

Humanitarian response and disaster risk reduction in New Zealand and the Pacific

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New Zealand is an island nation astride a vigorously active tectonic plate boundary in the southwest Pacific ocean. Its geographic location means the country's 4.3 million inhabitants are subject to a wide range of potentially destructive hazards including frequent earthquakes, local and distant-source tsunami, volcanic eruptions, landslides, flooding, and extreme weather.¹ As a developed country New Zealand society is also highly reliant on its networked infrastructure, which is particularly vulnerable to the range of natural hazards as well as other man-made disruptions.

Many communities are located in areas likely to be affected by extreme events. For example, Auckland city, home to one-third of the country's total population, and its major commercial hub, sits on a widespread dormant volcanic field. The capital city, Wellington, and many other communities in the North and South islands, are located close to major active faults capable of very large magnitude earthquakes.

Despite this high exposure, the country had been spared a major disaster for several decades, with the lull broken by two large earthquakes within a six month period. The first on 4 September 2010, was a magnitude 7.1 earthquake near the city of Christchurch in the South Island, directly affecting over 480,000 people. Fortunately, no deaths and only a few serious injuries were reported. New Zealand was not so fortunate when a magnitude 6.3 earthquake struck on 22 February 2011, under the city of Christchurch. At the time of writing this article, New Zealand remains in a state of national emergency with a current estimate of 182 deaths from this earthquake. The proximity and shallow depth of the February 22 event resulted in violent ground shaking estimated to be three to four times more intense in the city than that which occurred during the September 4 event. The result is a higher degree of destruction to buildings within the city. Of the 70,000 buildings across the city assessed by structural engineers; 4050 (5.8 per cent) have been assessed as seriously damaged and unsafe. This figure rises to 852 or 23.1 per cent of central business district buildings, and 844 or 50.7 per cent of heritage buildings. The event is set to become the most costly disaster so far in New Zealand history, with extensive losses to older buildings, unexpected failures of concrete multi-story structures, damaged infrastructure and impacts on the local communities that are still being tallied. Notably, the largely light-framed timber structures favoured for residential buildings in New Zealand performed very well under extremely violent ground shaking.

New Zealand has always had a high awareness of the need to construct buildings to withstand earthquakes, with four revisions to the building code since 1970, including a 1992 revision that

specifically outlined how a building must perform to withstand the forces expected in an earthquake. The building code may be reviewed again following the Royal Commission on the Canterbury Earthquake to ensure the latest seismological, geotechnical and engineering science resulting from this event is incorporated into future construction and to strengthen existing buildings. A commitment to thorough science and research, good engineering, strong and well-enforced regulation, and comprehensive reduction and readiness activities will continue to be needed to reduce the risks to New Zealand from future earthquakes.

Disaster Risk Reduction and Emergency Management in New Zealand

The Christchurch earthquake has served to underscore for New Zealand society the importance of investment in disaster risk reduction, planning and preparedness.

The contemporary approach to disaster risk reduction and emergency management in New Zealand advocates collaboration and coordination across agencies and sectors (public and private), between different levels of government, and between government and citizens.² The framework aims to address all hazard risks through the 'Four Rs' — reduction, readiness, response, and recovery.

The approach recognises that not all hazard risks can be reduced to zero; however, their impacts can be reduced through the process of risk reduction, prevent planning, effective response arrangements, and a better recovery process that seeks opportunities to reduce the impact of future disasters.

Important principles of the New Zealand approach include: (1) individual community participation in decision making; (2) comprehensive and integrated hazard risk management; (3) planning based on consequences; and (4) making best use of expertise, structures and information.

Disaster Risk Reduction: Local

Most disasters occur at the local level. Even large events consist of many small incidents that together give the event its scale. Hence, New Zealand's hazard risk management and planning frameworks place a strong emphasis on local action. Individuals, communities and local government are best placed to decide



Image: Anita Komen

Ground shaking in the 22 February 2011 event was the largest ever recorded for a New Zealand earthquake and resulted in significant damage to buildings

on the management options suited to their specific situations, for example through land-use planning and building control activities. The ‘bottom-up’ approach aims to build a resilient and safer New Zealand with communities understanding and managing their hazards and risks.³

Central to disaster risk reduction at the local level are Civil Defence Emergency Management (CDEM) Groups.⁴ These are consortia of local authorities based on regional council boundaries, working in partnership with emergency services (police, fire, health), infrastructure providers, science providers, government departments, non-government organisations, and others.

