

High Stakes – Disaster Risk in New Zealand

Introduction

New Zealand faces significant risks associated with natural hazards (Department of the Prime Minister and Cabinet, 2011) and is one of the most vulnerable countries to such risks for its size (Insurance Council of New Zealand, 2014). The 2010–11 Canterbury earthquake sequence resulted in 185 deaths, a \$40 billion rebuild cost, equal to about 15% of GDP, and now over five years of continuing disruption and trauma for thousands of people (Potter et al., 2015). A recent Wellington City Council report put the cost of a large earthquake in that city at \$12 billion for building and infrastructure damage alone, plus an annual GDP loss of \$10 billion.

Floods, landslides, drought and storms are frequent hazards. Coastal settlements are exposed to tsunami and the effects of sea level rise. Climate change will exacerbate weather-related risks. Volcanic risks exist for Auckland and central North Island cities and towns. Animal epidemics could cause very great national economic cost. The possibility of urban flooding, large-scale industrial and transport accidents and

extensive fires, including those as a result of earthquakes, cannot be ignored. The recent ‘leaky home’ problem, estimated to have cost over \$11 billion (PricewaterhouseCoopers, 2009), must rank as New Zealand’s worst ‘industrial’ disaster.

Disaster risk is clearly a matter of national importance and considerable policy interest. Yet this review finds that there are significant shortcomings in how it is recognised and managed. Steps to address the problems are proposed.

Language, concepts and international context

New Zealand can draw on extensive experience and thinking in other countries concerning disaster risk. In 2005, United Nations member governments agreed on the ten-year Hyogo Framework for Action to reduce disaster risk globally, but New Zealand paid little attention to the framework and its guidance over the following decade. Nevertheless, national progress reports were prepared, and there are signs that the 2015 successor agreement, the Sendai Framework for Disaster Risk Reduction, will be actively implemented here.¹

Reid Basher is a retired Senior Advisor of the UN International Strategy for Disaster Reduction and is currently affiliated to the International Research Institute of Disaster Science (IRIDeS), Tohoku University, Sendai, Japan; Victoria University of Wellington; and Massey University, Wellington.

A good example of a comprehensive national approach is that of Japan, which each year prepares a white paper on disaster management (Bosai Hakusho) for the Diet's consideration, based on comprehensive inputs from all ministries (Government of Japan, 2011). This describes the disaster events of the year, reviews relevant policies and programmes, and sets out intentions for further planning and countermeasures. The process provides a powerful vehicle for national review and action and for reinforcing awareness of risk.

Concepts and language are important in disaster risk reduction. Disaster

Christchurch earthquakes, the massive \$40 billion loss represented the risk that had accumulated over the 160 years of the city's development through a myriad of decisions about where people settled and how they built their structures.

Disaster risk reduction is a policy objective: to reduce risk rather than let it grow and accumulate. Disaster risk management is the means to achieve the objective, by addressing the historical, present and emergent drivers of risk. This involves four steps: (1) identify and assess the risks (covering hazards, exposures and vulnerabilities); (2) reduce the exposures of populations and assets to the hazards

(RMA), the Earthquake Commission Act 1993, the Civil Defence Emergency Management Act 2002 and the Building Act 2004. The Public Finance Act 1989 is also very relevant.²

Under the RMA, disaster-related risk management is mainly the responsibility of territorial government, via regional policy statements, land use planning, resource consenting and infrastructure investment. Projects to systematically assess and pursue resilience are under way in the biggest cities. The Ministry for the Environment administers the RMA and provides national support, such as guidance on flood risk management and climate change. The ministry is currently facilitating progress on a government bill to amend the RMA, including, notably, to add 'the management of significant risks from natural hazards' as a matter of national importance in section 6 of the act, a move the government has identified as a priority for action by 2018.³

