory powers necessary to lead the recovery of the central city¹¹⁸. The Minister for Canterbury Earthquake Recovery decided in April 2012 to approve an amended version of the plan that retained the community vision articulated in the draft¹¹⁹, and directed the Canterbury Earthquake Recovery Authority to provide him with advice on the amendments needed. In practice, this meant that the draft Central City Plan developed by the Christchurch City Council would be used as a starting point¹²⁰.

The government decided at that time that it would need to intervene in order to implement the finalised plan, because the market would not deliver recovery under the current conditions¹²¹. It identified that a number of different intervention points would be needed to ensure recovery of the central city, including streamlining consenting processes, amalgamation of land parcels into viable development sites, investment attraction, and public funding. It also considered that a clear blueprint for development, including the location of key anchor projects, would be critical to provide certainty and ensure public, business, and investor confidence in the recovery of the central city¹²².

The government decided to mandate the Canterbury Earthquake Recovery Authority as the delivery entity to lead and facilitate the recovery of the central city¹²³. The draft Central City Plan had identified the need for a dedicated development agency¹²⁴. Having reviewed international examples, the government considered four options for the delivery entity: the Canterbury Earthquake Recovery Authority, a Crown-owned company, a council-controlled organisation, and a private company¹²⁵. The primary rationale was that the Canterbury Earthquake Recovery Authority had a number of statutory powers under the Canterbury Earthquake Recovery Act 2011 that would be needed by the new entity; for example, the power to acquire and dispose of land, and the power to amend the consenting process. In addition, the other entities would have taken significantly more time to establish.

¹¹⁵ New Zealand Government, "Christchurch CBD Recovery", (New Zealand Government, 2012).

¹¹⁶ Canterbury Earthquake Recovery Authority, "Recovering Christchurch's central city: a narrative of the first four years 2011 – 2015", (Canterbury Earthquake Recovery Authority, 2016).

¹¹⁷ The Treasury, "Lessons from Treasury's role in the Canterbury earthquakes", (The Treasury, 2016).

¹¹⁸ New Zealand Government, "Christchurch CBD Recovery", (New Zealand Government, 2012).

¹¹⁹ New Zealand Government, "Christchurch CBD Recovery", (New Zealand Government, 2012).

¹²⁰ New Zealand Government, "Christchurch CBD Recovery", (New Zealand Government, 2012).

¹²¹ New Zealand Government, "Christchurch CBD Recovery", (New Zealand Government, 2012).

¹²² New Zealand Government, "Christchurch CBD Recovery", (New Zealand Government, 2012).

¹²³ New Zealand Government, "Christchurch CBD Recovery", (New Zealand Government, 2012).

¹²⁴ Canterbury Earthquake Recovery Authority, "Recovering Christchurch's central city: a narrative of the first four years 2011 – 2015", (Canterbury Earthquake Recovery Authority, 2016).

¹²⁵ New Zealand Government, "Christchurch CBD Recovery", (New Zealand Government, 2012).

Establishment of Christchurch Central Development Unit and the Christchurch Central Recovery Plan

In April 2012, the Christchurch Central Development Unit was established and its first objective was to build on the draft Central City Plan, drawing lessons from past disaster recoveries. A private consortium was procured to prepare the spatial framework, known as the Blueprint, in 100 days. The Blueprint identified locations of ‘anchor’ projects for the city¹²⁶; for example, the Metro Sports Facility and the Convention Centre. The work from the Blueprint was implemented into the Christchurch Central Recovery Plan, which was approved by Cabinet in July 2012¹²⁷.

After the Christchurch Central Recovery Plan was finalised, a number of meetings were held with stakeholders and members of the public about the plan and how it would be delivered. It was acknowledged that in a ‘business as usual’ environment local government would largely fund public facilities; however, to expedite recovery there was a need for central government intervention in terms of funding¹²⁸. In July 2013, the Christchurch City Council and the Crown reached an agreement on funding and the Cost Sharing Agreement was signed¹²⁹.

Criticism and public concerns

One of the lasting criticisms of the process for developing the Christchurch Central Recovery Plan and the establishment of the Christchurch Central Development Unit has been the perception that central government interfered with, and took over from, a local government-led initiative¹³⁰, and that the process by which the plan was finalised undermined the feelings of empowerment generated by the ‘Share an Idea’ engagement process¹³¹. The finalised Christchurch Central Recovery Plan was informed by ideas and feedback generated through the ‘Share an Idea’ engagement process, but the view that it did not appears to be widespread. This has impacted public perception of the Christchurch Central Recovery Plan and the delivery of the anchor projects, and led to feelings of disempowerment and disillusionment within some parts of the Christchurch community¹³².

At the time it decided to establish the Christchurch Central Development Unit, the government identified that one of the risks of this approach was that the Christchurch community might resist central government intervention, particularly if it was perceived as not respecting or endorsing the community vision expressed through the ‘Share an Idea’ process. It noted that engaging with the community in developing the Blueprint would be a critical ongoing consideration¹³³.

When the final Christchurch Central Recovery Plan was approved in July 2012, the government noted that there was no requirement in the Canterbury Earthquake Recovery Act 2011 for any additional consultation beyond the engagement through ‘Share an Idea’¹³⁴. The Community Forum and the strategic partners, as well as some landowners and potential investors, were consulted before the Christchurch Central Recovery Plan was finalised.

¹²⁶ Canterbury Earthquake Recovery Authority, “Recovering Christchurch’s central city: a narrative of the first four years 2011 – 2015”, (Canterbury Earthquake Recovery Authority, 2016).

¹²⁷ New Zealand Government, “Minute of Decision: Christchurch Central Recovery Plan - Final Decisions by Group of Ministers with Power to Act”, (New Zealand Government, 2012).

¹²⁸ Canterbury Earthquake Recovery Authority, “Recovering Christchurch’s central city: a narrative of the first four years 2011 – 2015”, (Canterbury Earthquake Recovery Authority, 2016).

¹²⁹ New Zealand Government, “Cost Sharing Agreement”, (New Zealand Government, 2013).

¹³⁰ Wright, M. “Five years of Cera: Success or failure?”, (<http://www.stuff.co.nz/national/politics/78952664/Five-years-of-Cera-Success-or-failure>, published 16 April 2016, retrieved May 2017).

¹³¹ Johnson, L., & Mamula-Seadon, L., “Transforming Governance – How National Policies and Organizations for Managing Disaster Recovery Evolved Following the 4 September 2010 and 22 February 2011 Canterbury Earthquakes”, (Earthquake Spectra, 2014); Kingham, S., Dionisio, M.R. & Newman, P., “The right tools at the right time: Encouraging community involvement in the post-disaster reconstruction of Christchurch, New Zealand”, (IGU Urban Commission Annual Conference, 9-16 August 2015, University College, Dublin); Bennett, B., “Design and Democracy” in *Once in a Lifetime: City-Building after Disaster in Christchurch*, (Christchurch, 2014); Galloway, M., “A message and a messenger”, in *Once in a Lifetime: City-Building after Disaster in Christchurch*, (Christchurch, 2014).

¹³² Kingham, S., Dionisio, M.R. & Newman, P., “The right tools at the right time: Encouraging community involvement in the post-disaster reconstruction of Christchurch, New Zealand”, (IGU Urban Commission Annual Conference, 9-16 August 2015, University College, Dublin); Bennett, B., “Design and Democracy” in *Once in a Lifetime: City-Building after Disaster in Christchurch*, (Christchurch, 2014); Dalziel, Hon L., “State of the City”, (<http://www.lianne.co.nz/speeches/the-state-of-the-city-mayor-lianne-dalziel-addresses-the-city-of-christchurch>, publication date 18 February 2014, retrieved May 2017).

¹³³ New Zealand Government, “Christchurch CBD Recovery”, (New Zealand Government, 2012).

¹³⁴ New Zealand Government, “Christchurch Central Recovery Plan and its Implementation”, (New Zealand Government, 2012).

The Canterbury Earthquake Recovery Authority acknowledged that there was a communications vacuum after the release of the Christchurch Central Recovery Plan¹³⁵, which likely contributed to the public perception that ideas and feedback from ‘Share an Idea’ had not been taken into account in the final plan, as well as the view that central government had taken over a locally-led initiative.

Lesson: Clearly communicate how ideas and feedback generated through public engagement processes have been incorporated or addressed in a finalised strategy or plan.

Lesson: Clearly communicate the rationale for any central government intervention, particularly where the government is acting in an area that might otherwise have been the responsibility of a local entity.

5.7. Transition to new governance arrangements

5.7.1. Development of a plan for transition

The Recovery Strategy noted that the Canterbury Earthquake Recovery Authority would develop a transition plan to enable a smooth transfer of responsibilities at the time that it ceased to exist¹³⁶. With the Canterbury Earthquake Recovery Act 2011 due to expire in April 2016, a review of the governance and legislative arrangements started in 2014.

In December 2014, an Advisory Board on Transition to Long Term Recovery Arrangements was established to provide advice to the government on the implications of the expiry of the Canterbury Earthquake Recovery Act 2011 and the transfer of functions undertaken by the Canterbury Earthquake Recovery Authority to more permanent entities¹³⁷. The Advisory Board, chaired by Dame Jenny Shipley, comprised the Mayors and Chairs of the local authorities and Te Rūnanga o Ngāi Tahu, as well as representatives from the community, business, and not-for-profit sectors¹³⁸. The Advisory Board provided its initial advice to the government in July 2015¹³⁹.

5.7.2. Moving into the Department of the Prime Minister and Cabinet

By tasking the Department of the Prime Minister and Cabinet to develop a plan for transition, the government addressed the risk of perverse incentives if the Canterbury Earthquake Recovery Authority had to disestablish itself.

In early 2015, the government tasked the Department of the Prime Minister and Cabinet with developing a plan for the wind down and transition of the Canterbury Earthquake Recovery Authority’s roles and responsibilities¹⁴⁰.

On 1 February 2015, the Canterbury Earthquake Recovery Authority ceased to be a separate public sector department, and became a departmental agency hosted by the Department of the Prime Minister and Cabinet. The shift to being a departmental agency did not affect the Canterbury Earthquake Recovery Authority’s ‘face’ in Canterbury¹⁴¹. It continued to be headed by a chief executive and reported to the Minister for Canterbury Earthquake Recovery.

The reasons for moving the Canterbury Earthquake Recovery Authority into the Department of the Prime Minister and Cabinet included positioning it closer to the Ministry of Civil Defence & Emergency Management (which had been moved into the Department of the Prime Minister and Cabinet in April 2014) to ensure knowledge capture

¹³⁵ Canterbury Earthquake Recovery Authority, “Promoting the Central City: A case study from CCDU communications”, (Canterbury Earthquake Recovery Authority, 2016).

¹³⁶ Canterbury Earthquake Recovery Authority, “Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha”, (Canterbury Earthquake Recovery Authority, 2012).

¹³⁷ New Zealand Government, “Greater Christchurch Earthquake Recovery: Moving forward with pace and confidence”, (New Zealand Government, 2014).

¹³⁸ Advisory Board on Transition to Long Term Recovery Arrangements, “First Report to the Minister for Canterbury Earthquake Recovery”, (Advisory Board on Transition to Long Term Recovery Arrangements, 2015).

¹³⁹ Advisory Board on Transition to Long Term Recovery Arrangements, “First Report to the Minister for Canterbury Earthquake Recovery”, (Advisory Board on Transition to Long Term Recovery Arrangements, 2015).

¹⁴⁰ New Zealand Government, “Greater Christchurch Earthquake Recovery: Moving forward with pace and confidence”, (New Zealand Government, 2014).

¹⁴¹ New Zealand Government, “Greater Christchurch Earthquake Recovery: Moving forward with pace and confidence”, (New Zealand Government, 2014).

and future disaster resilience. It was also intended to address the weak incentives for the Canterbury Earthquake Recovery Authority to disestablish itself¹⁴².

Lesson: Task an external entity with developing the exit strategy for a recovery authority, to avoid the perverse incentives that will arise if an entity is responsible for disestablishing itself.

5.7.3. Disestablishment of the Canterbury Earthquake Recovery Authority

The Canterbury Earthquake Recovery Authority was always intended to be temporary, but its culture of fixing problems meant that it missed opportunities to empower other, more permanent, entities to take responsibility and build capability. It is important for a recovery authority to ‘plan for the end at the beginning’ by finding natural homes for functions and building trust and capability with inheriting entities early on.

In July 2015, the government released a draft Transition Recovery Plan setting out its view that the recovery arrangements needed to be refreshed so they remained fit for purpose in the long term. The proposals were developed in consultation with the Advisory Board on Transition to Long Term Recovery Arrangements¹⁴³.

Following a period of public engagement on the proposals in the draft Transition Recovery Plan, the government’s decisions were set out in the final Transition Recovery Plan, released in October 2015.¹⁴⁴ The government decided that it was time for its role in the recovery and regeneration to evolve from leadership and coordination to supporting and empowering local people and organisations. This decision was informed by public feedback on the proposals as well as international research that showed that, for recovery to be sustainable in the long term, it needs to be ‘owned’ and led by local communities¹⁴⁵.

The Canterbury Earthquake Recovery Authority wound down and transferred some of its responsibilities to other government agencies before being disestablished in April 2016. The Canterbury Earthquake Recovery Authority’s reflection on the transition process found that taking a more strategic approach to disestablishment earlier on would have reduced its workload, as some recovery activities could have been transferred or wound down earlier¹⁴⁶. It found that an organisational culture of fixing problems, combined with people losing sight of the temporary nature of its role, meant that the Canterbury Earthquake Recovery Authority missed opportunities to empower other entities and build their capability to take on responsibility for more recovery work over time¹⁴⁷.

Lesson: Find natural homes for functions that need to be transferred early, and build trust and capability with inheriting agencies early on.

Lesson: ‘Plan for the end at the beginning’ – consider the effects of taking on additional roles and responsibilities and take a strategic approach to disestablishment.

Lesson: Ensure that employees of temporary recovery authorities do not lose sight of the temporary nature of their roles.

5.7.4. Governance arrangements 2016-2021

A new entity jointly owned and funded by the Christchurch City Council and the government, Regenerate Christchurch, was set up in 2016 to develop plans and strategies on the regeneration of Christchurch’s residential red zone, the central city, and New Brighton. Regenerate Christchurch is also responsible for providing

¹⁴² New Zealand Government, “Greater Christchurch Earthquake Recovery: Moving forward with pace and confidence”, (New Zealand Government, 2014).

¹⁴³ Canterbury Earthquake Recovery Authority, “Draft Transition Recovery Plan”, (Canterbury Earthquake Recovery Authority, 2015).

¹⁴⁴ Canterbury Earthquake Recovery Authority, “Transition Recovery Plan”, (Canterbury Earthquake Recovery Authority, 2015).

¹⁴⁵ Canterbury Earthquake Recovery Authority, “Transition Recovery Plan”, (Canterbury Earthquake Recovery Authority, 2015).

¹⁴⁶ Canterbury Earthquake Recovery Authority, “Benefits of a strategic approach to recovery: CERA’s lessons on the journey from emergency to regeneration”, (Canterbury Earthquake Recovery Authority, 2016).

¹⁴⁷ Canterbury Earthquake Recovery Authority, “Benefits of a strategic approach to recovery: CERA’s lessons on the journey from emergency to regeneration”, (Canterbury Earthquake Recovery Authority, 2016).

independent advice to the Christchurch City Council and the government on the progress of regeneration and interventions that would assist regeneration. The government established a new Crown company, Ōtākaro Limited, to deliver major central city projects¹⁴⁸.

Reflecting the government's intention to transfer leadership of the recovery to local people and institutions, the Greater Christchurch Regeneration Act 2016 provides for greater local input into recovery decision-making than the Canterbury Earthquake Recovery Act 2011 did. Regenerate Christchurch, along with Ōtākaro Limited, local authorities, and Te Rūnanga o Ngāi Tahu, have a statutory role in being able to develop regeneration plans, and can request the use of Ministerial powers to amend relevant plans and bylaws¹⁴⁹ (see Chapter 6 for more information about the Greater Christchurch Regeneration Act 2016).

The Transition Recovery Plan stated that the government's intention over time, as local agencies build up capability and capacity, is that there will no longer be a special role for government in supporting the recovery. By 2021, the aim is that there will be no need for special legislation and the government's role will be normalised in Christchurch (government agencies will deliver business as usual services)¹⁵⁰.

5.8. Effectiveness of the governance arrangements

There is no clear consensus on the effectiveness of the governance arrangements put in place after the 22 February 2011 earthquake.

5.8.1. New Zealand's governance arrangements in the international context

After the 22 February 2011 earthquake, the New Zealand government faced significant public pressure to intervene. This is in common with international experience following similar large-scale disasters¹⁵¹. A civil defence emergency management framework that does not provide for the management of large-scale recovery in the long term, combined with the problems being experienced within local Canterbury governance structures at the time, were two important contextual factors in reaching the decision to establish a new government department to lead and coordinate the recovery. The capacity and capability of local institutions to manage a large-scale disaster is noted as an important factor that should be considered in governance recovery decisions¹⁵².

Internationally, arguably the most important decision in relation to recovery governance is the extent of centralisation of control in decision-making¹⁵³. A top-down approach is characterised by planning and decision-making made by the recovery authority with little or no community participation and consultation. A bottom-up approach involves local institutions leading decision-making, planning, and implementation of recovery projects. Neither approach is without its limitations. Top-down recovery governance, while often efficient, cost-effective and timely in its delivery, is criticised as problematic because limited community participation often results in unsuitable or unsustainable recovery solutions. Bottom-up recovery governance can lead to innovative solutions and aids psychosocial recovery, but can lead to unnecessary delays in decision-making and delivery¹⁵⁴.

¹⁴⁸ Canterbury Earthquake Recovery Authority, "Transition Recovery Plan", (Canterbury Earthquake Recovery Authority, 2015).

¹⁴⁹ New Zealand Government, "Greater Christchurch Regeneration Act 2016", (New Zealand Government, 2016).

¹⁵⁰ Canterbury Earthquake Recovery Authority, "Transition Recovery Plan", (Canterbury Earthquake Recovery Authority, 2015).

¹⁵¹ Mamula-Seadon, L. & McLean, I., "Response and early recovery following 4 September 2010 and 22 February 2011 Canterbury earthquakes: Societal resilience and the role of governance", (International Journal of Disaster Risk Reduction, 2015); International Recovery Platform, "Learning from Disaster Recovery: Guidance for Decision Makers", (International Recovery Platform, 2007).

¹⁵² Johnson, L. A. & Olshansky, R.B., "The Road to Recovery: Governing Post-Disaster Reconstruction", (Land Lines: Quarterly Magazine of the Lincoln Institute of Land Policy, 2013); United Nations Office for Disaster Risk Reduction, "Guidance Note on Recovery: Governance", (United Nations Office for Disaster Risk Reduction, 2010).

¹⁵³ Mannakkara, S. & Wilkinson, S., "Selecting an institutional mechanism for Building Back Better: Lessons from Victorian bushfires recovery", (International Journal of Disaster Risk Reduction, 2016).

¹⁵⁴ Mannakkara, S. & Wilkinson, S., "Selecting an institutional mechanism for Building Back Better: Lessons from Victorian bushfires recovery", (International Journal of Disaster Risk Reduction, 2016).

New Zealand's governance arrangements after the 22 February 2011 earthquake combined top-down and bottom-up approaches, providing centralised leadership with formal community input into decision-making¹⁵⁵. Compared with other international arrangements (including after the 2008 Wenchuan, China earthquake and 2009 L'Aquila, Italy earthquake), New Zealand's governance arrangements are described as having a high degree of community participation and engagement.¹⁵⁶

5.8.2. Public perception of effectiveness

The question of public participation in decision-making has been a focus of criticism levelled at the government, and the Canterbury Earthquake Recovery Authority, since its establishment. The view that the Canterbury Earthquake Recovery Authority took over recovery work that would otherwise have been local authorities' responsibility is connected to a broader discussion on the region's perceived loss of democratic rights¹⁵⁷.

Notwithstanding the resources dedicated by the Canterbury Earthquake Recovery Authority to community engagement, and the adaptation and improvement of its engagement processes over time¹⁵⁸, many people felt excluded from key decisions. This perception of exclusion is well documented¹⁵⁹. For example, the decision of the Minister for Canterbury Earthquake Recovery to use his statutory power to direct changes to the draft Central City Plan that was developed by the Christchurch City Council after the 'Share an Idea' campaign contributed to the view that the government had ignored the public's feedback in the decision-making process¹⁶⁰.

There is no consensus on the effectiveness of community participation in recovery decision-making after the Canterbury earthquakes. Community participation was considered less effective in the early years of the Canterbury Earthquake Recovery Authority than in later years¹⁶¹. This contrasts with the view of the New Zealand Auditor-General, who concluded that the Canterbury Earthquake Recovery Authority became less effective in communication and engagement over time¹⁶². The Canterbury Earthquake Recovery Authority recognised that, despite its efforts, it failed to fully meet the community's high expectations of engagement¹⁶³.

One possible explanation for this is that, rather than being a true measure of effectiveness, people's perception of their involvement in recovery decision-making was influenced by external factors not directly related to the Canterbury Earthquake Recovery Authority's engagement processes. Examples include, frustration and disillusionment about delays to insurance settlements, lack of community facilities, and housing repairs. This would align with international experience that individual and communities' psychosocial recovery and wellbeing fluctuates over time. International guidance for recovery decision-makers notes that in the heightened environment following a disaster, disaffection and frustration can be created or exacerbated by superficial

¹⁵⁵ Comerio, M.C., "Housing Recovery in Chile: A Qualitative Mid-program review", (Pacific Earthquake Engineering Research Center, 2013); Platt, S., "A decision-making model of disaster resilience and recovery", (SECED 2015 Conference: Earthquake Risk and Engineering towards a Resilient World 9-10 July 2015, Cambridge).

¹⁵⁶ Comerio, M.C., "Housing Recovery in Chile: A Qualitative Mid-program review", (Pacific Earthquake Engineering Research Center, 2013).

¹⁵⁷ Dalziel, Hon L., "Turning Disaster into Opportunity", speech delivered at Australian and New Zealand Institute of Insurance & Finance Conference, (<http://www.scoop.co.nz/stories/print.html?path=PA1111/S00521/dalziel-turning-disaster-into-opportunity.htm>, published 30 November 2011, retrieved May 2017); Dalziel, Hon L., "State of the City", (<http://www.lianne.co.nz/speeches/the-state-of-the-city-mayor-lianne-dalziel-addresses-the-city-of-christchurch>, publication date 18 February 2014, retrieved May 2017).

¹⁵⁸ Canterbury Earthquake Recovery Authority, "Walking the Recovery Tightrope: Learning and insights from the Canterbury Earthquake Recovery Authority", (Canterbury Earthquake Recovery Authority, 2016).

¹⁵⁹ Dalziel, Hon L., "Turning Disaster into Opportunity", speech delivered at Australian and New Zealand Institute of Insurance & Finance Conference, (<http://www.scoop.co.nz/stories/print.html?path=PA1111/S00521/dalziel-turning-disaster-into-opportunity.htm>, published 30 November 2011, retrieved May 2017); Dalziel, Hon L., "State of the City", (<http://www.lianne.co.nz/speeches/the-state-of-the-city-mayor-lianne-dalziel-addresses-the-city-of-christchurch>, publication date 18 February 2014, retrieved May 2017); Wright, M. "Five years of Cera: Success or failure?", (<http://www.stuff.co.nz/national/politics/78952664/Five-years-of-Cera-Success-or-failure>, published 16 April 2016, retrieved May 2017); Pedroso, F.F., Teo, J., Seville, E., Giovanazzi, S. & Vargo, J., "Post-disaster challenges and opportunities: Lessons from the 2011 Christchurch earthquake and Great Eastern Japan earthquake and tsunami", (United Nations Office for Disaster Risk Reduction, 2013).

¹⁶⁰ Bennett, B., "Design and Democracy" in *Once in a Lifetime: City-Building after Disaster in Christchurch*, (Christchurch, 2014); Kingham, S., Dionisio, M.R. & Newman, P., "The right tools at the right time: Encouraging community involvement in the post-disaster reconstruction of Christchurch, New Zealand", (IGU Urban Commission Annual Conference, 9-16 August 2015, University College, Dublin).

¹⁶¹ Mamula-Seadon, L. & McLean, I., "Response and early recovery following 4 September 2010 and 22 February 2011 Canterbury earthquakes: Societal resilience and the role of governance", (International Journal of Disaster Risk Reduction, 2015).

¹⁶² Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017)

¹⁶³ Canterbury Earthquake Recovery Authority, "Walking the Recovery Tightrope: Learning and insights from the Canterbury Earthquake Recovery Authority", (Canterbury Earthquake Recovery Authority, 2016).

media coverage that often underrepresents the nature and extent of the challenges faced by recovery authorities and government¹⁶⁴.

The governance arrangements have been assessed positively, citing efficient and effective recovery and reconstruction planning, good coordinating of regional and local plan making, and extensive public consultation¹⁶⁵. When comparing the governance arrangements after the 22 February 2011 earthquake with those set up after the Victorian bushfires in 2009 and the Queensland floods in 2010-11, the recovery agencies were considered flexible, adapted when required, and were effective in all three cases¹⁶⁶.

Building local capacity in the process is a key 'best practice' recommendation for temporary recovery governance arrangements. The Canterbury Earthquake Recovery Authority acknowledged that it missed opportunities to do this, partly due to public perception that it was responsible for everything recovery-related, and partly due to a strong culture of problem solving and 'doing' recovery¹⁶⁷. Capacity building during the recovery process at a local and regional government level in Canterbury was not as effective as it could have been¹⁶⁸.

Lesson: Public perception is important. Manage expectations about public engagement and input into decision-making processes. Do not over promise.

5.9. Summary of lessons on Recovery Governance Arrangements

Civil Defence Emergency Management Framework

- Further work needs to be done to ensure that New Zealand is prepared for long-term recovery from future large-scale disasters.

Setting up from scratch

- Prepare for quickly establishing a recovery authority (if needed) by setting up pre-arranged service agreements to provide systems and processes across the core corporate services, including:
 - financial controls and management;
 - performance management and reporting;
 - human resources;
 - information services and technology; and
 - Ministerial services, including official correspondence.

Ensuring collaboration across the recovery sector

- Where possible, it is useful to build on or adapt existing local structures when establishing new recovery partnerships and structures.
- Define and clearly document the accountabilities of the recovery authority in relation to those of other agencies.
- Ensure that respective roles and responsibilities within the recovery community are clearly communicated, particularly with the public.
- Manage expectations about the role of the recovery authority, so that it is not seen as responsible for everything.

¹⁶⁴ International Recovery Platform, "Learning from Disaster Recovery: Guidance for Decision Makers", (International Recovery Platform, 2007).

¹⁶⁵ Platt, S., "Reconstruction in New Zealand Post 2010-11 Christchurch Earthquakes", (Cambridge Architectural Research, United Kingdom, 2012).

¹⁶⁶ Smart, J., "The role of post-disaster institutions in recovery and resilience: a comparative study of three recent disasters – Victorian Bushfires (2009), Queensland Floods (2010-2011), and Canterbury Earthquakes (2010-12)" (Institute for Governance and Policy Studies, Victoria University of Wellington, 2012).

¹⁶⁷ Canterbury Earthquake Recovery Authority, "Walking the Recovery Tightrope: Learning and insights from the Canterbury Earthquake Recovery Authority", (Canterbury Earthquake Recovery Authority, 2016).

¹⁶⁸ Johnson, L.A. & Mamula-Seadon, L., "Transforming Governance: How National Policies and Organizations for Managing Disaster Recovery Evolved Following the 4 September 2010 and 22 February 2011 Canterbury Earthquakes", (Earthquake Spectra, 2014).

- Build in formal and regular review processes for the governance arrangements to ensure they continue to be fit-for-purpose, particularly as roles and responsibilities evolve.
- Dedicate and prioritise resources to manage partnership and interagency relationships at multiple organisational levels.

Public participation and community engagement

- Public engagement processes, particularly on strategic long-term issues, need to take account of the fact that people's ability to think beyond the immediate response phase of a disaster might be compromised by the impact of the disaster.
- When developing a recovery strategy or plan, manage expectations and clearly communicate roles and responsibilities to mitigate the perception that the temporary recovery authority is the sole 'owner' of the strategy or plan.
- Clearly communicate how ideas and feedback generated through public engagement processes have been incorporated or addressed in a finalised strategy or plan.
- Clearly communicate the rationale for any central government intervention, particularly where the government is acting in an area that might otherwise have been the responsibility of a local entity.

Transition to new governance arrangements

- Task an external entity with developing the exit strategy for a recovery authority, to avoid the perverse incentives that will arise if an entity is responsible for disestablishing itself.
- Find natural homes for functions that need to be transferred early, and build trust and capability with inheriting agencies early on.
- 'Plan for the end at the beginning' – consider the effects of taking on additional roles and responsibilities and take a strategic approach to disestablishment.
- Ensure that employees of temporary recovery authorities do not lose sight of the temporary nature of their roles.

Effectiveness of the governance arrangements

- Public perception is important. Manage expectations about public engagement and input into decision-making processes. Do not over-promise.

6. Recovery Legislation

The purpose of this chapter is to consider the effectiveness of the Canterbury Earthquake Recovery Act 2011 and any lessons recorded from a whole-of-government perspective. It does not revisit the policy intention for the powers in the Canterbury Earthquake Recovery Act 2011.

6.1. Context

6.1.1. Canterbury Earthquake Response and Recovery Act 2010

The Canterbury Earthquake Recovery Act 2011 was one of two pieces of legislation enacted to expedite and facilitate recovery from the Canterbury earthquake sequence of 2010 and 2011.

The first was the Canterbury Earthquake Response and Recovery Act 2010, which came into force on 15 September 2010. The Canterbury Earthquake Response and Recovery Act 2010's key purpose was to enable the executive branch of government to make changes to other legislation through regulations without the usual oversight of the whole Parliament, if needed to respond to and recover from the earthquake. This type of emergency regulation-making power had a long-standing precedent in New Zealand legislation, including the Hawkes Bay Earthquake Act 1931 and repealed civil defence legislation (Local Authorities' Emergency Powers Act 1953, Civil Defence Act 1962 and Civil Defence Act 1983)¹⁶⁹.

The Canterbury Earthquake Response and Recovery Act 2010 also established the Canterbury Earthquake Recovery Commission to advise Ministers on any regulations that may be required, and how resources might be prioritised and funding allocated¹⁷⁰. Although it was unanimously supported through Parliament, the Canterbury Earthquake Response and Recovery Act 2010 attracted criticism after its enactment, particularly by academics and members of the legal profession¹⁷¹. The principal concerns raised were the theoretical potential for government abuse of power by making changes to legislation through emergency regulations, the lack of adequate checks and balances on the regulation-making power, and the fact that the Act was passed so quickly, without the usual opportunity for public scrutiny and input through a select committee process¹⁷².

Following the 22 February 2011 earthquake, the government determined that the mechanisms put in place following the 4 September 2010, including the Canterbury Earthquake Response and Recovery Act 2010, were not adequate to support recovery from the cumulative effects of both earthquakes¹⁷³.

6.2. Findings

There are a number of valuable lessons that have emerged in relation to the Canterbury Earthquake Recovery Act 2011. These lessons fall under two themes:

- 1) The Effectiveness of the Canterbury Earthquake Recovery Act 2011; and
- 2) Special Powers under the Act.

¹⁶⁹ Gobbi, M., Gordon, B. & Lincoln, F., "Managing Emergency Management: A Look at New Zealand's Legislative Approaches", (Australasian Drafting Conference, 2011).

¹⁷⁰ New Zealand Government, "Canterbury Earthquake Response and Recovery Bill 215-1", (New Zealand Government, 2010).

¹⁷¹ Gobbi, M., Gordon, B. & Lincoln, F., "Managing Emergency Management: A Look at New Zealand's Legislative Approaches", (Australasian Drafting Conference, 2011).

¹⁷² Gobbi, M., Gordon, B. & Lincoln, F., "Managing Emergency Management: A Look at New Zealand's Legislative Approaches", (Australasian Drafting Conference, 2011).

¹⁷³ New Zealand Government, "Canterbury Earthquake Recovery: Proposed Governance Arrangements", (New Zealand Government, 2011).

6.3. The Effectiveness of the Canterbury Earthquake Recovery Act 2011

6.3.1. The Canterbury Earthquake Recovery Act 2011

The Canterbury Earthquake Response and Recovery Act 2010 was repealed and replaced¹⁷⁴ by the Canterbury Earthquake Recovery Act 2011, which reflected that new institutional arrangements with specific powers and access to streamlined regulatory processes were needed to meet the challenges of recovery¹⁷⁵.

The Canterbury Earthquake Recovery Act 2011 was enacted on 19 April 2011 and expired on 18 April 2016. Like its predecessor the Canterbury Earthquake Response and Recovery Act 2010, it was enacted to deal with the long-term effects of the earthquakes by addressing the gaps that would be left once the state of emergency declared was lifted and the associated powers were no longer available under the Civil Defence Emergency Management Act 2002¹⁷⁶.

The purpose of the Canterbury Earthquake Recovery Act 2011 was to:

- ensure response and recovery;
- promote community participation and input;
- enable a focused, timely, and expedited recovery;
- enable the collection of necessary information;
- facilitate, coordinate and direct planning, rebuilding and repair; and
- restore the wellbeing of greater Christchurch communities¹⁷⁷.

A range of powers and obligations were vested in the responsible Minister for Canterbury Earthquake Recovery and the chief executive of the Canterbury Earthquake Recovery Authority to undertake recovery functions¹⁷⁸. In particular, the Canterbury Earthquake Recovery Act 2011 required the development of an overarching Recovery Strategy to set the overall direction for the recovery effort in greater Christchurch. The Canterbury Earthquake Recovery Act 2011 also provided for the development of a series of more detailed recovery plans (with each guided by the overarching Recovery Strategy) providing the detail of what needed to be done and how it would be implemented.

Key elements include:

- **Engagement:** Subpart 1 enabled input into decision-making through a Community forum and a Cross-party political forum. Both forums were set up to advise the responsible Minister;
- **Planning Instruments:** Subpart 3 established powers to develop key planning instruments such as the Recovery Strategy, recovery plans and the power (section 27) to suspend or alter actions taken under other specified Acts;
- **Works:** Subpart 4 and 5 provided powers of entry, demolitions, access and stopping of roads, surveys, compensation, provisions related to real and personal property; and
- **Orders in Council:** Subpart 7 (Sections 71 to 76) provided for the amendment of a range of other Acts by Order in Council (regulation-making power).

A number of these powers and obligations were not particularly unusual and related to matters of delegation, information gathering and dissemination, investigation and reporting, and ensuring compliance with the Canterbury Earthquake Recovery Act 2011.

