

Planning for Disasters and Responding to Unforeseen Complexity

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New Zealand Earthquake Commission



As a reminder, EQC has been around in some form since 1945. Our Act was last reviewed in 1993 when we became the Earthquake Commission - a Crown Entity with our own capital and reserves.

We cover residential property only (commercial excluded), and EQC cover is a compulsory add-on to household fire policies.

EQC provides a “first loss” basis of cover against defined perils and pays:

- up to \$100,000 per “dwelling” plus GST
- up to \$20,000 on contents plus GST

EQC also provides limited cover for residential land.

We usually cash settle natural disaster claims

Following the Canterbury Earthquakes our role changed in four key ways:

1. We are now project managing through a contract with Fletcher Construction the physical repair of around 100,000 houses
2. We were, on behalf of the Government, designing and supervising \$140m of additional land remediation works in certain parts of Christchurch and Waimakariri
3. Through our engineers, Tonkin & Taylor, we are providing key engineering advice for broader policy purposes
4. We are providing a social assistance component to the recovery through:
 - Identifying vulnerable households and those seeking temporary accommodation as part of our rapid assessments
 - Undertaking emergency repairs to uninsured houses post -22 Feb
 - Installing clean heating devices as part of the Winter Heat and Chimney Replacement programmes



Earthquake



Hydrothermal
activity



Volcanic
eruption

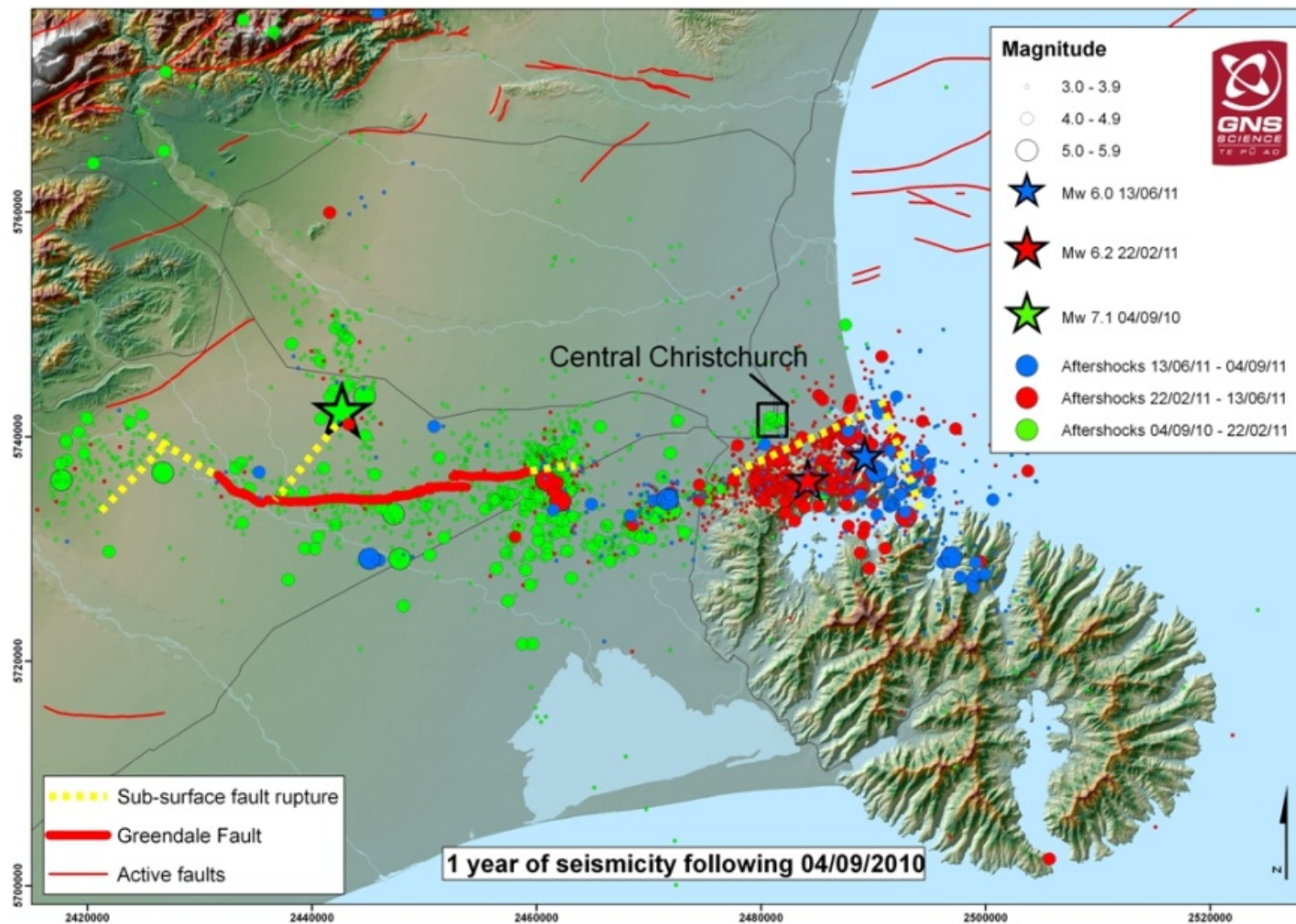


Tsunami



Landslip

& fire following any of these



The 2010-11 earthquakes represent New Zealand's most severe losses since the 1920s – 1940s



1931 Hawke's Bay earthquake

Deaths ~180

Financial cost

>NZ\$15bn

8% of GDP

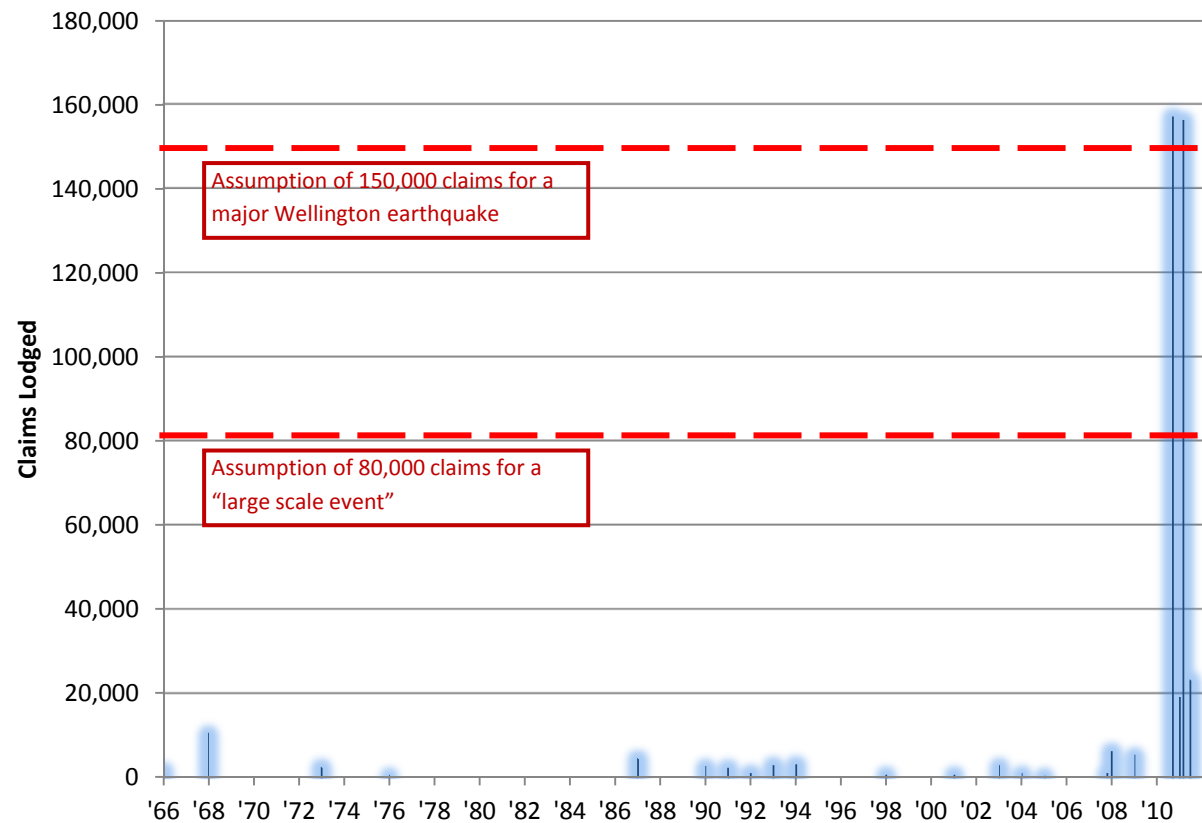
2.5% of NZ Capital Stock

GDP in 2011 reduced by 1.5%

Source: NZ Treasury



The Canterbury Earthquake Series is five times bigger than the “large scale event” the 2009 External Review recommended EQC plan for



