The Chile and NZ earthquakes of 2010, What have we learned so far?

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Earthquake Commission

LGNZ Workshop
Wellington
16 February, 2011

EQC

Key points...

- 27 February, 2010. M8.8 earthquake, central Chile:
  - largest insured loss in Latin America - ~US$8 billion
- 4 September, 2010, M7.1 earthquake, central Canterbury:
  - largest insured loss in New Zealand – provisional NZ$4-5 billion

- ***Extensive non-structural damage and business interruption***
- ***Expect underwriting focus to be under the spotlight***

At the coast – the devastating power of tsunami

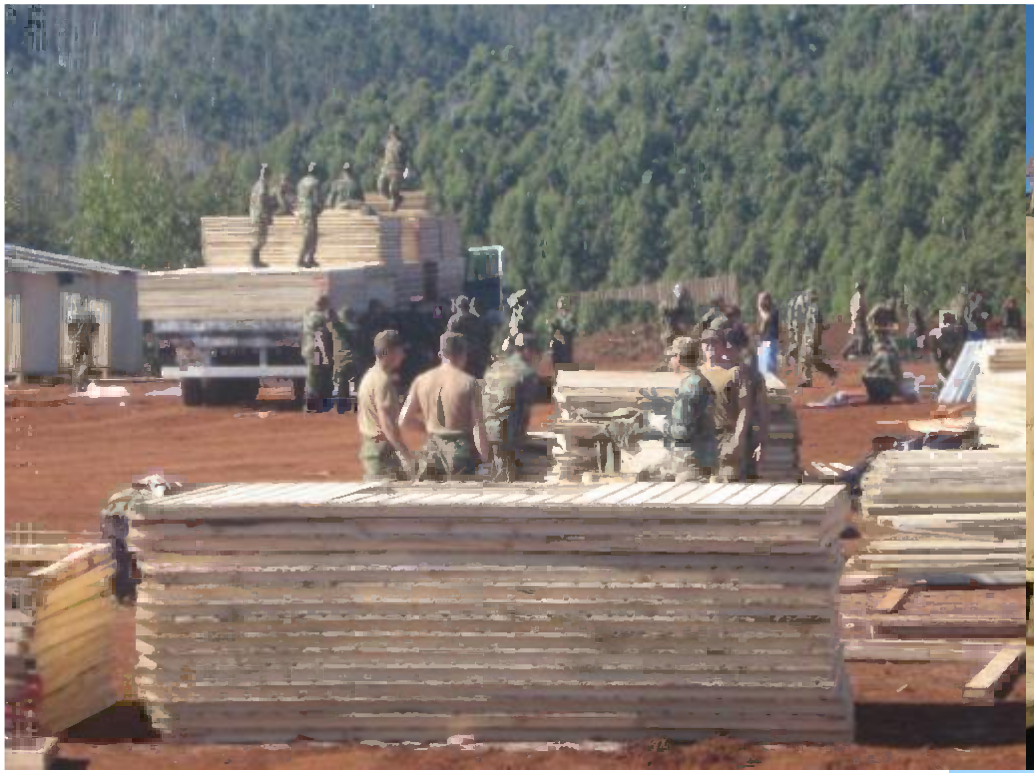
But in fact,
most survived...

...thanks to high
public awareness

Advanced design, technology and code enforcement resulted in generally good performance in shaking – for "life safety"