The Canterbury Earthquake Recovery Act 2011 reflected lessons learned from its predecessor, the Canterbury Earthquake Response and Recovery Act 2010. The Canterbury Earthquake Recovery Act 2011 included new

¹⁷⁴ New Zealand Government, "Canterbury Earthquake Recovery Bill 286-1", (New Zealand Government, 2011).

¹⁷⁵ New Zealand Government, "Canterbury Earthquake Recovery Bill 286-1", (New Zealand Government, 2011).

¹⁷⁶ Gobbi, M., Gordon, B. & Lincoln, F., "Managing Emergency Management: A Look at New Zealand's Legislative Approaches", (Australasian Drafting Conference, 2011).

¹⁷⁷ New Zealand Government, "Canterbury Earthquake Recovery Act 2011", (New Zealand Government, 2011).

¹⁷⁸ Canterbury Earthquake Recovery Authority, "Draft Transition Recovery Plan", (Canterbury Earthquake Recovery Authority, 2015).

checks and balances on the emergency regulation-making power, including listing (as accurately as could be anticipated) the primary legislation that could be amended by the power, and requiring draft orders in council to be reviewed by an independent review panel¹⁷⁹. In addition, the Canterbury Earthquake Recovery Act 2011 included a range of general powers (including the use of planning instruments and works powers) that were needed to expedite and facilitate recovery. This approach was consistent with the New Zealand Law Commission's report in 1991 that, in general, powers should be conferred by statute rather than by delegated legislation¹⁸⁰.

6.3.2. Overall operation of the Act

The four annual reviews of the Canterbury Earthquake Recovery Act 2011 concluded that it was working well and that there were reasonable grounds to be assured about its operation and effectiveness¹⁸¹. The Minister's quarterly report (which documented the powers and functions exercised under the Canterbury Earthquake Recovery Act 2011 each quarter) to Parliament also illustrated that the Act was working in a quantifiable sense¹⁸².

The Canterbury Earthquake Recovery Act 2011 prescribed that there should be a policy and planning 'prelude' to the recovery¹⁸³; as such it enabled strategic planning to be carried out, in order to create a robust policy platform for recovery and rebuild operations¹⁸⁴. For example the Recovery Strategy, once developed, specified a range of recovery work programmes that were later operationalised by a large number of agencies (central and local government agencies, non-governmental organisations, etc). The legislation established continuity for the many ongoing relief and pre-recovery activities across greater Christchurch, originally begun under civil defence emergency powers, such as demolitions of dangerous buildings.

The Act's role in preventing delays and impediments to recovery

Overall, the Act worked as intended and its purposes were achieved reasonably well and faster than would have otherwise been the case. Delays or impediments to recovery could not be attributed to the legislation.

A range of recovery issues were identified in each of the annual reviews (e.g. delays in anchor projects), but it was consistently noted that delays and impediments to recovery could not be attributed to the legislation itself. Rather, any delays and impediments were determined to be the result of other factors, such as compliance 'clutter' or behaviours of other actors (especially private sector and commercial interests) beyond a legislative solution¹⁸⁵. With particular reference to the planning instruments, it was noted that the Canterbury Earthquake Recovery Act 2011 enabled recovery and rebuild decisions to be made with appropriate authorisation, and minimised unwarranted delays arising from bureaucratic 'log-jams'¹⁸⁶. The planning instruments in the Canterbury Earthquake Recovery Act 2011 provided for collaborative multi-agency planning processes, in that recovery plans such as the Land Use Recovery Plan and the Lyttelton Port Recovery Plan were developed by the relevant local authority (Environment Canterbury) and agreed prior to being presented to the Minister for Canterbury Earthquake Recovery for statutory approval¹⁸⁷.

¹⁷⁹ Gobbi, M., Gordon, B. & Lincoln, F., "Managing Emergency Management: A Look at New Zealand's Legislative Approaches", (Australasian Drafting Conference, 2011).

¹⁸⁰ New Zealand Law Commission, "Final Report on Emergencies R22", (New Zealand Law Commission, 1991).

¹⁸¹ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2014); Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

¹⁸² Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012).

¹⁸³ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012).

¹⁸⁴ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012).

¹⁸⁵ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2014); Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

¹⁸⁶ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012).

¹⁸⁷ Environment Canterbury Regional Council, "Submission of Environment Canterbury to Ministry of Business, Innovation and Employment on Urban Development Authorities – Discussion Document", (Environment Canterbury Regional Council, 2017).

Part of the terms of reference for the annual reviews was to look at whether the purposes of the Canterbury Earthquake Recovery Act 2011 were being achieved through the development and implementation of the planning instruments contained in Part 2 and sub-Part 3. The overall impression across interviewees contributing to the annual reviews was that the purposes of the Canterbury Earthquake Recovery Act 2011 were being achieved reasonably well and faster than would have been the case otherwise¹⁸⁸.

It was also noted that having well-adapted and robust regulatory structures and administrative procedures in place was critical, particularly as the pace of recovery increased¹⁸⁹. The annual reviews indicated that the Canterbury Earthquake Recovery Act 2011 had established a basis for such adaptation¹⁹⁰.

6.3.3. Input into decision-making under the Act

Community Forum

The Community Forum effectively balanced the need to deal with confidential issues and meet its information provision role, but experienced challenges balancing its prescribed statutory role and community expectations.

The Community Forum was established under section 6 of the Canterbury Earthquake Recovery Act 2011 for the purpose of providing the Minister for Canterbury Earthquake Recovery with information or advice in relation to the operation of the Act. It was required to have at least 20 suitably qualified participants and meet at least six times a year. The Minister for Canterbury Earthquake Recovery and the chief executive of the Canterbury Earthquake Recovery Authority were required to have regard for any information or advice they were given by the Community Forum. The establishment and composition requirements of the Community Forum were met and it met its statutory purpose. In particular, the Minister and Canterbury Earthquake Recovery Authority officials found engagement with the Community Forum beneficial¹⁹¹.

The Community Forum had a high workload and balanced well the need to deal with confidential issues and meet its information provision role. It was generally found to be effective in providing regular inputs to executive decision-making about recovery policy and issue management¹⁹². The earliest annual review¹⁹³, like the other reviews, commented largely on the operations of the Community Forum, noting that it took time to establish formal ways of working but that the time taken to develop those paid dividends in assisting it to consolidate as a group and in its role.

The Community Forum's biggest challenge was to balance its statutory role with community expectations and understanding. While the members were clear of their role, there was a sense that the Forum's 'voice' was heard, and influence felt, more inside the Canterbury Earthquake Recovery Authority than outside it¹⁹⁴. Some people felt that the Community Forum needed to be able to engage with the full range of recovery partners and stakeholders, and others that its profile should be raised within the community¹⁹⁵.

The Community Forum was seen to be operating effectively providing information. However, the final annual review¹⁹⁶ concluded that it would not be needed in any future legislation to support recovery and regeneration from the Canterbury earthquakes. The government agreed that, while the Community Forum had served a useful purpose during the first five years of the recovery, more normalised processes of community participation were

¹⁸⁸ Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

¹⁸⁹ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013).

¹⁹⁰ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013).

¹⁹¹ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2014); Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

¹⁹² Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2014); Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

¹⁹³ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012).

¹⁹⁴ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013).

¹⁹⁵ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013).

¹⁹⁶ Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

appropriate in future¹⁹⁷. Consequently the Community Forum provisions were not carried forward into the Greater Christchurch Regeneration Act 2016.

Lesson: Ensure that the role and mandate of any community advisory group is clearly understood by its members and communicated to the public. This will help to manage expectations so that the group is not seen as the sole 'voice' of the community.

Cross-Party Parliamentary Forum

The Cross-Party Parliamentary Forum was effective in the emergency response phase, but its role and benefit reduced over time.

The Cross-Party Parliamentary Forum was established under section 7 of the Canterbury Earthquake Recovery Act 2011 to be held from time to time for the purpose of providing the Minister for Canterbury Earthquake Recovery with information or advice in relation to the Act. The Minister was required to invite to the Forum Members of Parliament whose primary place of residence was in greater Christchurch, as well as members elected to represent a constituency in the greater Christchurch area¹⁹⁸.

The Minister voluntarily established a dedicated phone line in mid-2011, direct to his office for out-of-session inquiries, as an informal channel for Cross-Party Parliamentary Forum members¹⁹⁹. The need for the hotline reduced as the Canterbury Earthquake Recovery Authority was established and strengthened. The Minister, also without being prescribed by the Canterbury Earthquake Recovery Act 2011, routinely made draft Orders in Council available to Cross-Party Parliamentary Forum members at the same point in the process as they were provided to the statutorily-established Review Panel. Feedback suggested that Forum members were fairly satisfied with these arrangements²⁰⁰.

The establishment and composition requirements of the Cross-Party Parliamentary Forum were met. The Cross-Party Parliamentary Forum worked well in the early, emergency phase of recovery, but the role of the group appears to have reduced over time as recovery progressed²⁰¹. Views of members were mixed about its benefit as time passed and meetings reduced. This was largely put down to discussions becoming more difficult around the 2011 election time; meeting at Parliament (this was done for practical reasons but created a more partisan environment); the lack of formal rules of operation; and the changing nature of the subjects for discussion (i.e. broad policy questions rather than immediate relief operations in the first half of 2011)²⁰².

As with the Community Forum, the final Annual Review²⁰³ of the Canterbury Earthquake Recovery Act 2011 observed that statutory provisions are not required in order to form such a group and it would not be necessary to carry the Cross-Party Parliamentary Forum provisions forward to future legislation. The Cross-Party Parliamentary Forum was not included in the Greater Christchurch Regeneration Act 2016 on the grounds that normal communication processes were more appropriate for the regeneration phase²⁰⁴.

¹⁹⁷ Canterbury Earthquake Recovery Authority, "Regulatory Impact Statement – Greater Christchurch Regeneration Bill", (Canterbury Earthquake Recovery Authority, 2015).

¹⁹⁸ New Zealand Government, "Canterbury Earthquake Recovery Act 2011", (New Zealand Government, 2011).

¹⁹⁹ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012).

²⁰⁰ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012).

²⁰¹ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2014); Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

²⁰² Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012).

²⁰³ Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

²⁰⁴ Canterbury Earthquake Recovery Authority, "Regulatory Impact Statement – Greater Christchurch Regeneration Bill", (Canterbury Earthquake Recovery Authority, 2015).

Statutory provisions for community engagement

The provisions in the Canterbury Earthquake Recovery Act 2011 were deliberately and understandably flexible given the recovery context, however a number of specific provisions were made relating to community engagement and stakeholder confidence. Negative perceptions of the level of community engagement were identified as a key challenge during the recovery.

The Canterbury Earthquake Recovery Act 2011 included a number of provisions relating to community engagement. The importance of public perceptions, community expectations, and stakeholder confidence in the recovery are consistent themes across the literature²⁰⁵, along with the challenge of involving citizens in decision-making and balancing the participation and voice of local citizens ‘and externals’²⁰⁶ (see section 5.8.2 for more information about public perception of the recovery governance arrangements).

The provisions in the Canterbury Earthquake Recovery Act 2011 were broad enough to provide flexibility on the method of community engagement. For example, the Canterbury Earthquake Recovery Act 2011 required that the Recovery Strategy be developed via ‘public hearings’. The Canterbury Earthquake Recovery Authority determined that a method more flexible than a conventional ‘hearing’ would best meet the purpose. It held eight dedicated community engagement events, and similar engagements with other stakeholders²⁰⁷. The Canterbury Earthquake Recovery Authority also made efforts to better understand the publicly perceived lack of engagement²⁰⁸. There were continuous changes and improvements made to the Canterbury Earthquake Recovery Authority’s communication and engagement strategy, in response to those perceptions.

Local authorities and Te Rūnanga o Ngāi Tahu indicated that they were comfortable with the way in which the Canterbury Earthquake Recovery Act 2011 was enabling decision-making, but noted instances where they felt surprised by emerging issues or had lost touch with the progress of key pieces of work as they went through the government decision-making process²⁰⁹. On the whole, local authorities and Te Rūnanga o Ngāi Tahu felt that the Canterbury Earthquake Recovery Authority engaged well with them, in the judgements being made about the necessity to use the powers of the Canterbury Earthquake Recovery Act 2011²¹⁰.

6.4. Special Powers under the Act

The Canterbury Earthquake Recovery Act 2011 contained a number of powers intended to improve the speed and ease of the recovery and rebuild. These powers related to demolition and building, acquisition of land, alteration of Resource Management Act 1991 processes and documents (e.g. district plans), and the adaptation of other legislation where it had a negative effect on recovery.

While some of these powers have been termed ‘special’ and/or ‘extraordinary’, there is no clear consensus on which of these powers were special and why. Many of the powers were based on existing legislation. For example, powers to do with demolition, restricting access, and going onto property were drawn from the Civil Defence Emergency Management Act 2002. Land acquisition powers were derived from the Public Works Act 1981.

As such, for the purpose of this discussion, special powers are limited to the planning powers, powers to amend primary legislation through Orders in Council and the power for the Minister for Canterbury Earthquake Recovery

²⁰⁵ Gobbi, M., Gordon, B. & Lincoln, F., “Managing Emergency Management: A Look at New Zealand’s Legislative Approaches”, (Australasian Drafting Conference, 2011); Murdoch, S., “Annual Review of the Canterbury Earthquake Recovery Act 2011”, (Canterbury Earthquake Recovery Authority, 2014); Whitehead, J., “Annual Review of the Canterbury Earthquake Recovery Act 2011”, (Canterbury Earthquake Recovery Authority, 2015); New Zealand Government, “Inquiry into Parliament’s legislative response to future national emergencies”, (Regulations Review Committee, New Zealand Government, 2016); New Zealand Government, “Complaint regarding the Canterbury Earthquake (Building Act) Order 2011 (SR 2011/311)”, (Regulations Review Committee, New Zealand Government, 2014).

²⁰⁶ Taylor J.E., Chang S.E., Elwood K.J., Seville E. & Brunson D., “Learning from Christchurch: Technical Decisions and Societal Consequences in Post-Earthquake Recovery”, (Resilient Organisations, 2012).

²⁰⁷ Murdoch, S., “Annual Review of the Canterbury Earthquake Recovery Act 2011”, (Canterbury Earthquake Recovery Authority, 2012).

²⁰⁸ State Services Commission, “Performance Improvement Framework Review of the Canterbury Earthquake Authority”, (State Services Commission, 2014).

²⁰⁹ Murdoch, S., “Annual Review of the Canterbury Earthquake Recovery Act 2011”, (Canterbury Earthquake Recovery Authority, 2012); Whitehead, J., “Annual Review of the Canterbury Earthquake Recovery Act 2011”, (Canterbury Earthquake Recovery Authority, 2015).

²¹⁰ Murdoch, S., “Annual Review of the Canterbury Earthquake Recovery Act 2011”, (Canterbury Earthquake Recovery Authority, 2012).

to direct councils to take or stop taking any action, or to make or not make a decision. This is because those powers were significant departures from standard regulatory and administrative processes.

6.4.1. General use of the special powers

The use of powers (intended to speed and ease recovery) and the checks and balances in place were appropriate. There were, however, mixed views over the Canterbury Earthquake Recovery Authority's restrained approach to the use of the powers.

While a range of issues were identified, the consistent message was that the use of the powers was restrained²¹¹. The use of special powers by the Minister for Canterbury Earthquake Recovery to expedite adaptation of territorial authority regulatory frameworks was generally seen as a necessity²¹². The existence of the powers had in itself encouraged more pragmatism to be demonstrated in the face of disputes and contested issues²¹³. For example, development and delivery of plans and broad recovery progress (i.e. of the built environment) is generally regarded as being positive²¹⁴.

There were mixed views, however, on whether the Canterbury Earthquake Recovery Authority's use of the special powers had been appropriate²¹⁵. Comments ranged from those who saw compressed Resource Management Act 1991 processes as a risk, to those who thought the restrained approach adopted by the Canterbury Earthquake Recovery Authority in the application of special powers would need to change if recovery momentum was to be maintained²¹⁶.

At the time the Canterbury Earthquake Recovery Act 2011 expired in April 2016, many of the powers that relate to the emergency phase of recovery were deemed no longer necessary. Some of the strongest powers in the Canterbury Earthquake Recovery Act 2011, such as the Minister for Canterbury Earthquake Recovery's power to direct councils to take or stop taking any action, or to make or not make a decision, had never been used²¹⁷. On the other hand, there was overwhelming public support for planning related powers to continue²¹⁸ and as such these were continued under the new legislation with some changes.

6.4.2. Use of the power to amend other legislation (Orders in Council)

The Canterbury Earthquake Recovery Act 2011 provided the executive branch of government with the power to amend primary legislation through regulations (Orders in Council). The available literature traverses the appropriateness of the regulation-making power as a mechanism to hasten recovery; actual use of the power; and comments on the suitability of the Review Panel as a check and balance in the process.

Use of Orders in Council

There was a measured approach to use of Orders in Council for amending legislation, where it had a negative impact on recovery. It was a necessary and effective recovery tool for resolving specific or short-term problems, but was appropriately in place for a limited time only.

The use of emergency regulation-making power to amend primary legislation is controversial because the concentration of the power sits with the executive arm of government (rather than the full Parliament), the lack of public consultation and input, and reduced parliamentary scrutiny²¹⁹. Commentators are clear that there is a

²¹¹ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2014); Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

²¹² Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2014).

²¹³ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012).

²¹⁴ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2014); Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

²¹⁵ Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

²¹⁶ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013).

²¹⁷ Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

²¹⁸ Canterbury Earthquake Recovery Authority, "Draft Transition Recovery Plan", (Canterbury Earthquake Recovery Authority, 2015).

²¹⁹ Canterbury Earthquake Recovery Authority, "Adapting legislation to meet recovery needs", (Canterbury Earthquake Recovery Authority, 2016).

need to ensure that such powers are adequate for the purpose of the enactment, while also placing appropriate limits on the powers handed to the executive²²⁰.

The Canterbury Earthquake Recovery Act 2011 provided for making Orders in Council that could grant exemptions from, modify, or extend any provisions of other legislation that would hinder recovery work. At the time of enactment, it was considered that this mechanism was a fast and flexible a tool compared to the alternative (which was passing or amending primary legislation following the standard process, which would have taken months or years). The Canterbury Earthquake Recovery Act 2011 built checks and balances into the process, to guard against the misuse of the power and also to address the lack of usual public and parliamentary scrutiny. Some legislation could not be changed through Orders in Council; for example, the Judicature Amendment Act 1972 and the New Zealand Bill of Rights Act 1990. An Order in Council could not be used to exempt a person from, or modify any aspect of, their custody or detention²²¹.

Approximately 60 Orders in Council were made or continued (carried over after being made originally under the Canterbury Earthquake Response and Recovery Act 2010) under the Canterbury Earthquake Recovery Act 2011. There were no successful judicial challenges to these Orders²²². Not all requests for Orders in Council were granted. The lessons learned from the Canterbury Earthquake Recovery Act 2011 is that Orders in Council have been an effective recovery tool, pinpointing and resolving short-term or specific problems. Provided there are appropriate checks and balances on the making of Orders in Council, they can be considered for use in future disaster recovery efforts²²³.

Expiry under the Greater Christchurch Regeneration Act 2016

There were discussions about the ongoing need for the power to make regulations amending primary legislation after expiry of the Canterbury Earthquake Recovery Act 2011²²⁴. The government's Draft Transition Recovery Plan, when seeking public consultation on the powers required after the expiry of the Canterbury Earthquake Recovery Act 2011, noted that this power should be allowed to expire²²⁵. The use of the power had also become less frequent over time²²⁶. The government decided that the power itself would be allowed to expire with the Canterbury Earthquake Recovery Act 2011, but nine Orders made or continued under the Act were allowed to continue under the Greater Christchurch Regeneration Act 2016 because there was an ongoing need for them in the regeneration phase²²⁷.

Changes under the Hurunui/Kaikōura Earthquakes Recovery Act 2016

A similar emergency regulation-making power was included in the Hurunui/Kaikōura Earthquakes Recovery Act 2016, which was enacted in response to the 14 November 2016 earthquake that struck Hurunui, Kaikōura, Marlborough, and Wellington. The government considered a range of options to speed up standard processes, cut through impediments to recovery, and enable timely decision-making following the 14 November 2016 earthquake. Given the sheer volume of decisions that would need to be made by a range of decision-makers, the government decided to use the regulation-making mechanism once again,²²⁸ with additional checks and balances on the use of the power.

At the time the Hurunui/Kaikōura Earthquakes Recovery Act 2016 was enacted, it was acknowledged that the regulation-making mechanism had been largely successful in providing for a range of recovery activities following

²²⁰ Gobbi, M., Gordon, B. & Lincoln, F., "Managing Emergency Management: A Look at New Zealand's Legislative Approaches", (Australasian Drafting Conference, 2011); New Zealand Government, "Inquiry into Parliament's legislative response to future national emergencies", (Regulations Review Committee, New Zealand Government, 2016).

²²¹ Canterbury Earthquake Recovery Authority, "Adapting legislation to meet recovery needs", (Canterbury Earthquake Recovery Authority, 2016).

²²² New Zealand Government, "Hurunui/Kaikōura Earthquakes Recovery Bill 214-1", (New Zealand Government, 2016).

²²³ Canterbury Earthquake Recovery Authority, "Adapting legislation to meet recovery needs", (Canterbury Earthquake Recovery Authority, 2016).

²²⁴ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2014); Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011" (Canterbury Earthquake Recovery Authority, 2015).

²²⁵ Canterbury Earthquake Recovery Authority, "Draft Transition Recovery Plan", (Canterbury Earthquake Recovery Authority, 2015).

²²⁶ Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

²²⁷ New Zealand Government, "Greater Christchurch Regeneration Act 2016", (New Zealand Government, 2016).

²²⁸ Department of the Prime Minister and Cabinet, "Regulatory Impact Assessment - Kaikōura Earthquake Recovery Bill", (Department of the Prime Minister and Cabinet, 2016).

the Canterbury earthquakes²²⁹. The following checks and balances provided for in the Hurunui/Kaikōura Earthquakes Recovery Act 2016 are additional to those in the Canterbury Earthquake Recovery Act 2011:

- the Review Panel must have iwi and local government representation;
- draft Orders must be provided to people likely to be affected by the Order for comment;
- draft Orders must be provided to the Regulations Review Committee for comment; and
- reasons for Ministerial recommendations must be made publicly available²³⁰.

Review Panel

The Canterbury Earthquake Recovery Act 2011 provided for a Review Panel to consider and provide advice on draft Orders in Council. The Review Panel was one of several checks and balances on powers in the Canterbury Earthquake Recovery Act 2011 not included in the Canterbury Earthquake Response and Recovery Act 2010.

During its life, the Review Panel requested additional information on eight draft Orders and recommended 35 draft Orders be made without change. Overall the role of the Review Panel and the way it conducted its operations was viewed positively. The Canterbury Earthquake Recovery Act 2011 did not prescribe operating practices beyond a requirement to consider draft Orders within three days, so the Panel established its own. It met the three-day statutory requirement for scrutiny of all the Orders that it reviewed²³¹.

The importance of the Review Panel as a ‘watch-dog’ was widely recognised²³². The requirement to include a former or retired Judge or a lawyer as a member was highlighted as a way to ensure that the Review Panel was well equipped to carry out its important review function²³³. Some timing issues were identified²³⁴ with the wider approval process for Orders in Council (of which consideration by the Review Panel was a part), and there were specific operational lessons learned, for example, the importance of early initiation of sponsors of Orders.

Investigations of complaints

Two complaints were made relating to Orders in Council made under the Canterbury Earthquake Recovery Act 2011. The Regulations Review Committee investigated and reported on these complaints.

The purpose of the Canterbury Earthquake (Replacement District Plan) Order 2014 was to provide a streamlined process for reviewing the existing Christchurch district plans, and for preparing a comprehensive replacement district plan. The complaint relating to the Order focused on whether the Review Panel had been properly constituted at the time it considered the draft Order. The Regulations Review Committee recommended that Parliament should pass validating legislation urgently²³⁵, and the Order was later validated in the Greater Christchurch Regeneration Act 2016.

The Canterbury Earthquake (Building Act) Order 2011 gave three Canterbury councils the authority to issue extended section 124 notices (‘red cards’) under the Building Act where there was risk of injury or death from the collapse of land nearby. The complaint relating to the Order was not upheld, but the Regulations Review Committee recommended that the government should provide guidelines on the removal of the section 124 notices²³⁶.

²²⁹ New Zealand Government, “Hurunui/Kaikōura Earthquakes Recovery Bill 241-1”, (New Zealand Government, 2016).

²³⁰ Department of the Prime Minister and Cabinet, “Regulatory Impact Statement – Kaikōura Earthquake Recovery Bill”, (Department of the Prime Minister and Cabinet, 2016).

²³¹ Hansen, Hon Sir J., “Canterbury Earthquake Recovery Review Panel Report 2011 to 2016”, (New Zealand Government, 2016).

²³² Murdoch, S., “Annual Review of the Canterbury Earthquake Recovery Act 2011”, (Canterbury Earthquake Recovery Authority, 2014); Whitehead, J., “Annual Review of the Canterbury Earthquake Recovery Act 2011”, (Canterbury Earthquake Recovery Authority, 2015); New Zealand Government, “Inquiry into Parliament’s legislative response to future national emergencies”, (Regulations Review Committee, New Zealand Government, 2016); Gobbi, M., Gordon, B., & Lincoln, F., “Managing Emergency Management: A Look at New Zealand’s Legislative Approaches”, (Australasian Drafting Conference, 2011).

²³³ New Zealand Government, “Investigation into the Canterbury Earthquake District Plan Order 2014”, (Regulations Review Committee, New Zealand Government, 2014).

²³⁴ Hansen, Hon Sir J., “Canterbury Earthquake Recovery Review Panel Report 2011 to 2016”, (New Zealand Government, 2016).

²³⁵ New Zealand Government, “Investigation into the Canterbury Earthquake District Plan Order 2014”, (Regulations Review Committee, New Zealand Government, 2014).

²³⁶ New Zealand Government, “Complaint regarding the Canterbury Earthquake (Building Act) Order 2011 (SR 2011/311)”, (Regulations Review Committee, New Zealand Government, 2014).

6.4.3. Challenges to the use of special powers in the Act and decision-making

The annual reviews²³⁷ of the Canterbury Earthquake Recovery Act 2011 discuss and document details about a range of challenges to recovery-related activities under the Act or under other relevant legislation (for example, an application under the Resource Management Act 1991 for a land use consent for the Hagley Cricket Oval).

The report of the 2013 annual review²³⁸ notes that the Court of Appeal's judgment in the *Independent Fisheries* case²³⁹ (relating to judicial review of the Minister's decision to use the powers under the Canterbury Earthquake Recovery Act 2011 to amend the Canterbury Regional Policy Statement) gave executive decision-makers a clear steer about use of such powers and good process.

The report of the final annual review²⁴⁰ discusses the effect of litigation on the speed of decision-making and use of special powers under the Canterbury Earthquake Recovery Act 2011. The report notes that some interviewees contributing to the review considered litigation to have a "chilling effect on use of powers" and noted that it resulted in slowing down of decision-making and a reluctance to use the powers.

The final annual review²⁴¹ noted that the *Quake Outcasts*²⁴² case altered the way the Canterbury Earthquake Recovery Act 2011 was used and led to the development of more recovery plans than was originally anticipated, because the Supreme Court held that the Act was intended to be the only vehicle for any major Canterbury earthquake recovery measures²⁴³. The Draft Residential Red Zone Offer Recovery Plan; the Draft Transition Recovery Plan; and the issuing of a direction to the Waimakariri District Council to prepare a recovery plan for the residential red zone in Waimakariri District, are examples of recovery plans that might not otherwise have been developed if not for the Supreme Court's decision (*see section 7.4.2 for more information on the legal challenges to the Crown offers on residential red zone land*).

The annual review report notes that interviewees differed in their opinions as to the overall effect of the Supreme Court's 2015 decision on the *Quake Outcasts* case. Some viewed the successful challenges to the use of powers as slowing down progress and leading to a reluctance to use the powers in the Canterbury Earthquake Recovery Act 2011, while others saw the decision as fixing an error in the use of the Act. Generally, recovery plans were seen as providing a good process and being a useful way to get the right policy.

The Greater Christchurch Regeneration Act 2016 included provisions to clarify that regeneration plans (similar to recovery plans) could be used but were not mandatory for making and implementing significant decisions²⁴⁴. This was intended as a clarification measure following the Supreme Court's decision on the *Quake Outcasts* case.

Lesson: Ensure that policy intentions are clearly articulated in legislative drafting, particularly regarding the exercise of powers, to ensure that there is no room for misunderstanding or misinterpretation.

²³⁷ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013); Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2014); Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

²³⁸ Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013).

²³⁹ New Zealand Court of Appeal, "Canterbury Regional Council v Independent Fisheries Limited", (New Zealand Court of Appeal, 2012).

²⁴⁰ Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

²⁴¹ Whitehead, J., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2015).

²⁴² New Zealand Supreme Court, "Quake Outcasts v The Minister for Canterbury Earthquake Recovery and Chief Executive of the Canterbury Earthquake Recovery Authority", (New Zealand Supreme Court, 2016); New Zealand High Court, "Quake Outcasts v Minister for Canterbury Earthquake Recovery", (New Zealand High Court, 2016); New Zealand Supreme Court, "Quake Outcasts and Fowler v Minister for Canterbury Earthquake Recovery", (New Zealand Supreme Court, 2015); New Zealand Court of Appeal, "Minister for Canterbury Earthquake Recovery v Fowler Developments Ltd", (New Zealand Court of Appeal, 2013); New Zealand High Court, "Fowler Developments Ltd v Chief Executive of the Canterbury Earthquake Recovery Authority", (New Zealand High Court, 2013).

²⁴³ Canterbury Earthquake Recovery Authority, "Regulatory Impact Statement – Greater Christchurch Regeneration Bill", (Canterbury Earthquake Recovery Authority, 2015).

²⁴⁴ New Zealand Government, "Greater Christchurch Regeneration Act 2016", (New Zealand Government, 2016).

6.5. Summary of Lessons on Recovery Legislation

Input into decision-making under the Act

- Ensure that the role and mandate of any community advisory group is clearly understood by its members and communicated to the public. This will help to manage expectations so that the group is not seen as the sole 'voice' of the community.

Challenges to the use of special powers in the Act and decision-making

- Ensure that policy intentions are clearly articulated in legislative drafting, particularly regarding the exercise of powers, to ensure that there is no room for misunderstanding or misinterpretation.

7. Land Decisions

The purpose of this chapter is to consider the lessons from decisions made by the government relating to land and land use from a whole-of-government perspective.

7.1. Context

The Canterbury earthquake sequence resulted in extensive damage to land. The type of land damage varied across the region, with the severity of damage determined by the earthquake magnitude and the level of shaking. The topography of greater Christchurch, seasonal groundwater levels, proximity to rivers and streams, land use, and subsurface geological conditions all played a part in the distribution of land damage observed²⁴⁵.

As a result of the September 2010 Canterbury earthquake, areas adjacent to rivers and waterways (particularly along the Kaiapoi and Ōtākaro/Avon Rivers) were badly affected by liquefaction, lateral spreading and subsidence. It is estimated that the liquefaction caused by the September 2010 Canterbury earthquake and subsequent aftershocks produced 400,000 tonnes of silt²⁴⁶. Engineers recommended that perimeter treatment should be carried out along river edges to prevent future damage. The Waimakariri District Council commissioned Tonkin+Taylor to develop a staged plan to undertake these works along the Kaiapoi River²⁴⁷, but the 22 February 2011 earthquake occurred before any of the remediation work could commence.

The 22 February 2011 earthquake caused further land damage throughout the region. Areas adjacent to rivers and waterways were again affected by liquefaction, lateral spreading and subsidence. Due to its location (the epicentre was directly under the Port Hills), shallow depth and severe ground shaking, the February 2011 earthquake caused widespread land movement in the form of rock falls and cliff collapse in the Port Hills. Debris, avalanches, and cliff collapse caused five deaths and substantial damage to properties, roads, and other infrastructure²⁴⁸. The main reason that more people were not killed or seriously injured by rock fall or cliff collapse in the Port Hills was that most of them were not home at the time of the main earthquake on 22 February 2011²⁴⁹. The Canterbury earthquake sequence also caused the rock masses forming the rock fall source areas to become more broken, open and dilated, and therefore more susceptible to future rock fall or cliff collapse²⁵⁰. In conjunction with the increased levels of seismic activity following the 4 September 2010 earthquake, the risk of fatality from future rock falls became considerably higher for people living in the affected areas than they had been before the earthquake sequence commenced²⁵¹. Additional, smaller, rock falls and cliff collapse were triggered by the earthquakes on 16 April 2011, 13 June 2011 and 23 December 2011²⁵².

Land damage was quickly recognised as one of the key issues that would impact on the resolution of residential insurance claims, as well as the rebuild of dwellings. Property owners, insurers and the public were unclear about which areas were feasible for rebuilding in the short to medium term. It became clear that in some residential areas the land damage was so severe that the land could not be fixed without large-scale remediation works across the entire area. Many property owners were facing protracted negotiations with the Earthquake Commission and private insurers to settle their insurance claims.

²⁴⁵ Earthquake Commission, "Liquefaction-related Land Damage", (Earthquake Commission, 2016).

²⁴⁶ Boshier, L., & Chmutina, K., "Disaster Risk Reduction for the Built Environment", (Wiley-Blackwell, 2017).

²⁴⁷ Tonkin + Taylor, "Kaiapoi Red Zones", (Tonkin + Taylor, January 2016).

²⁴⁸ Taig, T., Massey, C., Taig, M., Becker, J. & Heron, D., "Validating the rockfall risk models developed for the Port Hills of Christchurch, New Zealand", (Massey University, 2015).

²⁴⁹ Taig, T., Massey, C., Taig, M., Becker, J. & Heron, D., "Validating the rockfall risk models developed for the Port Hills of Christchurch, New Zealand", (Massey University, 2015).

²⁵⁰ Massey, C.I., McSaveney, M.J., Heron, D. & Lukovic, B., "Canterbury Earthquakes 2010/2011 Port Hills Slope Instability", (GNS Science, 2011).

²⁵¹ Massey, C.I., McSaveney, M.J., Heron, D. & Lukovic, B., "Canterbury Earthquakes 2010/2011 Port Hills Slope Instability", (GNS Science, 2011)

²⁵² Taig, T., Massey, C., Taig, M., Becker, J. & Heron, D., "Validating the rockfall risk models developed for the Port Hills of Christchurch, New Zealand", (Massey University, 2015).

The government decided that intervention was necessary to provide certainty for property owners (home owners and business owners), insurers, and investors as soon as possible to allow people to make decisions and move forward with their lives²⁵³.