Total Claims Lodged	391,002
Made up of	
• House Exposures	349,505
• Contents Exposures	155,536
• Land Exposures	75,671
Total Exposures	580,712
Full Assessments of Houses Completed	134,196
• Pre-22 February	81,775
• Post-22-February	52,421
Rapid Assessments of Houses Completed	182,838
Winter Heat installations	10,790
Emergency house repairs completed/paid	67,985
Full house repairs completed	2,974
Full house repairs underway	9,593
Total Payments by EQC to date	\$1.4B
• Daily average	\$4m a day



- When we signed the contract with Fletcher Construction they were to complete around 50,000 repairs at an average of \$25,000.
- Estimated repair cost = \$1.25b
- Hub-based footprint
- Fletchers as project manager, utilising local trades and contractors
- Full ramp up has been impacted by 22 February and 13 June events and aftershocks. In their aftermath, Fletcher converted their hubs to focus on Emergency Repairs and the Winter Heat programme.
- We are now estimating up to 100,000 repairs to be completed, damage profile has changed. Average now estimated to be \$30,000.
- Estimated repair cost = \$3b and 4,000 workers





Waterview (Auckland) Motorway Connection:
Est. construction period five years (2011-2016)
Estimated cost: \$2.8b in 2015 dollars



Clyde Dam: Cost \$4.4b,
12 years (1977-1989) to complete,
1,000 workers at peak



SkyTower: \$107m,
2.5 years (1994-1997) to complete,
1,000 workers at peak



Twizel Hydroelectric Township: Cost \$258m,
6 years (1970-1976) to complete (to peak),
1,200 houses + 800 single men's cabins built



National Museum: \$184m,
4 years (1995-1998) to complete



Auckland Harbour Bridge: Cost \$357m,
4 years to complete (1956-59),
1,000 workers at peak



The Natural Disaster Fund has provided an initial buffer, as it was designed to do.

Together with reinsurance it has absorbed \$10.8b of an estimated \$11.6b residential cost



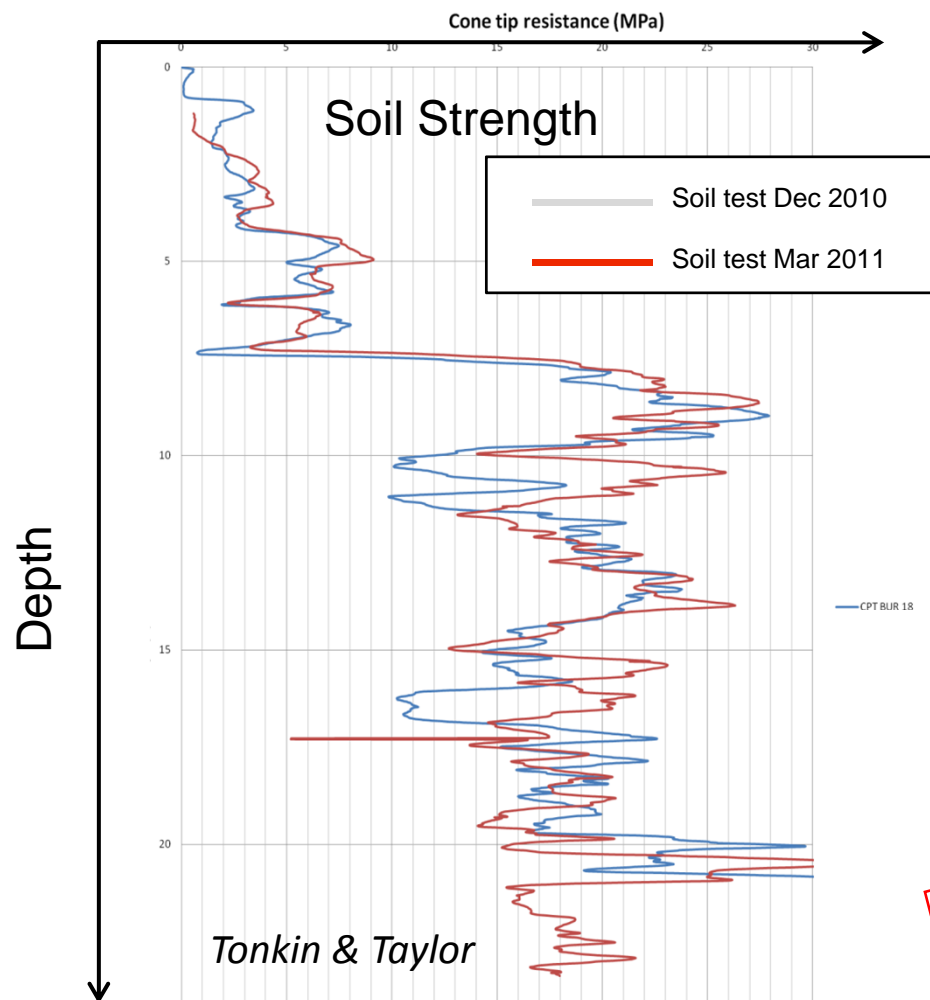
- Multiple claims from almost all claimants for a total of 13 different “insurance events”.
- Complexities in allocating the losses – manual efforts required, so difficult to meet timeliness expectations of claimants and validity expectations of reinsurers and EQC’s governing legislation.
- Twin events were never envisaged, leading to uncertainty in the interpretation of the reinstatement provisions of EQC’s cover;
- The determination of EQC’s liability for restoration of the land to its pre-event state involves complex engineering and legal considerations that were never anticipated when the cover was devised.
- Assembling and training the workforce and coordinating service delivery with other agencies, while addressing these complexities