Sixteen of these groups across New Zealand are primarily responsible for assessing and managing local risks, consulting and communicating about risk management with their communities, developing and implementing plans, managing the consequences of emergencies in their area, and assisting other groups in planning and response. Funding for local risk reduction, readiness, response, and recovery activities comes from a local property-based rating system. Central government funding (from general income tax) is limited and aims to provide the minimum level of assistance required to restore community capacity for self-help and to support development of sustainable solutions.

Disaster Risk Reduction: National

New Zealand risk reduction policies, programmes and services across central government aim to support local government, businesses and individuals to reduce risk at the community and personal level. One of the key ways it achieves this is developing and administering a broad framework of legislation that underpins sustainable hazard risk management and resource planning. Key legislation that addresses hazard risk reduction includes the Civil Defence Emergency

Management Act 2002; the Resource Management Act; the Building Act 2004 and the Local Government Act 2002.^{5,6,7,8} These, and other legislation, underpin a wide range of national strategies, plans, policies, regulatory codes and practices supporting risk reduction at central and local government levels. Specific examples include the Building Code and compliance regime (with its emphasis on earthquake and storm resistance), resource consent processes, and the New Zealand Coastal Policy Statement.

Government agencies also contribute to disaster risk reduction outcomes through the services they deliver locally on a daily basis, including providing social welfare, education and health services that aim to build capability and lessen an individual’s and community’s vulnerability to disaster risks.

In recognition of the critical role that network ‘life-line’ utilities (water, energy, telecommunications, transport etc.) play in supporting economic activity and social wellbeing, and the strong dependence of community disaster resilience on infrastructure, the CDEM Act 2002 requires network providers to “function to the fullest possible extent” in a disaster. Network providers are therefore strongly encouraged to undertake their own business continuity management, and to work collaboratively at a national and local level to reduce disaster risk.⁹

Another important contribution of central government to risk reduction is through establishing priorities and funding national research into hazards, risks, vulnerabilities and disaster resilience, to support



Image: GNS Science

The New Zealand Police Headquarters, Wellington, an example of seismic design for a critical facility

informed decision making. Developing a comprehensive understanding of New Zealand's hazardscape is an essential step in identifying and prioritising risk reduction activities, alongside readiness, response and recovery planning.

A current initiative is the government funding of the Natural Hazards Research Platform, which brings together researchers from across a range of physical science, social science and engineering disciplines from the public and private sector, to work collaboratively, in partnership with research users.¹⁰

New Zealand also has a national natural disaster insurance scheme, managed by the Earthquake Commission, designed as provision for the financial costs of repairs to disaster-impacted residential properties. All residential property owners who purchase fire insurance from a commercial provider automatically acquire the Earthquake Commission's insurance cover.¹¹

The central decision making body of executive government that address emergency management is the Cabinet Committee for Domestic and External Security Coordination.¹² This committee is chaired by the prime minister and includes ministers responsible

for departments that play essential roles in such situations. To support that process, there is a committee of government department chief executives charged with providing strategic policy advice and working together to ensure coordinated action across government.

The lead agency for managing planning and response to a national crisis will vary depending on the type of emergency. For example, the Ministry of Civil Defence and Emergency Management (MCDEM) is the lead agency for responding to a civil defence emergency resulting from an earthquake, flooding or other (mostly) natural hazard event. The Ministry of Health is the lead for a human pandemic, and the Ministry of Agriculture and Forestry for bio-security risks.

Community-based action: A case study

The ability of a community to cope with a disaster is based to a large extent on the risk reduction or readiness measures it takes. However, getting communities to participate in actions that reduce risk or enhance preparedness and create resilience to disasters has proven to be a significant challenge to the New Zealand civil defence emergency management sector.¹³ Engaging the community, so that it becomes an integral part of decision-making, and development of arrangements for disaster risk reduction, is an essential part of generating resilience. An engaged community will be more likely to participate actively in managing its own risks, creating the capability to successfully manage a crisis when it occurs, absorb and reduce disaster impacts, and aid recovery.

An example of an engaged community is Taupo Bay in Northland, in the upper North Island.¹⁴ Residents recognised a significant tsunami risk to their community and with a large influx of holiday makers over the summer period understood their community would be vulnerable. With the support of their local district council emergency management officer, volunteers from Taupo Bay developed their own community response plan. This plan included hazard information, contact information and evacuation information.

The volunteers decided an important part of their planning process was to raise the awareness of the hazard within the community, and especially for the significant population of summer visitors. One awareness-raising action was to produce a one-page summary of the community response plan, which was displayed in each household in the bay. The community developed its coping strategies through articulating roles for volunteers in an emergency.