The intervention comprised two key components – making land zoning decisions to categorise properties based on land damage, and making voluntary offers to purchase properties in the most severely damaged areas.

7.2. Findings

There are a number of valuable findings that have emerged relating to the government’s land decisions. These fall under two main areas:

- 1) Land Zoning Decisions; and
- 2) Offers to Purchase Properties in the Most Damaged Areas.

7.3. Land Zoning Decisions

7.3.1. Assessing the Damage

Geotechnical engineers and scientists were commissioned to undertake rapid technical assessments of land damage²⁵⁴. Experts from government agencies, local authorities, private engineers and surveyors, private insurers, and tertiary institutions collaborated to assess the nature and extent of land damage²⁵⁵.

The Canterbury Geotechnical Database is a cloud-based platform that was developed for sharing the geotechnical information between the private and public sectors²⁵⁶. Examples of the type of geotechnical information collected include the ground surface elevation, the depth to ground water, and soil behaviour below the ground surface²⁵⁷ (see section 8.3.7 for more information on the Canterbury Geotechnical Database).

Aerial LiDAR (Light Detection and Ranging) surveys were also conducted to help quantify the changes to ground surface elevation and estimate the vertical and horizontal tectonic movements. This information was used to help determine the spatial distribution of liquefaction related subsidence and ground deformation²⁵⁸.

The geotechnical information collected enabled the government to understand the nature and extent of land damage across the region, identify which areas were most affected, and whether there was ongoing risk to people’s lives.

7.3.2. Developing options for damaged land

When developing policy responses following a major disaster, recognise that a key challenge is balancing speed and deliberation. This was the case in developing policy that would provide certainty and confidence to home owners and insurers about land damage.

It is recognised internationally that striking the right balance between speed and deliberation is a key challenge for decision-makers following major disasters²⁵⁹. After the 22 February 2011 earthquake, there was pressure from the public for the government to act quickly to provide certainty for home owners in the damaged areas²⁶⁰.

²⁵³ Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

²⁵⁴ Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

²⁵⁵ New Zealand Government, “Land Damage from the Canterbury Earthquakes”, (New Zealand Government, 2011).

²⁵⁶ Ministry of Business, Innovation and Employment, “The Power of Shared Data”, (New Zealand Government, 2016).

²⁵⁷ Ministry of Business, Innovation and Employment, “A Wealth of Data”, (New Zealand Government, 2016).

²⁵⁸ Ministry of Business, Innovation and Employment, “Ground Surface Subsidence”, (New Zealand Government, 2016).

²⁵⁹ Platt, S. and So, E., “Speed or deliberation: a comparison of post-disaster recovery in Japan, Turkey and Chile”, (Overseas Development Institute, 2016).

²⁶⁰ New Zealand Government, “Land Damage from the Canterbury Earthquakes”, (New Zealand Government, 2011).

The Canterbury Earthquake Recovery Authority was responsible for providing policy advice to the government on the options available for the future of the damaged land²⁶¹. The government agreed to the following decision-making objectives:

- Providing certainty for home owners as soon as practicable;
- Creating confidence to help people to move forward with their lives;
- Creating public confidence in the decision-making process;
- Using the best available information to inform decisions; and
- Having a simple process that people could understand²⁶².

Recognising the importance of providing certainty for home owners and insurers as soon as possible to avoid loss of confidence, the government's land zoning decisions were made using the best possible geotechnical information available at the time. It was acknowledged that more refined information would become available over time, but the government opted to act quickly with good information, rather than delaying decisions while awaiting perfect information²⁶³. In practice, this meant making decisions on an area-wide basis, rather than on an individual property by property basis.

Large-scale remediation of the damage in some areas would have taken a long period of time, in some cases more than five years²⁶⁴. In areas severely impacted by lateral spreading, remediation may have required the removal of all houses in an area, raising the level of the land, and a complete replacement of essential infrastructure²⁶⁵. Given the scale, uncertainty, the time it would take and the dislocation it was anticipated to involve, remediation and/or mitigation of the land damage in the most affected areas was ruled out²⁶⁶.

Other options considered but not pursued were compulsory acquisition of residential properties, and acquisition of land at a value above present market value²⁶⁷. Fairness and the avoidance of the 'moral hazard' risk were considerations in assessing the available options for intervention²⁶⁸.

Lesson: Acting quickly with the best information available, rather than perfect information, is sometimes necessary to provide certainty and confidence following an emergency.

7.3.3. Initial land zoning decisions

All residential properties classified into one of four 'zones'

The development of technical land categories concentrated limited geotechnical resources in the worst-affected areas. The Ministry of Business, Innovation and Employment was then able to develop foundation solutions, which the private market built upon to meet the new building standards required. The decision to categorise land also allowed property owners to go ahead with their insurance claims.

The government made the first public announcement about its land zoning decisions on 23 June 2011, ten days after two major earthquakes on 13 June 2011²⁶⁹. Every residential property in Christchurch was initially categorised into one of the following 'zones':

- **Red** – land not recommended for continued residential development in the short term, because land repair would be prolonged and uneconomic;

²⁶¹ Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017).

²⁶² New Zealand Government, "Land Damage from the Canterbury Earthquakes", (New Zealand Government, 2011).

²⁶³ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

²⁶⁴ Canterbury Earthquake Recovery Authority, "Red Zone information", (Canterbury Earthquake Recovery Authority, <http://cera.govt.nz/land-information/red-zone>, publication date unknown, retrieved April 2017).

²⁶⁵ Canterbury Earthquake Recovery Authority, "Red Zone information", (Canterbury Earthquake Recovery Authority, <http://cera.govt.nz/land-information/red-zone>, publication date unknown, retrieved April 2017).

²⁶⁶ Canterbury Earthquake Recovery Authority "Residential Red Zone Offer Recovery Plan" (Canterbury Earthquake Recovery Authority, 2015).

²⁶⁷ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

²⁶⁸ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

²⁶⁹ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

- **Orange** – land needing further investigation;
- **Green** – land suitable for repairing and rebuilding; and
- **White** – land in the Port Hills and central city needing further investigation²⁷⁰.

These land-use decisions were based on an assessment of the nature and extent of land damage in the area, and whether an area-wide engineering solution to remediate the land damage would:

- be uncertain in terms of detailed design, its success and possible commencement of works;
- be disruptive for landowners;
- probably lead to social dislocation in the short and medium terms;
- not be cost effective, as the cost of remediation is greater than the value of the land; and
- negatively impact the health or wellbeing of residents by remaining in the area²⁷¹.

Approximately 190,000 properties were assessed, of which, approximately 180,000 were initially zoned ‘green’²⁷². Home owners of properties in the green zone were able to proceed with their insurance claims and the repair or rebuild of their properties²⁷³. Approximately 5,000 properties were initially zoned ‘red’²⁷⁴ and by May 2012 this had increased to approximately 7,400 properties (over six square kilometres of land)²⁷⁵. These areas extended along the Ōtākaro/Avon River, Southshore, South New Brighton, Brooklands, Kaiapoi, The Pines Beach and Kairaki, and was known collectively as the flat land residential red zone (to distinguish from properties in the Port Hills that were later zoned ‘red’).

Areas zoned ‘orange’ or ‘white’ were eventually categorised as either ‘red’ or ‘green’ following further geotechnical investigation to determine whether land repair was practical²⁷⁶. The green zone properties were then categorised according to types of land damage and how land might perform in future earthquake events. The Technical Categories (TC1, TC2 and TC3) were developed as a way to identify which green zone properties would need more complex geotechnical investigations before rebuilding could commence. This helped concentrate limited geotechnical resources in the worst affected areas, and allowed the Ministry of Business, Innovation and Employment to develop foundation solutions and the private market to find affordable ways to meet the new standards²⁷⁷.

As well as setting the basis for the residential repair and rebuild, the decision to categorise land allowed property owners to go ahead with insurance claims relating to land damage and the repair or rebuilding of their properties. The categories provided information that enabled technical experts to determine the level of any geotechnical or other investigations required for any rebuilding to take place²⁷⁸.

There was some public criticism over the area-wide approach to zoning decisions that the government took, rather than assessing each property individually. The Human Rights Commission suggested that flexibility to consider individual circumstances needs to be incorporated into the design of policies²⁷⁹. In developing the later Crown offers, case-by-case arrangements between the Crown and each individual property owner was considered against the government’s objectives. This option was rejected as the approach would likely have been resource-intensive and have taken many months for the Crown and individual property owners reach agreement²⁸⁰.

²⁷⁰ Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

²⁷¹ New Zealand Government, “Land Damage from the Canterbury Earthquakes”, (New Zealand Government, 2011).

²⁷² Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

²⁷³ Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

²⁷⁴ New Zealand Government, “Govt outlines next steps for people of Canterbury”, (New Zealand Government, <https://beehive.govt.nz/release/govt-outlines-next-steps-people-canterbury>, publication date 23 June 2011, retrieved April 2017).

²⁷⁵ Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

²⁷⁶ New Zealand Government, “Residential Orange Zone Fact Sheet”, (New Zealand Government, 2011).

²⁷⁷ Ministry of Business, Innovation and Employment, “Repairing and rebuilding houses affected by the Canterbury earthquakes”, (Ministry of Business, Innovation and Employment, 2012).

²⁷⁸ Ministry of Business, Innovation and Employment, “Repairing and rebuilding houses affected by the Canterbury earthquakes”, (Ministry of Business, Innovation and Employment, 2012).

²⁷⁹ Human Rights Commission, “Staying in the red zones: Monitoring human rights in the Canterbury earthquake recovery”, (Human Rights Commission, 2016).

²⁸⁰ Canterbury Earthquake Recovery Authority, “Residential Red Zone Offer Recovery Plan”, (Canterbury Earthquake Recovery Authority, 2015).

7.3.4. Review of ‘flat land’ zoning decisions

In June 2012, the government announced that land zoning decisions for the flat land would be reviewed. A review was not built in to the zoning policy when it was originally developed. The decision to review was made in response to a large number of requests from the public for a review of their property’s zone status²⁸¹.

The purpose of the review was to evaluate whether the criteria for assessing land had been consistently applied. The review was also an opportunity to address the issues and public criticism that arose from the government’s decision to trade off making timely decisions and awaiting perfect geotechnical information²⁸². The review also assessed whether boundary lines were appropriate when deciding whether horizontal infrastructure would continue to be serviceable²⁸³.

The review was conducted by a Zoning Review Advisory Group appointed by Cabinet. The Group consisted of an independent chair and included technical experts and senior officials from the Canterbury Earthquake Recovery Authority²⁸⁴. Having considered the financial implications, the Group proposed that three properties should be rezoned from red to green, and 101 properties from green to red. Cabinet agreed to the recommendations²⁸⁵ and announced the results of the review process in August 2012²⁸⁶.

Lesson: Where decisions are made under tight timeframes with imperfect information, build in the opportunity for reviewing those decisions at a later date.

7.3.5. Land zoning decisions in the Port Hills

In June 2011, the government announced that land in the Port Hills was zoned white, as additional geotechnical assessments were needed following the 13 June 2011 earthquakes. The government made a series of land zoning decisions affecting almost 20,000 properties in the Port Hills between September 2011 and October 2012²⁸⁷.

As was the case for the ‘flat lands’ land zoning decisions, an area-wide approach was needed in the areas where damage to properties would be difficult and/or uneconomic to remediate.

Land zoning decisions for at-risk properties in the Port Hills

The Institute for Geological and Nuclear Science was commissioned to identify areas in the Port Hills that were at high risk from rock fall and cliff collapse, and to assess levels of life safety risk as a result of these hazards²⁸⁸.

The Annual Individual Fatality Risk is the probability that an individual will be killed at their place of residence in any one year as a result of rock fall or cliff collapse. An average threshold of acceptable Annual Individual Fatality Risk of 1 in 10,000²⁸⁹ was adopted as the maximum acceptable level of life risk, comparable with the risk of a person being killed in a motor vehicle accident in New Zealand. The Annual Individual Fatality Risk was assessed at predicted 2016 levels of seismicity and it was expected that the risk would decrease over time, noting that the greatest reduction in risk levels would occur between 2012 and 2016²⁹⁰.

This model was the primary geotechnical resource used for the government’s zoning decisions in the Port Hills, although other reports, numerical models, and studies were used, along with property specific advice from geotechnical and geological experts²⁹¹.

²⁸¹ Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

²⁸² Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

²⁸³ Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

²⁸⁴ Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

²⁸⁵ New Zealand Government, “Findings of the Canterbury Zoning Review Advisory Group”, (New Zealand Government, 2012).

²⁸⁶ Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

²⁸⁷ New Zealand Government, “Findings of the Port Hills Zoning Review Advisory Group on the Port Hills Zoning Decisions”, (New Zealand Government, 2013).

²⁸⁸ GNS Science, “Understanding life-safety risk concepts for rockfall and cliff collapse in the Port Hills”, (Christchurch City Council, August 2012).

²⁸⁹ GNS Science, “Understanding life-safety risk concepts for rockfall and cliff collapse in the Port Hills”, (Christchurch City Council, August 2012).

²⁹⁰ Jacka, E., “Statement of Evidence of Emma Jane Jacka for the Crown. Natural Hazards Proposal, Government Land Zoning Policy”, (BuddleFindlay, 2015).

²⁹¹ Canterbury Earthquake Recovery Authority, “Port Hills White Zone Update and Decision Process”, (Canterbury Earthquake Recovery Authority, 2011).

In the Port Hills over 700 properties were zoned red due to the unacceptable level of risk to life from rock fall or cliff collapse²⁹². These properties were widely scattered and located in over 50 clusters of between one and 25 properties. Approximately 19,400 properties on the Port Hills were zoned green²⁹³ where land damage and any life risk and could be addressed on an individual property by property basis.

Property owners who received an offer from the government to purchase their property (see *section 7.4 for more information on the Crown offers*) were eligible to apply for funding from the Christchurch City Council to erect private rock fall protection structures. Funding was awarded following completion of a site specific geotechnical assessment of the property, and an approved design of a suitable structure. Owners became liable for maintenance of these structures in the future²⁹⁴.

Review of Port Hills zoning decisions

A review of the Port Hills zoning, similar to the flat lands zoning review, was agreed to by Cabinet in October 2012²⁹⁵. The Port Hills Zoning Advisory Group consisted of an independent chair, an independent technical advisor and senior officials from the Canterbury Earthquake Recovery Authority and the Christchurch City Council. The Group completed its review in January 2013.

The government accepted the Advisory Group's report in July 2013, with minor changes to its recommendations²⁹⁶. An announcement of the zoning changes was delayed due to ongoing judicial review proceedings in relation to the Crown offer process²⁹⁷ (see *section 7.4 for more information on the Crown offers*). In December 2013, the government announced that 238 Port Hills properties would be rezoned from green to red, and 31 properties from red to green. In total, 714 Port Hills properties were zoned red and property owners were provided with Crown offers (if they were insured)²⁹⁸.

The length of time between the original Port Hills land zoning decisions and the outcome of the review led to additional complexity. For example, some property owners whose properties were rezoned from red to green had already sold their property to the Crown or had already acted based on the original zoning decision. In this situation, the government worked closely with the property owners in question, seeking reasonable and fair outcomes. Former property owners were provided with an option to purchase back their former properties²⁹⁹.

7.4. Offers to Purchase Properties in the Most Damaged Areas

Between June 2011 and August 2015 the government announced a series of offers to purchase properties in the residential red zone. The Crown offers were an emergency social policy response to assist home owners with moving out of the areas severely affected by the earthquakes, so that they could move on with their lives and avoid lengthy negotiations with their insurers.

7.4.1. Insured red zone properties

Insured red zone property owners were provided with two options to choose from:

- **Option One** was an offer to sell the property to the government (land and buildings) at the 2007/08 rateable value, less any land and dwelling insurance payments already received by the owner. The government would take over or be assigned any remaining insurance claims on the land and buildings. Property owners would continue to have the right to make contents insurance claims on their home.

²⁹² Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

²⁹³ New Zealand Government, "Findings of the Port Hills Zoning Review Advisory Group on the Port Hills Zoning Decisions", (New Zealand Government, 2013).

²⁹⁴ Christchurch City Council, "Funding for Private Rockfall Protection Structures", (Christchurch City Council, 2012).

²⁹⁵ New Zealand Government, "Port Hills Review Framework", (New Zealand Government, 2012).

²⁹⁶ New Zealand Government, "Findings of the Port Hills Zoning Review Advisory Group on the Port Hills Zoning Decisions", (New Zealand Government, 2013).

²⁹⁷ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

²⁹⁸ New Zealand Government, "Findings of the Port Hills Zoning Review Advisory Group on the Port Hills Zoning Decisions", (New Zealand Government, 2013).

²⁹⁹ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

- **Option Two** was an offer to sell the land and any buildings on the property to the government and the government would also be assigned earthquake-related insurance claims relating to damage to the land only. This allowed property owners to pursue claims on improvements to their property (e.g. houses and garages) with their insurers. These costs could be more than the rateable value of improvements on their properties. Property owners would also continue to have the right to make contents insurance claims on their home.³⁰⁰

Rateable values were chosen as they were independent and could be readily applied to all properties in the affected areas. There were some property owners who felt that rateable values were not a true reflection of their property's value³⁰¹. Conducting individual property valuations and negotiating with each owner would have been a long and arduous process and would not have met the government's objectives of providing a simple process to give property owners certainty as soon as practicable³⁰². The Crown offers were generally higher than the post-earthquake property values, and similar to the pre-earthquake values³⁰³.

Upon settlement the Crown became the legal owner and was responsible for demolition, security, and ongoing maintenance of the land and buildings³⁰⁴. The Crown also took over a number of insurance claims for the properties, thus partially offsetting the purchase costs³⁰⁵.

In total there were 8,060 properties zoned red in greater Christchurch³⁰⁶. By April 2016, 98 per cent of eligible property owners had accepted the Crown offers³⁰⁷. This meant that the Crown became the single largest residential insurance claimant in relation to the Canterbury earthquakes, and expected to recover about NZD\$335 million from the Earthquake Commission³⁰⁸. The Crown was entitled to claim the market value of the property, or the depreciated cost of rebuilding the house.

Contacting property owners

Information about damaged properties was often uncertain, incomplete and held in different databases. A national database of land parcels and ownership has subsequently been created to better prepare New Zealand for future disasters

In August 2011 the first letters of offer were mailed to the owners of properties in the residential red zone. The Canterbury Earthquake Recovery Authority arranged for 9,000 outbound calls to affected property owners the evening before the offer letters were posted³⁰⁹. In preparation for this, accurate information was required on property ownership. In addition to the data issues relating to property boundary information, there were also difficulties in obtaining complete and accurate information on property ownership for the Crown to provide correct information to property owners. At the time of the earthquakes, property information was held across several databases, with each holding slightly different property information and often in different formats. It was necessary for the property data be matched across the databases³¹⁰. Receiving data also proved difficult, as datasets were sometimes too large to be sent via email and privacy issues needed to be considered.

Land Information New Zealand has worked closely with local authorities to consolidate datasets relating to addresses, and improve their quality. The Address Information Management System was launched by Land Information New Zealand in November 2016 and data can be accessed online. Improving the accuracy of addresses is one component of a wider project underway that seeks to better integrate property data. This is

³⁰⁰ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

³⁰¹ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

³⁰² Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

³⁰³ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

³⁰⁴ Canterbury Earthquake Recovery Authority, "Residential Red Zone Offer Recovery Plan", (Canterbury Earthquake Recovery Authority, 2015).

³⁰⁵ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

³⁰⁶ Canterbury Earthquake Recovery Authority, "CERA Residential Red Zone Survey Report" (Canterbury Earthquake Recovery Authority, 2016).

³⁰⁷ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

³⁰⁸ Land Information New Zealand, "Annual Report 2015/16", (Land Information New Zealand, 2016).

³⁰⁹ Mitchell, M., "Relocation after Disaster: Engaging with Insured Residential Property Owners in Greater Christchurch's Land-damaged 'Residential Red Zone'", (Brookings Institute, 2015).

³¹⁰ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

expected to resolve the many issues that arose in relation to property information after the Canterbury earthquake sequence³¹¹.

Lesson: Ensure that information on properties (e.g. ownership, boundaries, etc) is held in one place and easily accessible, as there will be significant demand for this information from a range of parties following a disaster.

Communicating the Crown Offers

Quality as well as quantity is important when providing information to the public. For example, a key lesson for the Canterbury Earthquake Recovery Authority was to individualise communication through smaller workshops and one-on-one meetings as required.

Rather than providing advice on whether a home owner should accept an offer, the Canterbury Earthquake Recovery Authority's role was to make sure that home owners fully understood the offer and had access to the support services that they required. On the day the first letters of offers were mailed, the Canterbury Earthquake Recovery Authority established information hubs in the affected communities. An Earthquake Assistance Centre was also opened in Avondale, and staffed by the Canterbury Earthquake Recovery Authority, the territorial authorities, insurance companies, the Earthquake Commission, the Community Law Centre, Canterbury Earthquake Temporary Accommodation Service, and Earthquake Support Coordination Service³¹².

The Canterbury Earthquake Recovery Authority also arranged a series of public meetings to inform the affected communities³¹³. These meetings were attended by senior public sector officials and technical experts. The experience of the Canterbury Earthquake Recovery Authority's Social Recovery Group was important for understanding the emotional impact on communities, and for designing a response based on their needs³¹⁴.

When communicating with those affected it was important to listen and engage, rather than officials just transferring information to members of the public³¹⁵. Sometimes however, due to urgency, officials were informing as opposed to engaging. People needed a chance to air their views and put forward questions to officials and technical experts so that they could process the information³¹⁶. The Canterbury Earthquake Recovery Authority was criticised for the lack of individualised communication to property owners following the early zoning decisions³¹⁷. Over time, the Canterbury Earthquake Recovery Authority's approach changed from large public meetings to smaller workshops and one on one meetings with property owners. This was a result of the learnings and feedback³¹⁸.

³¹¹ Land Information New Zealand, "Learnings from the Canterbury Earthquake", (Land Information New Zealand, 2017).

³¹² Mitchell, M., "Relocation after Disaster: Engaging with Insured Residential Property Owners in Greater Christchurch's Land-damaged 'Residential Red Zone'", (Brookings Institute, 2015).

³¹³ Mitchell, M., "Relocation after Disaster: Engaging with Insured Residential Property Owners in Greater Christchurch's Land-damaged 'Residential Red Zone'", (Brookings Institute, 2015).

³¹⁴ Mitchell, M., "Relocation after Disaster: Engaging with Insured Residential Property Owners in Greater Christchurch's Land-damaged 'Residential Red Zone'", (Brookings Institute, 2015).

³¹⁵ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

³¹⁶ Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017).

³¹⁷ Human Rights Commission, "Staying in the red zones: Monitoring human rights in the Canterbury earthquake recovery", (Human Rights Commission, 2016).

³¹⁸ Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017).

Lesson: Recognise that people affected by disaster will receive and process information differently than in a 'business and usual' situation. Plan ahead to tailor your engagement approach to vulnerable and stressed people.

Lesson: When communicating significant decisions, ensure that you are listening and engaging with people rather than just transferring information.

Lesson: Ensure that people understand the reasons why decisions are made in the way they are.

Lesson: 'Front up' and go to the communities that are affected.

Lesson: Consider using a range of different approaches to communicating and engaging with people and communities affected by disaster, such as:

- One-on-one meetings
- Technical seminars with experts who can explain the scientific basis for decisions
- Neighbourhood meetings (larger meetings with general messages)
- Workshops where people can ask personalised questions

Public opinion on Crown offers process

The Crown offers provided certainty for owners of properties in the residential red zone and allowed the majority of them to move forward with their lives. A small number of residents continue to reside in the residential red zone and have experienced a drop in their quality of life.

In late 2015, the Canterbury Earthquake Recovery Authority undertook a survey of over 2,000 property owners who accepted a Crown offer³¹⁹. The intention of the survey was to determine whether the government's recovery objectives had been met, and evaluate wellbeing outcomes.

Based on the views of the property owners surveyed, 79 per cent of property owners agreed that the Crown offer process gave them certainty and enabled them to move forward with their lives more quickly. The majority of property owners (70 per cent) were also confident that, at the time of accepting the offer, they felt that they made the right decision. In retrospect, 66 per cent of property owners remained confident that accepting the Crown offer was the right decision to make³²⁰.

The majority (68 per cent) of property owners agreed that they found the zoning and Crown offers process clear, and 73 per cent felt they were given sufficient time to make a decision on the Crown offers³²¹. The Human Rights Commission's report into the impact on people living or owning vacant land in the residential red zone in 2015 noted that post-disaster policies can impact the wellbeing of affected persons. Of people surveyed by the Human Rights Commission, 32 per cent (of 101 total respondents) believed their quality of life to be poor or extremely poor³²². This contrasts with 7 per cent (of 2,210 total respondents) of property owners who accepted a Crown offer believed their quality of life to be poor or extremely poor³²³.

³¹⁹ Canterbury Earthquake Recovery Authority, "CERA Residential Red Zone Survey Report", (Canterbury Earthquake Recovery Authority, 2016).

³²⁰ Canterbury Earthquake Recovery Authority, "CERA Residential Red Zone Survey Report", (Canterbury Earthquake Recovery Authority, 2016).

³²¹ Canterbury Earthquake Recovery Authority, "CERA Residential Red Zone Survey Report", (Canterbury Earthquake Recovery Authority, 2016).

³²² Human Rights Commission, "Staying in the red zones: Monitoring human rights in the Canterbury earthquake recovery", (Human Rights Commission, 2016).

³²³ Canterbury Earthquake Recovery Authority, "CERA Residential Red Zone Survey Report", (Canterbury Earthquake Recovery Authority, 2016).

7.4.3. Vacant, Insured commercial and uninsured improved red zone properties

Vacant, insured commercial, and uninsured improved red zone properties on the flat land were not included in the original Crown offers³²⁴. In total there were an estimated:

- 106 uninsured properties in the red zone with land and improvements, which for various reasons were not insured at the time of the 22 February 2011 earthquake;
- 163 vacant land properties (in New Zealand it is not possible to insure vacant land); and
- 164 insured commercial properties (of which 140 were storage units or garages). These properties were not eligible for Earthquake Commission cover, therefore the land was uninsured³²⁵.

In September 2012 the Crown offered to purchase vacant, insured commercial, and uninsured improved flat land red zone properties at 50 per cent of the 2007/08 rateable land value. Those with commercial properties were offered 100 per cent of improvement value if the improvements were insured, whereas the uninsured were offered nothing for their improvements.

Legal Challenges to the Crown Offer

The Crown offer to purchase vacant, insured commercial, and uninsured improved red zone properties became the subject of a judicial review³²⁶, with appellants challenging the lawfulness of the 50 per cent offers on the basis that they were not made in accordance with the purposes of the Canterbury Earthquake Recovery Act 2011³²⁷. The challengers were Fowler Developments Ltd (a company owning vacant red zone land in Brooklands) and a group of individual or joint owners of vacant, insured commercial and uninsured improved red zone properties who referred to themselves as the 'Quake Outcasts'³²⁸.

In March 2015 the Supreme Court majority ruled that the offers to the 'uninsured and uninsurable' owners of red zone properties were not lawful because the purposes of the Canterbury Earthquake Recovery Act 2011 had not been considered when making this decision. It directed the Minister for Canterbury Earthquake Recovery and the chief executive of the Canterbury Earthquake Recovery Authority to reconsider the offers to uninsured red zone property owners. Legal challenges are ongoing, with the 'Quake Outcasts' having appealed the High Court order for the group to pay court costs to the government³²⁹.

Government's response – a new Crown offer

In April 2015 the Minister for Canterbury Earthquake Recovery directed the Canterbury Earthquake Recovery Authority to develop a Residential Red Zone Offer Recovery Plan. It was to provide a framework for revised Crown offers for owners of vacant, insured commercial and uninsured properties in the residential red zone, but was not to deal with land zoning decisions already made. The recovery plan process included opportunities for the public to make submissions on the draft plan³³⁰.

In July 2015 a Residential Red Zone Offer Recovery Plan was approved³³¹. The Canterbury Earthquake Recovery Authority's chief executive then made the following new Crown offers to the owners of vacant, insured commercial and uninsured improved red zone properties:

- **Owners of vacant red zone land** – the Crown purchases the vacant red zone land at 100 per cent of the 2007/08 rateable land value.

³²⁴ Canterbury Earthquake Recovery Authority "Residential Red Zone Offer Recovery Plan: Preliminary Draft", (Canterbury Earthquake Recovery Authority, 2015).

³²⁵ Canterbury Earthquake Recovery Authority, "Residential Red Zone Offer Recovery Plan", (Canterbury Earthquake Recovery Authority, 2015).

³²⁶ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

³²⁷ New Zealand High Court, "Quake Outcasts v Minister for Canterbury Earthquake Recovery", (New Zealand High Court, 2016).

³²⁸ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

³²⁹ New Zealand Supreme Court, "Quake Outcasts v The Minister for Canterbury Earthquake Recovery and Chief Executive of the Canterbury Earthquake Recovery Authority", (New Zealand Supreme Court, 2016).

³³⁰ Canterbury Earthquake Recovery Authority, "Residential Red Zone Offer Recovery Plan", (Canterbury Earthquake Recovery Authority, 2015).

³³¹ Canterbury Earthquake Recovery Authority, "Residential Red Zone Offer Recovery Plan", (Canterbury Earthquake Recovery Authority, 2015).

- **Owners of red zone commercial properties** – the Crown purchases the insured red zone commercial properties at 100 per cent of the 2007/08 rateable land value.
 - **Option One** – the Crown would pay 100 per cent of the 2007/08 rateable land value and 100 per cent of the improvements of the 2007/08 rateable value. Land, improvements and the insurance claims would be transferred to the Crown.
 - **Option Two** – the Crown would pay 100 per cent of the 2007/08 rateable land value only. The land and improvements would be transferred to the Crown and property owners could then pursue their own insurance claims.
- **Owners of uninsured improved properties** – the Crown offered 100 per cent of the rateable land value, but would make no payment for uninsured improvements.
 - **Option One** – Properties could choose to relocate, salvage or sell improvements on the land before selling it to the Crown.
 - **Option Two** – The Crown would take on the responsibility and cost of demolishing any improvements³³².

The government also re-opened offers to owners of insured red zone properties who had not accepted earlier offers to purchase³³³.

Given the increased value of the offers for vacant, insured commercial, and uninsured improved properties, the Crown also offered ex gratia payments to those who had already sold their properties to the Crown (so that the total paid is 100 per cent of the 2007/08 rateable land value)³³⁴. In this way, no one was disadvantaged if they had accepted the earlier Crown offer.

The *Quake Outcasts* case led to the need to develop a recovery plan that was not anticipated at the time the original Crown offer was made. If the question of whether or not the Canterbury Earthquake Recovery Act 2001 was intended to be the only vehicle for any major recovery measures, such as the government’s decision to offer assistance to owners of residential red zone properties, had been clarified at the time the Act was drafted, then an additional recovery plan may not have needed to be developed. Similarly, if a participatory public engagement process had been undertaken during the development of intervention options for assisting with land damage, it is possible that the *Quake Outcasts* proceedings may not have been brought³³⁵. A public engagement process would likely have resulted in unacceptable delays to decision-making at a time when the government was facing significant public pressure to intervene. This is a good example of ‘wicked problems’ that governments face in recovery from large-scale disasters, when there are no easy answers and no perfect way to balance speed and deliberation in decision-making³³⁶ (see section 6.4.3 for more information on the legislative lessons from the *Quake Outcasts* case).

Lesson: Recognise that there are no easy answers to the ‘wicked problems’ faced by governments in dealing with recovery from large-scale disasters.

³³² Canterbury Earthquake Recovery Authority, “Residential Red Zone Offer Recovery Plan”, (Canterbury Earthquake Recovery Authority, 2015).

³³³ Canterbury Earthquake Recovery Authority, “Residential Red Zone Offer Recovery Plan”, (Canterbury Earthquake Recovery Authority, 2015).

³³⁴ Canterbury Earthquake Recovery Authority, “Residential Red Zone Offer Recovery Plan”, (Canterbury Earthquake Recovery Authority, 2015).

³³⁵ Johnson, L.A. & Olshansky, R.B., “After Great Disasters: How Six Countries Managed Community Recovery”, (Lincoln Institute of Land Policy, Cambridge, Massachusetts, USA, 2016).

³³⁶ Glavovic, B., “Disaster Recovery: The particular governance challenges generated by large-scale natural disasters”, in *Future-Proofing the State: Managing Risks, Responding to Crises and Building Resilience*, edited by J. Boston, J. Wanna, V. Lipski & J. Pritchard, (Australian National University Press, 2014).

7.4.4. Rāpaki red zone properties and Te Ture Whenua Māori Act 1993

Māori freehold land in the residential red zone posed a specific challenge. A solution was needed that allowed the property owners to avoid alienating the land from Māori ownership, while also being consistent and fair to other red zone property owners.

A number of properties in Rāpaki on Banks Peninsula were zoned red as part of the Port Hills land zoning decisions, due to the unacceptable level of risk to life from rock fall³³⁷. Four of the properties were insured and six were either vacant or uninsured³³⁸. A number of these properties were Māori freehold land subject to Te Ture Whenua Māori Act 1993, the guiding legislation for the Māori Land Court. The Act recognises that Māori land is a taonga tuku iho (handed down from each generation), and promotes keeping Māori land in Māori ownership to use for the benefit of its owners and family (whānau and hapū). It was not possible for owners of the Rāpaki red zone properties to accept the Crown offer because it would have alienated the land from Māori ownership, contrary to Te Ture Whenua Māori Act 1993.

The challenge for government was to find a solution that would allow the property owners to move on with their lives while avoiding alienating the land from Māori ownership. If the owners were not given the opportunity to sell their properties to the Crown, however, then this would be inconsistent with the approach taken with other red zone property owners.³³⁹

Following the Residential Red Zone Offer Recovery Plan process, revised Crown offers were made to the owners of the Rāpaki red zone properties on the same basis as the offers made to all owners of insured, vacant, and uninsured improved red zone properties, with the additional agreement that the land would become Māori reservation (subject to approval by the Māori Land Court) rather than owned by the Crown.

In developing this bespoke offer, the government considered public feedback provided during the Residential Red Zone Offer Recovery Plan process, and discussions with the property owners at Rāpaki, Te Rūnanga o Ngāi Tahu, the Māori Land Court and Te Puni Kōkiri³⁴⁰.

Lesson: Recognise upfront that policy decisions can impact differently on different groups, and bespoke solutions may be required. Where possible, consider the potential impacts, including unintended consequences, on a range of groups (e.g. indigenous groups, young people, people with disabilities) before decisions are made.