Modern housing
generally performed well

Few engineered buildings collapsed, but social and economic effects were severe



Emergency Housing

A swift response by State and NGOs - but majority uninsured

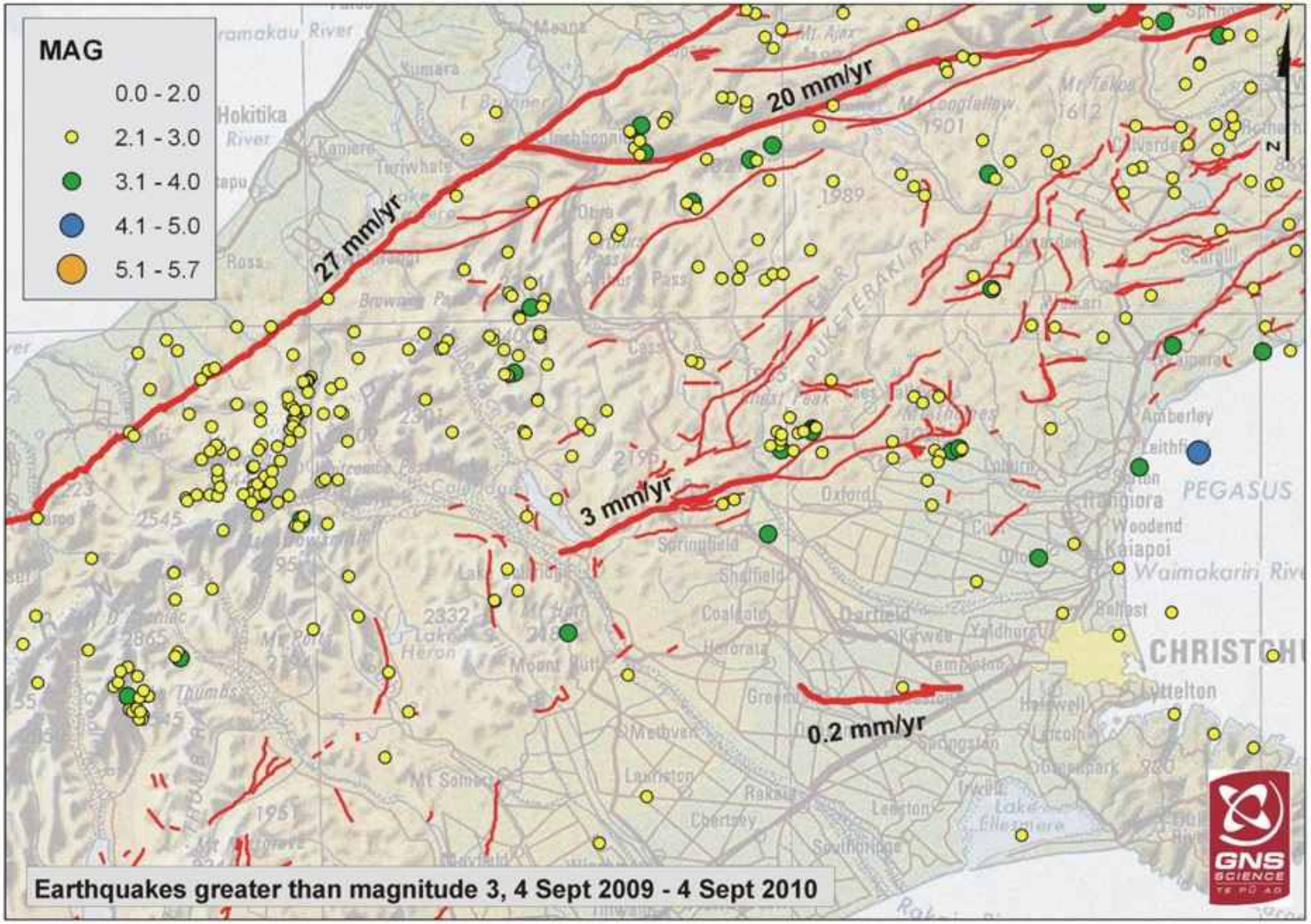
"Reconstrucción por el terremoto concluirá en 2014"
- AFP, February 2011

