

Earthquake Commission

Briefing to the Incoming Minister

December 2011

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Executive Summary

The New Zealand Earthquake Commission (EQC) is a Crown Entity dedicated to preventing and reducing natural disaster damage. Through its research and education activities EQC facilitates innovative and cost-effective assessment of risk and through its insurance scheme EQC underpins a thriving private insurance market to manage natural disaster risk. When a major natural disaster occurs, EQC's insurance scheme helps affected residents to recover and its administration of the scheme supports market confidence.

The Canterbury earthquakes of 2010 and 2011 were New Zealand's most damaging natural disaster. As a result of the 22 February 2011 earthquake, 182 people lost their lives and many more were injured. Extensive damage to land and buildings has meant thousands of people have to replace their homes. Treasury estimates the total cost of the earthquakes at around \$30 billion, which is around 15 per cent of GDP.¹ To put this estimate in context, the March 2011 earthquake off the north-east coast of Japan, although larger in physical terms, is estimated to have caused damage equivalent to around three to five per cent of Japan's GDP. Rebuilding and recovery, therefore, represents a huge challenge for Canterbury communities and the whole country.

The Canterbury earthquakes also represent an unprecedented challenge for EQC. As at 24 November, EQC has received 618,000 building, land or contents claims. Its previous biggest event was the Inangahua earthquake in 1968, with 10,500 claims. Internationally, the 4 September and 22 February earthquakes are each among the five most damaging earthquakes in the world by insured losses.

EQC has already paid out \$2.5 billion, around 10 per cent of Canterbury GDP, and closed 206,000 contents, land and building claims.² At a time of global economic uncertainty, EQC has absorbed a \$12 billion liability with the call on Government funds currently estimated at around \$490 million. But there is still a lot of work to be done. Billions more in cash settlements remain to be paid out. And over the next three to four years, EQC will oversee the repair of around 100,000 houses to ensure that earthquake damage is repaired to a consistent standard and costs managed.

The Canterbury earthquakes have demonstrated the value of an independent entity dedicated to reducing the impact of natural disasters. Risk pooling has reduced the strain on individual insurers, while mandatory disaster cover enabled a very high level of insurance penetration for residential property that has assisted community confidence. The centralisation of most claims handling has certainly increased the workload on EQC, but has also presented opportunities for coordination of the rebuild that would not otherwise be possible.

There are lessons to be learned from the operational response for EQC and other agencies with similar response roles. It is appropriate that a full review is undertaken, once the recovery is bedded

¹ Treasury (2011) *Pre-Election Economic and Fiscal Update*

² NZIER (2011) *March 2010 Year Regional Shares of GDP*



in, to ensure the scheme continues to meet the expectations of New Zealanders and contributes to a sustainable private insurance market. This review will also provide the opportunity to address long-standing anomalies in the scheme.

The first part of this briefing examines EQC's response to the Canterbury earthquakes so far, including operational changes and the assumption of new roles. The second part examines the work still to be done to settle all claims. The third part examines the role of EQC and suggests a number of areas that could be considered in the upcoming review of the EQC scheme. In addition to the substantive parts of this briefing, Annex 1 provides an overview of the scheme, Annex 2 covers governance matters including upcoming Board appointments, and Annex 3 sets out current staffing levels and the organisational structure. The main points of each part are collated overleaf.



EQC Response to Canterbury Earthquakes

- The accuracy of EQC's claims settlement and apportionment process will continue to be a focus given the importance of ongoing reinsurer confidence in the New Zealand insurance market.
- The Catastrophe Response Programme enabled a rapid increase in staff numbers but there are lessons to be learned about ensuring flexibility, quality of customer processes and managing trade-offs given the operational changes and expanded role that EQC assumed in response to the nature of the events.
- The PMO is a critical part of EQC's claims handling performance. The outcomes achieved through of the PMO will inform EQC's approach to future events.
- There is a need for improved pre-event cooperation and information-sharing, such as the creation of a single authoritative address database.

Work Still to Do

- EQC will determine the timeframes and programme of work for cash settlement of claims and consult Ministers in early 2012.
- EQC will consult Ministers on the full repair programme for the Fletcher EQR PMO in early 2012.
- Consideration will need to be given to management of labour capacity given competing demands (e.g. private insurers).
- EQC will determine the timeframes and programme of work for settling land claims and consult Ministers in early 2012.

Review of EQC Scheme

The Review should:

- Ensure insurance parameters chosen support broader Government, community, and commercial risk management decisions.
- Consider the removal of contents cover from EQC insurance.
- Re-examine the policy rationale for land cover and how current land provisions work.
- Consider the potential to introduce differential pricing to reflect the actual risk commensurate with location or construction characteristics.
- Consider simplifying excesses and increasing incentives for mitigation.
- Consider automatic adjustment mechanisms for excesses and caps.
- Consider changing the caps, in conjunction with premium changes, to achieve an optimal split between EQC's first loss cover and private insurer cover.
- Consider the target level and mix of assets and reinsurance in the Fund.
- Consider elevated reinsurance levels while the Fund rebuilds.
- Consider the potential for improved coordination and robust monitoring of the effectiveness of hazard education programmes.



EQC Response to Canterbury Earthquakes

This part of the briefing examines:

- Activation of the Catastrophe Response Programme;
- Progress Assessing and Settling Claims;
- Operational Changes Made; and
- Expansion of EQC Role.

EQC's research and education activities, and the way in which they contributed to greater resilience when the Canterbury earthquakes occurred and are informing the recovery, are considered in the third part of this briefing: *Review of EQC Scheme*.

EQC's ongoing claims settlement role outside of Canterbury is not discussed in detail in this briefing. In 2010/11, EQC dealt with 4,164 non-Canterbury claims. These included EQC's largest ever landslide event in the aftermath of Cyclone Wilma in January 2011, the first payments for claims arising from a tsunami in March 2011, and the landslips resulting from the storms in Hawke's Bay in April 2011.

Main Points

- The accuracy of EQC's claims settlement and apportionment process will continue to be a focus given the importance of ongoing reinsurer confidence in the New Zealand insurance market.
- The Catastrophe Response Programme enabled a rapid increase in staff numbers but there are lessons to be learned about ensuring flexibility, quality of customer processes and managing trade-offs given the operational changes and expanded role that EQC assumed in response to the nature of the events.
- The PMO is a critical part of EQC's claims handling performance. The outcomes achieved through of the PMO will inform EQC's approach to future events.
- There is a need for improved pre-event cooperation and information-sharing, such as the creation of a single authoritative address database.

Activation of the Catastrophe Response Programme

Prior to 4 September 2010, EQC's experience was limited to events resulting in around 5,000 claims, such as the 20 December 2007 earthquake near Gisborne and the 15 July 2009 earthquake in Fiordland. In 1968, the Inangahua earthquake had generated the most claims from a single event since EQC's establishment with a comparatively few 10,500 claims. Initial modelling of the 4 September earthquake indicated that EQC would receive well in excess of 100,000 claims. The chart overleaf shows that claim numbers for the 4 September earthquake alone were comparable to the size of the largest event EQC had expected and planned for (i.e. a large Wellington event).



EQC's operational response to a major event was set out in the Catastrophe Response Programme (CRP). The CRP had been externally reviewed in 2009, with a number of operational improvements made and the overall model endorsed. For a major event, the CRP set out a number of actions to allow EQC to expand rapidly. These actions were:

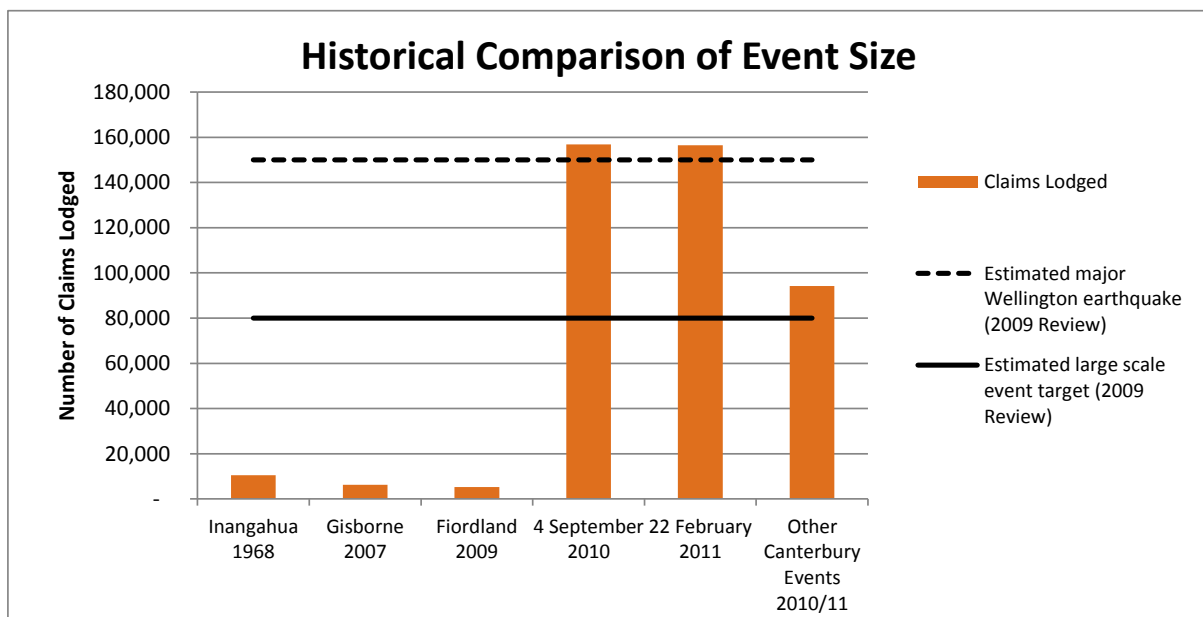
- Utilising the pool of experienced staff who had been employed in previous events;
- Activating a number of outsourcing relationships in New Zealand and Australia;
- Drawing on any excess capacity in the market, which EQC had enlarged through industry education support and an assessment capacity initiative begun in 2009; and
- Instituting training programmes to grow the total number of skilled staff available.

