

New Zealand

National progress report on the implementation of the Hyogo Framework for Action (2009-2011)

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Outcomes for 2007-2009

Area 1

The more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction.

Outcomes:

The National Civil Defence Emergency Management (CDEM) Strategy, approved by the Government in 2007, continues to set the strategic direction for managing hazards and risks having the potential for civil emergencies (or disasters).

The goals and objectives of the CDEM Strategy are aspirational for the long-term. They seek continual improvements towards creating resilient communities through risk awareness, effective risk reduction actions and appropriate emergency readiness, response and recovery capacity and capability.

Local authorities play a key role through risk management processes that encourage linking local hazard risk assessments with long term community goal setting and planning under local government legislation; natural resource policy and land-use under resource management legislation; and risk analysis and emergency planning under CDEM legislation. Hazard risks are also addressed at a national level in the areas of environmental, building, public health, and workplace health & safety requirements.

Local authorities are currently undertaking 5-10 yearly reviews of their core planning documents for CDEM and resource/land-use management (including hazard risk management). The new plans are generally demonstrating better alignment and integration of policies and programmes supporting hazard risk management.

The concepts of hazard risk management and business continuity management are now more widely understood, and increasingly are being applied. Recent domestic events, such as local flooding and lifeline utility outages, the M6.8 Gisborne earthquake (December 2007), the M7.1 & M6.3 Canterbury earthquakes (September 2010 & February 2011), and overseas events particularly in the South West Pacific, have helped to heighten disaster awareness.

Area 2

The development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards.

Outcomes:

The CDEM reforms of the last ten years aimed to achieve greater levels of local risk awareness and management. In particular this was to be achieved through improved integration of planning and coordination of resources across agencies and service providers supporting communities and individuals.

A National CDEM Monitoring & Evaluation programme commenced in this HFA review period. The main objectives are to:

- enhance organisational learning and development;
- ensure informed decision-making and planning;
- support substantive accountability; and
- build capacity and capability.

The programme includes a Capability Assessment process comprising a set of key performance indicators and performance measures ('capability criteria'). An online assessment tool allows for consistent assessment of the contributions towards disaster resilience-building of all organisations with responsibilities under the CDEM Act. Indicators span the 4Rs – reduction, readiness, response and recovery - based on the National CDEM Strategy goals and objectives.

The assessment tool is intended primarily to be an 'any-time' self-assessment tool that national or local agency or CDEM Groups (consortia of local authorities supported by emergency services and lifeline utilities operators) can use to evaluate their own capability. The tool will also support a periodic national assessment cycle in which all agencies with responsibilities under the CDEM Act will be asked to complete assessments to document and understand New Zealand's collective CDEM capability.

Assessments of the regionally based CDEM groups have thus far demonstrated the benefits of structured and objective assessments of capability. Overall results have been varied, with agencies in different parts of the country having different issues to address.

Area 3

The systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response and recovery programmes in the reconstruction of affected communities.

Outcomes:

New Zealand's CDEM framework is based on the 4 Rs of Reduction of hazard risk, emergency Readiness and Response, and holistic Recovery. Risk management approaches are used to both assess risk, and to determine risk treatment solutions that incorporate an appropriate mix of 4Rs options.

Encouraging responsible agencies and partner organizations to utilize opportunities to further enhance risk reduction within their emergency response and recovery activities is a core aim of government.

The re-siting, re-designing or upgrading of damaged structures and infrastructure as part of post-event repair, to make them more resilient, is largely for the asset owner to determine. Pre-existing rights to occupy land may allow for reinstatement of a structure or activity regardless of whether they continue to be at-risk, though new building work (and repairs) will have to conform to current code standards. Managed retreat in some areas of extreme coastal erosion and flooding are recognized as sensible options, especially considering the likely effects of climate change.

Local government authorities can seek additional government funding (under what is called "Special Policy") for risk reduction following an event. Over the 2007 -2009 period one regional community in the North Island received such assistance to upgrade a flood protection scheme following two consecutive events that had overwhelmed it.

Strategic goals

Area 1

The more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction.

Strategic Goal Statement 2011-2013:

The National Civil Defence Emergency Management Strategy, approved by Government in 2007, outlines national goals and objectives for hazard risk and emergency management. The Strategy's vision is Resilient New Zealand – communities understanding and managing their hazards, and supports broader policy directions for sustainable growth and the safety of citizens and communities. The Strategy is available at -

http://www.civildefence.govt.nz/memwebsite.NSF/wpg_URL/For-the-CDEM-Sector-National-CDEM-Strategy-Index?OpenDocument.