Transiti

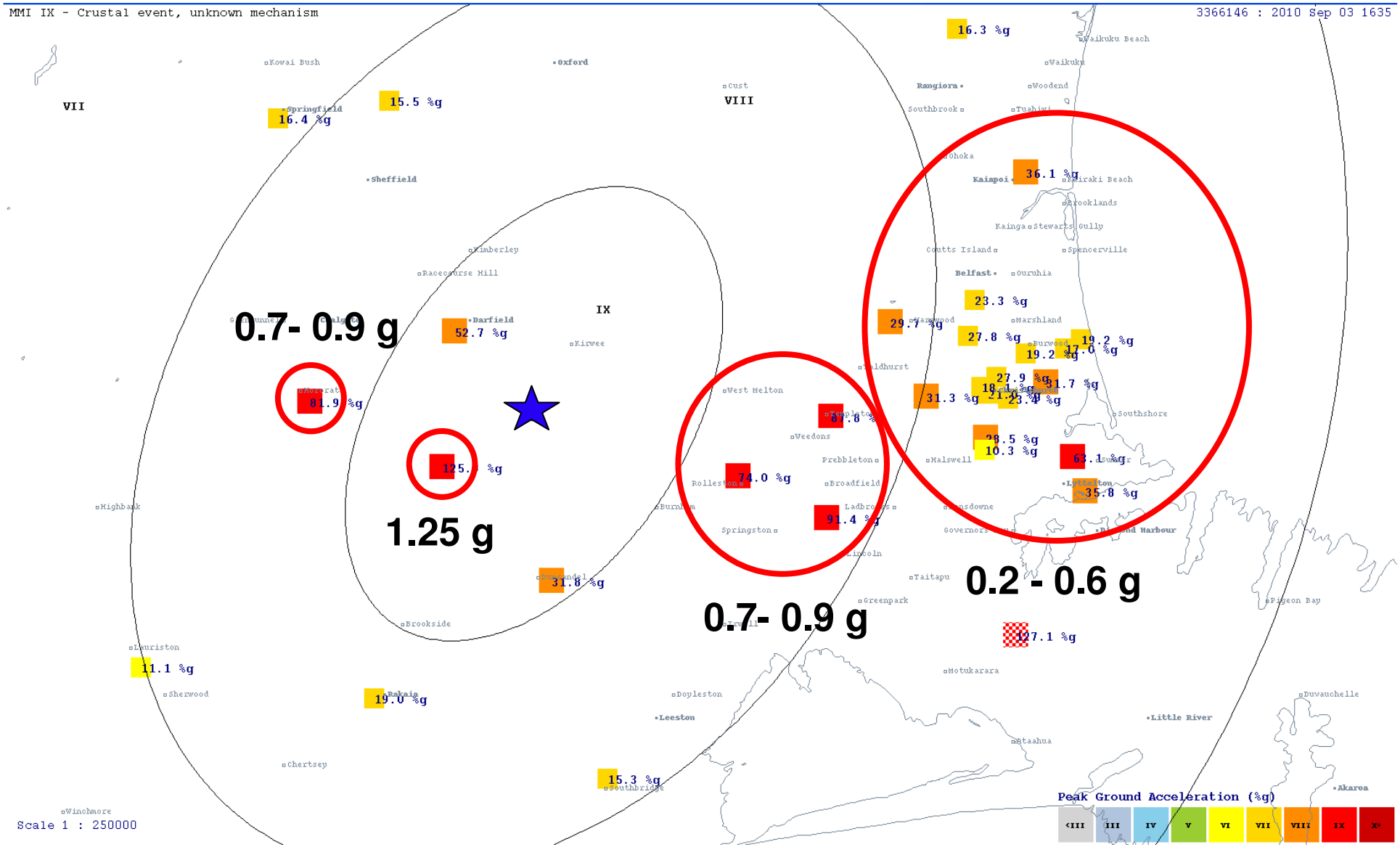
.6% of GDP
.sing subsidies
.itals unusable
50 schools damaged
1500 km of roading repairs

~500,000 more below poverty line
Encuesta Post Terremoto: Principales resultados:
Ministry of Planning, 25 Jan. 2011