The Pacific riskscape

New Zealand's Pacific neighbours are also vulnerable to an array of natural hazards including cyclones, floods, earthquakes, tsunami and volcanic activity. Pacific Island Countries (PICs) are straddled by the Ring of Fire, a zone of high earthquake and volcanic activity that encircles the Pacific basin, and these hazards, along with weather-related events, can devastate lives and livelihoods, destroy environmental assets, wipe out years of hard-won development gains and severely impact struggling



Image: Diamuid Toman

Student volunteers assisting in the removal of liquefaction silt from a residential property

economies.¹⁵ Small land areas separated by a vast ocean, coupled with often tiny populations and the growing impact of climate change, and increased urbanisation, exacerbate these problems. As a result, planning for, and implementing, DRR and response interventions can be logistically and financially challenging.

The Pacific region has witnessed an escalation in efforts at a regional, national and local level to reduce risk and to ensure that countries are better prepared for, and able to respond to, natural disasters. These include high-level government commitments to principles as well as practical activities implemented at the regional, national, provincial and village level.¹⁶

Disaster risk reduction

As in New Zealand, there is mounting appreciation in the Pacific of the critical role that disaster risk reduction (DRR) plays in reducing levels of vulnerability and contributing to sustainable development. Investing in DRR also makes strong economic sense. For example the UN estimates that every dollar spent on risk reduction saves between US\$5 and US\$10 in economic losses from disasters.¹⁷

Relative isolation, tiny populations, a lack of strong legislative frameworks, struggling institutions with limited budgets, incomplete hazard information and at times uncoordinated approaches, has meant that the effectiveness of some of these efforts across the region has been mixed.¹⁸

Donor governments in the Pacific, for example New Zealand; regional institutions, such as the Secretariat of the Pacific community; multilateral agencies, like the UNOCHA and UNDP; the Red Cross and international and local NGO's; are all engaged in funding or implementing DRR activities in PICs. Regional forums, such as regular meetings of the Pacific Platform for Disaster Risk Management, provide opportunities for these stakeholders to share ideas, exchange information and improve coordination of various interventions.

In supporting countries and communities to reduce levels of vulnerability, and to more effectively manage disasters when they do

happen, the New Zealand government provides funding support to MCDEM to work closely, and collaboratively, with National Disaster Management Offices (NDMOs) in Polynesia to strengthen their capacity, and ability, to prepare for, and respond to, natural disasters. For example technical and mentoring expertise is provided to ensure that emergency plans are relevant and regularly exercised which in turn will help to strengthen local community-based actions.

Tsunami readiness in the southwest Pacific is another priority for the New Zealand government and a significant scaling in the level of funding reflects this. While the southwest Pacific is a region of intense tectonic activity, some countries, for example Samoa and Tonga, are more at risk of tsunami, due to their proximity to active fault zones, seafloor topography and the orientation of their coastlines, than others. Capitalising on New Zealand's experience and internationally recognised technical expertise, inundation maps, evacuation routes and community awareness programmes are currently being designed and supported in Samoa.

Disaster Response

New Zealand stands ready to assist its Pacific neighbours immediately following a natural disaster. Upon receiving a request for international assistance and once immediate needs have been assessed and identified, New Zealand can help by providing emergency funding to governments, multilateral agencies or NGOs, sending relief items, or by providing technical assistance or support.

To ensure a joined up approach that minimises the risk of duplication of effort, a New Zealand response in the Pacific is managed via a task force facilitated by the Ministry of Foreign Affairs and Trade (MFAT). This task force includes representation from government agencies, the New Zealand Defence Force, the Red Cross and NGOs. One of the key response mechanisms is the government-to-government arrangement with France and Australia (FRANZ), where the three partners share information and resources to ensure coordinated emergency aid delivery.

In any response, New Zealand supports the reaction mechanisms of national governments, which have primary responsibility for the well being of their citizens, local partners and other international actors operational on the ground.

Conclusion

The enabling and cooperative approach to disaster risk reduction in New Zealand has its advantages and clear progress has been made since enacting the new framework in 2002.¹⁹ However, in both New Zealand and PICs, not all potential partners are actively involved. Building a strong and broad constituency to promote and implement risk reduction and preparedness remains a challenge. Creating meaningful and enduring partnerships between local authorities, the community, and other stakeholders is therefore a clear pathway to higher levels of disaster resilience and better outcomes for all.