The Civil Defence Emergency Management Act includes risk and its reduction as one of the six elements of its purpose. Risk is included in its definition of "civil defence emergency management" and in the advisory and planning tasks of the director of civil defence and emergency management. However, the actual management of risks, including risk reduction, is not set as a national responsibility but is devolved to regional groups, whose members are territorial governments. Unlike the case of emergency management, little direction is provided in the act on necessary risk-reducing actions apart from hazard assessment. The Ministry of Civil Defence and Emergency Management's website reflects the same emergency preparedness and management perspective; information on risk and risk reduction is scarce and hard to locate. Where risk is referred to, it is mostly as the somewhat ill-defined term 'hazard risk'. Although the ministry is the national focal point for disaster risk reduction with the United Nations, prior to the 2015 Sendai Framework it did not actively promote international agendas and campaigns in its own programmes or with other relevant government agencies.

More specific risk-oriented direction may be found in the 2007 National

Disaster risk reduction is a policy objective: to reduce risk rather than let it grow and accumulate.

is defined in the United Nations International Strategy for Disaster Reduction (UNISDR) as an outcome: 'A serious disruption of the functioning of a community or a society', rather than a hazard or event. Risk is defined as 'The combination of the probability of an event and its negative consequences'. Risk thus has two distinct connotations: the probability aspect, such as in 'the risk of an accident'; and the consequences aspect, such as in quantifiable 'potential losses'. Here we put the emphasis on the second connotation.

A basic concept is that the risk at a particular place and time results from the combination of the hazards present, the exposure of populations and assets to the hazards, and the vulnerabilities of those populations and assets to the hazards. Where and how people live and how assets are designed and managed determine the exposure and vulnerability, and thus the amount of risk. The large M7.8 earthquake in Fiordland in 2009, for example, caused few losses because few people or assets were present. Conversely, a minor hazard (wind and rain) combined with high exposure and high vulnerability led to the national leaky home catastrophe. In the case of the

(e.g. do not build on floodplains or on liquefaction-prone soils); (3) reduce the vulnerabilities to the hazards (e.g. through good building design, preparedness and emergency management); and (4) transfer the remaining unavoidable risk by means of insurance, other risk-financing tools and the exchange of social capital.

This concept of disaster risk shifts the spotlight away from events and hazards to emphasise the role of society in creating risk. However, in many countries the paradigm of 'disasters as events' dominates, where the emphasis is on hazard assessment, preparedness and emergency management, and, when necessary, recovery. The event paradigm is typically accompanied by under-investment in risk reduction activities. The term 'resilience' extends the event paradigm and is attractive, implying dynamic systems and proactive roles for at-risk communities, though it is more complex than risk and harder to define and measure.

Acts and actors in disaster risk and its reduction

The principal statutes dealing with disaster-related risk in New Zealand are the Resource Management Act 1991

Civil Defence Emergency Management Strategy. Currently this is under consultative review, with the intention to replace it with a National Disaster Resilience Strategy that is better aligned with the Sendai Framework. The ministry also administers the contestable Civil Defence Emergency Management Resilience Fund, in 2016 awarding a total of \$889,000 to territorial governments and CDEM groups for eight projects.

The Ministry of Business, Innovation and Employment is significantly engaged in risk issues. Among other things it recently coordinated the development of a new act to standardise the identification and remediation of earthquake-prone buildings and is consulting on a new system to manage buildings and life-safety risks after emergencies. It handles the government's response to the costly leaky home problem; supports the Natural Hazards Research Platform; and implements the National Science Challenge programme, whose 11 components include the Resilience to Nature's Challenges research programme.⁴ Nonetheless, the concept of risk as an overarching strategic issue is not apparent in the ministry's strategy and reports.

The Ministry of Health is active in health-related disaster preparedness and response, as are the regional health boards – for example, through guidance materials to help citizens and health facilities in disasters – and it is responsible for national pandemic planning and response. However, there appears to be no recognition of disaster risk as a national strategic threat to the functioning of hospitals and health facilities or of the international guidance on this matter (World Health Organization, 2015).