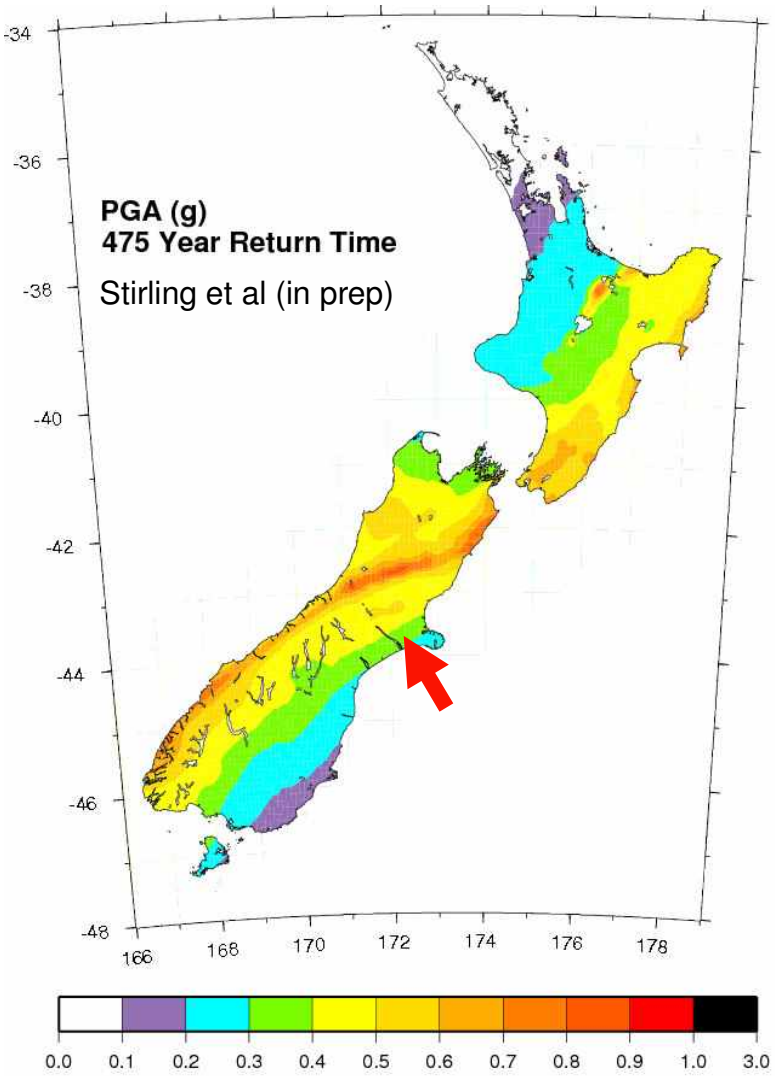
Canterbury 2010 – A Tale of Two Cities



How much did it shake?



National Seismic Hazard Model



Return Period	PGA
20yrs	0.07
50yrs	0.11
75yrs	0.14
200yrs	0.22
475yrs	0.31
1000yrs	0.40
2000yrs	0.50
5000yrs	0.64
10000yrs	0.77
20000yrs	0.90