Given the size of the 4 September earthquake, all of these actions were required. In addition, EQC created an in-house claims handling team to supplement outsourced services.

These plans enabled EQC to put 'boots on the ground' by deploying trained assessment teams from around the country and calling on outsourced Australian loss adjustment specialists (as distinct from estimators who require knowledge of local building standards and were also more readily available in the local market). The latter were contracted on the basis they were independent of a New Zealand disaster and available during the cyclical flood/bushfire seasons in Australia. Concurrently, training and outsourcing enabled a rapid expansion to 400 staff deployed in-field (mainly assessment teams) by early October. By the end of 2010, total staff numbers were over 1,000.

The CRP was effective at deploying resources in the field and increasing these in a relatively short timescale. But the CRP did not ensure the scalability of support functions in an event of the magnitude experienced in Canterbury. The more "personalised" customer experience delivered in previous small and medium scale events was much more difficult to ensure once much higher numbers of customers were affected.

Chart 1: Historical Comparison of Event Size (by Claims Lodged)



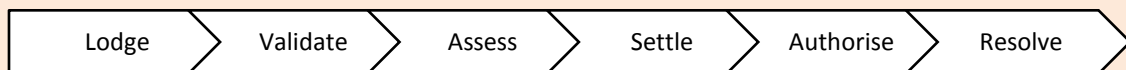
Claims from the Canterbury earthquakes combined are over five times larger than the “large scale event” of 80,000 claims that the 2009 External Review recommended EQC plan for (with a major Wellington earthquake assumed to result in 150,000 claims). The review also assumed that EQC would need to respond to a single event. Canterbury has endured 14 claim generating events and thousands of lesser aftershocks.

Progress Assessing and Settling Claims

EQC’s aim is to ensure all customers receive their correct entitlement under the Earthquake Commission Act 1993 (The EQC Act). Managing this process well is important for all New Zealanders, as EQC’s claims handling process determines the costs to levy-payers (and to taxpayers, in the event the Crown guarantee is called on). Accuracy also matters for third parties who have a financial interest in the claim (e.g. mortgage holders, private insurers, international reinsurers) who look for certainty about their costs and risks, so they can price these accordingly. Ultimately, these costs also fall on levy payers and taxpayers.

Overview of the Claims Handling Process

EQC’s claims handling process involves a number of steps to ensure that claimants get their correct entitlement and settlement is accurate. These steps are set out below, and cover the entire process from lodgement of claims and validating insurance details, to assessing repair costs, authorising the final settlement and dealing with any outstanding issues such as recovering overpayments. EQC will be audited to ensure the accuracy of its settlement processes, in the interests of levy payers and reinsurers.



Assessments

Assessments had to be started over following the 22 February earthquake (and in some cases additional assessments were also required after later events, particularly land assessments following the 13 June earthquake). 81,775 full building assessments were completed between 4 September and 22 February. Prior to 22 February, the building assessment phase was on track to finish at the end of March 2011. With the additional damage of 22 February (and other aftershocks), EQC expects to undertake 266,000 full building damage assessments, across the 187,000 damaged houses in greater Christchurch. This figure excludes the more than 182,000 rapid assessments undertaken in the aftermath of 22 February (see page 13).

Table 1: Assessments Complete as at 24 November³

	Complete	Total to do	% Complete
Building	171,585	184,427	93%
Land	51,420	54,100	95%

³ The number of land and building assessments estimated to be required is lower than the number of land and building claims, as multiple events have resulted in many properties having multiple claims. Earlier assessments (prior to 22 February) are excluded.



EQC has committed to **completing all building assessments by Christmas 2011**. There were 12,842 building assessments to complete as at 24 November. The 220 assessments teams need to complete an average of 3,211 per week to achieve the target, and are currently running ahead of schedule, at 6,550 per week.

EQC also aims to **complete all land assessments by Christmas 2011**, so that decisions on the process for settling land claims can be made. Of the 54,100 land claims to be assessed (based on land mapping), 49,000 are on the plains and 5,100 in the Port Hills. Land Damage Assessment Teams have completed 97 per cent of assessments on the plains as at 24 November, and geo-technical resource will then be transferred to speed up land damage assessment in the Port Hills, where 73 per cent of land claims have been assessed.

Safety

EQC's statutory role is to inspect properties to quantify natural disaster damage and to determine whether to meet a claim for the cost of that damage. EQC therefore inspects damage with a view to administering insurance. It does not have the mandate nor presume to have the expertise to assess the safety of a building. EQC is not involved in the process of "red stickering" properties to indicate a dangerous building and prohibit people from entering or occupying that building. This role was undertaken by the Christchurch City Council and by members of the Civil Defence Emergency Management Group. EQC assessors worked around red-stickered buildings and progressively moved in to assess damage to inner-city apartments as the CBD cordon contracted.

Following 22 February, EQC has instituted processes to notify councils if and when assessment teams become aware of a serious and imminent risk to public health and safety in the course of their damage assessments. This process is not a substitute for Council or Civil Defence mandated procedures.

Settlement of Claims

Once assessment is complete, the claim can be settled. Settlement of valid claims can occur in a number of ways: cash payment, replacement or reinstatement. Some land and building claims will be reinstated as part of the managed repair processes set out on pages 13 to 14 and 18 to 21. The remaining valid claims will be cash settled.

Table 2: Claims Closed as at 24 November

	Closed	Total Claims	% Closed
Contents	106,455	168,506	63%
Building	84,965	366,830	23%
Land	15,439	83,146	19%

EQC has committed to **closing by Christmas 2011 all valid contents claims with schedules of contents supplied by 28 October**. Without a schedule and appropriate supporting information, EQC cannot settle the claim. EQC undertook an awareness raising campaign to encourage submission of



schedules of contents, including media advertising, outbound calls and follow-up letters. Of the 62,051 contents claims still open, only 6,522 have submitted contents schedules prior to 28 October. These claims will be closed by Christmas. The remaining claims will be addressed in early 2012.

Total Paid to Date

Overall, \$2.5 billion has been paid, nearly a quarter of the overall claims cost and over a third of the \$6 billion Natural Disaster Fund (the Fund) assets held at the time of the first earthquake.

During this time, managing claims handling costs has been a priority for EQC. EQC's target claims-handling cost is no more than 10 per cent of pay-out, a level that is forecast to be achieved in mid-2012. The claims handling cost is higher than this initially as handling costs are front-loaded due to the need for a large numbers of in-field damage assessment teams (and associated overheads) as part of EQC's first loss role. Claims handling cost drivers are unique, and thus not directly comparable with those of other New Zealand insurers.

Reporting

Since September 2010, at its own initiative EQC has provided weekly (and, for a period, daily) updates to Government on operational matters relating to EQC's response to the Canterbury earthquakes. EQC also has regular discussions with the Minister for Canterbury Earthquake Recovery (to whom Ministerial oversight of operational matters was delegated). Again at its own initiative, EQC has been working with external consultants with expertise in the insurance and financial services industry to make a number of monitoring and reporting enhancements.

Difficulties arising from Multiple Events

The Canterbury earthquakes created operational complexities unprecedented in major insurance events worldwide. Aside from the additional work created (and in some cases the previous work undone) the occurrence of multiple events created operational challenges throughout the claims handling process, including:

- Multiple claims for a single property had to be manually associated and validated, a task made more difficult by the lack of a single, authoritative address database that could be accessed.
- Lodgement and validation of claims was complicated by a higher proportion of duplicate or invalid claims.
- A new process of apportionment had to be created to attribute damage to causative events, so that correct excess amounts and liabilities can be assigned to each event (as reinsurance contracts cover different events in different ways).
- Determining which repairs are the responsibility of private insurers is not straightforward, particularly following the High Court ruling on reinstatement.
- There are greater audit and review requirements given the additional complexity.
- There is more complex and potentially frustrating interaction for customers.



Operational Changes Made

In past briefings to Government, EQC had raised the tension between fast and simple settlement by cash and the potential negative effects for cost inflation and quality of repair.

The CRP was essentially geared to scaling up to manage a large number of claims in the event of a major natural disaster. The CRP allowed for much larger volumes of work but not significantly different processes, partly because international experience had shown that the ways in which a major event might change processes would be unpredictable, and partly because it is difficult for a Government to set in advance its priorities, expectations and processes for a hypothetical event.

However, lessons on the balance between maintaining flexibility and having detailed plans in place, coordination challenges, and the trade-offs necessary in a recovery need to be collated and analysed.

Similar challenges apply to other organisations. The earthquakes have brought to the fore outstanding questions about the demands on local councils and utility infrastructure providers in a major disaster, and unresolved responsibilities around issues such as temporary housing.⁴ EQC's role is only one piece of the coordination challenge facing Government and communities in preparing for and responding to natural disaster.

Interaction with Insurers

As the first loss insurer for natural disasters, EQC handles the majority of residential property claims in their entirety – and only requires confirmation of insurance details from private insurers. With the extensive damage in Christchurch, EQC expects around 30,000 damaged properties to be over the EQC cap and so be passed to insurers, around 15 per cent of the 187,000 damaged houses in greater Christchurch. Insurers also cover some items that are excluded from the EQC Act (e.g. swimming pools) which increases the number of customers who need to deal with multiple insurers.

The need for industry-wide cooperation protocols had been identified for some time as a gap in disaster response planning, including protocols around both information-sharing and cost-sharing after an event. These protocols were not agreed upon prior to the Canterbury earthquakes and had to be established following 4 September.