The Public Finance Act 1989 directs the management of public assets and liabilities. It requires the prudent management and forecasting of the fiscal risks facing the government. Disaster risk is not routinely considered, although the impacts of the Canterbury earthquakes were a key element of the 2013 budget policy statement. Treasury's latest annual report has several disaster risk-related items, including the transition of the Canterbury Earthquake Recovery Authority to become an agency within

the Department of the Prime Minister and Cabinet, the reform of natural disaster funding arrangements for local government infrastructure, and the allocation of \$500 million for the Crown-owned entity which took over the claims liabilities of then financially challenged insurer AMI on 5 April 2012. But disaster risk is not referred to as a strategic issue and is absent from Treasury's new Living Standards strategic framework.

Risk as quantifiable potential loss is central to the Earthquake Commission Act. The commission and its Natural Disaster Fund have played a key role in the recovery of Christchurch, meeting claims

department. The system takes an 'all hazards' approach, ranging across cyber attacks, natural hazards and terrorism threats. But no mention is made of any work programmes to pursue the assessment and reduction of disaster risks.

Many organisations outside government administration are actively involved in risk and its management. The Crown research institutes and universities generate knowledge on natural hazards and provide advice to the government and the public, including through the risk analysis tool Riskscape.⁵ Along with the state-owned MetService, they

The Public Finance Act ... requires the prudent management and forecasting of the fiscal risks facing the Government

for over \$9 billion. The commission also devoted \$19.6 million to research services and education last year, among other reasons to encourage the adoption of risk reduction behaviour and enable reinsurers to more effectively price New Zealand risk. A risk orientation is also present in New Zealand's external aid programme, where a strong commitment to strengthening resilience and reducing risks accompanies the traditional commitment to humanitarian response.

Across government, national security issues are coordinated by the Domestic and External Security Coordination Committee, which comprises relevant ministers supported by an officials committee. Hosted in the Department of the Prime Minister and Cabinet, this system provides the means to coordinate action on wide-ranging risk matters, albeit with a prime focus on security and intelligence. The principles of operation, roles of agencies, and identification of the chief executive of the Department of the Prime Minister and Cabinet as the national focal role for security have been published (Department of the Prime Minister and Cabinet, 2011). In 2013 the Ministry of Civil Defence and Emergency Management was incorporated into the

operate early warning systems for most natural hazards. Professional engineering societies provide public guidance, such as on assessing and improving earthquake resilience of buildings. Risks associated with lifelines – transport routes, electricity, water, food supplies, etc – have been subject to study and remediation by regional multi-party lifelines groups.⁶ The insurance industry develops risk models based largely on publicly generated hazards and land use information, for risk assessment and risk pricing, and has paid out \$15 billion to the Christchurch recovery. The Insurance Council of New Zealand has promoted the need for more coherent national approaches to reducing risk related to natural hazards through a set of legislative and strategic recommendations (Insurance Council of New Zealand, 2014.) These include establishing an agency to oversee risk reduction, developing a national plan and reviewing legislation.

Critical issues and shortcomings

New Zealand has many well-developed institutions and capacities to address disaster risks, but there are significant shortcomings in concept, management and governance. The government is heavily

involved in the financial consequences of the Canterbury earthquakes: i.e. in dealing with risk *after* the fact. But it is less well engaged in risk issues and their management *before* the fact. The main concerns are as follows:

- The concept and language of risk, as potential loss, is not well articulated in the relevant laws, institutions, documents, processes and web presence of public organisations. Even where referred to, it is usually subordinate to other concerns and is not seen in dollar terms. Sovereign disaster risk management (Bauer and Parker, 2015) is not explicitly recognised. The multi-billion-dollar scale of potential future losses remains largely invisible, including in the critical field of public finance.

vaguely approaching the Japanese white paper process. Governance of risk is spread across many acts, and risk management is spread across many departments and levels of government, without obvious integration.