7.4.5. Management of red zone land

The government faced challenges associated with managing the large area of suburban residential land it had acquired through the land zoning decisions and Crown offers process. Clearing the land made the sites easier and less costly to manage, but this took time.

In total, approximately 197 hectares of land in the Port Hills and 600 hectares of flat land were zoned red. The government became responsible for managing and maintaining the properties it had purchased³⁴¹. Ministers agreed that all built structures should be demolished and acquired properties cleared to make the area less attractive to crime and squatters. The cleared sites would also become easier and less costly to manage.

The demolition progress depended on the timing of settlement with home owners, the capacity of the demolitions industry, the discovery of archaeological sites, weather events, and the presence of asbestos. This led to delays of some demolitions. By 30 June 2016, 99 per cent of Crown-owned properties in the flat lands were cleared³⁴².

³³⁷ Canterbury Earthquake Recovery Authority, "Residential Red Zone Offer Recovery Plan: Preliminary Draft", (Canterbury Earthquake Recovery Authority, 2015).

³³⁸ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

³³⁹ Canterbury Earthquake Recovery Authority, "Crown offer for properties in the residential red zone at Rāpaki Bay", (Canterbury Earthquake Recovery Authority, 2015).

³⁴⁰ Canterbury Earthquake Recovery Authority, "Residential Red Zone Offer Recovery Plan", (Canterbury Earthquake Recovery Authority, 2015).

³⁴¹ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority, 2016).

³⁴² Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency" (Office of the Auditor-General, 2017).

A vegetation plan was put into place to level and place grass on cleared land and retain certain species and heritage trees.

Remaining residents

As of March 2016 owners of 121 properties in the residential red zone had not accepted the offer³⁴³. In some cases, those who chose to remain living in the residential red zone are surrounded by Crown-owned properties that have been cleared of dwellings and other structures, resulting in physical isolation from other occupied residential properties³⁴⁴. A number of these remaining residents have reported negative psychosocial consequences associated with remaining in the residential red zone³⁴⁵. It is unlikely that this possible outcome could have been reasonably anticipated at the time the government decided to offer assistance for people living in the most damaged areas. If the government had not intervened in the residential red zone, there would very likely have been significant negative outcomes for almost all residents in these areas.

Lesson: Recognise that policy decisions can have unintended consequences, including making things worse for some people. Where possible, identify the full range of positive and negative consequences before a decision is made.

Future use of the residential red zone land

Regenerate Christchurch is responsible for developing regeneration plans (under the Greater Christchurch Regeneration Act 2016) for the red zone land, with initial focus on the Ōtākaro/Avon River corridor, Brooklands, and Southshore³⁴⁶. In the interim, the government has approved the temporary use of the residential red zone by a number of third parties; for example, training for emergency services and foraging for fruit and vegetables for redistribution to local charities³⁴⁷.

7.5. Summary of Lessons on Land Decisions

Land zoning decisions

- Acting quickly with good enough information, rather than perfect information, is sometimes necessary to provide certainty and confidence following an emergency.
- Where decisions are made under tight timeframes with imperfect information, build in the opportunity for reviewing those decisions at a later date.

Offers to Purchase Properties in the Most Damaged Areas

- Ensure that information on properties (e.g. ownership, boundaries, etc) is held in one place and easily accessible, as there will be demand for this information from a range of parties following a disaster.
- Recognise that there are no easy answers to the ‘wicked problems’ faced by governments in dealing with recovery from large-scale disasters.
- Recognise that policy decisions can impact differently on different groups, and bespoke solutions may be required. Where possible, consider the potential impacts on a range of groups (e.g. indigenous groups, young people, disabled people) before decisions are made.

³⁴³ Human Rights Commission, “Staying in the red zones: Monitoring human rights in the Canterbury earthquake recovery”, (Human Rights Commission, 2016).

³⁴⁴ Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

³⁴⁵ Human Rights Commission, “Staying in the red zones: Monitoring human rights in the Canterbury earthquake recovery”, (Human Rights Commission, 2016).

³⁴⁶ Regenerate Christchurch, “Regeneration Planning”, (Regenerate Christchurch, <https://engage.regeneratechristchurch.nz/regeneration-planning>, publication date unknown, retrieved April 2017).

³⁴⁷ Mitchell, M., “Relocation after Disaster: Engaging with Insured Residential Property Owners in Greater Christchurch’s Land-damaged ‘Residential Red Zone’”, (Brookings Institute, 2015).

- Recognise up front that policy decisions can have unintended consequences, including making things worse for some people. Where possible, identify the full range of positive and negative consequences before a decision is made.

Communicating the Crown Offers

- Recognise that people affected by disaster will receive and process information differently than in a 'business and usual' situation. Plan ahead to tailor your engagement approach to vulnerable and stressed people.
- When communicating significant decisions, ensure that you are listening and engaging with people rather than just transferring information.
- Ensure that people understand the reasons why decisions are made in the way they are.
- 'Front up' and go to the communities that are affected.
- Consider using a range of different approaches to communicating and engaging with people and communities affected by disaster, such as:
 - One-on-one meetings;
 - Technical seminars with experts who can explain the scientific basis for decisions;
 - Neighbourhood meetings (larger meetings with general messages); and
 - Workshops where people can ask personalised questions.

8. Insurance Response

The purpose of this chapter is to consider the lessons from government decisions relating to the insurance markets from a whole-of-government perspective, as well as examining the Earthquake Commission's response to the Canterbury earthquake sequence.

8.1. Context

The Canterbury earthquake sequence damaged land and buildings across greater Christchurch. Hundreds of commercial buildings and civic assets were destroyed, and around 167,000 houses were damaged to some extent³⁴⁸. This represented approximately 90 per cent of greater Christchurch's pre-earthquake housing stock (of an estimated 186,200 properties in greater Christchurch at the time of the 2010 Canterbury earthquake)³⁴⁹.

New Zealand has a far higher degree of insurance coverage for earthquakes (up to 99 per cent for homes and 82 per cent for contents) than is typical for comparable economies³⁵⁰. This is largely due to the natural disaster cover provided by the government since 1945, through the Natural Disaster Fund managed by the Earthquake Commission.

Without the Earthquake Commission, many home owners in New Zealand would be left under-insured in the event of a disaster. Cover is provided for home contents, improvements (e.g. buildings on the property), and land (partial coverage). This cover keeps private insurance premiums affordable and in turn encourages home owners to take up insurance cover appropriate for their property, while also reducing the financial risk for private insurers and reinsurers³⁵¹.

As a result of the wide cover in New Zealand, the Canterbury earthquakes were the eighth most expensive natural catastrophes in global history since 1970, for insurance losses³⁵². At the time of the earthquakes, the Natural Disaster Fund (built from Earthquake Commission levies collected from personal home and/or contents general insurance policies) had amassed to NZD\$5.6 billion. The Earthquake Commission also had an additional NZD\$2.5 billion in reinsurance cover. Both of these financial instruments were completely exhausted by the total value of claims³⁵³.

Under the Earthquake Commission Act 1993, any deficiency in the funds to meet the liabilities of the Earthquake Commission is covered by the government by way of a grant or advance. The Crown obtained the funds required to cover the remaining shortfall. While it was a challenging environment, the costs of the earthquakes to the Crown were broadly manageable within the government's existing fiscal strategy³⁵⁴.

Following the Canterbury earthquake sequence, the Treasury stress-tested the Crown's balance sheet and concluded that New Zealand's low government debt, strong financial sector, and good macro institutions provide the flexibility required to manage crisis situations³⁵⁵.

8.2. Findings

There are a number of valuable findings that have emerged relating to the insurance response. These fall under two main areas:

- 1) The Earthquake Commission's response; and

³⁴⁸ Department of the Prime Minister and Cabinet, "Future Christchurch Update – October 2016", (Department of the Prime Minister and Cabinet, 2016).

³⁴⁹ Ministry of Business, Innovation and Employment, "Housing Pressures in Christchurch", (Ministry of Business, Innovation and Employment, 2013).

³⁵⁰ New Zealand Government, "Earthquake Recovery in Canterbury", (New Zealand Government, <http://www.eqrecoverylearning.org/about/earthquake-recovery-in-canterbury>, publication date unknown, retrieved February 2017).

³⁵¹ The Treasury, "New Zealand's Future Natural Disaster Insurance Scheme: Proposed Changes to the EQC Act 1993", (The Treasury, 2015).

³⁵² Munich Reinsurance Company, "Catastrophes: Global", (Insurance Information Institute, <http://www.iii.org/fact-statistic/catastrophes-global/>, published February 2017, retrieved February 2017).

³⁵³ The Treasury, "New Zealand's Future Natural Disaster Insurance Scheme: Proposed Changes to the EQC Act 1993", (The Treasury, 2015).

³⁵⁴ The Treasury, "Lessons from Treasury's role in the Canterbury earthquakes", (The Treasury 2016).

³⁵⁵ The Treasury, "Lessons from Treasury's role in the Canterbury earthquakes", (The Treasury 2016).

2) Government support and interventions relating to insurance.

8.3. The Earthquake Commission's Response

8.3.1. The Role of the Earthquake Commission

The Earthquake Commission provides natural disaster cover for insured residential properties in New Zealand up to a value of NZD\$100,000 plus tax for each individual dwelling. It also provides cover for residential land within eight metres of a home and/or structure, and some retaining walls that support the home, outbuildings, or insured land. New Zealand is one of the only countries in the world where land damage of the type observed in greater Christchurch following the earthquakes is covered by insurance³⁵⁶.

Dwelling and land claims over the NZD\$100,000 cap are transferred to the owner's private insurer for management, with the settlement costs apportioned between the Earthquake Commission and private insurers.

As well as providing natural disaster insurance cover, the Earthquake Commission is responsible for administering the Natural Disaster Fund (including all its investments) and negotiating appropriate reinsurance cover. The Natural Disaster Fund is intended to be drawn down on in the event of a natural disaster, in order to meet the Earthquake Commission's liabilities. The fund is replenished through a levy that is collected on all personal home and/or contents insurance policies. At the time of the 2010 Canterbury earthquake, the Natural Disaster Fund had accumulated to a value of NZD\$5.6 billion. This Natural Disaster Fund has now been exhausted by the cost of the earthquakes³⁵⁷. In October 2011, it was announced that levies would increase to help rebuild the Natural Disaster Fund and finance the Earthquake Commission's longer term operating costs³⁵⁸. A reinsurance programme totalling several billion dollars continues to be in place³⁵⁹.

The nature of the earthquakes, and the government's decisions, changed the Earthquake Commission's role in a range of ways. It was required to take on a number of new functions including overseeing the Canterbury Home Repair Programme and the Winter Heating Programme, and overseeing the design and supervision of further land remediation work that the government funded separately³⁶⁰.

8.3.2. Scaling Up of Operations

The Earthquake Commission's scaling model requires a well-defined framework, with a strong central hub, to manage the escalation of resources to manage claims. The Earthquake Commission made improvements to its operational processes, in response to the changing environment.

In its business as usual environment, the Earthquake Commission is managed as a small financial institution handling relatively few claims³⁶¹. The accumulated cost of insured losses from the Canterbury earthquake sequence was NZD\$29 billion, approximately 80 times more expensive (inflation adjusted) than the next most expensive insured event in New Zealand history (the Bay of Plenty (Edgecumbe) earthquake in 1987)³⁶². In such a major claims event, there is a need for the Earthquake Commission to rapidly scale-up its operations, which in itself creates a range of challenges.

Prior to the Canterbury earthquake sequence, the Earthquake Commission had a total of 22 permanent staff³⁶³. The majority of its functions, including the call centres and claims processing unit, are outsourced. In the event

³⁵⁶ Earthquake Commission, "Land claims", (Earthquake Commission, <http://www.eqc.govt.nz/canterbury-earthquakes/land-claims>, published March 2017, retrieved February 2017).

³⁵⁷ The Treasury, "New Zealand's Future Natural Disaster Insurance Scheme: Proposed Changes to the EQC Act 1993", (The Treasury, 2015).

³⁵⁸ New Zealand Government, "EQC levies rise to realistically reflect costs", (New Zealand Government, <https://www.beehive.govt.nz/release/eqc-levies-rise-realistically-reflect-costs>, published 11 October 2011, retrieved April 2017).

³⁵⁹ The Treasury, "New Zealand's Future Natural Disaster Insurance Scheme: Proposed Changes to the EQC Act 1993", (The Treasury, 2015).

³⁶⁰ Office of the Auditor-General, "Roles, responsibilities, and funding of public entities after the Canterbury earthquakes", (Office of the Auditor-General, 2012).

³⁶¹ The Treasury, "New Zealand's Future Natural Disaster Insurance Scheme: Proposed Changes to the EQC Act 1993", (The Treasury, 2015).

³⁶² Deloitte Ltd, "Four years on: Insurance and the Canterbury Earthquakes", (Vero Insurance, 2015).

³⁶³ Gott, T., Barker, A. & Mills M., "EQC Response to Canterbury Events", (MartinJenkins, 2012).

of a disaster, the Earthquake Commission adopts a ‘just-in-time’ scaling approach³⁶⁴. When activated, this model allows for rapid growth in the immediate aftermath of an event, including within organisations where functions are outsourced. This model requires a well-defined framework with a strong central hub to manage the escalation³⁶⁵.

The use of the scaling model was effective in substantially increasing Earthquake Commission staff numbers to more than 1,000 by the end of 2010³⁶⁶. However, there were challenges experienced in its capability to deal with the claims being received. There was limited guidance on building a strong leadership team and other critical central support functions to manage the escalation³⁶⁷. Prior to the Canterbury earthquakes, the Earthquake Commission had acknowledged that a large-scale event could occur, and recommended scenario testing to evaluate how well it would cope with a significant event. The Earthquake Commission noted that it was unclear how its systems would deal with a large-scale event³⁶⁸.

The Earthquake Commission acknowledged the challenges it faced in managing the large number of claims received³⁶⁹. Over the duration of the recovery, the Earthquake Commission learned more about the needs and requirements of operating in a changing environment and had flexibility to make improvements to its organisational structure and processes over time³⁷⁰. This included centralising the call centre and claims processing centre, so that performance could be more closely managed and processes streamlined³⁷¹.

Lesson: When an organisation may need to be scaled up quickly, pre-planning and scenario testing will identify challenges ahead of time.

Lesson: Expect to make changes following a large up-scale. Be flexible about organisational structure and processes to allow for more efficient adaptation and improvements.

Lesson: Consider centralising any previously decentralised services (e.g. call centre, claims processing centre) during the upscaling process. This will facilitate streamlining following the up-scale, and allow performance of the services to be more closely managed than if they remained decentralised.

8.3.3. The Canterbury Home Repair Programme

The standard procedure for the Earthquake Commission to settle the majority of claims, in its business as usual environment, is through cash settlement³⁷². Following the 4 September 2010 earthquake, the Earthquake Commission established the Canterbury Home Repair Programme to repair homes with damage costing between NZD\$10,000 and NZD\$100,000 to repair. The purpose of a programme-managed repair approach, rather than a cash settlement approach, was to ensure home owners had equitable access to repairs and to avoid cost inflation through eliminating competition between households for tradespeople and materials³⁷³.

Fletcher EQR was the Project Management Office for the programme, tasked with managing the logistics of the programme and liaising with contractors and home owners. The Canterbury Home Repair Programme carried out close to 68,000 home repairs³⁷⁴ and, as at June 2015, NZD\$2.7 billion had been spent on the programme. The

³⁶⁴ Gott, T., Barker, A. & Mills M., “EQC Response to Canterbury Events”, (MartinJenkins, 2012).

³⁶⁵ Gott, T., Barker, A. & Mills M., “EQC Response to Canterbury Events”, (MartinJenkins, 2012).

³⁶⁶ Earthquake Commission, “Briefing to the Incoming Minister”, (Earthquake Commission, 2011).

³⁶⁷ Gott, T., Barker, A. & Mills M., “EQC Response to Canterbury Events”, (MartinJenkins, 2012).

³⁶⁸ The Treasury, “Lessons from Treasury’s role in the Canterbury earthquakes”, (The Treasury, 2016).

³⁶⁹ Earthquake Commission, “EQC Annual Report 2011-2012”, (Earthquake Commission, 2012).

³⁷⁰ Earthquake Commission, “Briefing to the Incoming Minister”, (Earthquake Commission, 2011).

³⁷¹ Earthquake Commission, “EQC Annual Report 2011-2012”, (Earthquake Commission, 2012).

³⁷² Earthquake Commission, “Cash settlement”, (Earthquake Commission, <http://www.eqc.govt.nz/canterbury-earthquakes/home-repairs/cash-settlement>, published December 2016, retrieved February 2017).

³⁷³ Earthquake Commission, “Briefing to the Incoming Minister”, (Earthquake Commission, 2011).

³⁷⁴ Fletcher EQR, <http://www.eqr.co.nz/>, (Fletcher EQR, retrieved February 2017).

main point of contact for all customer enquiries reverted to the Earthquake Commission in February 2017, as the Canterbury Home Repair Programme was nearing completion³⁷⁵.

Programme performance

The Earthquake Commission was successful in setting up the repair programme quickly and generally managed repair costs well. In future, close scrutiny of costs and quality of repairs needs to be maintained so that informed decisions can be made as more information becomes available.

In 2015 the Ministry of Business, Innovation and Employment conducted a review of unconsented structural repairs and released its *Home Inspection Survey* report. The Ministry of Business, Innovation and Employment found that, of the sample surveyed, 32 out of 90 homes were non-compliant with the Building Code, and an additional 23 homes had repair defects requiring remediation³⁷⁶.

The Office of the Auditor-General conducted a review of the Canterbury Home Repair Programme in 2013 and found that the Earthquake Commission's performance in managing the programme had been mixed. The Earthquake Commission was successful in setting up the programme quickly and generally managing repair costs. However, determining whether project management costs were reasonable or excessive was a challenge, and this signalled the importance of ongoing scrutiny of project management costs. Ongoing scrutiny of the scale, configuration, type, and cost of project management services for a programme of this type needs to be maintained, so that informed decisions can be made as more information becomes available³⁷⁷.

The Office of the Auditor-General found it difficult to assess the Earthquake Commission's overall performance in managing repair quality, as on the one hand re-repairs were required, and on the other many thousands of people are now residing in repaired houses³⁷⁸. In its follow-up investigation in 2015, the Office of the Auditor-General acknowledged that the Earthquake Commission had made improvements in all areas of concern, including rationalising repair hubs to support more consistent repair processes and practices, and introducing more consistent and complete performance indicators³⁷⁹.

Lesson: If conducting a large-scale repair programme, ensure that close scrutiny of costs and quality of repairs is maintained throughout the programme. This will facilitate robust performance assessments and improve consistency with repair processes and practices.

8.3.4. Clarity of insurer liabilities

The Canterbury earthquake sequence introduced many unique challenges relating to the Earthquake Commission Act 1993. The Earthquake Commission's precise liabilities were initially unclear and not well understood by both the Earthquake Commission and private insurers³⁸⁰. For example, it was not clear whether remediation of all land damage was covered along with the dwelling. This created uncertainty and delays for the Earthquake Commission, insurers, and home owners. A number of legal clarifications of the Earthquake Commission Act 1993 were required before some claims could progress towards settlement.

The Treasury is currently undertaking a review of the Earthquake Commission Act 1993, and has recognised that key aspects of the Earthquake Commission scheme require clarification³⁸¹. The review draws on the lessons from the Canterbury earthquakes as well as broader lessons from how the Act has been applied since it came into force in 1994. A number of reform proposals were put forward for public consultation. The proposed reforms include

³⁷⁵ Fletcher EQR, <http://www.eqr.co.nz/>, (Fletcher EQR, retrieved February 2017).

³⁷⁶ Ministry of Business Innovation and Employment, "Earthquake Repairs to Canterbury Homes", (Ministry of Business, Innovation and Employment, 2015).

³⁷⁷ Office of the Auditor-General, "Managing the Canterbury Home Repair Programme", (Office of the Auditor-General, 2013).

³⁷⁸ Office of the Auditor-General, "Managing the Canterbury Home Repair Programme – follow-up audit", (Office of the Auditor-General, 2015).

³⁷⁹ Office of the Auditor-General, "Managing the Canterbury Home Repair Programme – follow-up audit", (Office of the Auditor-General, 2015).

³⁸⁰ Deloitte Ltd, "Four years on: Insurance and the Canterbury Earthquakes", (Vero Insurance, 2015).

³⁸¹ The Treasury, "New Zealand's Future Natural Disaster Insurance Scheme: Proposed Changes to the EQC Act 1993", (The Treasury, 2015).

those designed to resolve the difficulties experienced in Canterbury with the interaction of land and building cover and better integrate the Earthquake Commission's and private insurers' claims handling processes³⁸².

8.3.5. Multiple events

Conducting detailed property assessments for each individual property and trying to attribute damage to different events was challenging. Assessment data was found to be critical for private insurers when conducting joint reviews and apportionment negotiations.

Following the 4 September 2010 earthquake, Canterbury experienced almost 18,000 aftershocks, including over 35 events of magnitude 5 or greater (including the 22 February 2011 earthquake). The Earthquake Commission Act 1993 had not envisaged a sequence of events that would result in successive (and compounding) losses under single household policies. There was a lack of clarity over whether the Earthquake Commission should treat the sequence as a single event, or as individual events³⁸³. If the sequence was treated as a single event, the Earthquake Commission would only have been liable for up to NZD\$100,000 for the aggregated claim value for a dwelling.

In 2011, the High Court found that the Earthquake Commission was liable for each individual event, providing clarity for home owners and insurers³⁸⁴. The consequence of this was that negotiations between the Earthquake Commission and private insurers to apportion liability were particularly complex, as they had to try and ascertain what damage was a result of which event³⁸⁵.

With the scale and volume of claims received, conducting detailed property assessments for each individual property and trying to attribute damage to different events was challenging. Assessment data were found to be critical for private insurers, when conducting joint reviews and apportionment negotiations³⁸⁶. However, there was a shortage of loss adjusters and engineers experienced in identifying damage that is not immediately visible³⁸⁷.

In response to the 14 November 2016 earthquake, the Earthquake Commission and private insurers agreed to a simplified approach to assessing and settling claims. Private insurers agreed to act as an agent on behalf of the Earthquake Commission, meaning that they are responsible for lodging, assessing and cash settling all dwelling and contents claims including claims with damage costing less than NZD\$100,000. This simplified approach means that home owners have their own insurer managing their claim, and therefore a single point of contact from beginning to end³⁸⁸.

Lesson: A single point of contact/end-to-end customer-centric approach improves the efficiency of insurance claims assessment and settlement, and creates a simpler experience for home owners.

8.3.6. Insurance Coverage for Land Damage

The Earthquake Commission's precise coverage was initially unclear and not well understood by the Earthquake Commission and private insurers, with liability clarified through the courts. Key aspects of the Earthquake Commission scheme require further clarification.

The Canterbury earthquake sequence caused various types of land damage across greater Christchurch, from visible physical damage (e.g., cracking and undulation) through to more complex categories such as Increased Flooding Vulnerability and Increased Liquefaction Vulnerability. Land damage claims were complicated by issues

³⁸² The Treasury, "New Zealand's Future Natural Disaster Insurance Scheme: Proposed Changes to the EQC Act 1993", (The Treasury, 2015).

³⁸³ Deloitte Ltd, "Four years on: Insurance and the Canterbury Earthquakes", (Vero Insurance, 2015).

³⁸⁴ Deloitte Ltd, "Four years on: Insurance and the Canterbury Earthquakes", (Vero Insurance, 2015).

³⁸⁵ Deloitte Ltd, "Four years on: Insurance and the Canterbury Earthquakes", (Vero Insurance, 2015).

³⁸⁶ Deloitte Ltd, "Four years on: Insurance and the Canterbury Earthquakes", (Vero Insurance, 2015).

³⁸⁷ Marsh Risk Management Research, "Comparing Claims from Catastrophic Earthquakes", (Marsh Risk Management Research, 2014).

³⁸⁸ Earthquake Commission, "A simpler process for Kaikōura", (Earthquake Commission, 2016).

involving retaining walls, bridges and culverts, or where ownership of the land was shared (e.g. under cross-leases).

Land damage that resulted in properties becoming more vulnerable to future flooding and/or liquefaction is an example of the complexities involved. Settlement of these claims required considerable coordination between parties. In many cases, the damaged land was under dwellings that were otherwise repairable and remediating the land underneath the property would not have been a cost-effective approach³⁸⁹. The Earthquake Commission's liability for these complex claims was not generally anticipated by the Earthquake Commission Act 1993, and in 2014 the Earthquake Commission sought a declaratory judgment on the settlement approach for these claims³⁹⁰.

8.3.7. Earthquake Commission funding for research and development

Research commissioned by the Earthquake Commission helps New Zealand better prepare for future events and informs government policy on building standards and zoning requirements. Outputs also have potential applications in comparable areas around the world.

One of the Earthquake Commission's ongoing objectives is to improve the current state of knowledge about New Zealand's natural hazards. The research that the Earthquake Commission commissions, and innovations from the Earthquake Commission, are intended to help inform government policy on building standards and zoning requirements. Many research findings could also be applied to better prepare for future events. As a result of the Canterbury earthquake sequence, there was a need for information to better understand the extent of damage in the region³⁹¹. Two notable case studies are the Ground Improvement Programme³⁹² and the Canterbury Geotechnical Database³⁹³ (led by the Canterbury Earthquake Recovery Authority, in collaboration with the Earthquake Commission and other stakeholders). The Stronger Christchurch Infrastructure Rebuild Team (SCIRT) estimates that access to the Canterbury Geotechnical Database has helped it save over NZD\$5 million³⁹⁴.

Ground Improvement Programme

Remediation of land subject to liquefaction involved complex engineering and legal considerations, which was not generally anticipated when the Earthquake Commission Act 1993 was developed³⁹⁵. The Earthquake Commission-led Ground Improvement Programme was initiated to identify affordable and practical solutions to improve or strengthen residential land vulnerable to liquefaction. The programme had contributions from many organisations and experts in liquefaction from New Zealand and overseas³⁹⁶.

The research programme has introduced more affordable and practical shallow ground improvement options to strengthen land that is vulnerable to liquefaction. These more affordable ground improvement options have been endorsed by the Ministry of Business, Innovation and Employment. This programme has also informed building regulations and may be applicable to other residential areas, in New Zealand and around the world, with similar geological conditions. An additional benefit to the construction sector is that contractors have upskilled to enable them to carry out a wider range of ground improvement methods³⁹⁷.

³⁸⁹ Canterbury Earthquake Recovery Authority, "CERA land zoning policy and the residential red zone", (Canterbury Earthquake Recovery Authority 2016).

³⁹⁰ Earthquake Commission, "Declaratory Judgement on Increased Flooding Vulnerability (IFV) Land Settlement", (Earthquake Commission, 2014).

³⁹¹ Canterbury Earthquake Recovery Authority "Residential Red Zone Offer Recovery Plan" (Canterbury Earthquake Recovery Authority, 2015).

³⁹² Canterbury Earthquake Recovery Authority, "The Canterbury Geotechnical Database: An authoritative source of geotechnical data", (Canterbury Earthquake Recovery Authority, 2016).

³⁹³ Canterbury Earthquake Recovery Authority, "The Canterbury Geotechnical Database: An authoritative source of geotechnical data", (Canterbury Earthquake Recovery Authority, 2016).

³⁹⁴ Canterbury Earthquake Recovery Authority, "The Canterbury Geotechnical Database: An authoritative source of geotechnical data", (Canterbury Earthquake Recovery Authority, 2016).

³⁹⁵ Brookie, R., "Governing the Recovery from the Canterbury Earthquakes 2010-11: the Debate over Institutional Design", (Institute for Governance and Policy Studies, Victoria University of Wellington, 2012).

³⁹⁶ Tonkin + Taylor, "Residential Ground Improvement", (Earthquake Commission, 2015).

³⁹⁷ Tonkin + Taylor, "Residential Ground Improvement", (Earthquake Commission, 2015).

Information about land and properties will be keenly sought by residents, businesses, insurers, and others following a disaster. Collaboration between the public and private sectors and commitment to open data sharing created significant wider benefits.

The Canterbury Earthquake Recovery Authority recognised that the geotechnical data being gathered was a significant asset and there was demand for land information across the public and private sector to inform rebuild activities in Canterbury³⁹⁸. In collaboration with the Earthquake Commission and other stakeholders, the Canterbury Earthquake Recovery Authority developed the Canterbury Geotechnical Database an online repository for geotechnical information. The database is an open source, cloud-based platform allowing technical experts to upload, download, and share geotechnical investigation data to help facilitate the rebuild³⁹⁹. The database has improved the efficiency of geotechnical surveying, reduced the number of geotechnical surveys required, and provided insurers and banks with a resource to support risk analysis. Without the collaboration and commitment from public and private sector stakeholders, the project could not have succeeded⁴⁰⁰.

The tool's success led to the expansion of the database and the development of the New Zealand Geotechnical Database, managed by Ministry of Business, Innovation and Employment. This information is now used to inform asset management, land use and infrastructure planning, and holds property-specific information for insurers⁴⁰¹.

Lesson: Ensure that geotechnical information is held in one place and easily accessible, and new geotechnical information can be easily added and shared. There will be significant demand for geotechnical information from a range of parties following a disaster.

8.4. Government Support and Interventions relating to Insurance

8.4.1. Insurance market interventions

The need for government intervention in the private insurance sector following the earthquakes suggests the need to 'future proof' regulatory settings. A review of the Earthquake Commission Act 1993 is underway, and an issues paper on the Insurance (Prudential Supervision) Act 2010 is currently out for public consultation.

New Zealand's insurance market operates according to a balance of insurer self-discipline, market discipline, and regulatory discipline. Since the 1990s the Reserve Bank of New Zealand has placed a heavy emphasis on market discipline, backed up by simple regulatory requirements. Following the 2007 to 2008 Global Financial Crises and subsequent recession, the Reserve Bank bolstered New Zealand's regulatory regime for insurance so that it was in line with international regulatory developments⁴⁰².

In addition to the regulatory framework, reinsurance is another major risk management tool supporting the insurance market. Reinsurance is insurance for insurers. The Earthquake Commission and private insurance companies in New Zealand each have their own reinsurance cover against all or part of a loss that they may incur under policies they have issued. This protects the Earthquake Commission and private insurers against situations where their claim liabilities may exceed reserves⁴⁰³.

³⁹⁸ Canterbury Earthquake Recovery Authority, "The Canterbury Geotechnical Database: An authoritative source of geotechnical data", (Canterbury Earthquake Recovery Authority, 2016).

³⁹⁹ Canterbury Earthquake Recovery Authority, "The Canterbury Geotechnical Database: An authoritative source of geotechnical data", (Canterbury Earthquake Recovery Authority, 2016).

⁴⁰⁰ Canterbury Earthquake Recovery Authority, "The Canterbury Geotechnical Database: An authoritative source of geotechnical data", (Canterbury Earthquake Recovery Authority, 2016).

⁴⁰¹ Earthquake Commission, "About NZGD", (Earthquake Commission, 2016).

⁴⁰² Reserve Bank of New Zealand, "The importance of market discipline in the Reserve Bank's prudential regime", (Reserve Bank of New Zealand, 2016).

⁴⁰³ Swiss Re, "Understanding reinsurance: How reinsurers create value and manage risk", (Swiss Re, 2004).

Reinsurance

The Treasury viewed securing reinsurance in the aftermath of the Canterbury earthquake sequence as an immediate priority, to ensure New Zealand had appropriate cover for future events⁴⁰⁴. Without the support from reinsurance there would have been either more insurers in financial difficulty as a result of the Canterbury earthquakes, or reduced levels of insurance coverage. For example, in Canterbury 66 per cent of the earthquake insurance claims were absorbed by reinsurers⁴⁰⁵. Global reinsurers held concerns about the size of their exposure following the Canterbury earthquakes, and the time it would take to quantify final liability. This, in turn, prompted concerns that reinsurers would not just increase premiums, but could ‘walk away from’ the New Zealand market. Without securing reinsurance there would be a considerable impact on the New Zealand insurance industry and, potentially, the wider economy⁴⁰⁶.

In response to this risk, the government intervened to reinstate confidence in the New Zealand market and secure reinsurance for the future⁴⁰⁷. Notable examples of interventions that helped reinstate reinsurer confidence include the AMI intervention (*see next section*), land zoning (*see Chapter 7 for more information on land zoning decisions*), supporting the Canterbury Earthquake Recovery Minister in his talks with reinsurers, and later policy settings and legislative amendments⁴⁰⁸. Reinsurers continue to provide the Earthquake Commission and private insurers with cover, with the Earthquake Commission’s reinsurance cover increasing from NZD\$2.5 billion prior to the earthquakes⁴⁰⁹ to NZD\$4.69 billion reported in 2016⁴¹⁰.

Given their systemic importance, insurance markets and institutions should receive the same degree of policy attention as other financial markets⁴¹¹. As discussed earlier in this paper, the Treasury is currently undertaking a review of the Earthquake Commission Act 1993. One option being considered in the review is whether the Earthquake Commission should be enabled to explore other risk financing instruments, in addition to reinsurance. Allowing for other types of financial instruments may support a more efficient risk financing strategy, reducing the reliance on reinsurance to support recovery from future major events⁴¹².

AMI Insurance and the founding of Southern Response

AMI Insurance was the largest residential insurer in Canterbury, with about one-third of the residential insurance market in Christchurch⁴¹³. In March 2011, the Chairman of AMI Insurance advised the Minister of Finance that there was a chance that AMI Insurance might not be able to meet all its obligations to policy holders in Christchurch⁴¹⁴.

The risk that AMI Insurance could fail was seen as a systemic issue, in light of the potential impact on the Canterbury rebuild process at a time when confidence was already fragile; insurance sector impacts such as availability and pricing⁴¹⁵; and policy holder impacts from partial and delayed pay-outs⁴¹⁶.

The government considered the potential impacts of intervention. Financially supporting AMI may have caused offshore investors to re-assess the Crown’s risk profile, as intervention may set a precedent of future government support. There was also a risk that any intervention would create a ‘moral hazard’ risk by signalling to consumers

⁴⁰⁴ The Treasury, “Lessons from Treasury’s role in the Canterbury earthquakes”, (The Treasury, 2016).

⁴⁰⁵ New Zealand Government, “Insurance and reinsurance issues after the Canterbury earthquakes”, (New Zealand Government, 2011).

⁴⁰⁶ The Treasury, “Lessons from Treasury’s role in the Canterbury earthquakes”, (The Treasury, 2016).

⁴⁰⁷ Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority 2016).

⁴⁰⁸ The Treasury, “Lessons from Treasury’s role in the Canterbury earthquakes”, (The Treasury, 2016).