An example of the difficulty of establishing cooperation during an event is that while private insurers did make their initial 'elemental' building assessments available to EQC, these elemental assessments were undertaken to generate reserve estimates and were often based on simple calculations of building or repair cost by general floor area. As a result, one third of the properties advised to EQC as over-cap based on elemental assessments by private insurers between 4 September and 22 February were assessed by EQC to be *under* the \$100,000 cap. This discrepancy created confusion for customers.

⁴ Middleton D (2007) "A Roof over their Heads: The challenges of accommodation following disasters" 2007 Emergency Management Conference



The size, location and timing of the Canterbury earthquakes created macroeconomic and social concerns that shaped the Government response. A sequence of major earthquakes in (or near) Christchurch was at the lower end of probabilities for the central region of the country as a whole. Occurring, as it did, after a long period of seismic quiescence (i.e. it was psychologically unexpected), there was concern about capital flight, economic disruption and the need to restore confidence in the region. The 4 September earthquake also struck as the economy was coming out of recession, and at a time when the liability for widespread residential building quality failure ('leaky buildings') was a national issue. The sheer scale of the work brought to the fore macroeconomic concerns of cost inflation and potentially poor quality repair work.

EQC responded with two new processes: a "Fast Track" process which would cash settle low value, non-structural building and contents claims quickly; and a Project Management Office (PMO) to manage building repairs to ensure quality and cost containment for more substantive building work. The Government also directed (and separately funded) EQC to project manage additional land remediation to a higher standard than that required under the EQC Act (see page 17).

Fast Track settlement for building and personal property claims under \$10,000

The "Fast Track" programme was based on experience gained from Chilean insurers following the M8.8 earthquake of 27 February 2010 that struck south-central Chile. Fast Track estimators conducted a virtual assessment, interviewing customers on the nature of building and personal property damage. Based on this information, the claim value was estimated and a one-off settlement figure offered.

28,000 customers (around 15 per cent of the total) had their building and contents claims settled through the Fast Track process. The average claims handling cost to EQC was approximately \$100 per claim, less than half the cost of an in-person assessment. The Fast Track programme cut approximately 100 days from the assessment programme.

Managed Repair Programme for building claims over \$10,000

Following the 4 September earthquake there were estimated to be 50,000 houses with damage in the cost range of \$10,000 to the EQC cap of \$100,000 (GST exclusive). The EQC Board determined, and Ministers agreed, that a Project Management Office (PMO) for residential repairs between \$10,000 and EQC's cap was the best way to manage building repairs to ensure quality, mitigate inflation and facilitate equitable access to qualified labour.

In October 2010, Fletcher Construction won the tender to manage the repair process on behalf of EQC. The PMO, known as Fletcher EQR (for Earthquake Recovery), manages the contracts between individual builders and EQC to carry out the repairs. After the 22 February and 13 June earthquakes, and the ruling of the High Court that the EQC cap applied *per event*, the estimate of work required increased to around 100,000 houses.



The Fletcher EQR is one of the biggest construction projects in New Zealand history

Although the final cost, timeframes and workforce requirements are yet to be determined, initial estimates are that Fletcher EQR will spend \$3.2 billion repairing houses, with a workforce of around 5,000, with the bulk of the work occurring over three to four years. That compares with some of the largest construction projects in New Zealand's history, including the Auckland harbour bridge (\$357 million in today's dollars; 1956-59), the Sky Tower (\$107 million; 1994-1997) and even the Clyde Dam (\$4.4 billion, 1977-1989) all of which had just 1,000 workers at peak.

The work still to be done by Fletcher EQR is discussed further on pages 18 to 20. The scale of the project and the importance of the quality and cost containment outcomes for the Canterbury recovery mean that the success of the PMO will be monitored closely by EQC as a critical component of EQC claims handling. The outcomes of the PMO will also inform EQC's approach to future events.

Rapid Assessments initiated following 22 February

The 22 February earthquake caused widespread and severe building damage in eastern suburbs and the CBD of Christchurch. The combination of more severe damage with the colder autumn and winter months approaching, led EQC to develop a door-to-door assessment approach called "rapid assessment" to triage properties with minor, moderate and severe damage, so that full assessments of severely damaged properties could be prioritised (assess the 'worst first').⁵ The quick assessment of the seriousness of the damage allowed EQC to build a picture of the city's damage profile.

The rapid assessment programme also gave the Government the opportunity to capture information that could be used to inform the broader government response. As part of the Rapid Assessment process EQC assessment teams identified vulnerable households and those seeking temporary accommodation, as well as residents who had lost their sole source of heating. By Ministerial Direction, EQC undertook similar assessments of uninsured and otherwise ineligible residential properties, with these costs being funded by the Government.

⁵ In October 2011, with all buildings with severe and moderate damage having been assessed (and all those in Red and Orange zones) EQC moved to a 'street-by-street' approach to assess the remaining houses with less damage as quickly as possible.



Change to Electronic Building Damage Assessments

The rapid assessments required an electronic solution. Accordingly, a quick analysis was made of suitable portable devices and software applications. The first iPads with the Rapid Assessment application were rolled out after nine days and used successfully over the next eight weeks to inspect over 182,000 houses.

Following the success of this process, even bigger operational gains and financial savings were identified from moving the entire full assessment process to an electronic one. A more comprehensive application to replace the paper-based system was designed from early April and rolled out by late May. This change allowed a significant improvement in consistency of assessments and costings, ability to manage data flow, speed of getting the assessment details into ClaimCenter and the ability to better manage the workflow of assessment teams. The rapid assessments were also used to set and manage expectations by giving homeowners a timeframe for full assessment of their property.

Expansion of EQC Role

In addition to the operational changes made, the nature of the events and the Government's response and recovery priorities also saw EQC take on new roles. Important additions were the emergency repairs and chimney replacement/winter heating programmes, and the additional work needed given the extensive land damage. The impact of emergency repairs and the winter heating programme on Fletcher EQR and EQC resources highlights the tension between addressing pressing, immediate needs like public health and the community's desire for a timely and certain recovery process. For example, with the increase in emergency works following the 22 February earthquake, EQC decided to transfer claims administration resources from settling contents claims to processing emergency works invoices. The effect was to slow down contents payments.

Emergency Repairs

Emergency repairs were a way for part of the customer's building claim entitlement to be used to enable residents to stay in their houses and, as such, were intended to be confined to the minimum work necessary to ensure a safe, sanitary and secure home. Following a Ministerial Direction, EQC provided these emergency repairs for uninsured people from 22 February until April 31. The cost of these repairs was recouped from Government (as the uninsured are not covered by EQC).

Where a private insurer pays for repairs, rather than cash settling a claim, normal practice is that a set number of pre-approved contractors will be retained by the private insurer to carry out the repairs. This practice ensures quality and cost-effectiveness. Having EQC accept invoices for emergency repairs invoices direct from contractors resulted in a large group of tradespeople seeking payment from EQC. EQC received over 61,000 invoices, requiring processing in a system designed to settle claims, not pay accounts.

In a number of cases, the rapid growth of businesses to cater for the increased demand resulted in contractors having insufficient processes of their own to meet the requirements for payment by EQC



(such as a valid GST number or a fully itemised description of the work completed). EQC also identified a significant number of cases of inflated charging, poor workmanship, work not covered by the EQC Act and even work that was not completed. An additional problem arose when EQC reimbursed an invoice to a homeowner but the homeowner did not on-pay those funds to the contractor. All these factors contributed to well-publicised complaints about slow payments.

While the immediate impact fell on EQC, the issue is a broader one for Government. There is the potential for flow-on effects for other Government agencies, such as Inland Revenue, where a number of these businesses have managed a large amount of work without necessarily putting in place usual processes. In future, there may be more of a role for business mentors, chambers of commerce and trades organisations in helping businesses scale up immediately following a disaster. Trades organisations had, and will continue, to play an important role in informing cost and quality of repair standards.

Chimney Replacement / Winter Heating Programme

The decommissioning of damaged chimneys and parallel installation of “clean heat” devices was intended to capitalise on an opportunity to both improve Christchurch air quality and provide more efficient heating options for affected households. The voluntary scheme was promoted by the Energy Efficiency and Conservation Authority (EECA), which entered into a Memorandum of Understanding (MoU) with EQC. Under the MoU EECA was to provide a parallel PMO service for those claims where the only structural damage was to chimneys – although other minor non-structural damage would also be repaired. Around 800 devices were installed by EECA in the four or so months to 22 February,

After 22 February it was apparent that the number of installations that were likely to be requested, in combination with the more severe damage to houses and the approach of winter, would require a different provider. As a result EQC, with EECA’s agreement, transferred responsibility for the programme to the Fletcher EQR. Fletcher EQR was able to install 1500 devices by late March alone.



Fletcher EQR Work on Emergency Repairs and Winter Heating

When the 22 February earthquake struck, ten Fletcher EQR hubs had already been established in Christchurch suburbs and around 2,000 repairs were in progress or had been completed. With the need to ensure the delivery of the winter heating programme and manage the cost and appropriateness of emergency repairs, Fletcher EQR was reprioritised to ensure houses were safe, sanitary and secure. Headline figures on what was achieved are given below.