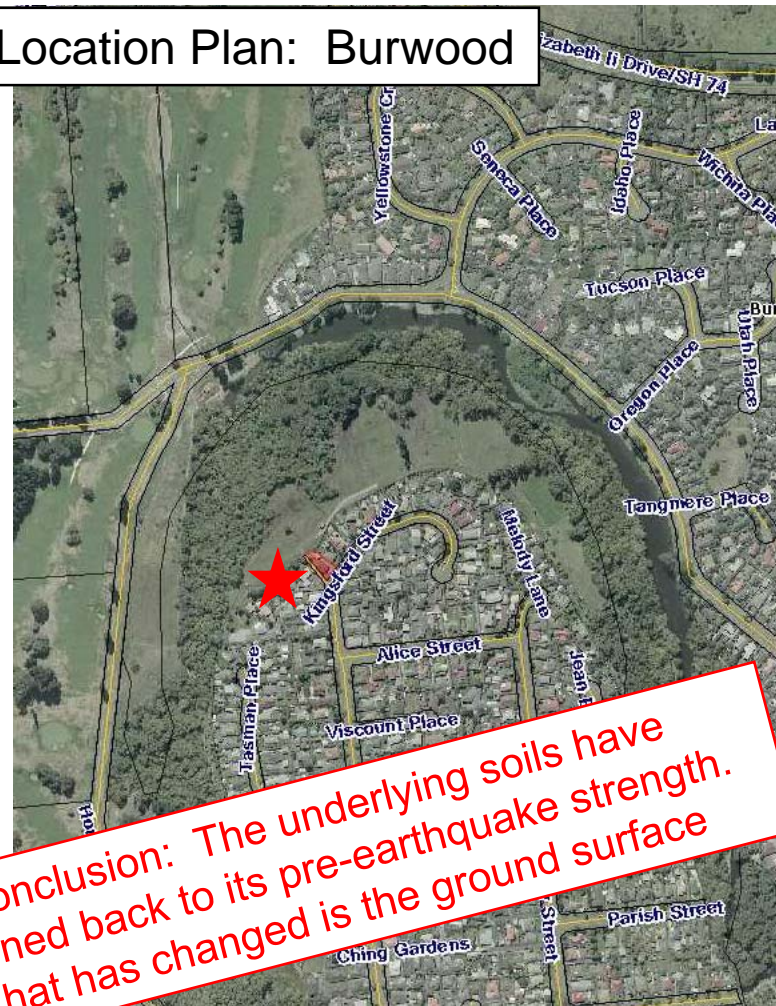






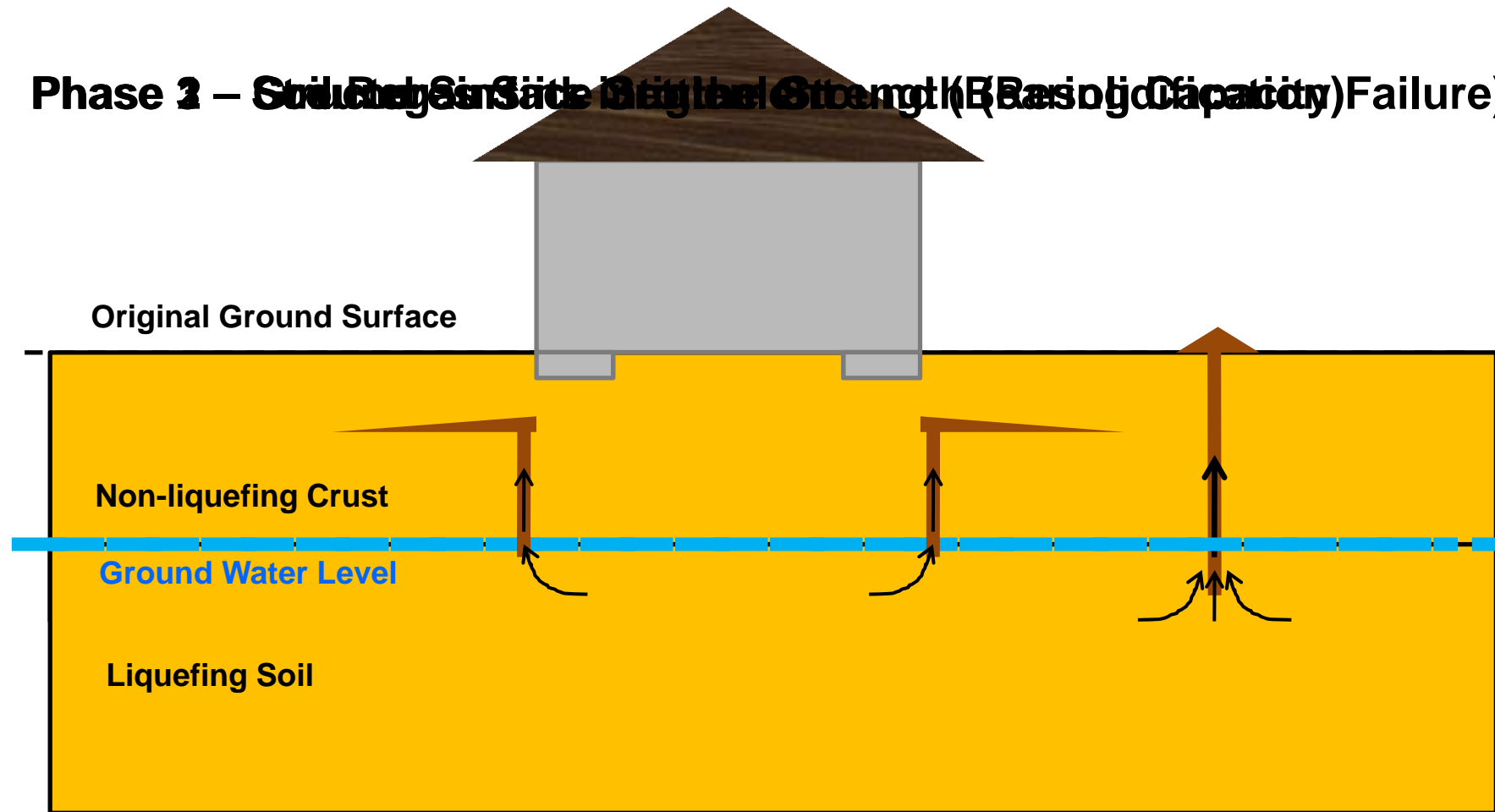


Location Plan: Burwood

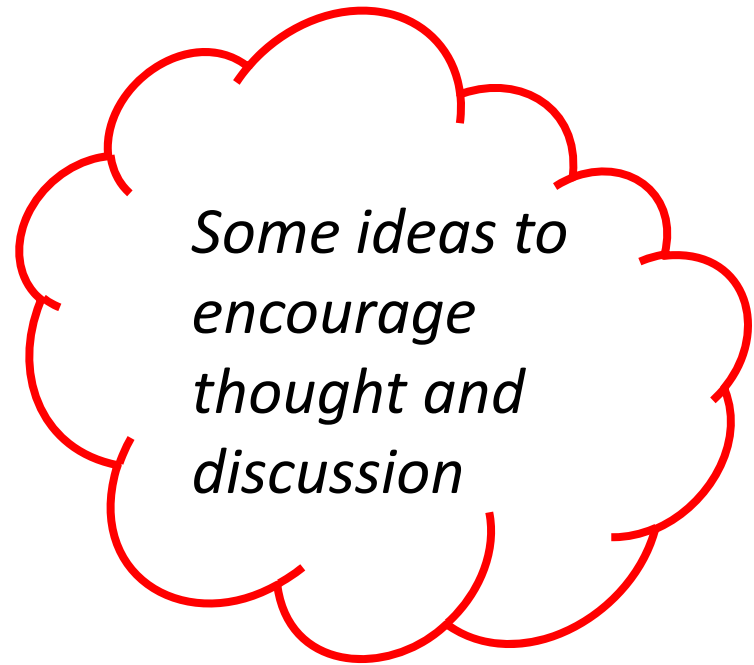
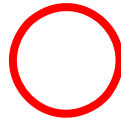


Conclusion: The underlying soils have returned back to its pre-earthquake strength. What has changed is the ground surface