The Government's main priorities for New Zealand's development over the short to mid-term are:

- managing New Zealand's path through economic downturn - reducing the impact and putting New Zealand in a strong position to take advantage of better economic times
- making government investment and expenditure more productive and effective, and
- making the New Zealand economy more productive, and in particular, improving regulations and increased investment in national infrastructure.

In applying these priorities within their policy and service delivery programmes, public agencies can be expected to consider the risks that hazards may pose in achieving them. Government agencies otherwise are to support, in line with their core functions and roles, the state's responsibilities in providing for the safety of citizens and visitors throughout New Zealand. This includes reducing vulnerabilities and building resilience to withstand adverse events.

Area 2

The development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards.

Strategic Goal Statement 2011-2013:

The National Civil Defence Emergency Management Strategy sets out the national goals and objectives for managing risk reduction, and preparing for, responding to and recovering from civil defence emergencies. Supporting a vision of 'Resilient New Zealand' the goals and objectives are:

Goal One: Increasing community awareness, understanding, preparedness and participation in civil defence emergency management:

Objective 1A: Increasing the level of community awareness and understanding of the risks from hazards

Objective 1B: Improving individual, community and business preparedness

Objective 1C: Improving community participation in CDEM

Objective 1D: Encouraging and enabling wider community participation in hazard risk management decisions

Goal Two: Reducing the risks from hazards to New Zealand:

Objective 2A: Improving the coordination, promotion and accessibility of CDEM research

Objective 2B: Developing a comprehensive understanding of New Zealand's hazardscape

Objective 2C: Encouraging all CDEM stakeholders to reduce the risks from hazards to acceptable levels

Objective 2D: Improving the coordination of government policy relevant to CDEM

Goal Three: Enhancing New Zealand's capability to manage civil defence emergencies:

Objective 3A: Promoting continuing and coordinated professional development in CDEM

Objective 3B: Enhancing the ability of CDEM Groups to prepare for and manage civil defence emergencies

Objective 3C: Enhancing the ability of emergency services to prepare for and manage civil defence emergencies

Objective 3D: Enhancing the ability of lifeline utilities to prepare for and manage civil defence emergencies

Objective 3E: Enhancing the ability of government agencies to prepare for and manage civil defence emergencies

Objective 3F: Improving the ability of government to manage an event of national significance

Goal Four: Enhancing New Zealand's capability to recover from civil defence emergencies:

Objective 4A: Implementing effective recovery planning and activities in communities and across the social, economic, natural and built environments

Objective 4B: Enhancing the ability of agencies to manage the recovery process.

Area 3

The systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response and recovery programmes in the reconstruction of affected communities.

Strategic Goal Statement 2011-2013:

New Zealand has adopted a risk management approach within its CDEM legislation, and encourages addressing 'all-hazards-all risks' by applying the Standards Australia/Standards New Zealand ISO 31000:2009 risk management standard process. The CDEM Act's purpose is aimed at integrating and coordinating risk treatment policy and activities across reduction and emergency readiness, response and recovery programmes. A planning framework to achieve this purpose is set out in the National CDEM Plan 2005.

The risk management approach underpins each of the National Civil Defence Emergency Management Strategy's goals and objectives (above), and the plans developed at the national and local levels. In the recovery stages of an event, the legislation provides for recovery manager/coordinator roles. A national recovery framework, policies and guidelines are in place. These arrangements are to be reviewed, and further developed over the 2010-15 period, with particular regard to recent experiences of earthquakes in the Canterbury region.

Priority for action 1

Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Priority for action 1: Core indicator 1

National policy and legal framework for disaster risk reduction exists with decentralised responsibilities and capacities at all levels.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

- * Is DRR included in development plans and strategies? Yes
- * No: National development plan
- * Yes: Sector strategies and plans
- * Yes: Climate change policy and strategy
- * No: Poverty reduction strategy papers
- * No: Common Country Assessments (CCA)/ UN Development Assistance Framework (UNDAF)

Description:

New Zealand maintains a strong national legislative framework for addressing hazard risk management. Three core acts promoting risk reduction are the Resource Management Act (1991), the Civil Defence Emergency Management Act (2002), and the Building Act (2004).

Other legislation addresses specific aspects of hazard and risk management, such as the Soil Conservation and Rivers Control Act 1941, Earthquake Commission Act 1993, Local Government Act 2002, the Health and Safety in Employment Act 1992, Maritime Transport Act 1994, Health Act 1956, Epidemic Preparedness Act 2006, Fire Service Act 1975, Forest and Rural Fires Act 1977, the Terrorism Suppression Act 2002, Hazardous Substances and New Organisms Act 1996, and the Biosecurity Act 1993. This legislation underpins a framework of strategies, plans, policies, codes, and practices supporting risk reduction outcomes.