Emergency Repairs

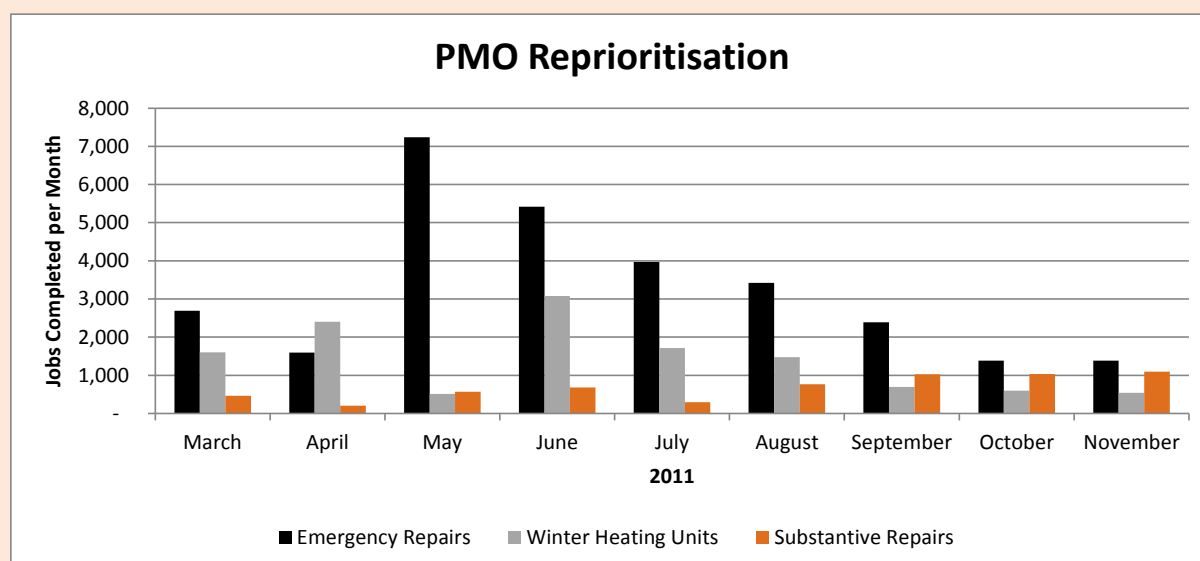
- 29,000 emergency repairs completed to ensure houses safe, sanitary and secure

Winter Heating

- 112,000 outbound calls to identify at-risk residents
- 12,600 heat pumps and log burners installed
- 2,000 units repaired

Achieving these results necessarily meant slower progress on core roles. The low rate of substantive repairs from March to July as emergency repairs and winter heating were prioritised can be seen in the chart below. Repair completions were able to be ramped up from around September as emergency repairs and winter heating programmes wound down. Note that the absolute numbers of substantive repair completions are lower as these are more time-consuming jobs.

Chart 2: Fletcher EQR Reprioritisation to Emergency Repairs and Winter Heating



Orders for new heating devices were halted in October 2011 in response to decreasing demand with the onset of warmer temperatures. The Fletcher EQR role in completing the wider Chimney Replacement Programme as first envisaged by EECA will be reviewed in early 2012. Outstanding emergency repairs will continue to be managed through Fletcher EQR.



Project Management of Additional Land Remediation

Following 4 September it became clear that, in some cases, EQC's land liability would not cover the necessary enhancement to allow ongoing residential land use, particularly near waterways where lateral spreading of the ground occurred. The Government decided to fund enhancements to land to help maintain confidence in the residential property market and, in turn, give confidence to affected communities, local government, banks and insurers to rebuild. The Government directed EQC to project manage a programme of additional land remediation works, in conjunction with local councils, in certain parts of the Christchurch and Waimakariri districts. Significant additional land damage in large parts of Christchurch occurred as a result of the 22 February 2011 earthquake, including more lateral spreading, and worse and more extensive liquefaction. As a result, the programme of additional land remediation was put hold. In June, when land was zoned Red, Orange, White or Green the programme was cancelled.

Operational Impact of Residential Land Zoning Decisions

The Government decisions on four residential zones triggered substantial reprioritisation by EQC. EQC redirected more than half of its 220 assessment teams to focus on full assessments of all eligible properties, irrespective of damage, in the Red, Orange and White zones to help inform Government and residents' decisions. Settlement team resources were also reprioritised to ensure that offers could be made by the Government with an understanding of both EQC payments to date and the estimated balance of EQC's outstanding liability.

The decision by the Government to purchase a large number of Red Zone properties will result in the Crown becoming, in effect, EQC's largest customer.



Work Still to Do

This part of the briefing examines:

- Cash Settlement in 2012;
- Fletcher EQR for Managed Repair of Houses with over \$10,000 Damage; and
- Settlement of Land Claims.

Main Points

- EQC will determine the timeframes and programme of work for cash settlement of claims and consult Ministers in early 2012.
- EQC will consult Ministers on the full repair programme for the Fletcher EQR PMO in early 2012.
- Consideration will need to be given to management of labour capacity given competing demands (e.g. private insurers).
- EQC will determine the timeframes and programme of work for settling land claims and consult Ministers in early 2012.

Cash Settlement in 2012

The completion of full land and building damage assessments by Christmas 2011 means that the next phase will be settling these claims. A number of building claims and some land claims will be 'streamed' to the managed repair processes (these are described below). However there are also likely to be a number of categories of claims which will need to be cash settled in 2012.

Claims that will be cash settled include remaining contents claims, claims over the EQC caps and potentially other minor land or building damage claims. The number of each of these claim types, and the dollar amounts involved, will be better known early in 2012. At that time, EQC will develop timeframes and a programme of work to settle these claims and discuss this with Ministers. An indicative figure for total cash settlement required in 2012 is up to \$5 billion but this is still subject to considerable uncertainty.

PMO for Managed Repair of Houses with over \$10,000 Damage

The Fletcher EQR PMO has been established to repair an estimated 100,000 houses in Canterbury which have more than \$10,000 damage but are not over EQC's caps. The decision to adopt a managed repair programme was driven by the desire to contain repair cost inflation and ensure consistent repair quality (and thus limit the chance of future long term liability to EQC and the Crown).

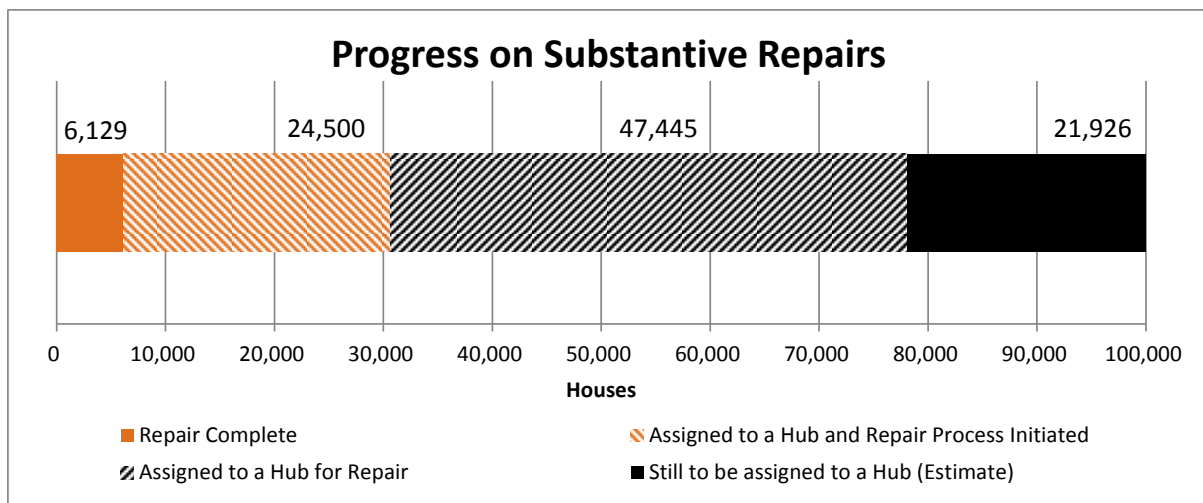


The programme is managed by Fletcher Construction, New Zealand's largest construction company with a long history in construction project management. The programme is flexible and scalable, with local contractors independently managing sub-contracting trades across multiple repair jobs, enabling flexibility and high trades utilisation. The contractors undergo an accreditation process to ensure they meet a high professional standard. Fletcher EQR has also instituted quality control processes and a complaints resolution process, and is looking at options for further community engagement to ensure customer satisfaction. The cost scale of repairs is managed centrally to ensure fair pay and dampen inflationary pressure. In turn, EQC has a number of processes and incentive mechanisms in place to ensure the performance of the PMO and is working with Fletcher EQR to finalise KPIs for the substantive repair programme over the long haul.

Customers can opt out of the Fletcher EQR process if they wish, in which case EQC will ensure the cost of their repairs is reasonable by benchmarking to Fletcher EQR costs. Organising consents and ensuring quality of repair will be the responsibility of customers.

Progress as at 24 November is shown in the chart below. Essentially, around 30 per cent of the estimated 100,000 substantive repairs required (and 60 per cent of the initial estimate) have now been completed or are underway. Twenty hubs are operating in Christchurch suburbs and surrounds, and the contractor FTE estimate as at 24 November was 4,745.

Chart 3: Progress on Substantive Repairs as at 24 November



With dwelling assessments close to completion, the full scale of the task can now be determined. As such, a full repair programme is under development. The EQC Board will agree timeframes and consult Ministers in early 2012.

Additional labour and coordination will be key needs

Careful consideration needs to be given to labour supply issues, and not just for Fletcher EQR. Multiple rebuild and recovery projects will be competing for labour and there is the potential for wider impacts across the country, such as for nationally important infrastructure projects.



As an indication of the additional labour that may be required in Canterbury, the Canterbury Development Corporation (CDC) has provided estimates of demand for tradespeople and compared these to Department of Labour (DOL) estimates of 2010 capacity. The overall picture is that there will be a significant shortage, particularly in skilled trades such as carpenters, painters, bricklayers and plasterers. Fletcher EQR is undertaking a number of training initiatives to up-skill workers and young people across the region to assist with the rebuild. However, there is a limit to how far these will go in addressing the skills gaps that are expected given the nature of the repair work EQR will undertake.