No fault source and no time dependence in background seismicity model

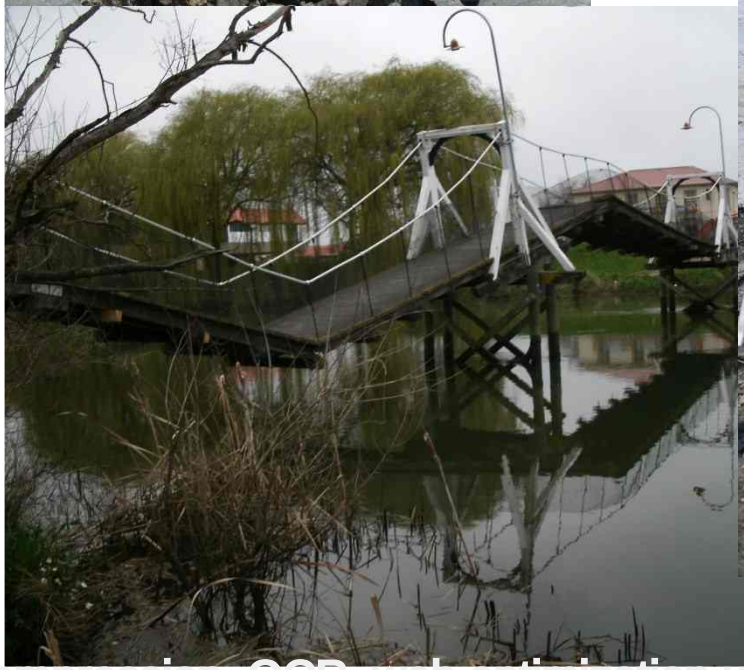
Widespread non-structural damage

Liquefaction and settlement

Lateral spreading

Replacing the rising main at Charles St

Uplift at the Charles St WWPS



Some very long water main repairs

Levee damage

As at 15 February 2011, Tuesday

ClaimsCenter Information Reported

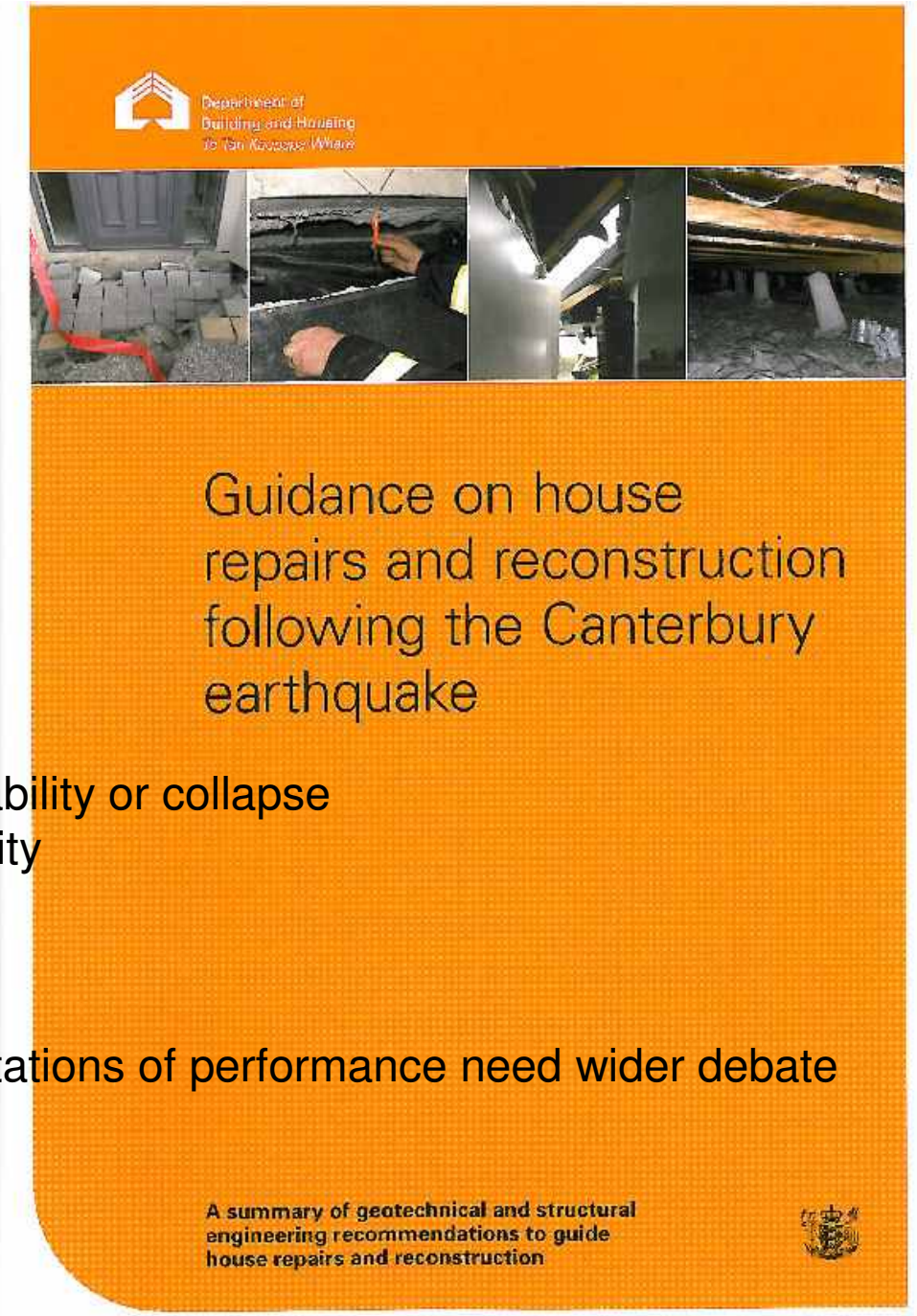
		Open	*Closed*	*No. of Payments*	*Paid to date*
Number of Claimants	180,782	139,333	41,449	118,520	$733,771,657
Building Exposures	166,947	141,591	25,356	72,257	$648,001,973
Content Exposures	56,079	41,413	14,666	46,229	$83,171,615
Land Exposures	24,472	22,491	1,981	34	$2,598,069

Total Exposures **247,498** *Estimated Total Cost* ***$2.5 - 3.5 bn***

*Claims by Event	No of Claims
04 Sept. 2010	157,087
19 Oct. 2010	3,052
14 Nov. 2010	2,130
26 Dec. 2010	16,015
20 Jan. 2011	2,378
04 Feb. 2011	120

Residential Claims to EQC

What do we expect of our Codes and Standards?