Phase 2 – Soil Liquefaction (Loss of Soil Strength (Bearing Capacity) Failure)



Source: Tonkin & Taylor



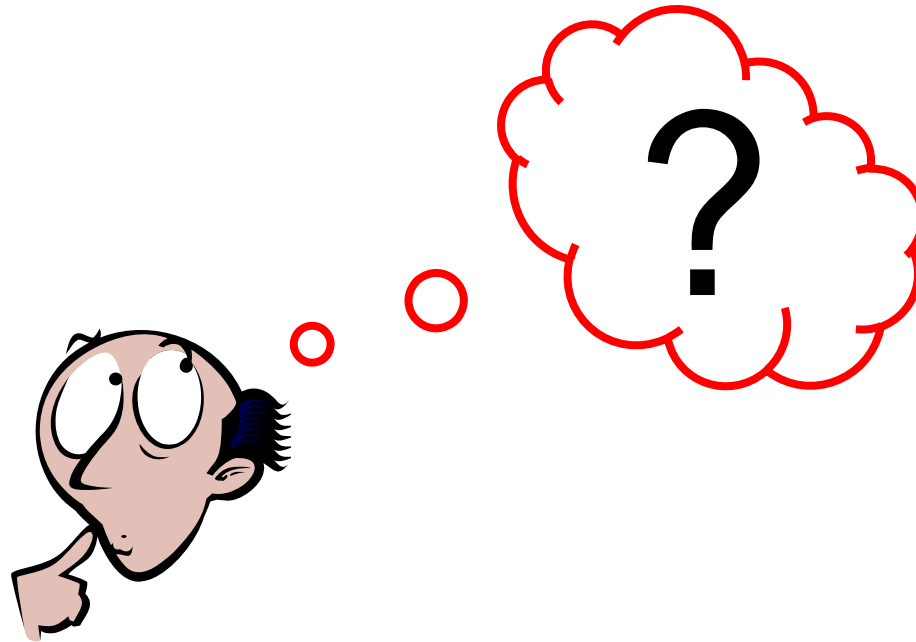
Not necessarily representing formal EQC policy



Central
Control



Individual
Freedom



- The prior question: What is the objective?
 - Save lives?
 - Preserve or rebuild buildings and infrastructure?
 - Maintain or restore economic activity?
 - And, additionally, what price heritage?
- Each has different costs and different policy and financial implications



To what extent can we...