Table 3: Fletcher EQR and All Canterbury Required Reconstruction Workforce Estimates⁶

Trade	Fletcher EQR Current FTEs	Fletcher EQR Required	Canterbury 2010 Capacity (source: DOL)	All Canterbury FTEs Required (source: CDC)	All Canterbury FTE Shortfall
Total	2,778	5,552		23,400	
Painters	1,300	2,620	825	6,000	5,175
Carpenters	546	1,092	2,000	4,000	2,000
Bricklayers	322	643	525	1,260	735

Note that the FTEs required by Fletcher EQR will depend on the finalised repair programme.

A further constraint on labour will be the amount of accommodation available – both for workers and for those homeowners who need temporary accommodation while significant repairs are completed.

Settlement of Land Claims

EQC's liability for land damage is complex and depends on a number of factors. Under the Act, any EQC insurance pay-out is limited to the lower of the value (at the time of the earthquake or natural disaster) of:

- The destroyed or damaged land;
- 4,000 square metres of land at the site of the damage; or
- The minimum area allowed by the district plan for land used for the same purpose as it was at the time of the damage (i.e. residential).

The primary challenge in settling land damage claims in Christchurch is that many of the types of land damage are unprecedented and require a great deal of technical and legal work to determine both the required solutions and EQC's liability. For example, determining the correct value of land that has experienced cumulative damage over a period of months, in a context of a distorted housing market, has not been encountered before. Similarly, the most appropriate repair strategy for certain types of land damage needs to be established.

⁶ Note that the total forecast labour needs for all Canterbury repairs exclude normal business as usual construction activity. Hence the resource shortfall is likely understated.



While these challenges are being addressed, it is likely that a number of different repair and settlement options will need to be used in different cases. These could include cash settling or utilising Fletcher EQR for some minor land damage claims and managing the repair of more complex remediation where geotechnical expertise is needed.

EQC will determine the timeframes and programme of work for settling land claims and consult Ministers early in 2012.

Recent Land Zoning Decisions and EQC Liability

Recent land zoning decisions have caused some confusion for residents over EQC's land liability and the future use of land. If the necessary repairs to land exceed EQC's maximum liability for land damage, EQC will cash settle. Customers will then need to work with their private insurer to decide what course of action to take. Just because the cost of repairing the land exceeds the amount of EQC's cover, does not necessarily mean the land cannot be built upon.



Review of EQC Scheme

EQC welcomes the opportunity to refresh the parameters of the EQC scheme. The scheme has not been comprehensively reviewed in the 18 years since the introduction of the Earthquake Commission Act in 1993. So it is sensible that a full review is undertaken to optimise the scheme, once revised community expectations can be gauged, and private insurance markets are functioning normally.

EQC's Board and Management are committed to informing the review. It may be useful for EQC to prepare discussion documents on points of the scheme where opportunities to improve practice may exist.

This part of the Briefing examines:

- EQC's Role;
- EQC Scheme Design;
- Core Aspects of the EQC Scheme; and
- Aspects of the Scheme Design to Consider for Review.

Main Points

The Review should:

- Ensure insurance parameters chosen support broader Government, community, and commercial risk management decisions.
- Consider the removal of contents cover from EQC insurance.
- Re-examine the policy rationale for land cover and how current land provisions work.
- Consider the potential to introduce differential pricing to reflect the actual risk commensurate with location or construction characteristics.
- Consider simplifying excesses and increasing incentives for mitigation.
- Consider automatic adjustment mechanisms for excesses and caps.
- Consider changing the caps, in conjunction with premium changes, to achieve an optimal split between EQC's first loss cover and private insurer cover.
- Consider the target level and mix of assets and reinsurance in the Fund.
- Consider elevated reinsurance levels while the Fund rebuilds.
- Consider the potential for improved coordination and robust monitoring of the effectiveness of hazard education programmes.



EQC's Role

The costs of natural disasters are largely determined by the development decisions that communities have made rather than predetermined by natural forces. Accordingly, *ex-ante* mitigation and management can substantially reduce both the short-term and long-term costs of natural disasters.⁷

Historical data can be a poor guide to the future for natural disasters, which are therefore difficult to price. There is an understandable tendency for changing levels of public commitment to mitigation over time, with low sensitivity prior to natural disasters and heightened sensitivity following them. This tendency is exacerbated by long periods of seismic quiescence, such as New Zealand had experienced over the six decades since the establishment of EQC in 1945. For related reasons, elected officials are generally incentivised to underinvest in *ex-ante* mitigation and overinvest in *ex-post* reconstruction. EQC's legislative mandate and independent Board mean it is well-placed to support consistent, evidence-based risk management.

Market-Enhancing Intervention

The market-enhancing theory of intervention recognises that there are a number of actions that Governments can take that will have a net benefit for all market participants.⁸ These actions include overcoming coordination problems to provide public good information that improves understanding and modelling of risk (and therefore improves the pricing of risk), and raising awareness and changing behaviours through education.

The theory also recognises that in certain circumstances, Governments need to create institutions to solve problems such as adverse selection and moral hazard.

EQC's role can be broadly seen as a market-enhancing one. EQC provides a range of education, research, facilitation and capacity-building initiatives that underpin effective mitigation measures, healthy private insurance markets and New Zealand's resilience and recovery in the event of natural disasters. EQC's market-enhancing role fits within New Zealand's approach to emergency management which is based on best practice models of building capacity across the full spectrum of the "4 Rs": Reducing risk; Readiness; Response; and Recovery.⁹

Notable areas where this market-enhancing role has proved valuable in the Canterbury earthquakes are set out on pages 24 to 25 below. It is important to note that EQC's research and education activities inform national understanding of a wider range of perils than the specific events in

⁷ IDB (2010) *The Economics of Natural Disasters*

⁸ Cummins, JD and O Mahul (2009) *Catastrophe Risk Financing in Developing Countries: Principles for Public Intervention*

⁹ Lee, B-Y (2010) "Working Together, Building Capacity – A Case Study of Civil Defence Emergency Management in New Zealand", *Journal of Disaster Research Vol. 5 No. 5*



Canterbury – and a different natural disaster would have highlighted different contributions to national capability and resilience from these and other activities.

Monitoring Geological Hazard

EQC took a leading role in the establishment and expansion of the GeoNet hazard monitoring network following recognition in the 1990s that there was no agency responsible for monitoring geological hazard, and that there was no viable business model for commercial provision of a national monitoring network. GeoNet operates under a model of free availability of Government information to generate benefits beyond those that could be captured through cost-recovery. EQC also facilitated the creation of Memoranda of Understanding between GeoNet and various agencies, identifying the capabilities available to enhance emergency management and defining the protocols under which the parties work together.

GeoNet also lowers EQC's costs directly by reducing the uncertainty associated with hazard assessment, which informs net reinsurance rates and risk accumulation strategies for reinsurers.¹⁰ Similar benefits are likely to have accrued to private insurers who also place New Zealand natural disaster risk on overseas markets.

The Canterbury earthquake sequence is one of the best-recorded major earthquakes anywhere in the world. The information gathered by GeoNet provided early indications of the probable distribution of impacts, contributing to effective decision-making about engineering safety and damage assessments. GeoNet information provides an outstanding evidential base for hearings by the Canterbury Earthquakes Royal Commission, and will inform policy changes to design and construction standards for repairs to land, infrastructure, housing and commercial property.

Risk Modelling

Over the last decade, EQC commissioned and developed, with private sector partner AoN Re, a new disaster damage model (MINERVA) incorporating scientific results from publicly-funded hazards research, together with a Quotable Value (QV) residential dwelling database of construction types and replacement cost rates.

Following the 4 September earthquake, MINERVA indicated that the earthquake would produce well over 100,000 claims (the final total was 153,000), and a loss forecast of \$1.6 to 2.4 billion. The current actuarial estimate is \$3.25 billion. This indicative estimate by MINERVA provided EQC with a flying start to its response, with early activation of the CRP, and helped reduce uncertainty for Government.

MINERVA was less reliable for modelling the 22 February earthquake due to the damage already incurred by the housing stock and the extensive effects of liquefaction which were not adequately modelled. Work is currently underway to incorporate these and other insights into hazard and vulnerability, so that risk-pricing will be informed by the best available evidence.

¹⁰ Smolke, A (2006) "Natural Disasters and the Challenge of Extreme Events, *Phil. Trans. Roy. Soc. Vol. 364*: 2147-2165



Facilitation of Best Practice Risk Mitigation

The rapid restoration of lifeline utilities in Canterbury's transport, energy and communications networks following the earthquake was enabled by the New Zealand Engineering Lifelines process fostered by EQC since the early 1990s. Network operators had carried out retrofitting, increased route diversity, best-practice design, spare parts management and installed equipment restraints that greatly improved network resilience prior to the earthquakes. As an example, the local electricity distributor Orion invested \$6 million in seismic strengthening pre-earthquake. This strengthening is estimated to have saved \$60 to 65 million in direct asset replacement and repair costs following the earthquakes.¹¹ This estimate excludes the downstream economic benefits from the shorter downtime achieved.

Research into Natural Hazard Risk

Since the late 1980s, EQC commissioned or co-sponsored much of the research into seismic hazard in Canterbury. The results have been publicly disseminated and inform derivative assessments of hazard and vulnerability by Councils and lifeline utility operators. Most Local Government zoning decisions in the residential areas of eastern Christchurch and Waimakariri District, where the effects of liquefaction and lateral spreading were most severe, pre-date the availability of relevant local information on seismic hazards (this information has been added to Land Information Memoranda since about 2005). However, the information on active faulting, liquefaction susceptibility, ground-shaking potential and regional hazard modelling will inform future zoning choices, design standards and risk pricing.