B1.3.1 ...low probability of rupture, instability or collapse
B1.3.2 ...low probability of loss of amenity

..loss of amenity is not well defined
..building importance levels and expectations of performance need wider debate

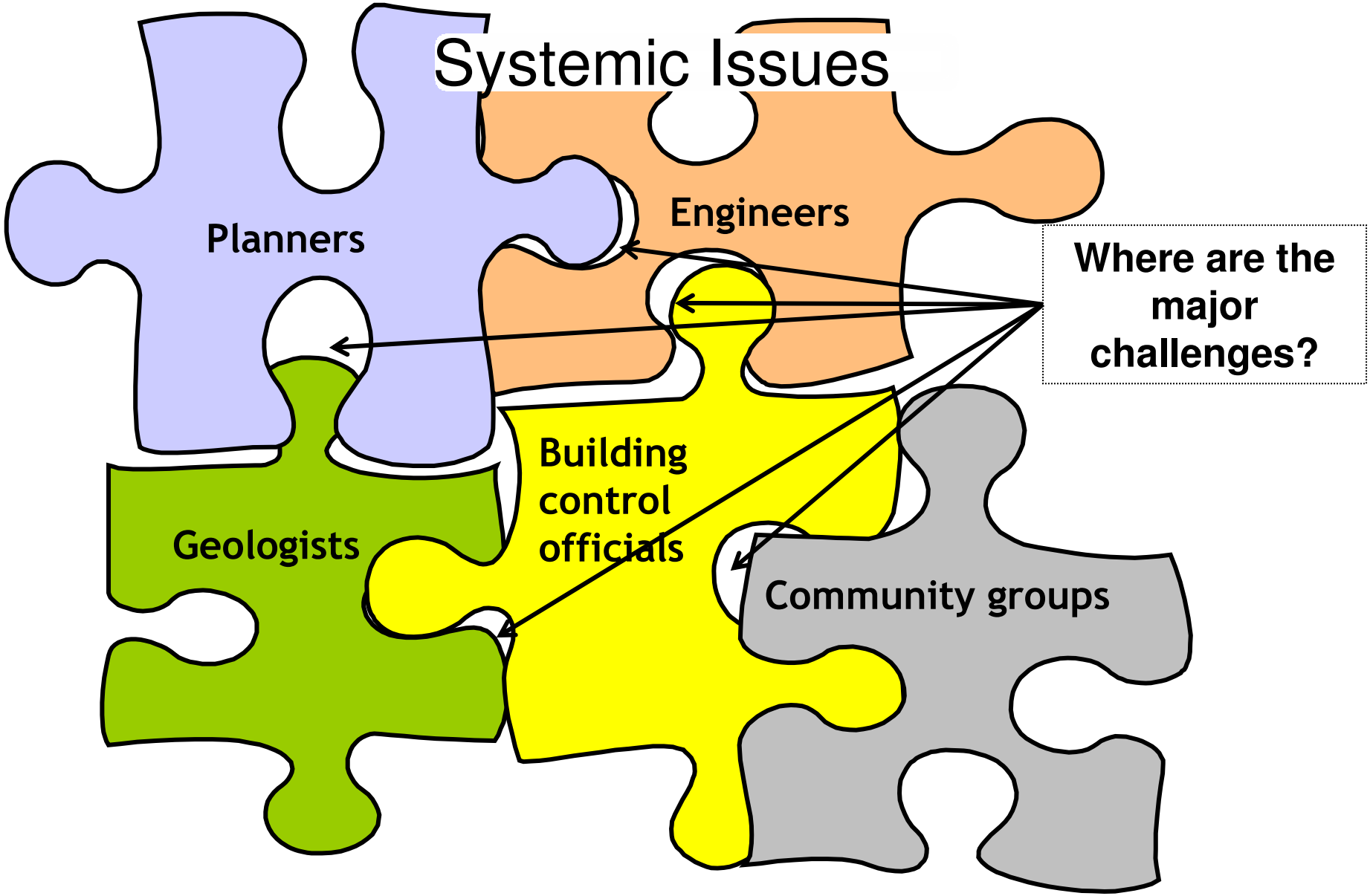
Total Risk Environment

To what extent are we

- Avoid risk?
- Control
- A
- Transfer or share risk?

...and at what cost?

Systemic Issues



Between the boundaries….