- Leadership on risk-related matters lies out of sight within government structures, resting mainly with the chief executives of Ministry for the Environment and the Department of the Prime Minister and Cabinet and director of civil defence and emergency management, all of whom have other extensive responsibilities. There is no public face or champion for systematic disaster risk reduction, nor evidence of leadership through public statements on the topic.

the risk estimates were unsound. The construction of an emergency water reservoir for Wellington Hospital is currently mired in disagreement among the government, hospital board and city council over who should pay for it.

- Information on disaster risk and its reduction is often hard to find in government websites, documents or policies, and there is minimal cross-referencing between agencies. Information on disasters as a national financial or sovereign risk is almost totally absent. The Ministry of Civil Defence and Emergency Management's page of introduction on the DPMC website makes no mention at all of risk and its management; it is solely focused on emergency management. The ministry's own home page has a wider view but is also largely concerned with emergency management and preparedness. The national progress reports under the Hyogo Framework are not presented on the website; instead one is directed to a United Nations' site.
- There appears to be no public database of disaster losses upon which policy and mitigation investment might be founded and progress in risk reduction monitored, other than ad hoc lists mainly of historical shipwrecks and other transport accidents. New Zealand is not alone in this respect: many countries are currently developing such databases. By contrast, the insurance/reinsurance sector has long maintained detailed databases on losses and risks.
- Current arrangements do not properly engage civil society actors or recognise their interests in and capacities for disaster risk reduction. There is no national platform for disaster risk reduction.⁷ The Civil Defence Emergency Management Act does not refer to non-government actors, and the national strategy ineffectually states that the government expects that other parties 'will come to understand that they too, have an important role to play

The multi-billion dollar scale of potential future losses remains largely invisible ... risk and risk reduction are not systematically governed or managed on a national scale.

- Historically, international agendas concerning disaster risk and its reduction have been poorly acknowledged. New Zealand largely ignored the guidance of the 2005–15 Hyogo Framework for Action. While local expertise and approaches are desirable and can provide effective solutions, this period was a lost opportunity to move ahead and improve, and it shows in inadequacies in respect to concept, national approach and civil society engagement.
- Risk and risk reduction are not systematically governed or managed on a national scale. As far as the author can determine, there is no national assessment of risk, no national plan of action to address the sources of risk, no annual report on national risk status, and minimal budgets devoted to risk reduction. There is nothing even

It is worth noting the proposal of the reinsurer Swiss Re that all countries should have a public office of country risk officer to provide oversight and holistic management of national risk.

- The devolution of risk reduction action to regional and local authorities, and to district health boards, is problematic. It invites inconsistent approaches across the nation and sub-optimal investment in risk reduction (note that disaster costs are funded largely through national mechanisms of taxation and insurance). Local governments have limited capacity to generate funds for risk reduction investment and limited access to technical expertise. Recently the attempt by Kapiti Coast District Council to place coastal risk information on property land information memoranda was rejected by the High Court on the basis that

... and will plan accordingly'. Risk reduction involves diverse knowledge and difficult trade-offs and decisions, such as on land uses, which in turn require sustained partnerships across public and private sectors. The regional lifelines groups are a good example of this approach.

Proposed actions and conclusion

In the light of the foregoing discussion, the following nine proposals are made for upgrading New Zealand's approach to disaster risk.

- Identify disaster risk and its reduction as a core concern of government and require that it be considered as part of whole-of-government policy processes.
- Review all legislation concerning disaster risk and develop the amendments necessary to give force to the implementation of comprehensive risk reduction.
- Review and rationalise the roles of different levels and parts of government in disaster risk reduction and formalise upgraded mechanisms for coordination.
- Institute a mandatory annual report to Parliament on disaster events, disaster risks and disaster risk reduction action, covering all relevant acts and programmes, modelled on Japan's annual white paper process.
- Strengthen the financing of risk reduction through a coordinated and appropriately supported national portfolio of funding mechanisms.
- Provide a strong and publicly visible 'home' for risk reduction action

within government, led by a senior officer fully devoted to the topic and responsible for promoting external partnerships and disseminating public information.