⁴⁰⁹ King, A., Middleton, D., Brown, C., Johnston, D. & Johal, S., “Insurance – its role in the recovery from the 2010-2011 Canterbury earthquake sequence”, (Ara Institute of Canterbury, 2013).

⁴¹⁰ Earthquake Commission, “EQC releases Annual Report 2015-2016”, (Earthquake Commission, <http://www.eqc.govt.nz/news/eqc-releases-annual-report-2015-2016>, published October 2016, retrieved February 2017).

⁴¹¹ The Treasury, “Lessons from Treasury’s role in the Canterbury earthquakes”, (The Treasury, 2016).

⁴¹² The Treasury, “New Zealand’s Future Natural Disaster Insurance Scheme: Proposed Changes to the EQC Act 1993”, (The Treasury, 2015).

⁴¹³ The Treasury, “Lessons from Treasury’s role in the Canterbury earthquakes”, (The Treasury, 2016).

⁴¹⁴ Reserve Bank of New Zealand and the Treasury, “Christchurch Insurance Update”, (Reserve Bank of New Zealand and the Treasury, 2011).

⁴¹⁵ Reserve Bank of New Zealand and the Treasury, “Christchurch Insurance Update”, (Reserve Bank of New Zealand and the Treasury, 2011).

⁴¹⁶ The Treasury, “Lessons from Treasury’s role in the Canterbury earthquakes”, (The Treasury, 2016).

and the insurance sector itself that the government would be prepared to step in and prevent loss in any distress scenario⁴¹⁷.

In April 2011, the Crown put together a support package investing NZD\$500 million of equity into AMI to give certainty to policyholders. In return the Crown received the right to assume control of the company if additional support was needed. The primary objectives of this intervention were to ensure that Christchurch would be rebuilt expeditiously, policyholders' claims would be met, and that the New Zealand insurance market was kept sound, efficient and confidence in it was maintained. In April 2012 a new Crown company, Southern Response Earthquake Services Limited, took control of all AMI's earthquake claims and became responsible for managing the settlement of these. AMI sold all of its non-earthquake related business to IAG (NZ) Holdings Limited and AMI itself was sold to IAG⁴¹⁸.

Following this intervention, the government recognised the need for appropriate regulatory settings, supervision, and communications to minimise the moral hazard risk. In October 2011, the Reserve Bank of New Zealand released a policy position paper, clarifying the government's position that insurers, reinsurers, and property owners should bear the risks of a catastrophe, rather than government⁴¹⁹.

In New Zealand, the insurance market is regulated through the Insurance (Prudential Supervision) Act 2010. In accordance with the Act, all insurers in New Zealand require a license to operate, with conditions including:

- holding a financial strength rating;
- carrying on business in a prudent manner;
- holding at least the minimum amount of capital specified; and
- having and implementing a satisfactory risk management programme⁴²⁰.

The Reserve Bank of New Zealand has made it clear that the aim of the Insurance (Prudential Supervision) Act 2010 is not to prevent insurance company failures at any cost; rather it may use powers to facilitate the development of a recovery plan for insurers⁴²¹. The government also has specific powers to enable the orderly wind-down of a licensed insurer. This could be actioned should there be concerns about financial distress, or the prudent management, of an individual insurer⁴²². The effectiveness of the legislation, in terms of its initial aims, is under review and in early 2017 an issues paper was made available for public comment⁴²³.

Cordoning of the Central City

Tenants and building owners will often have conflicting priorities and needs. For example, building owners generally having longer business interruption insurance cover than tenants. This means that while building owners have the option of taking their time over repairs or rebuilds, some tenants face the prospect of bankruptcy.

From April 2011, the Canterbury Earthquake Recovery Authority became responsible for managing the safety of building work in the central city. Most of the building work to make the central city safe was managed, or commissioned by the Canterbury Earthquake Recovery Authority on behalf of building owners. With the ongoing aftershocks, a cordon was put in place around the central city for safety reasons⁴²⁴. The Canterbury Earthquake Recovery Authority's Significant Buildings Unit (responsible for buildings over five storeys, or of a significant size) demolished or partly demolished 1,434 significant buildings, many of which were within the central business district of Christchurch⁴²⁵.

⁴¹⁷ Reserve Bank of New Zealand and the Treasury, "Christchurch Insurance Update", (Reserve Bank of New Zealand and the Treasury, 2011).

⁴¹⁸ The Treasury, "Lessons from Treasury's role in the Canterbury earthquakes", (The Treasury, 2016).

⁴¹⁹ Reserve Bank of New Zealand, "The insurance regulatory landscape in New Zealand", (Reserve Bank of New Zealand, 2012).

⁴²⁰ Reserve Bank of New Zealand, "Supervision of the insurance industry", (Reserve Bank of New Zealand, 2012).

⁴²¹ Reserve Bank of New Zealand, "Supervision of the insurance industry", (Reserve Bank of New Zealand, 2012).

⁴²² Reserve Bank of New Zealand, "The insurance regulatory landscape in New Zealand", (Reserve Bank of New Zealand, 2013).

⁴²³ Reserve Bank of New Zealand, "Issues Paper: Review of the Insurance (Prudential Supervision) Act 2010", (Reserve Bank of New Zealand, 2017).

⁴²⁴ Canterbury Earthquake Recovery Authority, "Cordon access for property owners, tenants and residents", (Canterbury Earthquake Recovery Authority, 2016).

⁴²⁵ Canterbury Earthquake Recovery Authority, "The Significant Buildings Unit", (Canterbury Earthquake Recovery Authority, 2016).

The cordoning of the central city presented a number of challenges, including preventing access and use of some properties by building owners and tenants. Owners and tenants often had conflicting needs as a result of their respective insurance coverage. For example, building owners often have three to five years business interruption insurance, while tenants often have shorter cover. The impact of these different policies was that owners could take time over repairs and rebuilds of their properties, while some tenants were facing the prospect of bankruptcy⁴²⁶. The cordon also impacted the ability of insurers and property owners to commence repairs and rebuilds. The difficulty in accessing properties created difficulties for adjustment valuations and surveying, and contributed to the delay in reconstruction of many commercial properties⁴²⁷.

In February 2011, the government announced an Earthquake Support Subsidy to support small to medium businesses facing financial pressures. For example, it was estimated that half of hospitality organisations closed temporarily following the 22 February 2011 earthquake⁴²⁸. The government initiative provided employers with a subsidy per employee so that they could continue to pay staff. The policy was intended to remove uncertainty about jobs and businesses in Christchurch, and help people pay their bills⁴²⁹. A second subsidy for employees was also launched, to provide support for those whose employers are no longer able to operate. This was the Ministry of Social Development's single largest financial contribution to the recovery, estimated at over NZD\$200 million⁴³⁰. The Canterbury Employers Survey found that just under half of all workplaces surveyed accessed the subsidy and the majority responded that it "helped a lot" in keeping their business going⁴³¹.

A similar subsidy was used in response to the 2011 MV Rena tanker oil spill near Tauranga, to support commercial and charter fishing businesses⁴³² and following the 14 November 2016 earthquake, providing financial support for affected businesses⁴³³. However, the subsidy may not always be a cost-effective intervention for future events. The degree of business disruption to the affected area should be considered⁴³⁴.

The State Services Commission undertook a project to profile the innovations in public service delivery developed in response to the Canterbury earthquakes. Recover Canterbury (a collaboration between the Canterbury Employers' Chamber of Commerce, the Canterbury Development Corporation, Enterprise North Canterbury, the Christchurch City Council and central government) provided support for businesses affected by the Canterbury earthquakes. The service provided a single channel for access to government and commercial expertise. This case study can be retrieved at the EQ Recovery Learning website (<http://www.eqrecoverylearning.org/>).

Changes to the insurance market

There was a fundamental shift in the insurance market as a result of the earthquakes and insurers now approach the market more cautiously. In particular, constrained availability of insurance for high-risk properties, an increase in the cost of insurance premiums, deductibles changing from a percentage of the claim to a percentage of the insured value, and a shift from full replacement insurance coverage to sum insured⁴³⁵.

Prior to the earthquakes, insurance cover that offered total reinstatement of a home in the event of a disaster was commonplace. In other words, insurers covered the cost of replacing or reinstating the asset with its equivalent in new condition, including, where appropriate, the use of current equivalent technology, material,

⁴²⁶ Canterbury Earthquake Recovery Authority, "Cordon access for property owners, tenants and residents", (Canterbury Earthquake Recovery Authority, 2016)

⁴²⁷ Deloitte Ltd, "Four years on: Insurance and the Canterbury Earthquakes", (Vero Insurance, 2015).

⁴²⁸ Kachali, H., Whitman, Z., Stevenson, J.R., Vargo, J. & Wilson, T., "Industry sector recovery following the Canterbury earthquakes", (University of Canterbury, 2015).

⁴²⁹ Office of the Auditor-General, "Realising benefits from six public sector technology projects, Part 3: Financial support in Christchurch after the February 2011 earthquake", (Office of the Auditor-General, 2012).

⁴³⁰ Ministry of Social Development, "Learning from the Ministry of Social Development's contribution to the Canterbury Earthquake Recovery Efforts", (Ministry of Social Development, 2016).

⁴³¹ Labour & Immigration Research Centre, "A Changing Landscape: The Impact of the Earthquakes on Christchurch Workplaces", (Department of Labour, 2011).

⁴³² Ministry of Social Development, "Learning from the Ministry of Social Development's contribution to the Canterbury Earthquake Recovery Efforts", (Ministry of Social Development, 2016).

⁴³³ Work and Income, "Earthquake Support Subsidy", (Work and Income, <https://www.workandincome.govt.nz/online-services/eesp/index.html>, publication date unknown, retrieved March 2017).

⁴³⁴ Ministry of Social Development, "Learning from the Ministry of Social Development's contribution to the Canterbury Earthquake Recovery Efforts", (Ministry of Social Development, 2016).

⁴³⁵ Mumo, R. & Richard, W., "The Dual Insurance Model and Its Implications for Insurance Demand and Supply Post-Christchurch Earthquakes in New Zealand", (Insurance and Risk Management, 2016).

and services. This model presented challenges for insurers in relation to the Canterbury earthquake sequence, as calculating the final liability was not possible until the majority of claims had been settled⁴³⁶.

Reinsurers have stipulated a change to insurance policies, whereby dwellings are now insured for a pre-agreed amount. This is more commonly known as a 'sum insured' policy. This model provides benefits for insurers because they are better able to understand the exposure they face. In the event of a future disaster, insurers would be able to forecast their total liability for sum insured policies, due to the pre-agreed maximum amounts in place⁴³⁷. It is expected that insurers would also be able to settle claims at a faster pace⁴³⁸.

The risk with this approach is that home owners need to be able to provide insurers with an estimated cost to rebuild and update this figure as construction prices change. Insurers have offered tools to assist home owners with calculating the appropriate cover for their property, however there remains a risk that some home owners will be underinsured. The government has discussed this risk with insurers, recognising the need for clear communication and tools to support well-informed home owner decisions on their sum-insured values⁴³⁹.

8.4.2. Supporting people impacted by the earthquakes

The settlement of insurance claims has been a long and complex process⁴⁴⁰. Six and a half years following the 4 September 2010 earthquake, there are a small number of properties that remain unsettled. Delay in settlement is one of the factors that prevents home owners from moving on with their lives and can have significant impacts on their psychosocial wellbeing⁴⁴¹. From the insurers' perspective, unsettled properties are a continued liability on their books. Therefore, there is incentive all round for insurance settlement to be expedited.

The 2012 Recovery Strategy noted that the timely settlement of insurance claims and the ability of households, businesses, and government agencies to obtain insurance cover in the future are important factors in the recovery process⁴⁴². Canterbury Earthquake Recovery Authority staff were to work closely with insurance companies to monitor and encourage timely settlements and help to create good conditions for the insurance market in greater Christchurch, by engaging with insurers and reinsurers to facilitate the resolution of barriers identified⁴⁴³.

Multi-unit Buildings

Multi-unit buildings came with unique challenges, due to the complexities of insurance arrangements and the number of parties involved. These issues were openly discussed between insurers, and new systems and processes were developed in response.

Multi-unit buildings are often singular buildings that house several dwellings, such as apartment blocks. The majority of these properties are owned through cross-lease titles, which created a significant challenge to the settlement of insurance claims. Under cross-lease titles, agreement from all parties is required before a repair or rebuild can go ahead. This was further complicated by unit owners holding policies with different insurers, having different levels of coverage, or having no insurance cover at all⁴⁴⁴.

⁴³⁶ The Treasury, "Home Insurance – Implications of Sum Insured Cover", (The Treasury, 2015).

⁴³⁷ The Treasury, "Home Insurance – Implications of Sum Insured Cover", (The Treasury, 2015).

⁴³⁸ Mumo, R. & Richard, W., "The Dual Insurance Model and Its Implications for Insurance Demand and Supply Post-Christchurch Earthquakes in New Zealand", (Insurance and Risk Management, 2016).

⁴³⁹ The Treasury, "Home Insurance – Implications of Sum Insured Cover", (The Treasury, 2015).

⁴⁴⁰ Canterbury Earthquake Recovery Authority, "Understanding social recovery", (Canterbury Earthquake Recovery Authority, 2016).

⁴⁴¹ Nielsen, "CERA Wellbeing Survey April 2014", (Canterbury Earthquake Recovery Authority, 2014).

⁴⁴² Canterbury Earthquake Recovery Authority, "Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha", (Canterbury Earthquake Recovery Authority, 2012).

⁴⁴³ Canterbury Earthquake Recovery Authority, "Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha", (Canterbury Earthquake Recovery Authority, 2012).

⁴⁴⁴ Canterbury Earthquake Recovery Authority, "Understanding social recovery", (Canterbury Earthquake Recovery Authority, 2016).

Central government facilitated regular meetings between the Earthquake Commission and private insurers to encourage open and transparent communication of issues⁴⁴⁵. New systems and processes were developed by the insurance market to better manage these claims; for example, a lead insurer was identified to manage all dwelling claims within a multi-unit building⁴⁴⁶.

Lesson: Recognise that multi-unit buildings will present challenges to the settlement of insurance claims, and consider how these challenges could be mitigated before a disaster (e.g. improving home owners' awareness of the challenges, encouraging insurers to pre-identify a lead insurer).

Brokering agreements between home owners and insurers

A notable support service, the Residential Advisory Service, was launched by the Canterbury Earthquake Recovery Authority in May 2013. The service was funded by the Earthquake Commission, the Canterbury Earthquake Recovery Authority, the Christchurch City Council and members of the Insurance Council of New Zealand. The Residential Advisory Service worked with insurers and home owners to broker agreements on a settlement pathway. Technical issues were referred to the Residential Advisory Service Technical Panel, which provided independent comment on insurers' and home owners' reports. Any legal issues were referred to qualified lawyers from Community Law for advice, however mediation was found to be more effective than legal advice in reaching agreement between the parties. As the Residential Advisory Service was also part funded by private insurers, it did not play an advocacy role⁴⁴⁷. According to the CERA Wellbeing Survey, 74 per cent of people who used the Residential Advisory Service had a favourable impression of it (as at September 2015)⁴⁴⁸.

Lesson: An independent advisory service for home owners is a valuable tool to facilitate and broker agreements between home owners and insurers following a disaster.

Lesson: Where home owners are experiencing difficulties in reaching settlement with private insurers, providing a mediation service can be more effective than providing a legal advice service over time.

Retirement Villages

Elderly residents of earthquake-damaged retirement villages faced difficulties seeking alternative accommodation, as they were often left with less money than what they originally paid for occupation rights.

The earthquakes in Canterbury also damaged a number of retirement villages, which brought its own range of challenges. Residents of some retirement villages have Occupation Right Agreements, rather than owning the properties outright. The operator holds the insurance policy for each of the dwellings and receives the insurance pay out in the event of a disaster. The Retirement Villages Code of Practice 2008 suggests that residents should be compensated in the event of damage to their residence but it does not specify how much residents should be paid if they cannot be re-housed by the operator. After the earthquakes, compensation paid by operators to residents was based on the initial purchase price minus a deferred management fee. This presented difficulties for residents seeking alternative accommodation, as they were often left with less money than what they originally paid. The removal of fees relied on the goodwill of retirement village operators⁴⁴⁹.

⁴⁴⁵ Canterbury Earthquake Recovery Authority, "Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha", (Canterbury Earthquake Recovery Authority, 2012).

⁴⁴⁶ Canterbury Earthquake Recovery Authority, "Understanding social recovery", (Canterbury Earthquake Recovery Authority, 2016).

⁴⁴⁷ Canterbury Earthquake Recovery Authority, "Understanding social recovery", (Canterbury Earthquake Recovery Authority, 2016).

⁴⁴⁸ Nielsen, "CERA Wellbeing Survey September 2015", (Canterbury Earthquake Recovery Authority, 2015).

⁴⁴⁹ Davey, J. & Neale, J., "Earthquake preparedness in an ageing society: Learning from the experience of the Canterbury Earthquakes", (Victoria University of Wellington, 2012).

The earthquake experience caused some retirement village stakeholders to question the adequacy of aspects of the Code of Practice. The issues relate primarily to uncertainties in the termination process for Occupation Right Agreements, and the adequacy of the pay-out received by residents in an exit situation when their unit will not be rebuilt.

Variations to the Retirement Villages Code of Practice 2008 issued in 2013 were informed by the challenges highlighted by the Canterbury earthquakes. From 14 October 2013 retirement village residents have been entitled, as a minimum, to receive the full original capital sum of their investment in a retirement village. It also better clarified how termination payments and deductions are calculated. There is now a requirement for a Certificate of Currency to be provided to residents on request. A Certificate of Currency is a document that confirms a current policy is in place for the sums insured shown on the date that the certificate is requested. This provides residents with a single document clearly outlining their coverage⁴⁵⁰.

Lesson: Recognise that residents in retirement villages may face particular difficulties in finding alternative accommodation following a disaster, and consider these challenges could be mitigated before a disaster.

Temporary Accommodation

The earthquakes put pressure on rental prices and demand for accommodation, driven by the influx of migrant construction workers and the demand for temporary accommodation while homes were undergoing repairs or rebuilds. Temporary accommodation and other support services were established to ease the housing pressures.

As part of its monitoring programme, the Canterbury Earthquake Recovery Authority developed forecasts on the work to be done in residential rebuild and repairs. The Ministry of Business, Innovation and Employment used this information to project the level of supply and demand for accommodation in greater Christchurch, along with monitoring the mean rental bonds lodged. Pressure on housing costs and demand increased as a result of general population growth, accommodation required for temporary construction workers, and home owners seeking temporary accommodation while they carry out repairs or rebuilds of their homes. For example, in March 2015 there was an estimated accommodation shortfall for approximately 8,000 households. The shortfall was absorbed by people doubling up on accommodation, and living in other forms of temporary accommodation⁴⁵¹.

Following the September 2010 earthquake, the Ministry of Social Development was the lead government agency for disaster welfare response⁴⁵². In collaboration with the Ministry of Business, Innovation and Employment, the Ministry of Social Development established a new entity to deliver psychosocial and housing services called the Canterbury Earthquake Temporary Accommodation Service. It had three main functions:

- **Earthquake Support Coordinators:** Provided information to the public and put people in touch with the agencies and services best suited to help with financial, insurance, legal, and health matters;
- **Temporary Accommodation Service:** Provided a matching placement service for temporary accommodation to home owners whose homes were damaged or being repaired. For those eligible, accommodation was provided in three government-supported temporary villages with a total of 62 units; and
- **Temporary Accommodation Allowance:** A weekly payment to help people cover rent, board, or motel stays, whose temporary accommodation insurance payments had been exhausted.

The State Services Commission undertook a case study of the Earthquake Support Coordination Service, as part of a project to profile the innovations in public service delivery developed in response to the Canterbury earthquakes. The multi-agency Earthquake Support Coordination Service helped many people in Christchurch

⁴⁵⁰ Ministry of Business, Innovation and Employment, "Retirement Villages Code of Practice 2008: Variations to the Code of Practice issued October 2013", (Ministry of Business, Innovation and Employment, <http://www.mbie.govt.nz/info-services/housing-property/retirement-villages/code-of-practice-2008#variations-october-2013>, publication date October 2013, retrieved March 2017).

⁴⁵¹ Ministry of Business, Innovation and Employment, "Canterbury Job Matching Report March 2015", (Ministry of Business, Innovation and Employment, 2015).

⁴⁵² Office of the Auditor-General, "Roles, responsibilities and funding of public entities after the Canterbury earthquakes", (Office of the Auditor-General, 2012).

with temporary accommodation, and provided other support initiatives. This case study can be retrieved at the EQ Recovery Learning website (<http://www.eqrecoverylearning.org/>).

Since 2011, 3,259 households received the Temporary Accommodation Allowance at a cost of over NZD\$50 million. The Temporary Accommodation Service reduced pressure on the rental market by providing households access to temporary villages⁴⁵³. According to the CERA Wellbeing Survey, of those who used the service 82 per cent had a favourable impression of it (as at September 2015)⁴⁵⁴.

To further support efforts to meet the accommodation demand, the Canterbury Earthquake (Resource Management Act Permitted Activities) Order 2011 was brought into force. The Order enabled the Christchurch City Council to permit temporary accommodation that would otherwise not comply with the City and District Plans⁴⁵⁵.

In the event of a future disaster, the *Guide to the National Civil Defence Emergency Management Plan 2015* clarified that the Ministry of Business, Innovation and Employment would be the lead agency responsible for coordinating the provision of temporary accommodation, and the Ministry of Social Development would be responsible for determining eligibility for the service⁴⁵⁶.

Lesson: Temporary accommodation support services, including temporary housing and accommodation allowances, will assist in addressing any short-term upsurge of housing demand and the costs of additional accommodation following a disaster.

Other support initiatives

On 1 May 2011, the Canterbury Earthquake Recovery Authority took over responsibility for leading and coordinating social recovery efforts⁴⁵⁷. The collaboration across a wide range of social service providers helped address the complex impacts of the disaster⁴⁵⁸. In addition, government co-ordinated with the commercial sector, insurers, and social service providers to identify vulnerable persons living in cold, unsafe, or unsanitary homes as a result of earthquake damage⁴⁵⁹. The home repair services targeted these households through the 'Find & Fix' and 'Winter Make it Right' programmes, and provided temporary relief for those awaiting full repairs⁴⁶⁰.

8.5. Summary of lessons on the Insurance Response

Scaling Up of Operations

- When an organisation may need to be scaled up quickly, pre-planning and scenario testing will identify challenges ahead of time.
- Expect to make changes following a large up-scale. Be flexible about organisational structure and processes to allow for more efficient adaptation and improvements.
- Consider centralising any previously decentralised services (e.g. call centre, claims processing centre) during the upscaling process. This will facilitate streamlining following the up-scale, and allow performance of the services to be more closely managed than if they remained decentralised.

⁴⁵³ Ministry of Social Development, "Learning from the Ministry of Social Development's contribution to the Canterbury Earthquake Recovery Efforts", (Ministry of Social Development, 2016).

⁴⁵⁴ Nielsen, "CERA Wellbeing Survey September 2015", (Canterbury Earthquake Recovery Authority, 2015).

⁴⁵⁵ New Zealand Government, "Canterbury Earthquake (Resource Management Act Permitted Activities) Order 2011 (SR 2011/36)", (New Zealand Government, 2011).

⁴⁵⁶ Ministry of Social Development, "Learning from the Ministry of Social Development's contribution to the Canterbury Earthquake Recovery Efforts", (Ministry of Social Development, 2016).

⁴⁵⁷ Canterbury Earthquake Recovery Authority, "Understanding social recovery", (Canterbury Earthquake Recovery Authority, 2016).

⁴⁵⁸ Hedlind, K., "Christchurch earthquake: mental health impacts and psychosocial recovery", (People in Disasters, 2016).

⁴⁵⁹ Canterbury Earthquake Recovery Authority, "Canterbury Earthquake Social Recovery Services – Chapter 8", (Canterbury Earthquake Recovery Authority, 2016).

⁴⁶⁰ Canterbury Earthquake Recovery Authority, "Canterbury Earthquake Social Recovery Services – Chapter 8", (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Home Repair Programme

- If conducting a large-scale repair programme, ensure that close scrutiny of costs and quality of repairs is maintained throughout the programme. This will facilitate robust performance assessments and improve consistency with repair processes and practices.

Settlement of insurance claims

- A single point of contact/end-to-end customer-centric approach improves the efficiency of insurance claims assessment and settlement, and creates a simpler experience for home owners.

Canterbury Geotechnical Database

- Ensure that geotechnical information is held in one place and easily accessible, and new geotechnical information can be easily added and shared. There will be significant demand for geotechnical information from a range of parties following a disaster.

Multi-unit Buildings

- Recognise that multi-unit buildings will present challenges to the settlement of insurance claims, and consider how these challenges could be mitigated before a disaster (e.g. improving home owners' awareness of the challenges, encouraging insurers to pre-identify a lead insurer).

Brokering agreements between home owners and insurers

- An independent advisory service for home owners is a valuable tool to facilitate and broker agreements between home owners and insurers following a disaster.
- Where home owners are experiencing difficulties in reaching settlement with private insurers, providing a mediation service can be more effective than providing a legal advice service over time.

Retirement Villages

- Recognise that residents in retirement villages may face particular difficulties in finding alternative accommodation following a disaster.
- Consider prioritising accommodation support for residents in retirement villages.

Temporary Accommodation

- Temporary accommodation support services, including temporary housing and accommodation allowances, will assist in addressing any short-term upsurge of housing demand and the costs of additional accommodation following a disaster.

9. Horizontal Infrastructure Rebuild Programme

The purpose of this chapter is to consider the lessons from the Horizontal Infrastructure Rebuild Programme from a whole-of-government perspective. The Horizontal Infrastructure Rebuild Programme comprised repair and rebuild of Christchurch's wastewater, stormwater, water supply, and roading networks.

9.1. Context

The Canterbury earthquake sequence resulted in extensive damage to greater Christchurch's horizontal infrastructure network, including damage to hundreds of kilometres of underground pipes (fresh water, wastewater and stormwater), and to an estimated 52 per cent of Christchurch's sealed roads⁴⁶¹. The total cost of damage was estimated to be NZD\$2.7 billion, as at November 2015⁴⁶².

In response to the 4 September 2010 earthquake, Christchurch City Council established an Infrastructure Rebuild Management Office to manage the repair and rebuild of horizontal infrastructure and oversee repairs. Five construction firms (City Care, Downer, Fulton Hogan, and a Fletcher/McConnell Dowell joint venture) were engaged, with each allocated a different geographical area to undertake the repair and rebuild of Christchurch roads, underground services, and some other facilities⁴⁶³.

The programme was funded in accordance with the provisions for government financial support for civil defence emergencies set out in the National Civil Defence Emergency Management Plan 2005, with the cost shared between the Crown and Christchurch City Council. The Crown funded 60 per cent of the repairs/rebuild of the three waters network (water supply, wastewater and stormwater), and 83 per cent of the repairs/rebuild of the road network⁴⁶⁴. The remainder was funded by Christchurch City Council, the asset owner for the three waters and road networks that service both the rural and urban communities of the district (excluding State Highways which are managed by the New Zealand Transport Agency).

The situation changed following the 22 February 2011 earthquake, which resulted in far greater and more widespread damage across greater Christchurch. After evaluating the scale of the damage, it soon became clear that the existing Infrastructure Rebuild Management Office arrangements were no longer suitable⁴⁶⁵. Consideration was given to scaling-up the existing Infrastructure Rebuild Management Office, but this was rejected because the scale of the reinstatement task would have put considerable pressure on client and contractor resources⁴⁶⁶.

The key priority for the Crown and the Christchurch City Council was to select a procurement model that would reduce the time required to complete temporary works and permanent reinstatement. The New Zealand Transport Agency tested the scale of the infrastructure damage against the procurement methods outlined in the State Highway Portfolio Procurement Strategy 2010⁴⁶⁷. In April 2011, the New Zealand Transport Agency advised Cabinet that the Alliance model was the preferred option for the rebuild and repair of greater Christchurch's horizontal infrastructure⁴⁶⁸. Alliance models are used by the New Zealand Transport Agency for urgent fast-track works, when the scale of the works is beyond local capability and experience, and where innovation and non-cost performance are important⁴⁶⁹.

⁴⁶¹ Canterbury Earthquake Recovery Authority, "CERA's Horizontal infrastructure programme: An introductory overview", (Canterbury Earthquake Recovery Authority, 2016).

⁴⁶² Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁴⁶³ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁴⁶⁴ New Zealand Government, "Independent Assessment of Horizontal Rebuild Work and Costs", (New Zealand Government, 2015).

⁴⁶⁵ Chang-Richards, Y., Wilkinson, S., Seville, E., Brunsdon, D., Potangaroa, R., "Long-term reconstruction in Christchurch: Learning from its governance structure", (i-Rec conference, 2013).

⁴⁶⁶ Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2014).

⁴⁶⁷ Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2014).

⁴⁶⁸ Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2014).

⁴⁶⁹ Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2014).

The Alliance model was selected to:

- tailor the delivery of the infrastructure rebuild to meet the needs of the community in a post disaster environment;
- secure the resources required for a programme of this scale;
- enable prioritising and coordination of the hundreds of projects;
- manage the risks and take full advantage of opportunities that arise; and
- maximise collaboration between central and local government and the construction industry⁴⁷⁰.

The existing Infrastructure Rebuild Management Office contractors, in response to a Request for Proposal, formed an unincorporated joint venture called the Stronger Christchurch Infrastructure Rebuild Team (SCIRT)⁴⁷¹. In September 2011 an Alliance between the New Zealand Transport Agency, Canterbury Earthquake Recovery Authority and the Christchurch City Council (the three funding partners), and the five construction companies (non-owner participants), was established and work commenced on the repair and rebuild of earthquake damaged horizontal infrastructure⁴⁷².

9.2. Findings

There are a number of valuable findings that have emerged relating to the Horizontal Infrastructure Rebuild Programme. These fall under two main areas:

- 1) The Effectiveness of the Alliance Model; and
- 2) The Funding Partners.

In addition to this report and the learning material available at www.egrecoverylearning.co.nz, SCIRT has its own learning legacy project to publicly share the innovations and lessons learnt from the SCIRT Alliance. These are shared through a number of channels including the University of Canterbury Quake Centre (<http://www.quakecentre.co.nz/>), SCIRT's learning legacy website (<https://scirtlearninglegacy.org.nz/>), and ad-hoc workshops, publications and presentations.

9.3. The Effectiveness of the Alliance Model

9.3.1. The SCIRT Alliance model

The non-owner participants in the SCIRT Alliance each contributed a Delivery Team to SCIRT, and were responsible for the physical repair and rebuild of earthquake-damaged horizontal infrastructure. This arrangement enabled the delivery programme to ramp up quickly, as the participants could still use their home organisation processes and programme management support. This also avoided duplication of management and administration, reduced costs, and increased efficiencies⁴⁷³.

A sixth team, the Integrated Services Team, was responsible for the overall programme management, including the scoping, design, pricing, and allocation of projects. This team was made up of contractors and the funding partners. The Integrated Services Team was supported by an independent target cost estimator and an independent auditor of the Delivery Teams' claims⁴⁷⁴. Within six months, SCIRT had fully mobilised, with an Integrated Services Team comprising more than 200 designers and 50 to 60 commercial, construction management, safety, human resources, quality, and environment specialists⁴⁷⁵.

⁴⁷⁰ Collaborate Canterbury, "Showcasing Canterbury's Collaborative Innovation", (New Zealand Trade and Enterprise, 2016).

⁴⁷¹ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁴⁷² Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁴⁷³ Stronger Christchurch Infrastructure Rebuild Team, "The SCIRT Collaborative-Competitive Model", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁴⁷⁴ Stronger Christchurch Infrastructure Rebuild Team, "The SCIRT Collaborative-Competitive Model", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁴⁷⁵ Stronger Christchurch Infrastructure Rebuild Team, "The genesis of SCIRT – a new era in disaster recovery", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

9.3.2. Collaboration and Competition

Delivery teams initially focused on the competitive elements of the model, and took time to adjust to the collaborative elements. When adopting this model, it is important to encourage the proactive sharing of information and resources as soon as possible.

SCIRT was a unique alliance, in that both competition and collaboration were encouraged. At the beginning, the Delivery Teams were awarded an equal share of work by cost (20 per cent each). Once enough performance data was collected, however, the target share allocation was reviewed monthly and varied depending on individual team performance in cost and non-cost Key Result Areas (safety, value, our team, customer satisfaction and environment)⁴⁷⁶. The target share did not guarantee project allocation however, as a Delivery Team's capability and capacity, proximity to a project, and safety performance were also considered⁴⁷⁷.

Delivery Teams took time to adjust to the collaborative elements of the model. Early in the programme, the teams focused on the competitive elements, maximising their own delivery performance score so that they would be allocated more work from the programme⁴⁷⁸. Collaboration required engineers and project managers to proactively share information and resources. It is important to encourage a collaborative environment as soon as possible⁴⁷⁹.

Following an adjustment period the Delivery Teams did collaborate and work was largely allocated in accordance with the Alliance Agreement⁴⁸⁰. The New Zealand Transport Agency recognised the benefits of the collaborative client-led approach used in the SCIRT model and is now fostering more collaboration in its internal work and its work with the sector⁴⁸¹.

Lesson: If using an alliance model requiring both competition and collaboration, encourage proactive sharing of information and resources as soon as possible to foster the collaborative elements of the model.

9.3.3. Monetary incentives to perform (Cost performance)

The pain/gain payment model was effective in maintaining focus on costs and incentivised contractors to collaborate to improve performance and deliver work under budget, while still maintaining competitive tension. This model could be considered for other large-scale projects.

Contractors were involved early in the project development process to inform designers and estimators of the best construction option, from the concept design stage through to cost estimation⁴⁸². Prior to allocation of the work, each project was evaluated and given a non-negotiable Target Out-turn Cost. This is the estimated cost to complete an individual project. The Target Out-turn Cost evaluation was carried out by the Integrated Services Team and was assessed by an independent estimator to ensure that the target costs represented fair local market pricing⁴⁸³.

⁴⁷⁶ Stronger Christchurch Infrastructure Rebuild Team, "The SCIRT Collaborative-Competitive Model", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁴⁷⁷ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁴⁷⁸ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁴⁷⁹ Stronger Christchurch Infrastructure Rebuild Team, "The SCIRT Collaborative-Competitive Model", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁴⁸⁰ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁴⁸¹ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁴⁸² Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2014).

⁴⁸³ Stronger Christchurch Infrastructure Rebuild Team, "The SCIRT Collaborative-Competitive Model", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

Profits and losses were shared between the contractors and the clients, and following delivery of a project, the contractor received payment in three parts:

- actual cost of the work;
- an additional fee calculated as a fixed percentage of the Target Out-turn Cost; and
- pain share/gain share, the difference between the Target Out-turn Cost and actual cost of the work, was determined at the end of the programme ⁴⁸⁴.