EQC is coordinating its research programme following the Canterbury earthquakes to maximise the learning from these events.

Public Education

EQC's public education efforts show the ongoing need to convert awareness of natural disasters into better preparedness. For more than a decade EQC has used various tools to promote behaviour that reduces or avoids natural disaster damage, including television commercials, internet and billboard advertising, school information kits, museum and science-centre sponsorships, ethnic minority education and brochure translations, a mitigation website and display road-shows. These campaigns, in combination with the work of other interested agencies such as the Ministry of Civil Defence and Emergency Management, have been largely successful in terms of raising awareness, but more focused education is needed to alter behaviours.¹²

The EQC scheme review could also address the potential for improved coordination of such education efforts, and robust monitoring of their effectiveness, across central and local Government.

¹¹ Orion (2011) *Pers. Comm.*

¹² Opinions Market Research (2009) *Canterbury Civil Defence Emergency Management Residents Attitude and Behaviour Monitor July 2009* found high awareness in Canterbury but mixed levels of preparedness.



The EQC Insurance Scheme

Risk management is generally described as a balance of four different strategies. These strategies are set out below. As can immediately be seen, there are a lot of different parties involved and different choices available. Key constraints for disaster risk management are often around misperceptions of probability, budgeting pressures and the quality of information to make efficient choices about long-tail risks – hence the importance of EQC’s market-enhancing role.

Table 4: Four Strategies of Risk Reduction and Management

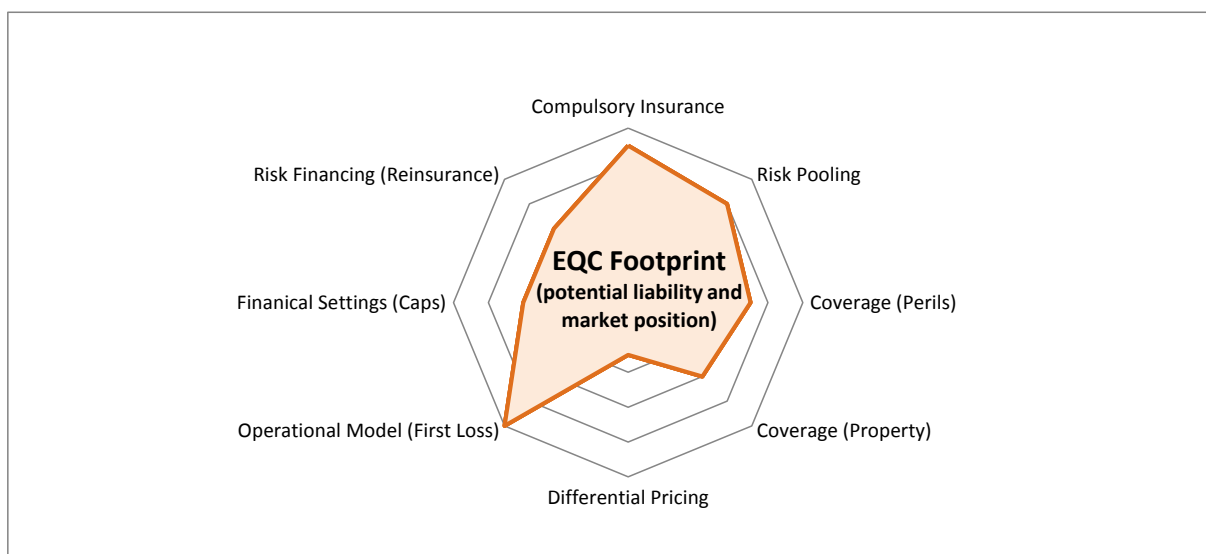
	Avoidance	Control	Transfer	Acceptance
E.g.	Prohibitions on land use or activities	National Building Codes and construction practices	Self-insurance, insurance, reinsurance	No mitigation, deal with disasters as they occur, or accept partial repair

The challenge of the EQC scheme review will be to ensure that the scheme reflects Government, community and commercial appetite for risk and the most effective strategies are chosen to manage that risk. This is because the scheme itself sets where many of the costs and benefits fall, and so has the potential to support or undermine incentives for effective risk management.

Interaction of EQC Insurance Scheme Parameters

The interaction of the different parameters of the EQC scheme also needs to be considered. Only by considering all these parameters together, can the EQC’s liability for a given event, and what is left for private markets to insure, be known. EQC’s “footprint” is shown conceptually below. The values themselves are not scientific, but represent an estimate of greater or lesser use or application of the relevant parameter. For example, the footprint shows very low use of differential pricing, very high use of compulsory insurance and risk pooling, and medium use of reinsurance.

Chart 3: EQC Insurance Footprint (Potential Liability and Interaction with Private Insurers)



Each of these eight parameters is discussed in pages 27 to 34 below.

Any decision to move the boundaries between private insurer and EQC cover should carefully consider the change in costs and benefits. While in theory both private insurers and EQC should be able to adjust pricing to reflect shifts in cover, a degree of price stickiness is likely. The advantage of considering a number of parameters in a single review is that trade-offs can be made to avoid windfall gains or losses to any parties. For example, a decision to raise caps could be offset by a decision to remove EQC cover from contents.

Core Aspects of the EQC Scheme

The core aspects of the EQC scheme are:

- Compulsory insurance; and
- Risk pooling.

Compulsory Insurance

Compulsory natural disaster insurance (with fire insurance) has resulted in coverage of around 90 per cent of houses in New Zealand. It is no accident that of the ten most damaging earthquakes (1980-2011) by insurance losses, the 4 September and 22 February earthquakes are estimated to have the highest proportion of full losses covered by insurance.¹³

In countries where natural disaster cover is not compulsory, low penetration rates are the norm and insurance conditions are unattractive or unaffordable. This under-insurance exacerbates the economic and social impacts of major events. Major earthquakes such as Northridge (California) in 1994, Kobe in 1995, and Taiwan in 1999 had only between one third and one twentieth of total property losses insured (residential, commercial, and civil).¹⁴

The 27 February 2010 earthquake that struck south-central Chile also demonstrates difficulties in achieving high penetration rates. Only two to four per cent of homeowners had voluntarily purchased earthquake insurance. However, another 22 per cent of homeowners were insured compulsorily for mortgage protection. As a result of the earthquake (and subsequent tsunami) 189,000 residential building claims were lodged, but hundreds of thousands of Chilean families were uninsured and required Government assistance.¹⁵

Risk Pooling

Similarly, risk pooling is successfully used in a number of countries to help limit the stress on individual insurers in the event of a major disaster. Risk pooling can be effected in a number of ways, and some international comparators are included in the text box below. In New Zealand, the 'first loss' nature of EQC insurance is an important risk pooling mechanism.

¹³ Insurance Information Institute (2011)

¹⁴ Ibid.

¹⁵ Cowan H et. al. (2011) "The M8.8 Chile Earthquake, 27 February 2010" *New Zealand Society for Earthquake Engineering Bulletin Vol. 44 No. 3*



Risk Pooling in Norway and Japan

In Norway, all fire insurers must belong to the Norway Natural Disaster Pool. This scheme pools losses, which are allocated back to the fire insurers on the basis of market share.¹⁶

In Japan, private insurers cede risk and a percentage of premium income back to a risk pool, which in turn cedes some premium to the Government. In a major earthquake, once a certain level of cost is met, the Government bears 50 per cent of the next tranche of costs. Above a second threshold, the Government bears 95 per cent of costs.¹⁷

Aspects of the EQC Insurance Scheme to consider for Review

Aspects of the scheme that could be considered in the upcoming review are:

- Coverage, both which perils and which losses are covered;
- Differential Pricing;
- Operational Model;
- Financial Settings; and
- Risk Financing.

Coverage

The extent of EQC coverage forms the boundary between where the Government is compulsorily pooling first loss and where the private market functions independently. These boundaries include both *which natural disaster perils* and also *which losses* are covered by the scheme.

The natural disaster perils that are currently covered by EQC are broadly the ‘long-tail’ risks, where their occurrence on a substantial scale is rare: earthquake, tsunami, volcano, geothermal and, to a lesser degree, landslips. Internationally, functioning private markets for this risk are rare. On the demand side, property owners are likely to underinsure against such risks, with the exception of those at most risk (adverse selection). From a supply side, such events are difficult to price and risk is difficult to diversify. Low rates of penetration and adverse selection problems compound these difficulties.

The market failure arguments for EQC’s cover of landslips, and land cover for storm and flood, are arguably not as strong as for events such as earthquakes and volcanoes. Nonetheless, any changes in cover would need to be carefully considered to identify the likely functioning of private markets in that area, and ensure that the transfer of risks and benefits was appropriate, particularly given historic land use decisions. The potential for differential pricing to reflect heightened vulnerability even to long-tail events such as volcanoes and earthquake is discussed on page 29 to 30 below.

¹⁶ International examples in this and the following section are from Consorcio De Compensacion De Seguros (2008) *Natural Catastrophe Insurance Cover: A Diversity of Systems* except where otherwise indicated.

¹⁷ Nomura Research Institute (2011) *Summary of Japan’s Earthquake Insurance System and The Great East Japan Earthquake*



The losses covered by the scheme are those to residential land, buildings and personal property. EQC covers only residential property, reflecting a decision that commercial insurance coverage should be the responsibility of the private sector, but that low levels of residential insurance would not be tenable. While some overseas jurisdictions (e.g. France) do provide additional coverage such as personal injury, business continuity and vehicular coverage, ACC and private insurers fulfil these needs in New Zealand.

EQC currently does have the ability to provide voluntary cover to those who do not have fire insurance. This option has had minimal take-up and the review should consider whether EQC continues to offer this cover.