Improved communication and accountability

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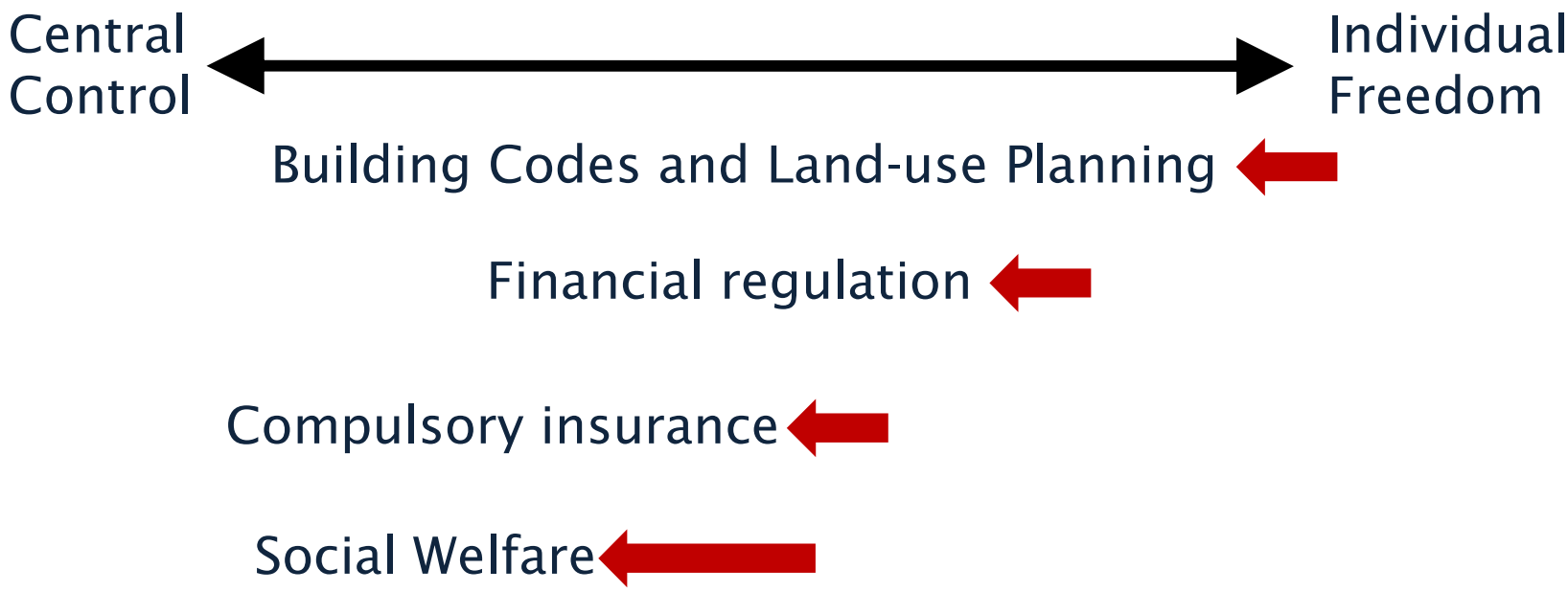
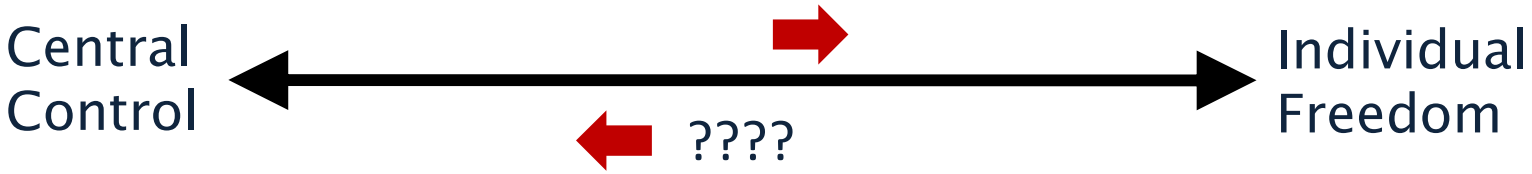
The Mitigation Continuum



Government Intervention



New Zealand and Chile

–Ensure building standards maintained or improved

–Affordable insurance – for home/ business owners

- To provide financial compensation

–Labor, materials and equipment to repair and rebuild available and under control

–Plan for future government costs

–Ensure all citizens have necessities of life

Thank You