If a project was delivered under the Target Out-turn Cost, then the difference would be added to the shared programme pain/gain pool. Conversely, money was subtracted from the pool if projects came in over budget⁴⁸⁵.

The pain/gain pool would be shared between the public entities and the Delivery Teams at the end of the programme. The individual contractor's share depended on the proportion of work allocated to them. Higher performing teams therefore had an incentive to collaborate and share expertise with others, as a larger share of allocated work would result in a larger share of any pain/gain⁴⁸⁶.

This model was effective in maintaining focus on costs⁴⁸⁷ and the results show that the Delivery Teams steadily improved their performance in delivering work under budget⁴⁸⁸. This model could be considered for other large-scale projects⁴⁸⁹.

Lesson: A pain/gain payment model is an effective cost performance tool in an alliance model because it:

- encourages a focus on costs;
- shares risk between the owner participants and the non-owner participants;
- encourages improved performance in delivering work under budget; and
- incentivises higher performing teams to collaborate and share expertise with others.

9.3.4. Key Results Areas (Non-cost performance)

Along with cost performance, the allocation of work to Delivery Teams was determined by performance against five Key Results Areas intended to drive value and behaviours in accordance with the Alliance Agreement⁴⁹⁰. The Key Results Areas and their respective weightings were as follows:

- Safety (0 per cent)
- Value (35 per cent);
- Our team (20 per cent);
- Customer satisfaction (30 per cent); and
- Environmental (15 per cent)⁴⁹¹.

Each Key Results Area had a set of Key Performance Indicators developed by the Board and Management Team to evaluate performance against the respective Key Results Areas. The Key Performance Indicators were monitored to ensure continuous improvement and were reported regularly to the management team to approve modifications as appropriate⁴⁹².

⁴⁸⁴ Stronger Christchurch Infrastructure Rebuild Team, "The SCIRT Collaborative-Competitive Model", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁴⁸⁵ Stronger Christchurch Infrastructure Rebuild Team, "The SCIRT Collaborative-Competitive Model", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁴⁸⁶ Stronger Christchurch Infrastructure Rebuild Team, "The SCIRT Collaborative-Competitive Model", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁴⁸⁷ Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2014).

⁴⁸⁸ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁴⁸⁹ Stronger Christchurch Infrastructure Rebuild Team, "The SCIRT Collaborative-Competitive Model", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁴⁹⁰ Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2014).

⁴⁹¹ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁴⁹² Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2014).

Key Performance Indicator: Health and Safety

SCIRT recognised that there were opportunities for continued health and safety improvements and incorporated safety as a result area for assessing a Delivery Team's performance⁴⁹³. Safety had a zero per cent weighting, as safety was evaluated separately when considering reasons why a project should not be allocated to a Delivery Team⁴⁹⁴. This ensured that SCIRT could stop allocating work to a Delivery Team with a poor safety record⁴⁹⁵.

Health and Safety Performance

SCIRT's health and safety performance exceeded the benchmark, through fostering a proactive safety culture and developing a number of safety initiatives. SCIRT's health and safety practices have wider applications and have already been adopted by New Zealand Transport Agency and other organisations.

SCIRT's health and safety performance exceeded the New Zealand benchmark, as reported by the Business Leaders' Health and Safety Forum⁴⁹⁶. SCIRT achieved 2.8 million worker hours without a lost time injury⁴⁹⁷, and between June 2012 and December 2013 Delivery Teams recorded an average of 0.45 Lost Time Injuries recorded per million hours worked⁴⁹⁸.

SCIRT created a highly proactive safety culture, always looking for opportunities to improve⁴⁹⁹. The SCIRT health and safety model encouraged continuous improvement through:

- focusing on the critical risks;
- regular site visits conducted by the Board, providing visible and active leadership;
- including health and safety within the Delivery Team scoring system to drive positive behaviours; and
- an internal award programme recognising and celebrating good performance.

SCIRT was also one of the signatories of the Canterbury Rebuild Safety Charter, an agreement on health and safety between the leaders of a number of government organisations and companies leading the rebuild⁵⁰⁰. SCIRT's health and safety model was recognised as being valuable to helping the government reach its goal of zero harm workplaces⁵⁰¹.

The New Zealand Transport Agency and other external organisations have adopted a number of safety initiatives developed by SCIRT; for example, their drug and alcohol policy, standards for minimum personal protective clothing, and incident reporting definitions⁵⁰². The New Zealand Transport Agency has shared SCIRT's health and safety practices with its suppliers, who have voluntarily adopted them⁵⁰³.

⁴⁹³ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁴⁹⁴ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁴⁹⁵ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁴⁹⁶ Gualter, E. and Wilkins, T., "SCIRT, The Construction Industry Health and Safety Leaders", (University of Canterbury, 2015).

⁴⁹⁷ Stronger Christchurch Infrastructure Rebuild Team, "Catalyst for life-saving change in safety", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁴⁹⁸ Stronger Christchurch Infrastructure Rebuild Team, "Achievement Report July 2012 - December 2013", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁴⁹⁹ Gualter, E. and Wilkins, T., "SCIRT, The Construction Industry Health and Safety Leaders", (University of Canterbury, 2015).

⁵⁰⁰ Canterbury Rebuild Safety Charter, "Mapping Effective Leadership for Canterbury Rebuild Safety Charter Signatories", (Canterbury Rebuild Safety Charter, 2014).

⁵⁰¹ Gualter, E. and Wilkins, T., "SCIRT, The Construction Industry Health and Safety Leaders", (University of Canterbury, 2015).

⁵⁰² Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2014).

⁵⁰³ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

Key Performance Indicator: Innovations

Generating innovations was included as a performance indicator for the Delivery Teams, with a formal framework to record and evaluate each. The process for identifying and recording lessons and innovations has been adopted by others.

An outcome from the SCIRT Alliance Agreement was to “incorporate ideas not currently known”. The objective of this outcome was to encourage new ideas that would either improve performance (without increasing cost), or achieve the same performance at a lower cost⁵⁰⁴.

Generating innovations was included as a performance indicator for the Delivery Teams, with a formal framework to evaluate each. SCIRT maintained a register of innovations and initiatives to systematically record, promote, monitor, and report innovations, from early conception to application. Once recorded on the register, each new idea was progressed through stages of review, refinement, trial, formal recognition, and cost/benefit assessment before being disseminated for common use⁵⁰⁵. SCIRT was able to realise a significant number of innovations each month, through incentivising the Delivery Teams to think of new ways to deliver a better service⁵⁰⁶. Innovations were only counted towards the Delivery Team’s score when they have been used by other Delivery Teams⁵⁰⁷.

As at August 2014, SCIRT had recorded 550 innovations, generating better processes, design, and methods of construction. Excluding major process reforms, such as the Pipe Damage Assessment Tool (see next section), it is estimated that the innovations saved NZD\$37.4 million⁵⁰⁸. The process of identifying and recording lessons and innovations has been adopted by others. For example, in late 2014 the Canterbury Earthquake Recovery Authority’s Horizontal Infrastructure Team started its own register to capture lessons⁵⁰⁹.

Lesson: Including innovation as a performance indicator incentivises new ideas that will either improve project or programme outcomes (without increasing cost), or achieve the same outcomes at a lower cost.

Lesson: If innovation is used as a performance indicator, ensure that a robust evaluation and dissemination system is in place to ensure that valuable new ideas are widely shared and adopted within and outside of the Alliance.

Pipe Damage Assessment Tool

In addition to the estimated NZD\$37.4 million savings from innovations, SCIRT undertook large-scale process reforms. To assess the damage to wastewater and stormwater pipes, a closed-circuit television inspection programme was established. The purpose of this work was to identify defects and classify the structural condition of the pipes inspected⁵¹⁰. In Christchurch, more than 500 kilometres of wastewater pipes alone were damaged⁵¹¹, and it was estimated that using the closed-circuit television method to assess the damage of every pipe would take more than four years and cost an estimated NZD\$125 million⁵¹².

The Pipe Damage Assessment Tool software could reliably predict the condition of damaged pipes that were not surveyed through closed-circuit television. It is estimated that the Pipe Damage Assessment Tool had an accuracy of 75 per cent to 95 per cent⁵¹³. The estimated savings of this tool is reported at NZD\$50 million⁵¹⁴.

⁵⁰⁴ Wilkinson, S., Shahbazpour, M., Finch, R. and Noktehdan, M., “The SCIRT Innovation Project”, (BRANZ, 2016).

⁵⁰⁵ Stronger Christchurch Infrastructure Rebuild Team, “The Value of SCIRT”, (Stronger Christchurch Infrastructure Rebuild Team, 2014).

⁵⁰⁶ Wilkinson, S., Shahbazpour, M., Finch, R. and Noktehdan, M., “The SCIRT Innovation Project”, (BRANZ, 2016).

⁵⁰⁷ Office of the Auditor-General, “Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch”, (Office of the Auditor-General, 2013).

⁵⁰⁸ Stronger Christchurch Infrastructure Rebuild Team, “The Value of SCIRT”, (Stronger Christchurch Infrastructure Rebuild Team, 2014).

⁵⁰⁹ Office of the Auditor-General, “Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit”, (Office of the Auditor-General, 2016).

⁵¹⁰ Christchurch City Council, “CCTV for Christchurch City Council Earthquake Recovery”, (Christchurch City Council, 2016).

⁵¹¹ Stronger Christchurch Infrastructure Rebuild Team, “Fact Sheet – Underground Pipes”, (Stronger Christchurch Infrastructure Rebuild Team, <http://strongerchristchurch.govt.nz/resources/fact-sheets>, publication date unknown, retrieved March 2017).

⁵¹² Office of the Auditor-General, “Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch”, (Office of the Auditor-General, 2013)

⁵¹³ Kinley, P., Moore, J., Heiler, D., Hughes, M., & Smith, B., “Predicting Earthquake Damage to Gravity Pipe Networks”, (AECOM, 2013).

⁵¹⁴ Stronger Christchurch Infrastructure Rebuild Team, “The Value of SCIRT”, (Stronger Christchurch Infrastructure Rebuild Team, 2014).

Key Performance Indicator: Skilled Workforce

The horizontal infrastructure programme employed a large number of construction workers and SCIRT estimated that approximately 2,000 people were required to meet the peak demands of the programme⁵¹⁵. While the individual Delivery Teams and their subcontractors were responsible for their own recruiting and upskilling of their workers, SCIRT developed and adopted a number of initiatives to further support the market.

Lifting Capability and Increasing Diversity

The SCIRT programme provided an opportunity to lift capability and increase diversity in the construction sector. The joint approach between government, employers and training providers to support women in construction proved successful and the lessons from the programme can be adopted by other regions and industries where women are currently underrepresented.

One of the objectives of the Alliance Agreement was to lift the capability of the construction sector and its workforce. In November 2012, it was announced that SCIRT would partner with InfraTrain to provide pre-employment training programmes delivered by a number of institutions. This programme targeted new entrants into the industry from the locally unemployed, youth and those wishing to change jobs⁵¹⁶.

To increase skills and expertise in the construction industry the Delivery Teams had a target to subcontract at least 40 per cent of the total cost of the work undertaken. The majority of Delivery Teams met this target, with Delivery Teams subcontracting on average 63.4 per cent of the work by cost (as at September 2015)⁵¹⁷.

Women in Employment

In June 2013, government and industry leaders co-produced the Canterbury Construction Sector Workforce Plan, which identified women as one of a number of population groups that were underemployed in the labour market. With support from the Ministry for Women, SCIRT, Te Rūnanga o Ngāi Tahu, academic institutions, and other construction firms formed a working group to increase the number of women in trades in Canterbury. Actions included setting targets and increasing the visibility of women in frontline operational roles. For example, SCIRT set an overall goal of having 13 per cent women in its operational roles by 2016. Between 2013 and 2014 the number of women in trades at SCIRT increased by 50 per cent⁵¹⁸.

The joint approach between the government, employers, and training providers proved successful. In addition to providing the industry with information on how to attract female employees, the Christchurch Polytechnic Institute of Technology (now Ara Institute of Technology) announced free training for its female trades students, SCIRT launched protective work clothing fitted for women and other employers also made changes to attract a greater proportion of women. In September 2016, it was reported that there were 2,700 more women employed in construction nationally than the same period two years prior⁵¹⁹. The Ministry for Women encouraged organisations to share the success of the programme in other regions and industries where women are currently underrepresented, and where pay and job prospects are good⁵²⁰.

Lesson: Disaster recovery work may provide an opportunity to increase diversity in sectors where some groups (e.g. women) are under-represented.

⁵¹⁵ Stronger Christchurch Infrastructure Rebuild Team, "Frequently Asked Questions – employment", (Stronger Christchurch Infrastructure Rebuild Team, <http://strongerchristchurch.govt.nz/resources/fag/category/employment>, publication date unknown, retrieved April 2017).

⁵¹⁶ Stronger Christchurch Infrastructure Rebuild Team, "Memorandum of Understanding between SCIRT and InfraTrain", (Stronger Christchurch Infrastructure Rebuild Team, 2012).

⁵¹⁷ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵¹⁸ Ministry for Women, "Getting it done: Utilising women's skills in the workforce", (Ministry for Women, 2015).

⁵¹⁹ Ministry of Business, Innovation and Employment, "The Business Growth Agenda – Building Skilled and Safe Workplaces", (Ministry of Business, Innovation and Employment, 2016).

⁵²⁰ Ministry for Women, "Getting it done: Utilising women's skills in the workforce", (Ministry for Women, 2015).

Key Performance Indicator: Community and Stakeholder Satisfaction

The Ministry of Business, Innovation and Employment forecasted NZD\$1.2 billion of construction expenditure per quarter in mid-2014, with expenditure expected to continue at or near this level until mid-2017⁵²¹. This level of construction activity had an impact on the wellbeing of people living in greater Christchurch. According to the April 2016 Canterbury Wellbeing Survey, 14 per cent of survey respondents were strongly impacted by “Being in a damaged environment and/or surrounded by construction work”. While this has improved from 24 per cent reported in April 2014, it is still second highest issue having a moderate or major impact on people’s lives⁵²².

The Alliance Agreement has two overarching objectives related to community engagement.

- Maintain an open and honest dialogue with residents over the rebuild effort; and
- Maintain high levels of customer service in the rebuild effort⁵²³.

SCIRT’s repair and rebuild work created disruption for a large number of residents and business owners, often over long periods of time. The SCIRT board acknowledged the importance of community wellbeing, and the need for public support to enable SCIRT to do its work⁵²⁴.

Monitoring Satisfaction

Surveys were useful in helping Delivery Teams understand what is most important to people and target their messaging accordingly. Including Communications as an indicator can encourage collegial support when individual teams score poorly, and promote pride when Delivery Teams perform well.

SCIRT recognised that there was a risk that residents would develop ‘rebuild fatigue’ and become less patient and supportive of SCIRT work⁵²⁵. SCIRT used many communication channels to help build tolerance and understanding of its work, providing information through notices in letterboxes, newsletters, advertising, and road signage⁵²⁶.

In November 2011, SCIRT established a monitoring framework to measure the wider community satisfaction and tolerance of the horizontal rebuild, and the satisfaction of those directly affected by SCIRT’s work. Information was gathered through telephone and face-to-face surveys. Results were broken down by Delivery Teams, so each could further analyse the findings to identify improvements. Results were also broken down by geographical area, enabling area-specific communications. SCIRT was also able to use the results to better understand what is most important to people and target messaging accordingly⁵²⁷.

An aggregate of key ratings provided a net customer satisfaction score for each Delivery Team⁵²⁸. The scoring encouraged collegial support when individual teams scored poorly, and promoted pride in high satisfaction results. On average, SCIRT’S communication was viewed favourably and the Alliance achieved an average overall satisfaction score of approximately 80 per cent⁵²⁹.

⁵²¹ Ministry of Business, Innovation and Employment, “Quarterly Canterbury Job-matching Report”, (Ministry of Business, Innovation and Employment, 2016).

⁵²² Nielsen, “Canterbury Wellbeing Survey April 2016”, (Canterbury District Health Board, 2016).

⁵²³ Stronger Christchurch Infrastructure Rebuild Team, “Stakeholder Management Plan”, (Stronger Christchurch Infrastructure Rebuild Team, 2016).

⁵²⁴ Stronger Christchurch Infrastructure Rebuild Team, “Stakeholder Management Plan”, (Stronger Christchurch Infrastructure Rebuild Team, 2016).

⁵²⁵ Stronger Christchurch Infrastructure Rebuild Team, “Stakeholder Management Plan”, (Stronger Christchurch Infrastructure Rebuild Team, 2016).

⁵²⁶ The Treasury, “Investing for New Zealand – Insights from 2015/16”, (The Treasury, 2016).

⁵²⁷ Stronger Christchurch Infrastructure Rebuild Team, “Stakeholder Management Plan”, (Stronger Christchurch Infrastructure Rebuild Team, 2016).

⁵²⁸ Stronger Christchurch Infrastructure Rebuild Team, “Independent Research Informs Communications and Engagement”, (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁵²⁹ Stronger Christchurch Infrastructure Rebuild Team, “Independent Research Informs Communications and Engagement”, (Stronger Christchurch Infrastructure Rebuild Team, 2017).

Lesson: Monitoring community satisfaction through surveys will help in understanding what is important to people, so that messaging can be tailored and targeted accordingly.

Lesson: Including community satisfaction as a performance indicator can encourage pride in good performance and collegial support of poorly performing teams.

Changes to the Work Allocation Process

In June 2015, the SCIRT board approved a change to the overall work allocation process, amid concerns that the December 2016 deadline may not be achievable. This followed delays, largely driven by disagreement of scope eligibility and funding arrangements (*see section 9.4 for more information on the Funding Partners*). The change in the allocation process placed greater emphasis on available capacity and capability, rather than the Delivery Team's past delivery performance⁵³⁰.

The Office of the Auditor-General's follow-up audit concluded that SCIRT demonstrated many of the good practice characteristics of Alliance contracts. It suggested that there needs to be consideration, at each stage of recovery, as to whether a delivery vehicle such as the SCIRT Alliance remains appropriate⁵³¹. The Canterbury Earthquake Recovery Authority went further to suggest that, in retrospect, a programme review clause could have been included in the Alliance Agreement, to see if greater commercial tension and better recovery outcomes could be achieved⁵³².

Lesson: Build in opportunities for review of an alliance model at set stages of a programme to ensure that the settings are maximising outcomes.

9.4. The Funding Partners

9.4.1. Governance framework

The Client Governance Group was established in December 2011 to provide leadership and ensure that the Canterbury Earthquake Recovery Authority, the New Zealand Transport Agency and the Christchurch City Council would work together to deliver the repair and rebuild of the Christchurch's earthquake-damaged horizontal infrastructure. The Client Governance Group was made up of three full members, one from each of the three funding partners, and one independent chairperson appointed by the Minister for Canterbury Earthquake Recovery⁵³³.

The Client Governance Group's responsibilities, as outlined in the Terms of Reference, included:

- producing and maintaining an effective governance framework for delivering the SCIRT programme;
- supporting the Canterbury Earthquake Recovery Authority with the development of wider recovery strategies;
- ensuring that the SCIRT programme is aligned with said strategies;
- monitoring the progress of the SCIRT programme;
- approving SCIRT's annual work programme and budgets; and
- ensuring that the programme delivers value for money⁵³⁴.

⁵³⁰ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵³¹ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵³² Canterbury Earthquake Recovery Authority, "Financial management and guidelines for future recovery practitioners", (Canterbury Earthquake Recovery Authority, 2016).

⁵³³ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁵³⁴ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

Four subcommittees and the SCIRT Board reported to the Client Governance Group, and the Client Management Team was the point of contact between the parties.

9.4.2. Ambiguity about Roles and Crown Leadership

The initial governance arrangements demonstrate that it is important to be very clear about roles and responsibilities from the outset in an Alliance model. This includes having clear Terms of Reference and robust governance arrangements in place.

The Office of the Auditor-General's audit of Christchurch's Horizontal Infrastructure Programme in 2013 raised a number of issues related to the governance arrangements for the programme. It reported that governance roles for the Client Governance Group were not made clear from the outset, and therefore not suitable.

Although the Client Governance Group had developed Terms of Reference for each function within the governance structure, this was self-defined and there was no letter of expectations from the Crown formally defining the role and delegations of the independent Chair⁵³⁵. A business case had also not been developed prior to its establishment; therefore, the expected outcomes from the group were also unclear⁵³⁶.

The Office of the Auditor-General was also critical of the Crown's initial leadership of the programme. It noted, for example, that the Canterbury Earthquake Recovery Authority did not consistently send the same people to the Client Governance Group and the SCIRT Board meetings, and some of the persons representing it did not have similar skills to others around the table. This meant that the Canterbury Earthquake Recovery Authority could not effectively contribute to providing strategic leadership to guide SCIRT's activities⁵³⁷.

Lesson: Define and clearly document the relative roles, responsibilities and accountabilities of each partner in an alliance model.

Lesson: Ensure that clear Terms of Reference and robust governance arrangements are in place from the outset when setting up an alliance model.

Responding to the 2013 Office of the Auditor-General report

The Office of the Auditor-General recommended a change to the governance framework to address the issue of Crown leadership and the ambiguity about roles and responsibilities, including the role and responsibilities of the Independent Chairperson of the governance group⁵³⁸.

In response to the report new governance arrangements were put in place. In October 2013, the Client Governance Group was replaced by the Horizontal Infrastructure Governance Group⁵³⁹. The new group was established with a new Terms of Reference and the Independent Chair was provided with a letter of expectations to address the previous ambiguity about roles and responsibilities⁵⁴⁰. The new group's focus was on funding, scope and standards, strategy, and prioritisation. The Horizontal Infrastructure Management Team was also established to provide independent advice and other secretariat support to the group⁵⁴¹. In response to the

⁵³⁵ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁵³⁶ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵³⁷ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵³⁸ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁵³⁹ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁵⁴⁰ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵⁴¹ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

Office of the Auditor-General's comments on Crown leadership, a new Horizontal Infrastructure Team was also put into place in the Canterbury Earthquake Recovery Authority⁵⁴².

⁵⁴² Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

The governance arrangements continued to evolve as the programme moved through the immediate response, recovery, and transition phases. The Office of the Auditor-General's follow-up audit in 2016 concluded that the new governance framework clarified roles and responsibilities, and that the Crown provided more effective leadership and clearer strategic direction to the SCIRT Board⁵⁴³.

9.4.3. Funding of the SCIRT Work Programme

The Crown initially reimbursed local authorities for eligible response and recovery costs while the damage to the horizontal infrastructure was still being defined. Over time this model was replaced by the Cost Sharing Agreement. This approach allowed emergency repairs to be undertaken, while waiting for the full picture of the damage.

In the early stages of the SCIRT Work Programme, the focus was on restoring access to essential roads and services. In May 2011, the Minister of Finance formalised the reimbursement guarantee outlined in the National Civil Defence Emergency Management Plan 2005. This guarantee provided the affected Councils (Christchurch City Council, Waimakariri District Council and Selwyn District Council) with certainty that the Crown would partially, or fully, provide reimbursement for eligible response and recovery costs incurred as a result of the Canterbury earthquakes⁵⁴⁴.

Initial estimates in 2010/2011 of the cost of the overall rebuild of Christchurch City's horizontal infrastructure, based on limited information available at the time on the full extent of the damage, were inaccurate. The accuracy of the cost estimates improved over time, as further assessments on the damage to Christchurch's assets were undertaken⁵⁴⁵.

Cost Sharing Agreement

The Cost Sharing Agreement covers the funding arrangements of major central city projects and the repair and rebuild of the horizontal infrastructure network. The agreement was signed in June 2013, with the Crown agreeing to contribute a maximum of NZD\$1.8 billion and Christchurch City Council funding a total of NZD\$1.14 billion, approximately NZD\$300 million less than the estimated cost of NZD\$3.248 billion⁵⁴⁶. This was expected to be achievable with a network performance approach to the rebuild and repair⁵⁴⁷.

The Cost Sharing Agreement made provision for the Crown and the Christchurch City Council to undertake an independent assessment of the work and costs required to complete the Horizontal Infrastructure Programme⁵⁴⁸. This was undertaken in April 2015, with the assessor reporting that the estimated cost of the repair work under the Cost Sharing Agreement would be NZD\$2.899 billion⁵⁴⁹. This report later formed the basis for further discussion on the cost sharing contributions.

Under the Cost Sharing Agreement the Crown established its contribution providing certainty on the funding available for the horizontal infrastructure programme. This approach made it possible to later prioritise work and closely monitor expenditure. The Canterbury Earthquake Recovery Authority recommended that financial models should be appropriate to each stage of the programme⁵⁵⁰.

⁵⁴³ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵⁴⁴ New Zealand Government, "Government Financial Support to Local Authorities", (New Zealand Government, 2015).

⁵⁴⁵ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁵⁴⁶ New Zealand Government, "Independent Assessment of Horizontal Rebuild Work and Costs", (New Zealand Government, 2015).

⁵⁴⁷ New Zealand Government, "Independent Assessment of Horizontal Rebuild Work and Costs", (New Zealand Government, 2015).

⁵⁴⁸ New Zealand Government, "Cost Sharing Agreement", (New Zealand Government, 2013).

⁵⁴⁹ New Zealand Government, "Independent Assessment of Horizontal Rebuild Work and Costs", (New Zealand Government, 2015).

⁵⁵⁰ Canterbury Earthquake Recovery Authority, "Horizontal Infrastructure Financial Management", (Canterbury Earthquake Recovery Authority, 2016).

Workscope eligibility

The Infrastructure Recovery Technical Standards and Guidelines were produced by the Christchurch City Council, the Canterbury Earthquake Recovery Authority and the New Zealand Transport Agency to inform and guide the technical assessment of damage, the design and construction of the repair and renewal of Council-owned infrastructure, and the handover of assets back to the Christchurch City Council⁵⁵¹.

The early version of the Infrastructure Recovery Technical Standards and Guidelines outlined primary and secondary objectives for the infrastructure recovery:

- **Primary:** “To return the infrastructure network to a condition that meets the levels of service prior to the September 2010 earthquake within the timing constraints of the rebuild.”
- **Secondary:** “Where restoration work is undertaken, and where reasonably possible and economically viable, greater resilience is to be incorporated into the network.”⁵⁵²

Earlier versions of the Infrastructure Recovery Technical Standards and Guidelines stated that damaged assets would be either repaired or replaced, as the assumption was that this would return the asset to the former level of service. This worked well in the emergency response phase, as in the worst-hit areas the majority of the horizontal infrastructure assets were damaged beyond repair and required full replacement. However, as the recovery progressed into the less damaged areas, it became clear that some assets would continue to function without renewal⁵⁵³.

Network Performance Approach

The programme went through an optimisation exercise in 2014 where the work scope eligibility and design standards were updated. While some projects were delayed by this exercise, the resilience of the network benefited from remaining work being repaired to the latest design standards, construction techniques, and materials⁵⁵⁴. This exercise also ensured value for money was maximised within the programme’s remaining funds⁵⁵⁵.

With the funding constraints in mind, in April 2014 Cabinet directed SCIRT to take a *network performance* approach (repairs are prioritised to improve overall functionality of the network), as opposed to a *damage repair* approach (all damaged assets are repaired) for the water supply, wastewater, and stormwater network⁵⁵⁶.

Disagreements arose between the Crown and the Christchurch City Council over the interpretation of the April 2014 Cabinet decision, in particular over work scope eligibility and the funding of network renewals. The disagreements were resolved through a follow-up Cabinet decision in November 2015, confirming that the Crown’s contribution would be NZD\$1.689 billion and that the Crown would fund repairs and rebuilds to earthquake damage, not asset renewals⁵⁵⁷. It was also confirmed that the Crown would not fund the depreciated portion of any assets. While these disagreements were eventually resolved, this illustrated the need for funding partners to be flexible in responding to funding changes. Funding partners must also seek agreement promptly⁵⁵⁸, as cost contributions cannot be finalised until all sides know what they are paying for⁵⁵⁹. Under the Cost Sharing Agreement, the Minister for Canterbury Earthquake Recovery and the Mayor of Christchurch were responsible for issuing direction where there is funding disagreement, however the issues were not escalated until mid-2015.

⁵⁵¹ Office of the Auditor-General, “Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch”, (Office of the Auditor-General, 2013).

⁵⁵² Office of the Auditor-General, “Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch”, (Office of the Auditor-General, 2013).

⁵⁵³ Office of the Auditor-General, “Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch”, (Office of the Auditor-General, 2013).

⁵⁵⁴ New Zealand Government, “Independent Assessment of Horizontal Rebuild Work and Costs”, (New Zealand Government, 2015).

⁵⁵⁵ New Zealand Government, “Independent Assessment of Horizontal Rebuild Work and Costs”, (New Zealand Government, 2015).

⁵⁵⁶ Office of the Auditor-General, “Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit”, (Office of the Auditor-General, 2016).

⁵⁵⁷ Office of the Auditor-General, “Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit”, (Office of the Auditor-General, 2016).

⁵⁵⁸ Office of the Auditor-General, “Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit”, (Office of the Auditor-General, 2016).

⁵⁵⁹ Canterbury Earthquake Recovery Authority, “Horizontal Infrastructure Financial Management”, (Canterbury Earthquake Recovery Authority, 2016).

A joint paper from the Canterbury Earthquake Recovery Authority and the Christchurch City Council presenting options to the Minister and the Mayor, may have resolved the disagreement sooner⁵⁶⁰.

Lesson: Establish work-scope eligibility criteria and funding eligibility early in the programme. Where differences occur escalate unresolved issues for resolution.

9.4.4. Close-out of SCIRT

From the outset, SCIRT was a temporary alliance. It was expected that following the completion of all construction work (scheduled for practical completion in the first half of 2017⁵⁶¹), all assets would be transferred to the Christchurch City Council and the SCIRT programme would close-out by June 2017⁵⁶². The Alliance Agreement requires the SCIRT joint venture to continue for a further 12 months from practical completion to manage the Defects Liability Period⁵⁶³.

Responding to time and funding pressures

As detailed earlier in this section, disagreements arose between Christchurch City Council and the Crown over the interpretation of the Cabinet direction on the scope of works. Crown decisions on the wider rebuild, such as decisions on the future use of residential red zone land, also potentially impacted SCIRT's ability to meet the original December 2016 deadline and commence close-out of the programme⁵⁶⁴.

In response to the timeframe pressures, the SCIRT board approved changes to the process of allocating work to Delivery Teams in June 2015. The original framework awarded projects to those that performed well in cost and non-cost areas (for example customer satisfaction, safety, and environmental impact). In the revised allocation process, there was a greater weighting on those teams with the capacity and capability to deliver the project⁵⁶⁵.

Transition to Christchurch City Council

Consideration needs to be given on appropriate delivery models for the works required. For example, Alliance models may be appropriate for large programmes of works, while a hybrid model may be more appropriate for business as usual activities (as adopted by the Christchurch City Council).

Following completion of a SCIRT project, all documentation relating to the assets, specifications, and other supporting information on the assets' condition was handed over to the Christchurch City Council, so that the assets could be managed effectively in the future.

As the SCIRT programme began to reach its conclusion, the Christchurch City Council gave consideration to the optimal capital works delivery model. In 2016, the Christchurch City Council announced that it would establish a new Hybrid Delivery Model to deliver its major capital project works. The new model establishes a Design-Build Panel, Construction Panel and a Design Panel. The new model draws on many of the learnings from the SCIRT Alliance model, by encouraging collaboration between contractors, consultants and the Council while bringing in a wide range of market participants. As with SCIRT, the Christchurch City Council's new model brings Design and Delivery Teams together in a single location⁵⁶⁶.

⁵⁶⁰ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵⁶¹ Stronger Christchurch Infrastructure Rebuild Team, "Schedule of Works as at 21 February 2017", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁵⁶² Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵⁶³ Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁵⁶⁴ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵⁶⁵ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵⁶⁶ Christchurch City Council, "Council to take new approach to major works", (Christchurch City Council, <https://www.ccc.govt.nz/the-council/newsline/show/1105>, published 2 November 2016, retrieved April 2017).

9.5. Summary of lessons on Horizontal Infrastructure Rebuild Programme

Competition and collaboration

- If using an alliance model requiring both competition and collaboration, encourage proactive sharing of information and resources as soon as possible to foster the collaborative elements of the model.

Monetary incentives to perform

- A pain/gain payment model is an effective cost performance tool in an alliance model because it:
 - encourages a focus on costs;
 - results in improved performance in delivering work under budget; and
 - incentivises higher performing teams to collaborate and share expertise with others.

Key Performance Indicator: Innovations

- Including innovation as a performance indicator incentivises new ideas that will either improve performance (without increasing cost), or achieve the same performance at a lower cost.
- If innovation is used as a performance indicator, ensure that a robust evaluation and dissemination system is in place to ensure that valuable new ideas are widely shared and adopted.

Key Performance Indicator: Skilled Workforce

- Disaster recovery work may provide an opportunity to increase diversity in sectors where some groups (e.g. women) are under-represented.

Key Performance Indicator: Community and Stakeholder Satisfaction

- Monitoring community satisfaction through surveys will help in understanding what is important to people, so that messaging can be tailored and targeted accordingly.
- Including community satisfaction as a performance indicator can encourage pride in good performance and collegial support of poorly performing teams.

Changes to the Work Allocation Process

- Build in opportunities for review of an alliance model at set stages of a programme to ensure that the settings are maximising outcomes.

Ambiguity about Roles and Crown Leadership

- Define and clearly document the relative roles, responsibilities and accountabilities of each partner in an alliance model.
- Ensure that clear Terms of Reference and robust governance arrangements are in place from the outset when setting up an alliance model.

Funding of the SCIRT Work Programme

- Funding partners need to be flexible in responding to funding changes. Seek agreement amongst funders and escalate if issues persist, as cost contributions cannot be finalised until all sides know what they are paying for.

10. Conclusion

International experience demonstrates that governments will need to step in after large-scale emergencies, in that the recovery is likely to be beyond the existing capacity and capability of local institutions⁵⁶⁷. The New Zealand government recognised that the usual systems and processes were not sufficient to facilitate and expedite recovery, after both the 4 September 2010 and 22 February 2011 earthquakes. Following the Canterbury earthquake sequence, the need for extraordinary action and government intervention in Christchurch was evident⁵⁶⁸.

Recovery Governance Arrangements

New Zealand's governance arrangements following the 22 February 2011 earthquake can be described as a balancing act. The arrangements balanced top-down centralised control and decision-making with statutorily-enabled bottom-up community input into decision-making. This approach is aligned with international best practice for recovery from large-scale disasters, which emphasises the criticality of community participation in recovery governance⁵⁶⁹. The concept of balance was articulated early on in the government's decision-making, acknowledging that the Canterbury Earthquake Recovery Act 2011 was founded on the need to balance community participating in decision-making with the need for a timely and coordinated recovery process⁵⁷⁰.