It is unclear whether the rationale for cover of residential buildings extends to residential contents. EQC's coverage of contents increases complexity for customers and, in light of the Canterbury experience, requires disproportionate EQC resources during the recovery phase. Arguably, private insurance or self-insurance may result in more effective mitigation by homeowners than EQC cover does.

Residential land cover is unique to New Zealand and has proved difficult to operationalise following the more complex types of land damage seen in the Canterbury earthquakes. The unfunded nature of land cover (homeowners pay no levy for this cover), and difficulty in aligning costs between those who make decisions on land use, particularly local government, and those who bear risks raises questions about whether the design of land insurance is meeting the original policy intent. In saying this, a system that links a scientific understanding of hazard and land use decisions to EQC premiums and cover – such as through land zoning – would represent a significant change to the current system, and any changes to which parties bear costs and risks would need to be carefully considered.

EQC Recommends:

- **Considering the removal of residential contents cover from the EQC scheme;**
- **Re-examining the policy rationale for land cover and identifying whether the current land coverage is likely to achieve that rationale; and**
- **Considering the removal of current provisions for direct natural disaster insurance.**

Differential Pricing

With mandatory coverage and a high insurance penetration rate, New Zealand has an opportunity to incentivise loss mitigation actions. Differential pricing of risk is increasingly being used by private insurers for perils such as flood risk. Differential pricing incentivises risk-mitigating behaviour in choices of construction type (including materials) and location. This change in behaviour reduces both the liability of the insurer and the potential for loss of life and property in the event of a substantial natural disaster. The increasing use of differential pricing and its synergy with EQC's market-enhancing role to improve the evidence base for policy and pricing can be seen in the findings of the recent Australian Flood Insurance Review: one of which was the need for nationwide identification of levels of flood risk to facilitate effective price signals.



Differential pricing should, in theory, support better behaviours by removing moral hazard (where risks and benefits are not aligned). However, the gains that come from differential pricing will need to be weighed against the administrative and other costs incurred in administering a more complex model. The higher prices imposed on some homeowners for historic decisions should be balanced against current inequities where low-risk homeowners subsidise those with higher seismic risk. Pricing by floor size or by storeys could also be considered to adjust for the likelihood of higher repair costs for bigger houses.

Differential Pricing for Catastrophe Risk in California and Turkey

In the United States, the California Earthquake Authority utilises differential pricing based on geographic area, with higher prices in San Francisco, for example, than in San Diego. Premiums are also differentiated for one and two-storey buildings.

In Turkey, the mandatory earthquake insurance scheme (the Turkish Catastrophe Insurance Pool) utilises differential pricing across three different dimensions. The premium is calculated according to a matrix of five different (geographical) earthquake risk zones and three different building types, multiplied by the floor space of the building insured.

The arguments for differential pricing for long-tail risks are improving over time as knowledge of risk and mitigation measures improves. Differential pricing according to construction type should be considered. Differential pricing according to the level of hazard is more difficult given the combination of uncertainty and the low likelihood of significant events means price signals may be difficult to set, may be weak, or may turn out to be incorrect. The combination of hazards also implies complexity in determining the different exposures of different geographical areas. The exposure of practically all New Zealand to at least one of the perils of earthquake, tsunami, volcano, geothermal events or landslide has been the argument for a blanket rate to this point.

EQC Recommends:

- **Considering a differential premium based on floor size;**
- **Considering a differential premium based on building construction type; and**
- **Considering whether processes to manage land use are likely to enable differential pricing based on hazard risk in the medium term.**

Operational Model

There are two broad types of operational model following a natural disaster. A decentralised approach involves multiple private insurers handling claims, and managing repairs if necessary. This model is used in France, for example, where a state entity acts as a reinsurer. A centralised model has claims handling and repairs conducted by a single entity.

For residential property, New Zealand has a more centralised model, with EQC handling the majority of natural disaster claims for land, building and contents, and only passing claims to private insurers



for settlement once they reach the limits of EQC's cover (see below, page 32). In Canterbury, EQC will assess and settle 600,000 exposures, from 400,000 claims across around 200,000 properties. Cumulatively, other insurers are likely to assess and settle up to 30,000 residential buildings (15 per cent) and less than 10,000 contents claims (six per cent).¹⁸

The concentration of all residential properties with EQC presents logistical challenges – although the experience in Canterbury has shown that in a major event, both EQC and private insurers had to bring in significant assessment resources from overseas. Ultimately, EQC was able to recruit as many as 500 assessors, while large private insurers are estimated to have each fielded around 10 to 15 per cent of this amount, including some from overseas, as the domestic market was exhausted.

Consolidating the bulk of residential claims handling in a single entity has two advantages:

- It allows for coordination and efficiency gains. These benefits accrue to the preparation of plans to scale up resources rapidly, including overseas recruiting and domestic training of additional assessors, and to claims settlement, where an overview of total damage allows for more effective prioritisation and organisation.
- Secondly, it provides an enhanced ability to reflect Government policy. EQC currently strikes a balance between delivering community and Government expectations while protecting our liability position and administering claims more efficiently in the interests of the whole country and the sustainability of New Zealand's insurance and reinsurance markets.

In contrast, the decentralised model (with EQC as a reinsurer) represents a significant financial risk to EQC as without an assessment role EQC would need to vigilantly audit private insurer assessments to contain cost-shifting by the insurance industry. At present, the existence of both EQC and private insurer assessments for houses that are overcaps means both parties can have confidence in the protocol for agreeing costs to each party. The trade-off of this approach is that there is the potential for dispute between EQC and private insurers regarding assessment and repair strategies, as well as added complexity for customers.

The operational model has implications for **organisational form**. Given the large operational role in a major event, there may be some synergies if EQC were a semi-autonomous body within a large operational Government department. However, the requirement to operate with regard for the long-term sustainability and efficiency of New Zealand's insurance market, and the strategic focus required by the long-term nature of EQC's market-enhancing role, means that an independent Board and mandate remains appropriate. Instead, innovative ways to increase operational expertise collaboratively with Government and private sector partners in a major event will need to continue to be a focus of Catastrophe Response Planning.

EQC Recommends:

- **Government (currently EQC) continuing to handle the bulk of residential property claims.**

¹⁸ Private insurers cover some damage that EQC does not, and so are responsible for a number of claims with residential customers who are not over the EQC cap. Private insurers will also assess and settle commercial and some civil claims.



Financial Settings

The financial settings of the scheme should also be considered in the review. The current settings include:

- The recently increased blanket premiums (i.e. the EQC levy);
- Low but complex excesses;
- Caps that are now considerably lower in real terms than when first set;
- Automatic reinstatement rules (following the ruling of the High Court); and
- No cap on an event as a whole.

The average level of **premiums** should not have a significant policy effect on the scheme given high levels of household fire insurance and compulsory disaster risk cover. Accordingly, the premium (whether flat or differentiated) should be set once all other parameters of the scheme are known. The level of the premium should ensure financial sustainability of the scheme over time, given the Government's risk preferences. It may also be useful to consider an automatic adjustment mechanism for the premium (and also any caps), to ensure that policy intent is reflected over time. Over the last 18 years private insurer premiums have increased while EQC's has not. Yet increases in damage sustained and repair costs over that time appear to have been largely captured by EQC given the large proportion of homes under the EQC caps.

Excesses are standard industry practice to reduce the volume of small claims that are affordable to the householder and disproportionately costly to administer. Excesses also may incentivise property owners to take cost-effective steps to safeguard their properties, although the effect of EQC's excesses is likely to be negligible. Given the low level of the current excess relative to mitigation measures, even the cost of securing contents may not be rationally justified except to mitigate against injury. The EQC scheme currently has a complex but low excess. Excesses were last reviewed in 1993 and are a mix of flat rate, proportional and per building, with relatively low ceilings and applied on a per claim basis. EQC recommends that the excesses be reviewed with a view to simplifying them and improving mitigation incentives. A co-payment design such as that incorporated in the current excess model is generally employed when a higher proportion of the loss is to be borne by the homeowner. Co-payments (a percentage of the pay-out) are more complex to administer than flat excesses.

As a first-loss insurer, EQC provides cover up to set **caps**. These caps are the first \$100,000 (excluding GST) of damage to residential buildings and the first \$20,000 (excluding GST) of loss for contents, per event. The cap on EQC cover is intended to limit liability in the event of a natural disaster. These caps have not been reviewed since 1993 and without any inflationary adjustment have the unintended effect of reducing EQC's premium income far more than it has lessened its liability. The cap has also had the effect of subsidising the owners of more expensive homes, as they are more likely to make larger claims than owners of less valuable homes, despite both paying the same annual premium. Higher caps would make this subsidy less pronounced and increase the premium income available to EQC (see comment on differential pricing by floor size on page 29 to 30).



The Canterbury earthquakes have shown that the current caps already capture a very large proportion of the total liability for damage to residential property. While final figures are not known, EQC expects to pass up to 15 per cent of properties and five per cent of contents claims that are over-cap to private insurers. Given this experience, consideration should be given to changes which would either remove the caps so that EQC took on all premium income and all risk from natural disaster damage or reducing the caps to change the split of liabilities between EQC and private insurers. Alternately, a change to the first loss provisions could be considered, to pro-rate EQC's contribution with private insurer liability, or cover losses above a certain cap. A move away from first loss insurance would also imply a move away from the centralised operational model described on pages 30 to 31.

Countries such as Norway, Japan and Iceland employ **overall caps** for each event, above which all payments for that event are pro-rated down. However, the contention that overall caps would reduce any call on Government in the context of a major event seems doubtful.

EQC Recommends:

- **Considering the appropriate split of income and risks between EQC and private insurers;**
- **Considering automatic adjustment measures for the premium and caps;**
- **Simplifying excesses;**
- **Considering a higher excess; and**
- **Setting the premium once the other parameters of the scheme are determined as a residual decision to ensure financial sustainability.**

Risk Financing

The interaction of the parameters (see page 26) in determining the potential liabilities of the scheme, together with an evolving knowledge of hazard and risk, will inform the optimal amount of cover required, and the mix of self-insurance, reinsurance and acceptance (including an implicit or explicit Government guarantee) for the Natural Disaster Fund (the Fund).