- Establish a multi-party national platform on disaster risk and its reduction, and encourage the formation of similar regional and special-interest platforms.
- Establish a public database on disaster losses, along with the necessary national data collection programme.
- Significantly improve the level of information provided on disaster risk and its reduction through government and other public websites and in the media.

The nine proposals are straightforward in principle but will require leadership and awareness raising, including at political level. Action need not await the outcome of any review of legislation; improvements can be initiated immediately, alongside efforts to implement the Sendai Framework. A central feature is the annual reporting process, which should be pursued as a multi-agency process with full engagement of all involved.

The appointment of a champion for disaster risk reduction within central government, ideally designated chief risk officer or similar, is critical. The role needs to be outward-looking and actively engaged with civil society and information dissemination. A survey of existing investment in risk reduction is a necessary step toward developing a portfolio of funding. The loss database should be hosted in a scientific institution

and should make use of existing international methodologies for database design and the collection of past and future loss data.

The essence of a national platform is the voluntary participation of diverse actors, from government and civil society, for dialogue, information sharing, coordination, joint project initiatives and norm setting. Substantial upgrading of government websites and public resources is needed to support informed civil society engagement in disaster risk reduction.

In conclusion, the invisibility, uncertainty, multiple roots and long-term characteristics of disaster risk undoubtedly present a great challenge for its governance and management. But the stakes are high, with potential disaster losses of hundreds of lives and billions of dollars – it is vital that the issue be given greater attention and that more systematic national action is undertaken to protect the nation's future.

References

- Baur, E. and M. Parker (2015) 'Building financial resilience: the role of risk transfer for sovereign disaster risk management', *GRF Davos Planet@Risk*, 3 (1), special issue on the 5th IDRC, Davos, 2014
- Department of the Prime Minister and Cabinet (2011) *New Zealand's National Security System*, Wellington: Department of the Prime Minister and Cabinet
- Government of Japan (2011) *White Paper on Disaster Management 2011: Executive Summary (Provisional Translation)*, Tokyo: Cabinet Office
- Insurance Council of New Zealand (2014) *Protecting New Zealand from Natural Hazards*, Wellington: Insurance Council of New Zealand
- Ministry for the Environment (2015) *A way forward for national direction*. Brochure INFO 748. Wellington: Ministry for the Environment
- Potter, S.H., J.S. Becker, D.M. Johnson and K.P. Rossiter (2015) 'An overview of the impacts of the 2010–2011 Canterbury earthquakes', *International Journal of Disaster Risk Reduction*, 4, pp.6-14
- PricewaterhouseCoopers (2009) *Weather-tightness: estimating the cost*, Wellington: Department of Building and Housing
- World Health Organization (2015) *Comprehensive Safe Hospital Framework*, Geneva: World Health Organization

1 See www.unisdr.org and www.preventionweb.net for access to the Hyogo and Sendai frameworks, the national progress reports and the 2009 UNISDR Terminology on Disaster Risk Reduction. The author was involved in the drafting of the Hyogo Framework and the terminology while engaged in the UNISDR secretariat.

2 The material in this section is drawn from government entities' annual reports, statements of intent and websites. A number of other relevant acts are listed at www.civildefence.govt.nz.

3 Ministry for the Environment, 2015.

4 See <http://www.naturalhazards.org.nz> and [resiliencechallenge.nz](http://www.resiliencechallenge.nz).

5 Drawn from relevant government entities' annual reports.

6 See <http://www.civildefence.govt.nz/cdem-sector/lifeline-utilities/>.

7 National platforms are promoted in the Hyogo and Sendai frameworks and now exist in 54 countries.