Notwithstanding the fact that public engagement into decision-making was provided for in the legislative framework, and extensively practiced by the Canterbury Earthquake Recovery Authority both through the statutory process and outside it, there remains a perception that participation and community engagement in the recovery did not meet the public's expectations. The Canterbury Earthquake Recovery Authority acknowledged this, despite investing significant resources in community engagement and undertaking a large variety of different approaches that were adapted over time in response to feedback. The reasons for the public's views and feelings about engagement are likely multi-variant and complex, and include the psychosocial impact of the earthquake sequence, the wider context of public concern about democratic processes in Canterbury at the time, and the heightened expectations of government that are common after large-scale disasters.

Despite this, it does not follow that the governance arrangements put in place were ineffective, or that the Canterbury Earthquake Recovery Authority did not fulfil its roles and responsibilities as directed. The government's decision to establish a combined top-down/bottom-up recovery approach was successful in that it enabled public participation in recovery decision-making, while also ensuring that decisions were timely enough to provide the certainty needed in the context of the disaster. The arrangements allowed a balance of speed and deliberation, which is the key challenge for recovery decision-makers⁵⁷¹.

As Christchurch's daily newspaper *The Press* reflected in an article published on the day that the Canterbury Earthquake Recovery Authority was disestablished:

*"A good chunk of CERA's achievement in Christchurch can be measured in things that haven't happened. The real estate and insurance markets didn't spiral out of control, homeowners were not left languishing in broken homes on broken land or (entirely) at the mercy of insurers. The plan to rebuild the central city is in place..."*⁵⁷²

⁵⁶⁷ Johnson L.A. & Mamula-Seadon L., "Transforming Governance: How National Polices and Organizations for Managing Disaster Recovery Evolved Following the 4 September 2010 and 22 February 2011 Canterbury Earthquakes", (Earthquake Spectra, 2014).

⁵⁶⁸ Smith, J., "Christchurch – a state of emergency", in *Once in a Lifetime: City-Building after Disaster in Christchurch*, (Christchurch, 2014).

⁵⁶⁹ United Nations Office for Disaster Risk Reduction, "Learning from disaster recovery: guidance for decision makers (preliminary version for consultation)", (United Nations Office for Disaster Risk Reduction, 2007); United Nations Office for Disaster Risk Reduction, "Guidance Note on Recovery: Governance", (United Nations Office for Disaster Risk Reduction, 2010).

⁵⁷⁰ New Zealand Government, "Canterbury Earthquake Recovery Bill 286-1", (New Zealand Government, 2011).

⁵⁷¹ Platt, S. & So, E., "Speed or deliberation: a comparison of post-disaster recovery in Japan, Turkey and Chile", (Overseas Development Institute, 2016).

⁵⁷² Wright, M. "Five years of Cera: Success or failure?", (<http://www.stuff.co.nz/national/politics/78952664/Five-years-of-Cera-Success-or-failure>, published 16 April 2016, retrieved May 2017).

Recovery Legislation

The first piece of major legislation was the Canterbury Earthquake Response and Recovery Act 2010, which came into force on 15 September 2010. Following the 22 February 2011 earthquake it was recognised that changes to the legislative, governance, and financial arrangements was required to reflect the increased scale of the damage and rebuild. This also presented an opportunity to learn from the initial arrangements put in place following the 4 September 2010 earthquake. For example, the Canterbury Earthquake Recovery Act 2010 attracted criticism about the power of the executive to amend primary legislation⁵⁷³. There was also some confusion about the leadership and reporting arrangements⁵⁷⁴.

The Canterbury Earthquake Recovery Act 2011 learned from the 2010 Act, by including checks and balances on the powers, and a parliamentary process that included a truncated select committee process⁵⁷⁵. New governance arrangements were also put into place. The Canterbury Earthquake Recovery Authority was established to lead and coordinate the recovery, reflecting lessons from international experience⁵⁷⁶.

The Canterbury Earthquake Recovery Act 2011 had flaws, however the unprecedented scale of the disaster should be acknowledged⁵⁷⁷ and the response viewed as pragmatic⁵⁷⁸. While there was little opportunity for public consultation or participation in the case of the 2010 or 2011 Acts, “the novelty of the circumstances was such” that the urgency and introduction of such a broad empowering approach was justified. This approach was consistent with international experience that the recovery should commence as soon as possible⁵⁷⁹.

Land Decisions

The government’s land decisions provide a good example of the challenges faced by governments internationally in making decisions following post large scale disasters, especially in balancing speed and deliberation⁵⁸⁰. Without government intervention, residents would have faced protracted discussions to reach insurance settlements and therefore be unable to move forward with their lives. The land zoning decisions and subsequent Crown offers were successful in providing affected residents with the option of choosing a quick resolution.

Recognising the importance of providing certainty for home owners and insurers as soon as possible to avoid loss of confidence, the government opted to act quickly with the best information available at the time. This meant that a number of unintended consequences could not reasonably have been anticipated. An example of this is the negative psychosocial consequences for residents who rejected the Crown offers and elected to remain living in the residential red zone. It is likely that if the government did not intervene, there would have been considerable negative psychosocial consequences for a larger number of people in the residential red zone. Both the benefits and unintended consequences of the government intervention provide important lessons for the future.

⁵⁷³ Gobbi, M., Gordon, B. & Lincoln, F., “Managing Emergency Management: A Look at New Zealand’s Legislative Approaches”, (Australasian Drafting Conference, 2011).

⁵⁷⁴ Brookie, R., “Governing the Recovery from the Canterbury Earthquakes 2010-11: the Debate over Institutional Design”, (Institute for Governance and Policy Studies, Victoria University of Wellington, 2012).

⁵⁷⁵ Gobbi, M., Gordon, B. & Lincoln, F., “Managing Emergency Management: A Look at New Zealand’s Legislative Approaches”, (Australasian Drafting Conference, 2011).

⁵⁷⁶ New Zealand Government, “Canterbury Earthquake Recovery: Proposed Governance Arrangements”, (New Zealand Government, 2011).

⁵⁷⁷ Brookie, R., “Governing the Recovery from the Canterbury Earthquakes 2010-11: the Debate over Institutional Design”, (Institute for Governance and Policy Studies, Victoria University of Wellington, 2012).

⁵⁷⁸ Gobbi, M., Gordon, B., & Lincoln, F., “Managing Emergency Management: A Look at New Zealand’s Legislative Approaches”, (Australasian Drafting Conference, 2011).

⁵⁷⁹ Gall, M., “A Seismic Shift: Public Participation in the Legislative Response to the Canterbury Earthquakes. *Canterbury Law Review* [Vol 18, 2012]”, (University of Canterbury, 2012).

⁵⁸⁰ Johnson L.A. & Mamula-Seadon L., “Transforming Governance: How National Polices and Organizations for Managing Disaster Recovery Evolved Following the 4 September 2010 and 22 February 2011 Canterbury Earthquakes”, (Earthquake Spectra, 2014).

Insurance Response

In terms of insurance losses, the Canterbury earthquakes were one of the most expensive natural catastrophes in recent global history. Without the Earthquake Commission and the Natural Disaster Fund, many home owners in New Zealand would be left under-insured in the event of a disaster⁵⁸¹. From the government's perspective, there was an immediate concern the scale of damage would drive reinsurers to lose confidence in the New Zealand market. There was a risk that reinsurers would react by not only increasing premiums, but by completely exiting the New Zealand market⁵⁸². The government interventions played a significant role in reinstating reinsurer confidence⁵⁸³ and thereby ensuring that New Zealand continues to have appropriate cover for future events.

On an operational level, the scale and complexity of the damage created unforeseen challenges for both the Earthquake Commission and private insurers. For example, the Earthquake Commission Act 1993 had not envisaged a sequence of events that would result in successive (and compounding) losses under single household policies⁵⁸⁴. A number of legal clarifications of the Earthquake Commission Act 1993 were required, contributing to delays for the Earthquake Commission, insurers and home owners.

The legal clarifications on the Earthquake Commission Act 1993 and the government intervention in the private insurance sector suggest the need to review current legislation. A review of both the Earthquake Commission Act 1993 and the Insurance (Prudential Supervision) Act 2010 is currently underway. Consideration is also being given to other risk financing instruments, in addition to reinsurance, that may support a more efficient risk financing strategy⁵⁸⁵.

For the people in Christchurch, the settlement of insurance claims has been a long and complex process. Delays in settlement have been identified as one of the factors that prevented home owners from moving forward with their lives and may have had impacts on their psychosocial wellbeing. A number of the government policy decisions and services were developed with social recovery in mind.

Horizontal Infrastructure Rebuild Programme

The Office of the Auditor-General's follow-up audit concluded that SCIRT demonstrated many of the good practice characteristics of Alliance contracts⁵⁸⁶. The Alliance model was effective in incentivised contractors to collaborate, while still maintaining competitive tension⁵⁸⁷. The New Zealand Transport Agency recognised the benefits of the collaborative client-led approach used in the SCIRT model and is now fostering more collaboration in its internal work and its work with the sector⁵⁸⁸.

The Alliance model delivered wider benefits, beyond the delivery of rebuild and repairs to the Horizontal Infrastructure network. For example, the SCIRT programme was used by the government as an opportunity to lift capability and increase diversity in the construction sector. The joint approach between government, employers, and training providers to support women in construction proved successful and between 2013 and 2014 the number of women in trades at SCIRT overall increased by 50 per cent⁵⁸⁹. The Ministry for Women encouraged organisations to share the success of the programme in other regions and industries where women are currently underrepresented, and where pay and job prospects are good⁵⁹⁰.

⁵⁸¹ The Treasury, "New Zealand's Future Natural Disaster Insurance Scheme: Proposed Changes to the EQC Act 1993", (The Treasury, 2015).

⁵⁸² The Treasury, "Lessons from Treasury's role in the Canterbury earthquakes", (The Treasury, 2016).

⁵⁸³ The Treasury, "Lessons from Treasury's role in the Canterbury earthquakes", (The Treasury, 2016).

⁵⁸⁴ Deloitte Ltd, "Four years on: Insurance and the Canterbury Earthquakes", (Vero Insurance, 2015).

⁵⁸⁵ The Treasury, "New Zealand's Future Natural Disaster Insurance Scheme: Proposed Changes to the EQC Act 1993", (The Treasury, 2015).

⁵⁸⁶ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵⁸⁷ Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2014).

⁵⁸⁸ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

⁵⁸⁹ Ministry for Women, "Getting it done: Utilising women's skills in the workforce", (Ministry for Women, 2015).

⁵⁹⁰ Ministry for Women, "Getting it done: Utilising women's skills in the workforce", (Ministry for Women, 2015).

SCIRT's health and safety performance also set a positive example for other organisations by exceeding the New Zealand benchmark⁵⁹¹ and achieving 2.8 million worker hours without a lost time injury⁵⁹². The New Zealand Transport Agency and other external organisations have adopted a number of safety initiatives developed by SCIRT; for example, their drug and alcohol policy, standards for minimum personal protective clothing, and incident reporting definitions⁵⁹³.

There were challenges related to the programme governance, the funding arrangements, and agreement over which works were 'in-scope'. The governance arrangements, for example, were not clear from the outset and were later refreshed to better meet the needs of the programme⁵⁹⁴. That being said, the Alliance model largely worked as intended and was appropriate for the scale and scope of the programme. A lesson is that consideration needs to be given on appropriate delivery models for each situation. For example, while Alliance models may have been appropriate for the Canterbury earthquake recovery, different models may be more appropriate for future events⁵⁹⁵.

⁵⁹¹ Gualter, E. and Wilkins, T., "SCIRT, The Construction Industry Health and Safety Leaders", (University of Canterbury, 2015).

⁵⁹² Stronger Christchurch Infrastructure Rebuild Team, "Catalyst for life-saving change in safety", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

⁵⁹³ Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2014).

⁵⁹⁴ Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

⁵⁹⁵ Canterbury Earthquake Recovery Authority, "Horizontal Infrastructure Financial Management", (Canterbury Earthquake Recovery Authority, 2016).

11. Glossary

Actual Out-turn Cost – Total construction cost calculated at the end of a project.

Alliance Contract Model – A project alliance is a commercial/legal framework between the government, as an ‘owner’-participant and one or more private sector parties as ‘service provider’ or ‘non-owner participants’ for delivering one or more capital works projects.

Annual Individual Fatality Risk – The probability or likelihood that an individual will be killed at their place of residence in any one year as a result of debris avalanches and cliff-top recession.

Building Code – The standard to which building work must be completed, even if a building consent is not required.

Canterbury Home Repair Programme – The Earthquake Commission’s managed repair programme for Canterbury homes with damage between NZD\$15,000 and \$100,000 (+GST) per claim.

Central city cordon - A zone restricting access into the central business district of Christchurch for security and health and safety reasons. The cordon was put in place immediately after the 22 February 2011 earthquake and was gradually reduced until being fully removed in 30 July 2013.

Civil Defence Emergency Management Group – A group established under section 12 of the Civil Defence Emergency Management Act 2002, comprising representatives of local authorities within a region (or unitary authority). Groups are responsible for civil defence emergency management in their areas.

Cliff collapse – Debris avalanches, cliff-top cracking and recession of the cliff-top edge. Cliff collapse typically involves the movement of many thousands of rocks or boulders.

Community Forum – The Forum was set up under the Canterbury Earthquake Recovery Act 2011 to provide advice to the Minister for Canterbury Earthquake Recovery. It consisted of 38 members from a wide cross-section of the Canterbury community representing business and ethnic interests, as well as residents associations and groups.

Cost Sharing Agreement – The Cost Sharing Agreement is an agreement between the Crown and Christchurch City Council outlining the funding arrangements for major central city projects and the replacement and repair of Christchurch’s damaged horizontal infrastructure network.

Cross-lease titles – A cross lease is where a number of people own an undivided share in a piece of land and the homes that they build on the land are leased from the other land-owners.

Cross-party Parliamentary Forum – The Forum was set up under the Canterbury Earthquake Recovery Act 2011 for Members of Parliament from Canterbury to share information and provide advice to the Minister for Canterbury Earthquake Recovery.

Declaratory Judgment – A declaratory judgment is a statement of the court’s opinion on a question of law or the rights of the parties involved. It is a judicial remedy that provides parties with a convenient means for the efficient and effective resolution of a range of disputes, without the need for further remedies.

Depreciated cost – The decrease in value of assets.

Dwelling claims – These are claims for the physical structure of a home that has been damaged through the earthquake events.

Governance - the process of decision-making, and the processes by which decisions are implemented (including input into decision-making and implementation of decisions).

Greater Christchurch – A geographical area surrounding Christchurch, including Waimakariri District Council, Selwyn District Council and Christchurch City Council boundaries, as defined in the Canterbury Earthquake Recovery Act 2011. The area was redefined in the Greater Christchurch Regeneration Act 2016 to include only areas where rebuild and regeneration activities were ongoing.

Home Inspection Survey – The Ministry of Business, Innovation and Employment’s investigation into the quality of building work completed under the Earthquake Commission’s Canterbury Home Repair Programme.

Infrastructure Recovery Technical Standards and Guidelines – The guidelines provide guidance and direction to SCIRT on the technical aspects of infrastructure resilience.

Increased Flooding Vulnerability – Type of land damage where properties are now vulnerable to flooding where previously they were not.

Increased Liquefaction Vulnerability – Type of land damage where properties are now vulnerable to liquefaction where previously they were not.

Insurance premiums – The amount paid for an insurance policy. In New Zealand, people who hold current private insurance policies for home or contents that include fire insurance automatically have Earthquake Commission cover. Depending on the type of cover held, insurance premiums are usually comprised of the insurance company’s premium, the Earthquake Commission levy, the Fire Service levy, and GST.

Joint Venture – A business arrangement in which two or more parties agree to pool their resources for the purpose of accomplishing a specific task.

Judicial review – A process under which executive and legislative actions are subject to review by the judiciary.

Land zoning – A process for categorising or classifying properties based on the nature and extent of land damage. It does not indicate a change in legal planning status under the Resource Management Act 1991.

Lateral spreading – Lateral spreading is horizontal ground movement towards a free face such as a river, stream, channel or dip where the land is not physically constrained. Land moves in the direction of least resistance.

Liquefaction – A process whereby soil temporarily takes on a liquid form, and silt and sand is brought to the surface.

National Civil Defence Emergency Management Plan – Sets out the roles and responsibilities of everyone involved in reducing risks and preparing for, responding to and recovering from emergencies.

Māori Land Court – Provides a court service for owners of Māori land, their whānau and their hapū to promote the retention and use of Māori land and facilitates the occupation, development and use of that land.

Multi-unit dwellings – These are typically semi-detached and terraced houses which share common structural parts, such as foundations, party walls or a roof. Most dwellings in multi-unit buildings have different owners and often have separate insurers which makes the process of settling these claims particularly complex.

Natural Disaster Fund – The fund is administered by the Earthquake Commission, and pays out under-cap claims resulting from a natural disaster.

New Zealand Geotechnical Database – The database is a searchable, web-based repository of geotechnical data uploaded by various individuals, agencies and clients who have access to the database.

Occupation Rights Agreements – This is a written agreement that gives a person the right to occupy a residential unit within a retirement village.

Orders in Council – A type of legislative instrument that is made by the Executive Council presided over by the Governor-General.

Over-cap claims – Over-cap claims are where a claim exceeds the Earthquake Commission’s limit (usually NZD\$100,000 + GST) and the management of the claim is transferred to the home owner’s private insurer.

Psychosocial wellbeing – Psychosocial health is defined as a state of mental, emotional, social, and spiritual well-being.

'Quake Outcasts' – Self-named group of owners of uninsured homes that qualified for the government's red-zone offer in Christchurch.

Recovery Strategy – The *Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha* (2012) was a statutory document that set out the principles, priorities, vision and goals for the recovery. It was prepared by the Canterbury Earthquake Recovery Authority under the Canterbury Earthquake Recovery Act 2011.

Regulations Review Committee – The Regulations Review Committee acts on the Parliament's behalf to ensure that the delegated law-making powers are being used appropriately. It examines all regulations, investigates complaints about regulations, and examines proposed regulation-making powers in bills for consistency with good legislative practice.

Reinstatement – To return a property to a former state or condition.

Reinsurance – Reinsurance is insurance for insurers. The Earthquake Commission and private insurance companies require their own insurance cover from global reinsurers, to cover situations in which claims liabilities exceed reserves. Reinsurance lets insurers recover some, or all, of claims paid to claimants.

Request for Proposal – A document that solicits proposal, often made through a bidding process, by an agency or company interested in procurement of a commodity, service or valuable asset, to potential suppliers to submit business proposals.

Residential red zone – Land that was so badly damaged by the earthquakes that it was unsuitable for rebuilding.

Risk financing – Products or solutions that provide funds to cover the financial effect of unexpected losses experienced by a firm, entity or government. Traditional forms of risk finance include insurance (risk transfer), retention by way of reserves (often called self-insurance) and risk pooling.

Rock fall – A process whereby individual rocks or boulders roll and bounce downhill. Sometimes described as rock roll or boulder roll.

Safety Culture Maturity Model – A framework that helps an organisation assess its safety culture maturity and identify the steps needed to make further improvements.

Strategic partners – Te Rūnanga o Ngāi Tahu, Environment Canterbury, Christchurch City Council, Waimakariri District Council and Selwyn District Council.

Sub-contractors – A firm or person that carries out work for a company as part of a larger project.

Sum insured – An insurance policy that replaces an insured item with a similar new item, or provides the insured with the funds to do so, unless this costs more than a specified amount (the sum insured) in which case the sum insured is paid.

Target Out-turn Cost – Estimated construction cost calculated prior to commencement of a project.

Technical categories – Categories describing how land is expected to perform in future earthquakes.

Under-cap claims – These are dwelling claims where the damage is assessed as costing less than NZD\$100,000 (+GST). The settlement of these claims is managed by the Earthquake Commission.

Underemployed – A measure of employment and labour utilisation in the economy, that looks at how well specific groups of people are being utilised in the market in terms of their skills.

12. Material Reviewed

Advisory Board on Transition to Long Term Recovery Arrangements, “First Report to the Minister for Canterbury Earthquake Recovery”, (Advisory Board on Transition to Long Term Recovery Arrangements, 2015).

Bennett, B., “Design and Democracy” in *Once in a Lifetime: City-Building after Disaster in Christchurch*, (Christchurch, 2014).

Bosher, L., & Chmutina, K., “Disaster Risk Reduction for the Built Environment”, (Wiley-Blackwell, 2017).

Brookie, R., “Governing the Recovery from the Canterbury Earthquakes 2010-11: the Debate over Institutional Design”, (Institute for Governance and Policy Studies, Victoria University of Wellington, 2012).

Canterbury Earthquake Recovery Authority, “Port Hills White Zone Update and Decision Process”, (Canterbury Earthquake Recovery Authority, 2011).

Canterbury Earthquake Recovery Authority, “Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha”, (Canterbury Earthquake Recovery Authority, 2012).

Canterbury Earthquake Recovery Authority, “Canterbury Wellbeing Index June 2015”, (Canterbury Earthquake Recovery Authority, 2015).

Canterbury Earthquake Recovery Authority, “Crown offer for properties in the residential red zone at Rāpaki Bay” (Canterbury Earthquake Recovery Authority, 2015).

Canterbury Earthquake Recovery Authority, “Draft Transition Recovery Plan”, (Canterbury Earthquake Recovery Authority, 2015).

Canterbury Earthquake Recovery Authority, “Regulatory Impact Statement – Greater Christchurch Regeneration Bill”, (Canterbury Earthquake Recovery Authority, 2015).

Canterbury Earthquake Recovery Authority, “Residential Red Zone Offer Recovery Plan: Preliminary Draft” (Canterbury Earthquake Recovery Authority, 2015).

Canterbury Earthquake Recovery Authority, “Residential Red Zone Offer Recovery Plan”, (Canterbury Earthquake Recovery Authority, 2015).

Canterbury Earthquake Recovery Authority, “Transition Recovery Plan”, (Canterbury Earthquake Recovery Authority, 2015).

Canterbury Earthquake Recovery Authority, “Adapting legislation to meet recovery needs”, (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, “Benefits of a strategic approach to recovery: CERA’s lessons on the journey from emergency to regeneration”, (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, “Canterbury Earthquake Social Recovery Services – Chapter 8”, (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, “Case study: Developing the Recovery Strategy for Greater Christchurch: Mahere Haumanutanga o Waitaha”, (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, “CERA’s Horizontal infrastructure programme: An introductory overview”, (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, “CERA land zoning policy and the residential red zone”, (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, "CERA Residential Red Zone Survey Report" (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, "Communicating in a recovery: CERA's approach to communications and engagement", (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, "Cordon access for property owners, tenants and residents", (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, "Engaging with communities in a recovery context", (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, "Financial management and guidelines for future recovery practitioners", (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, "Horizontal Infrastructure Financial Management", (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, "Promoting the Central City: A case study from CCDU communications", (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, "Recovering Christchurch's central city: a narrative of the first four years 2011 – 2015", (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, "The Canterbury Geotechnical Database: An authoritative source of geotechnical data", (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, "The Significant Buildings Unit", (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, "Understanding social recovery", (Canterbury Earthquake Recovery Authority 2016).

Canterbury Earthquake Recovery Authority, "Walking the Recovery Tightrope: Learning and insights from the Canterbury Earthquake Recovery Authority", (Canterbury Earthquake Recovery Authority, 2016).

Canterbury Earthquake Recovery Authority, "Red Zone information", (Canterbury Earthquake Recovery Authority, <http://cera.govt.nz/land-information/red-zone>, publication date unknown, retrieved April 2017).

Canterbury Earthquake Recovery Commission, "Canterbury Earthquake Recovery Commission: Terms of Reference", archived electronic resource, (National Library of New Zealand, <http://ndhadeliver.natlib.govt.nz/ArcAggregator/arcView/frameView/IE4331348/http://www.cerc.govt.nz/>, harvested May 2011, retrieved April 2017).

Canterbury Rebuild Safety Charter, "Mapping Effective Leadership for Canterbury Rebuild Safety Charter Signatories", (Canterbury Rebuild Safety Charter, 2014).

Chang-Richards, Y., Wilkinson, S., Seville, E., Brunsdon, D., Potangaroa, R., "Long-term reconstruction in Christchurch: Learning from its governance structure", (i-Rec conference, 2013).

Christchurch City Council, "Central City Plan – Draft Central City Recovery Plan for Ministerial Approval", (Christchurch City Council, 2011).

Christchurch City Council, "Funding for Private Rockfall Protection Structures", (Christchurch City Council, 2012).

Christchurch City Council, "CCTV for Christchurch City Council Earthquake Recovery", (Christchurch City Council, 2016).

Christchurch City Council, "Council to take new approach to major works", (Christchurch City Council, <https://www.ccc.govt.nz/the-council/newsline/show/1105>, published 2 November 2016, retrieved April 2017).

Collaborate Canterbury, "Showcasing Canterbury's Collaborative Innovation", (New Zealand Trade and Enterprise, 2016).

Comerio, M.C., "Housing Recovery in Chile: A Qualitative Mid-program review", (Pacific Earthquake Engineering Research Center, 2013).

Congressional Research Service, "Federal Emergency Management Policy Changes After Hurricane Katrina: A Summary of Statutory Provisions", (The Library of Congress, United States, 2006).

Dalziel, Hon L., "Turning Disaster into Opportunity", speech delivered at Australian and New Zealand Institute of Insurance & Finance Conference, (<http://www.scoop.co.nz/stories/print.html?path=PA1111/S00521/dalziel-turning-disaster-into-opportunity.htm>, published 30 November 2011, retrieved May 2017).

Dalziel, Hon L., "State of the City", (<http://www.lianne.co.nz/speeches/the-state-of-the-city-mayor-lianne-dalziel-addresses-the-city-of-christchurch>, published 18 February 2014, retrieved May 2017).

Davey, J. & Neale, J., "Earthquake preparedness in an ageing society: Learning from the experience of the Canterbury Earthquakes", (Victoria University of Wellington, 2012).

Deloitte Ltd, "Four years on: Insurance and the Canterbury Earthquakes", (Vero Insurance, 2015).

Department of the Prime Minister and Cabinet, "Future Christchurch Update – October 2016", (Department of the Prime Minister and Cabinet, 2016).

Department of the Prime Minister and Cabinet, "Regulatory Impact Statement – Kaikōura Earthquake Recovery Bill", (Department of the Prime Minister and Cabinet, 2016).

Earthquake Commission, "About NZGD", (Earthquake Commission, 2016).

Earthquake Commission, "Briefing to the Incoming Minister", (Earthquake Commission, 2011).

Earthquake Commission, "EQC Annual Report 2011-2012", (Earthquake Commission, 2012).

Earthquake Commission, "Declaratory Judgement on Increased Flooding Vulnerability (IFV) Land Settlement", (Earthquake Commission, 2014).

Earthquake Commission, "A simpler process for Kaikōura", (Earthquake Commission, 2016).

Earthquake Commission, "EQC releases Annual Report 2015-2016", (Earthquake Commission, <http://www.eqc.govt.nz/news/eqc-releases-annual-report-2015-2016>, published October 2016, retrieved February 2017).

Earthquake Commission, "Cash settlement", (Earthquake Commission, <http://www.eqc.govt.nz/canterbury-earthquakes/home-repairs/cash-settlement>, published December 2016, retrieved February 2017).

Earthquake Commission, "Land claims", (Earthquake Commission, <http://www.eqc.govt.nz/canterbury-earthquakes/land-claims>, published March 2017, retrieved February 2017).

Earthquake Commission, "Liquefaction-related Land Damage", (New Zealand Government, 2016).

Environment Canterbury Regional Council, "Submission of Environment Canterbury to Ministry of Business, Innovation and Employment on Urban Development Authorities – Discussion Document", (Environment Canterbury Regional Council, 2017).

Fletcher EQR, <http://www.eqr.co.nz/>, (Fletcher EQR, retrieved February 2017).

Gall, M., "A Seismic Shift: Public Participation in the Legislative Response to the Canterbury Earthquakes. *Canterbury Law Review* [Vol 18, 2012]", (University of Canterbury, 2012).

Galloway, M., "A message and a messenger", in *Once in a Lifetime: City-Building after Disaster in Christchurch*, (Christchurch, 2014).

Ginter, P.M., Duncan, W.J., McCormick, L.C., Rucks, A.C., Wingate, M.S. & Abdolrasulnia, M., "Effective Response to Large-Scale Disasters: The Need for High-reliability Preparedness Networks", (*International Journal of Mass Emergencies and Disasters* 24: 3, 2006).

Glavovic, B., "Disaster Recovery: The particular governance challenges generated by large-scale natural disasters", in *Future-Proofing the State: Managing Risks, Responding to Crises and Building Resilience*, edited by J. Boston, J. Wanna, V. Lipski & J. Pritchard, (Australian National University Press, 2014).

Global Facility for Disaster Reduction and Recovery, "Guide to Developing Disaster Recovery Frameworks: Sendai Conference Version", (Global Facility for Disaster Reduction and Recovery, 2015).

GNS Science, "Understanding life-safety risk concepts for rockfall and cliff collapse in the Port Hills", (Christchurch City Council, August 2012).

Gobbi, M., Gordon, B. & Lincoln, F., "Managing Emergency Management: A Look at New Zealand's Legislative Approaches", (Australasian Drafting Conference, 2011).

Gott, T., Barker, A. & Mills M., "EQC Response to Canterbury Events", (MartinJenkins, 2012).

Greater Christchurch Urban Development Strategy, "Greater Christchurch Urban Development Strategy Update", (Greater Christchurch Urban Development Strategy, 2016).

Gualter, E. and Wilkins, T., "SCIRT, The Construction Industry Health and Safety Leaders", (University of Canterbury, 2015).

Hansen, Hon Sir J., "Canterbury Earthquake Recovery Review Panel Report 2011 to 2016", (New Zealand Government, 2016).

Hedlind, K., "Christchurch earthquake: mental health impacts and psychosocial recovery", (People in Disasters, 2016).

Human Rights Commission, "Staying in the red zones: Monitoring human rights in the Canterbury earthquake recovery", (Human Rights Commission, 2016).

International Recovery Platform, "Learning from Disaster Recovery: Guidance for Decision Makers", (International Recovery Platform, 2007).

Jacka, E., "Statement of Evidence of Emma Jane Jacka for the Crown. Natural Hazards Proposal, Government Land Zoning Policy", (BuddleFindlay, 2015).

Johnson, L.A. & Mamula-Seadon, L., "Transforming Governance: How National Policies and Organizations for Managing Disaster Recovery Evolved Following the 4 September 2010 and 22 February 2011 Canterbury Earthquakes", (*Earthquake Spectra*, 2014).

Johnson, L. A. & Olshansky, R.B., "The Road to Recovery: Governing Post-Disaster Reconstruction", (*Land Lines: Quarterly Magazine of the Lincoln Institute of Land Policy*, 2013).

Johnson, L.A. & Olshansky, R.B., "After Great Disasters: How Six Countries Managed Community Recovery", (Lincoln Institute of Land Policy, Cambridge, Massachusetts, USA, 2016).

Kachali, H., Whitman, Z., Stevenson, J.R., Vargo, J. & Wilson, T., "Industry sector recovery following the Canterbury earthquakes", (University of Canterbury, 2015).

King, A., Middleton, D., Brown, C., Johnston, D. & Johal, S., "Insurance – its role in the recovery from the 2010-2011 Canterbury earthquake sequence", (Ara Institute of Canterbury, 2013).

Kingham, S., Dionisio, M.R. & Newman, P., "The right tools at the right time: Encouraging community involvement in the post-disaster reconstruction of Christchurch, New Zealand", (IGU Urban Commission Annual Conference, 9-16 August 2015, University College, Dublin).

Kinley, P., Moore, J., Heiler, D., Hughes, M., & Smith, B., "Predicting Earthquake Damage to Gravity Pipe Networks", (AECOM, 2013).

Labour & Immigration Research Centre, "A Changing Landscape: The Impact of the Earthquakes on Christchurch Workplaces", (Department of Labour, 2011).

Land Information New Zealand, "Annual Report 2015/16", (Land Information New Zealand, 2016).

Land Information New Zealand, "Learnings from the Canterbury Earthquake", (Land Information New Zealand, 2017).

Law Library of Congress, "Japan: Legal Responses to the Great East Japan Earthquake of 2011", (The Law Library of Congress, United States, 2013).

McGuinness Institute, "Working Paper 2015/08: Tables Collating and Ranking Government Department Strategies in Operation as at 30 June 2015", (McGuinness Institute, 2015).

McLean, I., Oughton, D., Ellis, S., Wakelin, B. & Rubin, C.B., "Review of the Civil Defence Emergency Management Response to the 22 February Christchurch Earthquake", (Ministry of Civil Defence & Emergency Management, 2012).

Mamula-Seadon, L. & McLean, I., "Response and early recovery following 4 September 2010 and 22 February 2011 Canterbury earthquakes: Societal resilience and the role of governance", (International Journal of Disaster Risk Reduction, 2015).

Mannakkara, S. & Wilkinson, S., "Selecting an institutional mechanism for Building Back Better: Lessons from Victorian bushfires recovery", (International Journal of Disaster Risk Reduction, 2016).

Marsh Risk Management Research, "Comparing Claims from Catastrophic Earthquakes", (Marsh Risk Management Research, 2014).

Massey, C.I., McSaveney, M.J., Heron, D. & Lukovic, B., "Canterbury Earthquakes 2010/2011 Port Hills Slope Instability", (GNS Science, 2011).

Middleton, D. & Westlake, R., "Independent Review of the Response to the Canterbury Earthquake, 4 September 2010", (Ministry of Civil Defence & Emergency Management, 2011).

Ministry of Business, Innovation and Employment, "Repairing and rebuilding houses affected by the Canterbury earthquakes", (Ministry of Business, Innovation and Employment, 2012).

Ministry of Business, Innovation and Employment, "Housing Pressures in Christchurch", (Ministry of Business, Innovation and Employment, 2013).

Ministry of Business, Innovation and Employment, "Canterbury Job Matching Report March 2015", (Ministry of Business, Innovation and Employment, 2015).

Ministry of Business Innovation and Employment, "Earthquake Repairs to Canterbury Homes", (Ministry of Business, Innovation and Employment, 2015).

Ministry of Business, Innovation and Employment, "A Wealth of Data", (New Zealand Government, 2016).

Ministry of Business, Innovation and Employment, "Ground Surface Subsidence", (New Zealand Government, 2016).

Ministry of Business, Innovation and Employment, "Quarterly Canterbury Job-matching Report", (Ministry of Business, Innovation and Employment, 2016).