- Avoid the risk? Land Use
- Control the risk? Building Practices
- Transfer the risk? Insurance/Capital Markets
- Accept the risk? Risk tolerance

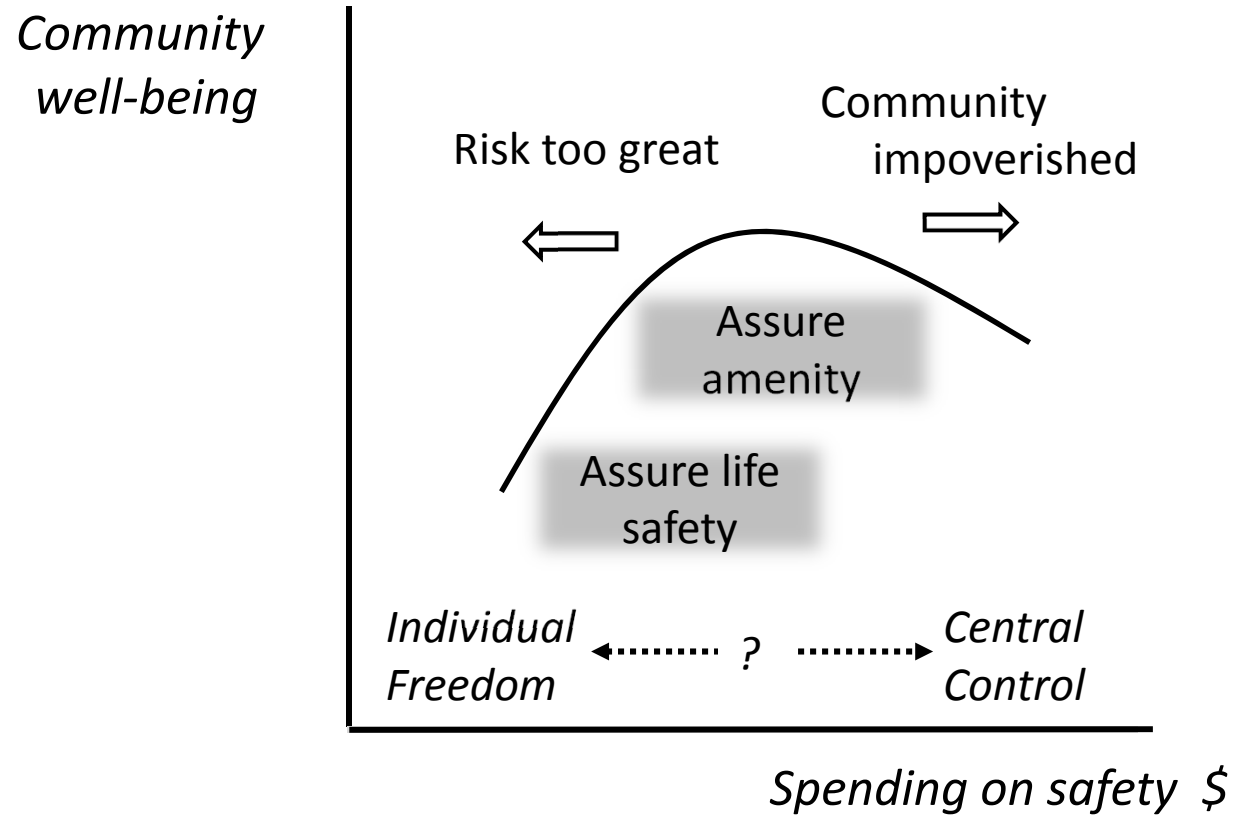
...At what cost?

... Who decides ?

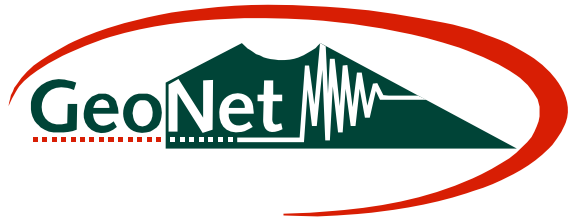




EQC







- A modern system scaled to support national research and community monitoring of geological hazards
- Followed decade of deferred investment and obsolescence
- Non-profit, stewardship by GNS Science
- All data in public domain
- Capital ~NZ\$35M over 10 years, then adaptive renewal
- NZ\$5M per year operations