EQC operates the Fund to meet a number of objectives: to diversify risk, (in particular to diversify risk away from New Zealand); to provide immediate liquidity in the event of the disaster; and to earn sufficient revenues to continue building the Fund given a premium with significantly eroded value. A target level of capital and reinsurance will need to be set, taking account of these factors. While the Fund is being drawn down and rebuilt, a temporarily elevated level of reinsurance may be appropriate.

Historic decisions to hold some of EQC's capital 'notionally' and borrow the funds for on-payment to EQC once an event occurs has resulted in some of the cash requirements of the Fund being met through borrowing *after* the event, which does not fit with the objective of building a fund over time to reduce the impact of natural disasters.

Other countries are beginning to use both loss reduction incentives and insurance-linked securities to further diversify natural disaster risks. Examples include the announcement of a new natural catastrophe compensation scheme to boost risk prevention in France and Catastrophe Bonds



employed by the California Earthquake Authority. Developments in this space need to be monitored but functioning markets for these instruments are still developing and there is capacity in traditional reinsurance markets to meet New Zealand's diversified approach to natural hazard risk management.

EQC Recommends:

- **Considering the appropriate target level and mix of assets and reinsurance for the Fund;**
- **Considering elevated levels of reinsurance while the Fund is rebuilding;**
- **Removing notional bonds from the Fund; and**
- **Continuing to monitor developments in capital markets that may be used to improve the target level and mix of the Fund.**



Annex 1: Functions under the EQC Act

The EQC is the successor to the Earthquake and War Damage Commission, and was reformed by the Earthquake Commission Act 1993.

EQC is a Crown Agent under the Crown Entities Act 2004. It is one of the Crown Financial Institutions (CFIs) that manages large funds (in EQC's case the Natural Disaster Fund) at arm's length from Government.

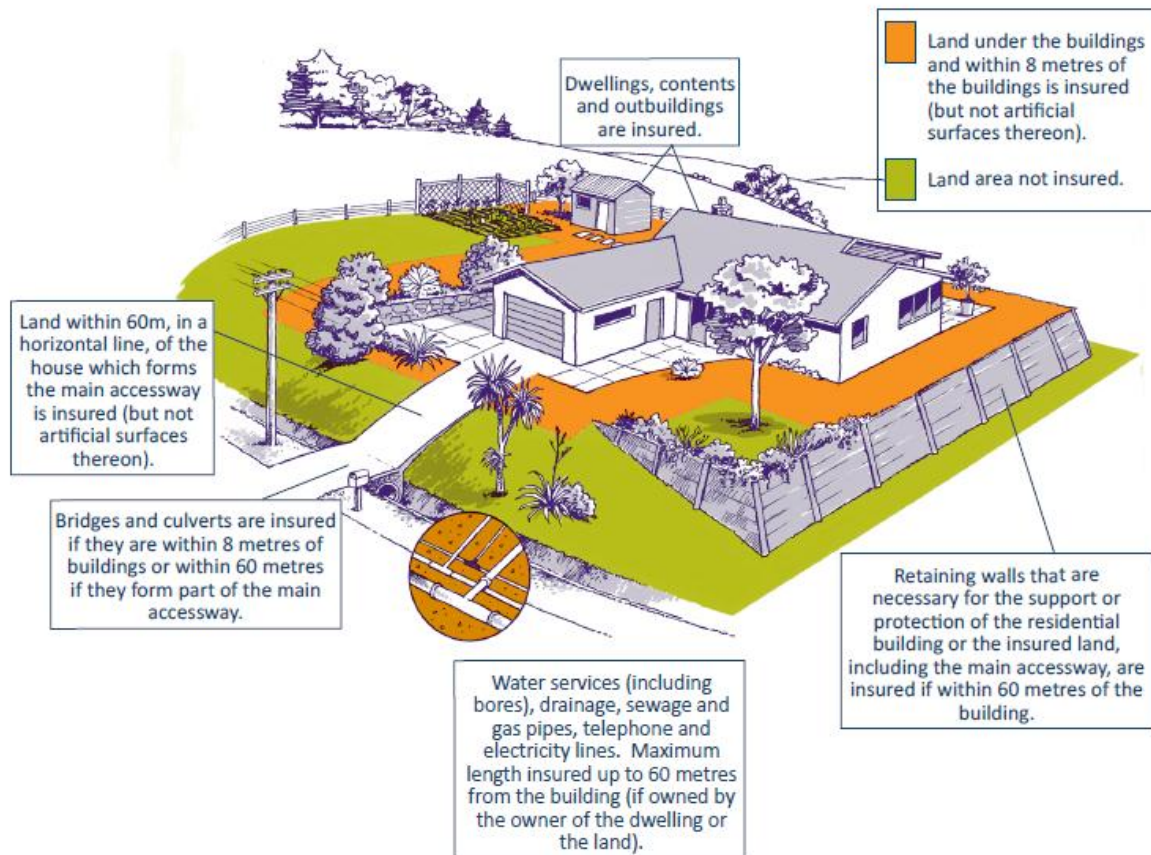
EQC's functions are set out in Section 5 of the Act and are to:

- Manage the insurance of residential property (buildings, contents and land) against damage by specified natural perils, including the administration of claims, in accordance with the terms and conditions set out in the Act. The perils do not include storm or flood damage to buildings or contents;
- Collect premiums through insurance companies and manage the Natural Disaster Fund, including investment of the Fund in accordance with policies agreed with the Minister. At present the Fund is invested 65 per cent in New Zealand government securities and 35 per cent in offshore equities;
- Obtain reinsurance in respect of the whole or part of the insurance provided under the Act;
- Facilitate research into natural hazards and their mitigation. EQC has a research strategy that emphasises:
 - maintaining and growing New Zealand's capacity for world class research, for example by supporting university teaching positions and funding the national hazard monitoring network; and
 - transferring science to practice, for example by supporting Standards NZ; and
- Inform New Zealanders about how they can make their homes safer and protect their possessions from the effects of natural disasters. As EQC's cover is available only to those who insure their homes in the private sector, the purchase of insurance is also encouraged.

EQC's main function is to insure homes, their contents and the land around the home against damage by earthquake, volcanic eruption, natural landslip, hydrothermal activity, and tsunamis. Cover also includes fire following any of these disasters. Additional cover is given for residential land damaged by storm or flood. The picture overleaf illustrates the extent of cover available.



Figure 1: Illustration of EQC Insurance Cover



The Act restricts the EQC scheme to residential property, leaving commercial property owners free to make their own decisions about insurance protection. All residential property owners who buy fire insurance automatically acquire EQC Insurance. Those who do not buy private sector insurance do not receive this cover.

Dwellings are insured up to caps, which are generally \$100,000 (excluding GST), contents up to \$20,000 (excluding GST). The cap for land is generally the value of the minimum section size (excluding GST). A premium of 5 cents per \$100 of cover is paid through insurance companies and passed on to EQC. The premium is set to rise from 1 February 2012 to 15 cents per \$100, with the maximum premium generally payable therefore rising to \$207.

EQC's monitoring agency is Treasury. Treasury's understanding of EQC's operations is still developing, reflecting necessary prioritisation choices made in "peacetime", and an ownership lens that emphasised EQC's status as a Crown Financial Institution. Treasury's broader focus on the economic recovery and EQC's expanded role and expertise in insurance markets means both agencies now interact on a broader range of policy matters.



Annex 2: Board

Under its legislation, the Commission must have a board of between five and nine members. These, including a chairperson, are appointed by the Minister of Finance. The current members of the Commission and their term expiry dates are listed below.

As can be seen, there are four Commissioners with terms expiring in 2012:

- Giselle McLachlan, on 30/4/2012
- Michael Wintringham, on 31/7/2012
- Keith Taylor, on 2/8/2012
- Denise Bovaird, on 30/9/2012

<i>Commissioner</i>	<i>Appointment Date</i>
Michael Wintringham (Chairman)	Appointed Deputy Chairman 1/6/2003 Appointed Chairman 26/7/2006 Reappointed 1/8/2009 Term ends: 31/7/2012
Keith Taylor (Deputy Chair)	Appointed 18/08/2006 Appointed Deputy Chairman 1/5/2009 Term ends 2/8/2012
Giselle McLachlan	Appointed 1/5/2009 Term ends 30/4/2012
Denise Bovaird	Appointed 1/1/2010 Term ends 30/9/2012
Russell Black	Appointed 1/12/2010 Term ends 30/6/2013
Trevor Burt	Appointed 1/12/2010 Term ends 30/6/2013
Peter Hughes	Appointed 17/10/2011 Term ends 30/6/2014
Gordon Smith	Appointed 17/10/2011 Term ends 30/6/2014



Annex 3: Staff

Prior to 4 September 2010, EQC had a staff of 22, led by a CEO, and one permanent office in Wellington (with an outsourced claims administration facility in Brisbane, Queensland).

As at 24 November, EQC had staff and contractors of almost 1,600, consisting of:

- 970 assessors and estimators;
- 440 claims processing; and
- 160 corporate staff.

This is the highest staffing level reached so far. This level reflects the dual commitments to complete assessments and settle completed contents claims by Christmas 2011.

From early 2012, staffing levels will be reduced substantially as fewer assessors and estimators will be required.

These staffing levels exclude Fletcher EQR contractors, the Tonkin & Taylor contracted Land Damage Assessment teams, and a further 250 claims processing staff working for third party providers.

A chart of the Executive Leadership team is provided below.