Ministry of Business, Innovation and Employment, "The Business Growth Agenda – Building Skilled and Safe Workplaces", (Ministry of Business, Innovation and Employment, 2016).

Ministry of Business, Innovation and Employment, "The Power of Shared Data", (New Zealand Government, 2016).

Ministry of Business, Innovation and Employment, "Retirement Villages Code of Practice 2008: Variations to the Code of Practice issued October 2013", (Ministry of Business, Innovation and Employment, <http://www.mbie.govt.nz/info-services/housing-property/retirement-villages/code-of-practice-2008#variations-october-2013>, publication date October 2013, retrieved March 2017).

Ministry of Civil Defence & Emergency Management, "CDEM Capability Assessment Report", (Ministry of Civil Defence & Emergency Management, 2012).

Ministry of Civil Defence & Emergency Management, "CDEM National Capability Assessment Report", (Ministry of Civil Defence & Emergency Management, 2015).

Ministry for the Environment, "Environment Canterbury Review: Summary of submissions on Environment Canterbury Review: a discussion document", (Ministry for the Environment, 2015).

Ministry of Social Development, "Learning from the Ministry of Social Development's contribution to the Canterbury Earthquake Recovery Efforts", (Ministry of Social Development, 2016).

Ministry for Women, "Getting it done: Utilising women's skills in the workforce", (Ministry for Women, 2015).

Mitchell, M., "Relocation after Disaster: Engaging with Insured Residential Property Owners in Greater Christchurch's Land-damaged 'Residential Red Zone'", (Brookings Institute, 2015).

Mumo, R. & Richard, W., "The Dual Insurance Model and Its Implications for Insurance Demand and Supply Post-Christchurch Earthquakes in New Zealand", (Insurance and Risk Management, 2016).

Munich Reinsurance Company, "Catastrophes: Global", (Insurance Information Institute, <http://www.iii.org/fact-statistic/catastrophes-global/>, published February 2017, retrieved February 2017).

Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2012).

Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2013).

Murdoch, S., "Annual Review of the Canterbury Earthquake Recovery Act 2011", (Canterbury Earthquake Recovery Authority, 2014).

New Zealand Court of Appeal, "Canterbury Regional Council v Independent Fisheries Limited", (New Zealand Court of Appeal, 2012).

New Zealand Court of Appeal, "Minister for Canterbury Earthquake Recovery v Fowler Developments Ltd", (New Zealand Court of Appeal, 2013).

New Zealand Government, "Civil Defence Emergency Management Act 2002", (New Zealand Government, 2002).

New Zealand Government, "Canterbury Earthquake (Resource Management Act) Order 2010 (SR 2010/318)", (New Zealand Government, 2010).

New Zealand Government, “Canterbury Earthquake Response and Recovery Bill 215-1”, (New Zealand Government, 2010)

New Zealand Government, “Response to Review of Environment Canterbury”, (New Zealand Government, 2010).

New Zealand Government, “Canterbury Earthquake Recovery Act 2011”, (New Zealand Government, 2011)

New Zealand Government, “Canterbury Earthquake Recovery Bill 286-1”, (New Zealand Government, 2011)

New Zealand Government, “Canterbury Earthquake Recovery: Proposed Governance Arrangements”, (New Zealand Government, 2011)

New Zealand Government, “Canterbury Earthquake (Resource Management Act) Order 2011 (SR 2011/34)”, (New Zealand Government, 2011).

New Zealand Government, “Canterbury Earthquake (Resource Management Act Permitted Activities) Order 2011 (SR 2011/36)”, (New Zealand Government, 2011).

New Zealand Government, “Canterbury Earthquake (Resource Management Act Port of Lyttelton Recovery) Order 2011 (SR 2011/148)”, (New Zealand Government, 2011).

New Zealand Government, “Canterbury Earthquake (Resource Management Act—Burwood Resource Recovery Park) Order 2011 (SR 2011/254)”, (New Zealand Government, 2011).

New Zealand Government, “Canterbury Earthquake (Resource Management Act—Electricity Network Recovery) Order 2011 (SR 2011/309)”, (New Zealand Government, 2011).

New Zealand Government, “Govt outlines next steps for people of Canterbury”, (New Zealand Government, <https://beehive.govt.nz/release/govt-outlines-next-steps-people-canterbury>, publication date 23 June 2011, retrieved April 2017).

New Zealand Government, “Insurance and reinsurance issues after the Canterbury earthquakes”, (New Zealand Government, 2011).

New Zealand Government, “Land Damage from the Canterbury Earthquakes”, (New Zealand Government, 2011).

New Zealand Government, “Residential Orange Zone Fact Sheet”, (New Zealand Government, 2011).

New Zealand Government, “EQC levies rise to realistically reflect costs”, (New Zealand Government, <https://www.beehive.govt.nz/release/eqc-levies-rise-realistically-reflect-costs>, published 11 October 2011, retrieved April 2017).

New Zealand Government, “Canterbury Earthquake (Recovery Strategy Approval) Order 2012, notice number 2012-go3345”, (New Zealand Government, 2012).

New Zealand Government, “Christchurch CBD Recovery”, (New Zealand Government, 2012).

New Zealand Government, “Christchurch Central Recovery Plan and its Implementation”, (New Zealand Government, 2012).

New Zealand Government, “Findings of the Canterbury Zoning Review Advisory Group”, (New Zealand Government, 2012).

New Zealand Government, “Minute of Decision: Christchurch Central Recovery Plan – Final Decisions by Group of Ministers with Power to Act”, (New Zealand Government, 2012).

New Zealand Government, “Port Hills Review Framework”, (New Zealand Government, 2012).

New Zealand Government, “Cost Sharing Agreement”, (New Zealand Government, 2013).

New Zealand Government, "Findings of the Port Hills Zoning Review Advisory Group on the Port Hills Zoning Decisions", (New Zealand Government, 2013).

New Zealand Government, "Complaint regarding the Canterbury Earthquake (Building Act) Order 2011 (SR 2011/311)", (Regulations Review Committee, New Zealand Government, 2014).

New Zealand Government, "Greater Christchurch Earthquake Recovery: Moving forward with pace and confidence", (New Zealand Government, 2014).

New Zealand Government, "Investigation into the Canterbury Earthquake District Plan Order 2014", (Regulations Review Committee, New Zealand Government, 2014).

New Zealand Government, "Civil Defence Emergency Management Amendment Bill 88-1", (New Zealand Government, 2015).

New Zealand Government, "Government Financial Support to Local Authorities", (New Zealand Government, 2015).

New Zealand Government, "Independent Assessment of Horizontal Rebuild Work and Costs", (New Zealand Government, 2015).

New Zealand Government, "National Civil Defence Emergency Management Plan Order 2015", (New Zealand Government, 2015).

New Zealand Government, "Civil Defence Emergency Management Amendment Act 2016", (New Zealand Government, 2016).

New Zealand Government, "Greater Christchurch Regeneration Act 2016", (New Zealand Government, 2016).

New Zealand Government, "Hurunui/Kaikōura Earthquakes Recovery Bill 241-1", (New Zealand Government, 2016).

New Zealand Government, "Inquiry into Parliament's legislative response to future national emergencies", (Regulations Review Committee, New Zealand Government, 2016).

New Zealand Government, "Earthquake Recovery in Canterbury", (New Zealand Government, <http://www.eqrecoverylearning.org/about/earthquake-recovery-in-canterbury>, publication date unknown, retrieved February 2017).

New Zealand High Court, "Fowler Developments Ltd v Chief Executive of the Canterbury Earthquake Recovery Authority", (New Zealand High Court, 2013).

New Zealand High Court, "Quake Outcasts v Minister for Canterbury Earthquake Recovery", (New Zealand High Court, 2016).

New Zealand Law Commission, "Final Report on Emergencies R22", (New Zealand Law Commission, 1991).

New Zealand Parliamentary Debates (Hansard), "Environment Canterbury (Transitional Governance Arrangements) Bill", (New Zealand Government, 2016).

New Zealand Supreme Court, "Quake Outcasts and Fowler v Minister for Canterbury Earthquake Recovery", (New Zealand Supreme Court, 2015).

New Zealand Supreme Court, "Quake Outcasts v The Minister for Canterbury Earthquake Recovery and Chief Executive of the Canterbury Earthquake Recovery Authority", (New Zealand Supreme Court, 2016).

Nielsen, "CERA Wellbeing Survey 2012 Report", (Canterbury Earthquake Recovery Authority, 2012).

Nielsen, "CERA Wellbeing Survey April 2014", (Canterbury Earthquake Recovery Authority, 2014).

Nielsen, "CERA Wellbeing Survey September 2015", (Canterbury Earthquake Recovery Authority, 2015).

Nielsen, "Canterbury Wellbeing Survey April 2016", (Canterbury District Health Board, 2016).

Office of the Auditor-General, "Realising benefits from six public sector technology projects, Part 3: Financial support in Christchurch after the February 2011 earthquake", (Office of the Auditor-General, 2012).

Office of the Auditor-General, "Roles, responsibilities, and funding of public entities after the Canterbury earthquakes", (Office of the Auditor-General, 2012).

Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch", (Office of the Auditor-General, 2013).

Office of the Auditor-General, "Managing the Canterbury Home Repair Programme", (Office of the Auditor-General, 2013).

Office of the Auditor-General, "Managing the Canterbury Home Repair Programme – follow-up audit", (Office of the Auditor-General, 2015).

Office of the Auditor-General, "Effectiveness and efficiency of arrangements to repair pipes and roads in Christchurch – follow-up audit", (Office of the Auditor-General, 2016).

Office of the Auditor-General, "Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency", (Office of the Auditor-General, 2017).

Pedroso, F.F., Teo, J., Seville, E., Giovanazzi, S. & Vargo, J., "Post-disaster challenges and opportunities: Lessons from the 2011 Christchurch earthquake and Great Eastern Japan earthquake and tsunami", (United Nations Office for Disaster Risk Reduction, 2013).

Platt, S., "Reconstruction in New Zealand Post 2010-11 Christchurch Earthquakes", (Cambridge Architectural Research, United Kingdom, 2012).

Platt, S., "A decision-making model of disaster resilience and recovery", (SECED 2015 Conference: Earthquake Risk and Engineering towards a Resilient World 9-10 July 2015, Cambridge).

Platt, S. & So, E., "Speed or deliberation: a comparison of post-disaster recovery in Japan, Turkey and Chile", (Overseas Development Institute, 2016).

Potter, S., Becker, J., Johnston, D. & Rossiter, K., "An overview of the impacts of the 2010-2011 Canterbury earthquakes", (International Journal of Disaster Risk Reduction 14, 2015).

Queensland Government, "Queensland Reconstruction Authority Act 2011", (Queensland Government, 2011).

Regenerate Christchurch, "Regeneration Planning", (Regenerate Christchurch, <https://engage.regeneratechristchurch.nz/regeneration-planning>, publication date unknown, retrieved April 2017).

Reserve Bank of New Zealand and the Treasury, "Christchurch Insurance Update", (Reserve Bank of New Zealand and the Treasury, 2011).

Reserve Bank of New Zealand, "Supervision of the insurance industry", (Reserve Bank of New Zealand, 2012).

Reserve Bank of New Zealand, "The insurance regulatory landscape in New Zealand", (Reserve Bank of New Zealand, 2012).

Reserve Bank of New Zealand, "The importance of market discipline in the Reserve Bank's prudential regime", (Reserve Bank of New Zealand, 2016).

Reserve Bank of New Zealand, "Issues Paper: Review of the Insurance (Prudential Supervision) Act 2010", (Reserve Bank of New Zealand, 2017).

Rotimi, J.O., Wilkinson, S., Zuo, K. & Myburgh, D., "Legislation for effective post-disaster reconstruction", (International Journal of Strategic Property Management, 2009).

Rotimi, J.O., "An examination of improvements required to legislative provisions for post disaster reconstruction in New Zealand", (PhD thesis, University of Canterbury, 2010).

Smart, J., "The role of post-disaster institutions in recovery and resilience: a comparative study of three recent disasters – Victorian Bushfires (2009), Queensland Floods (2010-2011), and Canterbury Earthquakes (2010-12)" (Institute for Governance and Policy Studies, Victoria University of Wellington, 2012).

Smith, G. & Birkland, T., "Building a Theory of Recovery: Institutional Dimensions", (International Journal of Mass Emergencies and Disasters 30: 2, 2012).

Smith, J., "Christchurch – a state of emergency", in Once in a Lifetime: City-Building after Disaster in Christchurch, (Christchurch, 2014).

State Services Commission, "Reviewing the Machinery of Government", (State Services Commission, 2007).

State Services Commission, "Regulatory Impact Statement: Canterbury Earthquake Response and Recovery Bill [later the Canterbury Earthquake Recovery Act 2011]", (State Services Commission, 2011).

State Services Commission, "Performance Improvement Framework Review of the Canterbury Earthquake Authority", (State Services Commission, 2014).

Statistics New Zealand, "Household Labour Force Survey December 2016 Quarter", (Statistics New Zealand, 2017).

Statistics New Zealand, "Subnational population estimates", (Statistics New Zealand, 2017).

Stronger Christchurch Infrastructure Rebuild Team, "Memorandum of Understanding between SCIRT and InfraTrain", (Stronger Christchurch Infrastructure Rebuild Team, 2012).

Stronger Christchurch Infrastructure Rebuild Team, "The Value of SCIRT", (Stronger Christchurch Infrastructure Rebuild Team, 2014).

Stronger Christchurch Infrastructure Rebuild Team, "Stakeholder Management Plan", (Stronger Christchurch Infrastructure Rebuild Team, 2016).

Stronger Christchurch Infrastructure Rebuild Team, "Catalyst for life-saving change in safety", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

Stronger Christchurch Infrastructure Rebuild Team, "Independent Research Informs Communications and Engagement", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

Stronger Christchurch Infrastructure Rebuild Team, "Schedule of Works as at 2 February 2017", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

Stronger Christchurch Infrastructure Rebuild Team, "The genesis of SCIRT – a new era in disaster recovery", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

Stronger Christchurch Infrastructure Rebuild Team, "The SCIRT Collaborative-Competitive Model", (Stronger Christchurch Infrastructure Rebuild Team, 2017).

Stronger Christchurch Infrastructure Rebuild Team, "Achievement Report July 2012 - December 2013", (Stronger Christchurch Infrastructure Rebuild Team, publication date unknown).

Stronger Christchurch Infrastructure Rebuild Team, “Fact Sheet – Underground Pipes”, (Stronger Christchurch Infrastructure Rebuild Team, <http://strongerchristchurch.govt.nz/resources/fact-sheets>, publication date unknown, retrieved March 2017).

Stronger Christchurch Infrastructure Rebuild Team, “Frequently Asked Questions – employment”, (Stronger Christchurch Infrastructure Rebuild Team, <http://strongerchristchurch.govt.nz/resources/fag/category/employment>, publication date unknown, retrieved April 2017).

Swiss Re, “Understanding reinsurance: How reinsurers create value and manage risk”, (Swiss Re, 2004).

Taig, T., Massey, C., Taig, M., Becker, J. & Heron, D., “Validating the rockfall risk models developed for the Port Hills of Christchurch, New Zealand”, (Massey University, 2015).

Taylor, J.E., Chang, S.E., Elwood, K.J., Seville E. & Brunson, D., “Learning from Christchurch: Technical Decisions and Societal Consequences in Post-Earthquake Recovery”, (Resilient Organisations, 2012).

Tonkin + Taylor, “Residential Ground Improvement”, (Earthquake Commission, 2015).

Tonkin + Taylor, “Kaiapoi Red Zones”, (Tonkin + Taylor, January 2016).

The Treasury, “Home Insurance – Implications of Sum Insured Cover”, (The Treasury, 2015).

The Treasury, “New Zealand’s Future Natural Disaster Insurance Scheme: Proposed Changes to the EQC Act 1993”, (The Treasury, 2015).

The Treasury, “Investing for New Zealand – Insights from 2015/16”, (The Treasury, 2016).

The Treasury, “Lessons from Treasury’s role in the Canterbury earthquakes”, (The Treasury, 2016).

United Nations Office for Disaster Risk Reduction, “Learning from disaster recovery: guidance for decision makers (preliminary version for consultation)”, (United Nations Office for Disaster Risk Reduction, 2007).

United Nations Office for Disaster Risk Reduction, “Guidance Note on Recovery: Governance”, (United Nations Office for Disaster Risk Reduction, 2010).

University of Canterbury, “University of Canterbury Annual Report 2016”, (University of Canterbury, 2016).

Whitehead, J., “Annual Review of the Canterbury Earthquake Recovery Act 2011”, (Canterbury Earthquake Recovery Authority, 2015).

Wilkinson, S., Shahbazzpour, M., Finch, R. & Noktehdan, M. “The SCIRT Innovation Project” (BRANZ, 2016).

Work and Income, “Earthquake Support Subsidy”, (Work and Income, <https://www.workandincome.govt.nz/online-services/eesp/index.html>, publication date unknown, retrieved March 2017).

Wright, M. “Five years of Cera: Success or failure?”, (<http://www.stuff.co.nz/national/politics/78952664/Five-years-of-Cera-Success-or-failure>, published 16 April 2016, retrieved May 2017).

13. List of Summary Statements

Recovery Governance Arrangements

- Amendments to the civil defence emergency management framework since the Canterbury earthquakes have improved the legislative framework for recovery, particularly from New Zealand's most frequent emergencies – those of small to moderate scale.
- The government's recovery governance decisions were made in the context of local governance problems being experienced in Canterbury at the time.

Governance arrangements after the 22 February 2010 earthquake

- The government realised that the scale of the devastation after the 22 February 2011 earthquake would mean a longer, more costly and more complex recovery, and that the arrangements put in place after 4 September 2010 were no longer fit for purpose. International experience informed the governance arrangements chosen – a new public service department responsible for leading and coordinating the recovery.
- The role of the Canterbury Earthquake Recovery Authority evolved over its five years of existence. It became increasingly responsible for delivery of recovery work (e.g. implementing the Crown offers to owners of property in the Residential Red Zone).

Ensuring collaboration across the recovery sector

- The Canterbury Earthquake Recovery Authority set up a range of formal partnerships and structures to assist in coordinating across multiple stakeholders within the recovery community. Building on and adapting existing local structures worked well.
- The complexity of the recovery community, and the evolution of the Canterbury Earthquake Recovery Authority's role over time, caused confusion about who was responsible for what. Clearly defining and communicating respective accountabilities would have reduced confusion. Anticipating tensions and dedicating resources to managing relationships would have improved collaboration.

Public participation and community engagement

- The Recovery Strategy was developed by the Canterbury Earthquake Recovery in consultation with the strategic partners, and was informed by a public engagement process that included workshops and written feedback. A significant aftershock on 13 June 2011 delayed workshops and affected people's ability to engage in long-term thinking on the strategy.
- The Christchurch City Council developed the draft Central City Plan, informed by the 'Share an Idea' engagement process that generated over 106,000 ideas. The government decided to establish a new unit within the Canterbury Earthquake Recovery Authority to finalise the recovery plan and lead the delivery of the central city anchor projects. This was perceived by some as central government 'taking over' a local government-led initiative and led to feelings of disillusionment.

Transition to new governance arrangements

- By tasking the Department of the Prime Minister and Cabinet to develop a plan for transition, the government addressed the risk of perverse incentives if the Canterbury Earthquake Recovery Authority had to disestablish itself.
- The Canterbury Earthquake Recovery Authority was always intended to be temporary, but its culture of fixing problems meant that it missed opportunities to empower other, more permanent, entities to take responsibility and build capability. It is important for a recovery agency to 'plan for the end at the beginning' by finding natural homes for functions and building trust and capability with inheriting entities early on.

Effectiveness of the governance arrangements

- There is no clear consensus on the effectiveness of the governance arrangements put in place after the 22 February 2011 earthquake.

Recovery Legislation

The effectiveness of the Canterbury Earthquake Recovery Act

- Overall, the Act worked as intended and its purposes were achieved reasonably well and faster than would have otherwise been the case. Delays or impediments to recovery could not be attributed to the legislation.
- The Community Forum effectively balanced the need to deal with confidential issues and meet its information provision role, but experienced challenges balancing its prescribed statutory role and community expectations.
- The Cross-Party Parliamentary Forum was effective in the emergency response phase, but its role and benefit reduced over time.
- The provisions in the Canterbury Earthquake Recovery Act 2011 were deliberately and understandably flexible given the recovery context, however a number of specific provisions were made relating to community engagement and stakeholder confidence. Negative perceptions of the level of community engagement were identified as a key challenge during the recovery.

Special powers under the Act

- The use of powers (intended to speed and ease recovery) and the checks and balances in place were appropriate. There were, however, mixed views over the Canterbury Earthquake Recovery Authority's restrained approach to the use of the powers.
- There was a measured approach to use of Orders in Council for amending legislation, where it had a negative impact on recovery. It was a necessary and effective recovery tool for resolving specific or short-term problems, but was appropriately in place for a limited time only.

Crown's Land Decisions

Land zoning decisions

- When developing policy responses following a major disaster, recognise that a key challenge is balancing speed and deliberation. This was the case in developing policy that would provide certainty and confidence to home owners and insurers about land damage.
- The development of technical land categories concentrated limited geotechnical resources in the worst-affected areas. The Ministry of Business, Innovation and Employment was then able to develop foundation solutions, which the private market built upon to meet the new building standards required. The decision to categorise land also allowed property owners to go ahead with their insurance claims.

Offers to purchase properties in the most damaged areas

- Information about damaged properties was often uncertain, incomplete and held in different databases. A national database of land parcels and ownership has subsequently been created to better prepare New Zealand for future disasters
- Quality as well as quantity is important when providing information to the public. For example, a key lesson for the Canterbury Earthquake Recovery Authority was to individualise communication through smaller workshops and one-on-one meetings as required.
- The Crown offers provided certainty for owners of properties in the residential red zones and allowed the majority of them to move forward with their lives. A small number of residents continue to reside in the residential red zone and have experienced a drop in their quality of life.
- Māori freehold land in the residential red zone posed a specific challenge. A solution was needed that allowed the property owners to avoid alienating the land from Māori ownership, while also being consistent and fair to other red zone property owners.
- The government faced challenges associated with managing the large area of suburban residential land it had acquired through the land zoning decisions and Crown offers process. Clearing the land made the sites easier and less costly to manage, but this took time.

Insurance Response

The Earthquake Commission's response

- The Earthquake Commission's scaling model requires a well-defined framework, with a strong central hub, to manage the escalation of resources to manage claims. The Earthquake Commission made improvements to its operational processes, in response to the changing environment.
- The Earthquake Commission was successful in setting up the repair programme quickly and generally managed repair costs well. In future, close scrutiny of costs and quality of repairs needs to be maintained so that informed decisions can be made as more information becomes available.
- Conducting detailed property assessments for each individual property and trying to attribute damage to different events was challenging. Assessment data was found to be critical for private insurers when conducting joint reviews and apportionment negotiations.
- The Earthquake Commission's precise coverage was initially unclear and not well understood by the Earthquake Commission and private insurers, with liability clarified through the courts. Key aspects of the Earthquake Commission scheme require further clarification.
- Research commissioned by the Earthquake Commission helps New Zealand better prepare for future events and informs government policy on building standards and zoning requirements. Outputs also have potential applications in comparable areas around the world.
- Information about land and properties will be keenly sought by residents, businesses, insurers, and others following a disaster. Collaboration between the public and private sectors and commitment to open data sharing created significant wider benefits.

Government support and interventions relating to insurance

- The need for government intervention in the private insurance sector following the earthquakes suggests the need to 'future proof' regulatory settings. A review of the Earthquake Commission Act 1993 is underway, and an issues paper on the Insurance (Prudential Supervision) Act 2010 is currently out for public consultation.
- Tenants and building owners will often have conflicting priorities and needs. For example, building owners generally having longer business interruption insurance cover than tenants. This means that while building owners have the option of taking their time over repairs or rebuilds, some tenants face the prospect of bankruptcy.
- Multi-unit buildings came with unique challenges, due to the complexities of insurance arrangements and the number of parties involved. These issues were openly discussed between insurers, and new systems and processes were developed in response.
- Elderly residents of earthquake-damaged retirement villages faced difficulties seeking alternative accommodation, as they were often left with less money than what they originally paid for occupation rights.
- The earthquakes put pressure on rental prices and demand for accommodation, driven by the influx of migrant construction workers and the demand for temporary accommodation while homes were undergoing repairs or rebuilds. Temporary accommodation and other support services were established to ease the housing pressures.

Horizontal Infrastructure Rebuild Programme

The effectiveness of the alliance model

- Delivery teams initially focused on the competitive elements of the model, and took time to adjust to the collaborative elements. When adopting this model, it is important to encourage the proactive sharing of information and resources as soon as possible.
- The pain/gain payment model was effective in maintaining focus on costs and incentivised contractors to collaborate to improve performance and deliver work under budget, while still maintaining competitive tension. This model could be considered for other large-scale projects.
- SCIRT's health and safety performance exceeded the benchmark, through fostering a proactive safety culture and developing a number of safety initiatives. SCIRT's health and safety practices have wider applications and have already been adopted by New Zealand Transport Agency and other organisations.
- Generating innovations was included as a performance indicator for the Delivery Teams, with a formal framework to record and evaluate each. The process for identifying and recording lessons and innovations has been adopted by others.
- The SCIRT programme provided an opportunity to lift capability and increase diversity in the construction sector. The joint approach between government, employers and training providers to support women in construction proved successful and the lessons from the programme can be adopted by other regions and industries where women are currently underrepresented.
- Surveys were useful in helping Delivery Teams understand what is most important to people and target their messaging accordingly. Including Communications as an indicator can encourage collegial support when individual teams score poorly, and promote pride when Delivery Teams perform well.

The Funding Partners

- The initial governance arrangements demonstrate that it is important to be very clear about roles and responsibilities from the outset in an Alliance model. This includes having clear Terms of Reference and robust governance arrangements in place.
- The Crown initially reimbursed local authorities for eligible response and recovery costs while the damage to the horizontal infrastructure was still being defined. Over time this model was replaced by the Cost Sharing Agreement. This approach allowed emergency repairs to be undertaken, while waiting for the full picture of the damage.
- Consideration needs to be given on appropriate delivery models for the works required. For example, Alliance models may be appropriate for large programmes of works, while a hybrid model may be more appropriate for business as usual activities (as adopted by the Christchurch City Council).

14. List of Lessons

Recovery Governance Arrangements

Lesson: Further work needs to be done to ensure that New Zealand is prepared for long-term recovery from future large-scale disasters.

Governance arrangements after the 22 February 2011 earthquake

Lesson: Prepare for quickly establishing a recovery agency by setting up pre-arranged service agreements to provide systems and processes across the core corporate services, including:

- financial controls and management
- performance management and reporting
- human resources
- information services and technology
- Ministerial services, including official correspondence.

Ensuring collaboration across the recovery sector

Lesson: Where possible, it is useful to build on or adapt existing local structures when establishing new recovery partnerships and structures.

Lesson: Define and clearly document the accountabilities of the recovery authority in relation to those of other agencies.

Lesson: Ensure that respective roles and responsibilities within the recovery community are clearly communicated, particularly with the public.

Lesson: Manage expectations about the role of the recovery authority, so that it is not seen as responsible for everything.

Lesson: Build in formal and regular review processes for the governance arrangements to ensure they continue to be fit-for-purpose, particularly as roles and responsibilities evolve.

Lesson: Dedicate and prioritise resources to manage partnership and interagency relationships at multiple organisational levels.

Public participation and community engagement

Lesson: Public engagement processes, particularly on strategic issues, need to consider that people's ability to think beyond the immediate response phase of a disaster might be compromised by the impact of the disaster.

Lesson: When developing a recovery strategy or plan, manage expectations and clearly communicate roles and responsibilities to mitigate the perception that the temporary recovery authority is the sole 'owner' of the strategy or plan.

Lesson: Clearly communicate how ideas and feedback generated through public engagement processes have been incorporated or addressed in a finalised strategy or plan.

Lesson: Clearly communicate the rationale for any central government intervention, particularly where the Government is acting in an area that might otherwise have been the responsibility of a local entity.

Transition to new governance arrangements

Lesson: Task an external entity with developing the exit strategy for a recovery authority, to avoid the perverse incentives that will arise if an entity is responsible for disestablishing itself.

Lesson: Find natural homes for functions that need to be transferred early, and build trust and capability with inheriting agencies early on.

Lesson: 'Plan for the end at the beginning' – consider the effects of taking on additional roles and responsibilities and take a strategic approach to disestablishment.

Lesson: Ensure that employees of temporary recovery authorities do not lose sight of the temporary nature of their roles.

Effectiveness of the governance arrangements

Lesson: Public perception is important. Manage expectations about public engagement and input into decision-making processes. Do not over promise.

Recovery Legislation

The effectiveness of the Canterbury Earthquake Recovery Act

Lesson: Ensure that the role and mandate of any community advisory group is clearly understood by its members and communicated to the public. This will help to manage expectations so that the group is not seen as the sole 'voice' of the community.

Special powers under the Act

Lesson: Ensure that policy intentions are clearly articulated in legislative drafting, particularly regarding the exercise of powers, to ensure that there is no room for misunderstanding or misinterpretation.

Offers to purchase properties in the most damaged areas

Lesson: Ensure that information on properties (e.g. ownership, boundaries, etc) is held in one place and easily accessible, as there will be demand for this information from a range of parties following a disaster.

Lesson: Recognise that people affected by disaster will receive and process information differently than in a 'business and usual' situation. Plan ahead to tailor your engagement approach to vulnerable and stressed people.

Lesson: When communicating significant decisions, ensure that you are listening and engaging with people rather than just transferring information.

Lesson: Ensure that people understand the reasons why decisions are made in the way they are.

Lesson: 'Front up' and go to the communities that are affected.

Lesson: Consider using a range of different approaches to communicating and engaging with people and communities affected by disaster, such as:

- One-on-one meetings
- Technical seminars with experts who can explain the scientific basis for decisions
- Neighbourhood meetings (larger meetings with general messages)
- Workshops where people can ask personalised questions.

Lesson: Recognise that there are no easy answers to the 'wicked problems' faced by governments in dealing with recovery from large-scale disasters.

Lesson: Recognise upfront that policy decisions can impact differently on different groups, and bespoke solutions may be required. Where possible, consider the potential impacts, including unintended consequences, on a range of groups (e.g. indigenous groups, women, young people, people with disabilities) before decisions are made.

Lesson: Recognise that policy decisions can have unintended consequences, including making things worse for some people. Where possible, identify the full range of positive and negative consequences before a decision is made.

Crown's Land Decisions

Land zoning decisions

Lesson: Acting quickly with best information at hand, rather than perfect information, is sometimes necessary to provide certainty and confidence following an emergency.

Lesson: Where decisions are made under tight timeframes with imperfect information, build in the opportunity for reviewing those decisions at a later date.

Insurance Response

The Earthquake Commission's response

Lesson: When an organisation may need to be scaled up quickly, pre-planning and scenario testing will identify challenges ahead of time.

Lesson: Expect to make changes following a large up-scale. Be flexible about organisational structure and processes to allow for more efficient adaptation and improvements.

Lesson: Consider centralising any previously decentralised services (e.g. call centre, claims processing centre) during the upscaling process. This will facilitate streamlining following the up-scale, and allow performance of the services to be more closely managed than if they remained decentralised.

Lesson: If conducting a large-scale repair programme, ensure that close scrutiny of costs and quality of repairs is maintained throughout the programme. This will facilitate robust performance assessments and improve consistency with repair processes and practices.

Lesson: A single point of contact/end-to-end customer-centric approach improves the efficiency of insurance claims assessment and settlement, and creates a simpler experience for home owners.

Lesson: Ensure that geotechnical information is held in one place and easily accessible, and new geotechnical information can be easily added and shared. There will be significant demand for geotechnical information from a range of parties following a disaster.

Government support and interventions relating to insurance

Lesson: Recognise that multi-unit buildings will present challenges to the settlement of insurance claims, and consider how these challenges could be mitigated before a disaster (e.g. improving home owners' awareness of the challenges, encouraging insurers to pre-identify a lead insurer).

Lesson: An independent advisory service for home owners is a valuable tool to facilitate and broker agreements between home owners and insurers following a disaster.

Lesson: Where home owners are experiencing difficulties in reaching settlement with private insurers, providing a mediation service can be more effective than providing a legal advice service.

Lesson: Recognise that residents in retirement villages may face particular difficulties in finding alternative accommodation following a disaster, and consider these challenges could be mitigated before a disaster over time.

Lesson: Temporary accommodation support services, including temporary housing and accommodation allowances, will assist in addressing any short-term upsurge of housing demand following a disaster and the costs of additional accommodation.

Horizontal Infrastructure Rebuild Programme

The effectiveness of the alliance model

Lesson: If using an alliance model requiring both competition and collaboration, encourage proactive sharing of information and resources as soon as possible to foster the collaborative elements of the model.

Lesson: A pain/gain payment model is an effective cost performance tool in an alliance model because it:

- encourages a focus on costs;
- shares risk between the owner participants and the non-owner participants;
- encourages improved performance in delivering work under budget; and
- incentivises higher performing teams to collaborate and share expertise with others.

Lesson: Including innovation as a performance indicator incentivises new ideas that will either improve project or programme outcomes (without increasing cost), or achieve the same outcomes at a lower cost.

Lesson: If innovation is used as a performance indicator, ensure that a robust evaluation and dissemination system is in place to ensure that valuable new ideas are widely shared and adopted within and outside of the Alliance.

Lesson: Disaster recovery work may provide an opportunity to increase diversity in sectors where some groups (e.g. women) are under-represented.

Lesson: Monitoring community satisfaction through surveys will help in understanding what is important to people, so that messaging can be tailored and targeted accordingly.

Lesson: Including community satisfaction as a performance indicator can encourage pride in good performance and collegial support of poorly performing teams.

Lesson: Build in opportunities for review of an alliance model at set stages of a programme to ensure that the settings are maximising outcomes.

The Funding Partners

Lesson: Future Alliance arrangements could build-in opportunities for review of the model at set stages of a programme.

Lesson: Ensure clear Terms of Reference and robust governance arrangements are in place from the outset when setting up an Alliance model.

Lesson: Initial funding support to local authorities by the Crown enabled emergency repairs to infrastructure to go ahead. This arrangement was replaced by a formal Cost Sharing Agreement once the extent of the damage had been defined.

Lesson: Establish work-scope eligibility criteria and funding eligibility early in the programme. Where differences occur escalate unresolved issues for resolution.

Lesson: The Christchurch City Council has drawn on the learnings of the alliance delivery model to create a hybrid model to deliver its major capital project works. Adopt the model that is appropriate to the scale of works required and environment at hand.

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