Effective policy, decision making and communication for natural hazards


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Outline of presentation

1. New Zealand’s natural hazards
2. Improving policy through integration
3. Improving the incorporation of science into policy
4. Thinking strategically
5. Communication and decision making
6. Summary and conclusions
New Zealand’s natural hazards

Plus severe weather, landslides, flooding, fire and coastal erosion…
NZ’s last big disaster was over 70 years ago…

Napier earthquake, 1931
Improving policy through integration

- How can we achieve better integration and coordination between the sectors involved in hazard management?
NZ legislative requirements for managing natural hazards

1. Civil Defence Emergency Management Act 2002 (CDEM)
2. Resource Management Act 1991 (and amendments)
3. Other legislation (e.g. Building Act 2004)
Other sectors also have a role to play in emergency management, but are not always effectively involved.
Relationships between key legislation for the landuse management of natural hazards

- Civil Defence Emergency Management Act 2002
- Resource Management Act 1991
- Local Government Act 2002
- Soil Conservation and Rivers Control Act 1941
- Local Government Official Information and Meetings Act (section 44A) 1987
- Building Act 2004

- National Civil Defence Emergency Management Strategy & National Plan
- National Policy Statements
- Long Term Council Community Plans (LTCCP’s)
- Local Government Official Information and Meetings Act (section 44A) 1987

- Regional Policy Statement
- Regional Plans
- District Plans

- Non-Statutory Planning Tools
- Land Information Memoranda (LIM)
- Project Information Memoranda (PIM)
- Building Codes
Improving the integration of science into policy and planning

• How can we better incorporate scientific information into planning approaches and documentation?

• “We’re a bit stuck in the TALKING LOUDLY AND CLEARLY MINDSET” – Jenni Barclay

• Application of the Active Fault Guidelines
  “Planning for the development of land on or close to active faults”
Planning for Fault Rupture

Active fault: average recurrence interval of surface rupture less than 2000 years
Active fault: average recurrence interval greater than 2000 years or undefined

Well defined
Uncertain
Distributed

0 100 200 km
### OHARIU FAULT and NORTHERN OHARIU FAULT

**Developed and/or Already Subdivided Sites**

<table>
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<th>2a</th>
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**Greenfield Sites**

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Key to success to this work

- The scientists involved worked closely with planners to apply the scientific information to a planning context.
Improving policy by thinking strategically

• How to get planners and emergency managers to think strategically? (“speculation” – Randolf Kent)

e.g. What will it be like after the next big earthquake? What do we need to put in place now for recovery to happen?
Communication and decision making

- How can we encourage people to prepare more for hazards?

_We need to get inside their heads!_
Hazard and preparedness information

• Having good information about hazards and preparedness is important.

• Dissemination of information as a sole strategy will not be a strong influence on whether people do something about a problem.

• The term ‘information’ has traditionally been applied to a restricted range of media – need to think laterally.
NZ National Preparedness

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<td>8%</td>
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<tr>
<td>Commitment</td>
<td>39%</td>
<td>41%</td>
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<tr>
<td>Understanding</td>
<td>77%</td>
<td>81%</td>
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<tr>
<td>Awareness</td>
<td>83%</td>
<td>82%</td>
</tr>
<tr>
<td>Unaware</td>
<td>17%</td>
<td>18%</td>
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- **Commitment**: Have water and survival items
- **Understanding**: Have a good understanding of the effects if disaster struck
- **Awareness**: Have an understanding of the types of disasters that could occur
- **Fully Prepared**: No knowledge what disasters could occur

Colmar Brunton 2009
Biases in risk perception
Unrealistic optimism: Self-other bias

• It will happen to the other guy, not to me.
• I’m better prepared - and more likely to survive.

How to counter this?
  – Tell people positive actions others have taken.
Biases in risk perception: Denial

• Denial - a strategy for coping with anxiety.

• More denial when people are vulnerable.
  
  e.g. People in unsafe buildings deny risk more.  
  (Lehman & Taylor, 1988)
Fatalism (Paton & Johnston, 2004)

- People think: What can we do? Our efforts are puny.
  - They don’t distinguish the hazard from the outcomes.
Countering fatalism: Present distinctive damage

- News media present indiscriminate damage.
  - focus on catastrophic aspects.
  - People attribute damage to the hazard.

- Instead, also show undamaged [not newsworthy].
  - In Northridge, one block collapsed - most didn’t.
  - People attribute damage to human actions. e.g. building design, levees.
  - They see the damage as preventable.

(McClure, Allen & Walkey, 2001)
Foster personal responsibility

• Programme - increase readiness for volcanic activity (Paton et al., 2001).
  – People thought the Council was acting.
  – Attributed responsibility to the Council.
  – Led to decrease in preparation.
• Must spell out responsibilities.
Model for community resilience

- Personal Indicators
  - Action Coping

- Community Indicators
  - Community Participation
  - Empowerment
  - Articulating Problems
  - Trust

- Institutional Indicators

- Intention

R² = .32

- Positive Outcome Expectancy
- Negative Outcome Expectancy
Future efforts must address factors at three levels:

**Personal level –**

- Develop people’s problem-solving skills (*action coping*).
- Their belief in the benefits of hazard mitigation (*outcome expectancy*).
- Their ability to confront hazards (*reduce negative outcome expectancy*).
Community level –

Encourage active involvement in community affairs (*community participation*).

Develop community ability to resolve collective issues (*articulating problems*).

Institutional level –

Develop an individual’s ability to influence what happens in their community (*empowerment*).

Improve the level of trust they have in organisations (*trust*).
Effective warning systems

- How to develop *effective* warning systems

- Warnings are not just about hardware – they are part of a decision-making process!

- Need hardware, planning, cooperation, communication, education, participation, exercises (Leonard et al., 2008).
In summary... let's move from...

Communication

to

Collaboration, participation and engagement