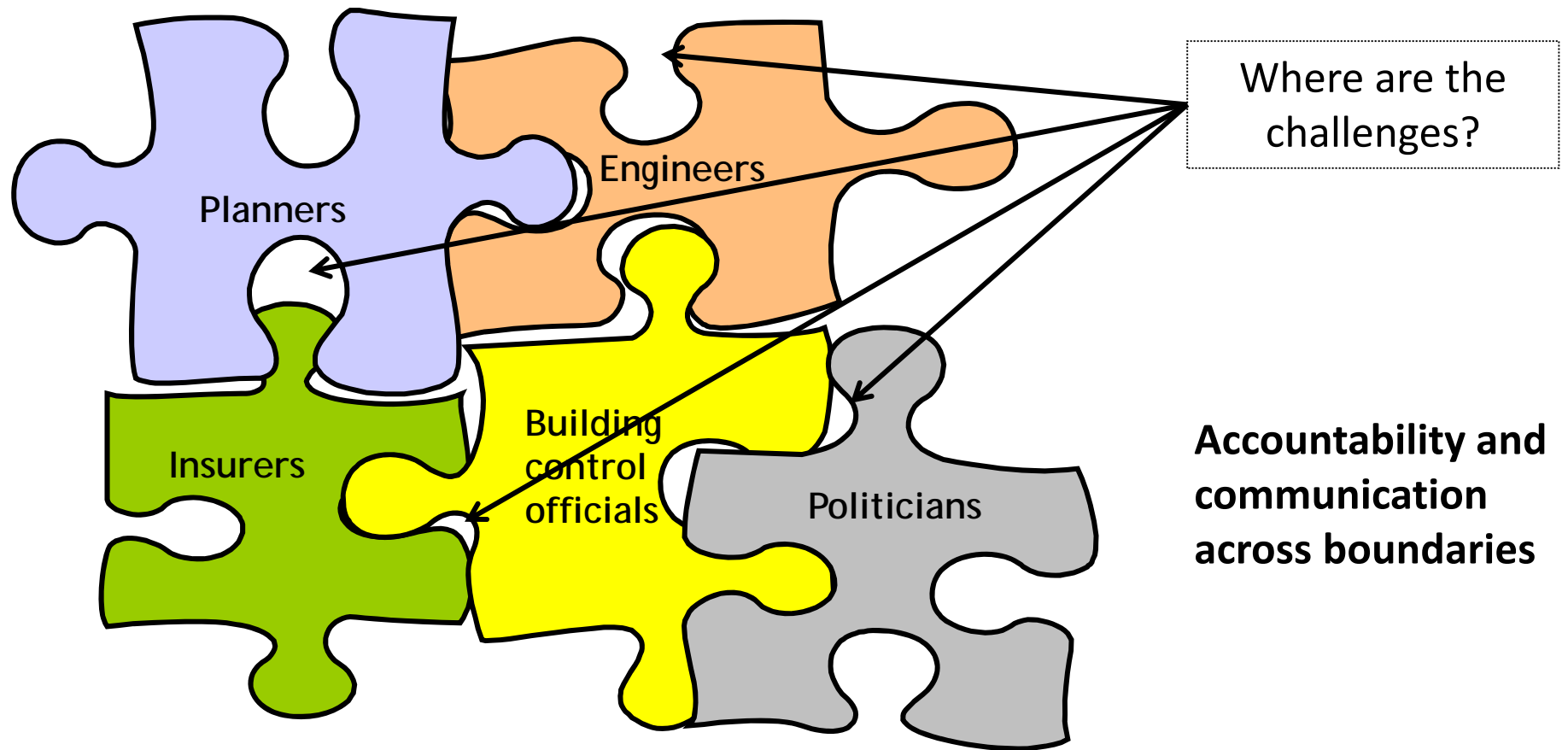


- Mentoring and networking arrangements
- Scholarships and training



- support high quality research, contribute to risk assessment, avoidance and Reduction
- develop new hazard detection and forecasting tools for enhanced Readiness
- provide robust and rapid alerts for emergency Response
- contribute reliable information to assist damage assessment and timely Recovery





BEFORE

- It won't happen
- or, if it does happen, it won't affect me
- or, if it happens to me, it won't be bad
- or, if it's bad, then there's nothing I can do...

So why are you worrying me with this?



AFTER

- Psychological scarring
- Overestimation of repeat disaster
- Risk appetite switches - too high to too low
- Risk over-priced

This must not be allowed to happen again!



Central
Control



Individual
Freedom

Building Controls and Land-use Planning



Risk financing and
prudential regulation



The EQC Scheme



Disaster Welfare