See Related Links below for online access to New Zealand's legislation.

Key principles underlying the legislative framework are:

- Responsibility for managing risks resides as close to the community/individual at risk as practicable
- Planning and actions are integrated across national and local levels

New Zealand's climate change adaptation programme coordinates work across many sectors of the economy. The programme focuses on preparing for and adapting to climate change, including engaging with the community on the importance of planning and strategic approaches. The Ministry for the Environment is coordinating central government work on adaptation to climate change, except in the sectors of agriculture and forestry, which are coordinated by the Ministry of

Agriculture & Forestry. Central government is concentrating its efforts in six main sectors:

- Primary production (link below)
- Biodiversity (link below)
- Biosecurity (link below)
- Water (link below)
- Coasts (link below)
- Infrastructure (link below)

Context & Constraints:

The principal statutes together advance risk management, through reduction (avoidance & mitigation) of risks, and enabling readiness (or preparedness) for, and response to emergencies and undertaking holistic recovery.

Improving risk reduction associated with existing development and historical settlement patterns is the biggest challenge. Intensification of land-use and development based on existing use rights is leading to increased risk, particularly in coastal areas.

Further advances in risk reduction are encouraged and are being implemented. They range from public education programmes at national and local levels (most notably those of the Earthquake Commission, Ministry of Civil Defence & Emergency Management, and local civil defence emergency management agencies) through to the risk assessments and mitigation policies, such as the Earthquake Prone Buildings policies required under the Building Act.

With increasing understanding of risk management dimensions, improved reduction tools are to be expected from reviews over the next five years, for example of regional and national civil defence emergency management plans, the Building Code, regional and district natural resources and land-use plans, and the New Zealand Coastal Policy Statement (which includes policies for, among other things, avoiding and mitigating the effects of natural hazards in the coastal environment).

Related links:

- > Primary production (Ministry of Agriculture & Forestry) <http://www.maf.govt.nz/environment-natural-resources/climate-change>
- > Infrastructure (Climate Change Information Website) <http://www.climatechange.govt.nz/physical-impacts-and-adaptation/built-environment.html>
- > Coasts (Department of Conservation Website) <http://www.doc.govt.nz/conservation/marine-and-coastal/coastal-management/nz-coastal-policy-statement/>
- > Water (Ministry for the Environment Website) <http://www.mfe.govt.nz/issues/water/freshwater/index.html>
- > Biodiversity (Biosecurity New Zealand Website) <http://www.biosecurity.govt.nz/publications/biosecurity-magazine/issue-82/human-health>
- > Biodiversity (Ministry for the Environment Website) <http://www.mfe.govt.nz/issues/biodiversity/>
- > New Zealand Legislation <http://www.legislation.govt.nz/>

Priority for action 1: Core indicator 2

Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

- * Is there a specific allocation of budget for DRR in the national budget?
- * Not aggregated: % allocated from national budget
- * Not aggregated: USD allocated from overseas development assistance fund
- * Not aggregated: USD allocated to hazard proofing sectoral development investments (e.g transport, agriculture, infrastructure)
- * Not aggregated: USD allocated to stand alone DRR investments (e.g. DRR institutions, risk assessments, early warning systems)
- * Not aggregated: USD allocated to disaster proofing post disaster reconstruction

Description:

There is no single allocation of funds that is easily quantifiable. At the national level, based on their functions and responsibilities and agreed statements of intent and budget processes, each central government agency manages its resource requirements. New projects not already covered within agencies' annual baseline funding may be subject to additional budget bids as the need arises.

Local government has independent powers to fund its activities (see Indicator 3 below).

Lifeline and critical infrastructure owners are encouraged to adopt sound hazard risk management practices to underpin both new investment, and the use and maintenance of existing assets.

Context & Constraints:

Open government processes and competing priorities can create challenges for public and stakeholder groups in recognising the return on investment from risk reduction programmes. These challenges not only concern the direct costs of programmes, but also perceived losses of opportunities forgone due to restrictions on land-use and development in hazard prone areas. This situation is made worse through many communities having had no recent experiences of extreme hazard events.

One reduction strategy has been to take advantage of heightened community awareness of, and willingness to act on, local hazard risks following an event. Relevant events overseas may also be used to raise general awareness of like risks in the New Zealand context, for example tsunami risk management in New Zealand has greatly increased since the Boxing Day 2006 Indian Ocean and the 2009 Samoa events. Looking forward, the Canterbury earthquakes (September 2010 & February 2011) have raised awareness and promote further opportunities for earthquake risk reduction nationally, especially in regard to buildings and infrastructure at high risk. These events have also highlighted the broader social and economic implications following from a large scale event.

Priority for action 1: Core indicator 3

Community Participation and decentralisation is ensured through the delegation of authority and resources to local levels

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

* Do local governments have legal responsibility and budget allocations for DRR? Yes

* Yes: Legislation > Civil Defence and Emergency Management Act (2002)

<http://www.legislation.govt.nz/act/public/2002/0033/latest/DLM149789.html> > Resource Management Act (1991) <http://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html> > Local Government Act (2002) <http://www.legislation.govt.nz/act/public/2002/0084/latest/DLM170873.html>

* No: Budget allocations for DRR to local government

Description:

Local authorities manage local risks through policy and regulatory planning, technical code standards certification and monitoring, and community asset management. They can set general and targeted property rates, raise loans, make uniform charges and set user fees for services provided.

Hazard management legislation (e.g. Resource Management Act) requires open local government processes covering consultation, requests for information and review of decisions. Local councils are required to develop Long Term Council Community Plans based on the social, economic, environmental, and cultural well-being outcomes sought by their communities. These plans enable consistent strategic goals and priorities for all policy and funding arrangements across the council's regulatory and service delivery programmes. These plans are updated on a three yearly cycle.

The Civil Defence Emergency Management Act 2002 requires local authorities (regional, city and district councils) to establish CDEM Groups across 16 regions of the country. Each Group has a senior elected representative from the constituent local authorities, and is supported by a Coordinating Executive Group of their senior managers and local emergency services. The Group's secretariat links to other stakeholders, such as local lifeline infrastructure organisations. The Act requires each Group to develop and implement a CDEM plan. The first generation of plans are currently being reviewed and updated. A national framework has also been set in place to enable monitoring and evaluation, and for establishing benchmarks and best practice. The Ministry of Civil Defence & Emergency Management has recently published guidelines for community engagement, and is working with local authorities on pilot programmes for community resilience building.

Context & Constraints:

Community participation processes, and consequential risk reduction programmes are often resource and time intensive, and local authorities are under budget constraints in what they can deliver. The Canterbury earthquake events have also highlighted the need for coordinated support in recovery, notably requiring additional legislation and a management structure, to oversee all aspects at the local, regional and national levels.

Related links:

> Community Engagement in a CDEM Context http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-Publications-Community-Engagement?OpenDocument

Priority for action 1: Core indicator 4

A national multi sectoral platform for disaster risk reduction is functioning.

Level of Progress achieved:

3: Institutional commitment attained, but achievements are neither comprehensive nor substantial

Means of verification:

* Are civil society organisations , national planning institutions, key economic and development sector organisations represented in the national platform? No

* NA civil society members (specify absolute number)

* NA sectoral organisations (specify absolute number)

* NA women's organisations participating in national platform (specify absolute number)

Description:

No significant change since the 2007-09 HFA monitor reporting period. No national committee or forum for all-hazards disaster risk reduction exists in New Zealand. However, various clusters of agencies with like functions and interests do exist, for example national lifeline utility services. These clusters, along with professional associations, may work together on risk reduction activities.

A formal structure exists nationally for emergency preparedness, response and recovery management. The central decision-making body of executive government that addresses emergency management is the Cabinet Committee for Domestic & External Security Coordination (DES). The DES committee is chaired by the Prime Minister, and includes those Ministers responsible for departments that play essential roles in such situations. To support that process, an Officials' Committee for Domestic and External Security Coordination (ODESC), consisting of the departmental chief executives, provides strategic policy advice to the DES ministers. The ODESC process is supported by the National Crisis Management Centre that coordinates operations nationally and is led by the agency that has primary responsibility for managing the emergency, depending on its type.

Context & Constraints:

Continuing risk management and integrated policy and planning processes are intended to ensure that national priorities for risk reduction are established, and also that gaps/issues in institutional frameworks are identified and addressed, without a singular forum or committee for hazard risk reduction.

Priority for action 2

Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Priority for action 2: Core indicator 1

National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

* Is there a national multi-hazard risk assessment available to inform planning and development decisions? Yes

* Yes: Multi-hazard risk assessment > National Hazardscape Report (2007) http://www.civildefence.govt.nz/memwebsite07.nsf/wpg_URL/For-the-CDEM-Sector-Publications-National-Hazardscape-Report?OpenDocument

* NA % of schools and hospitals assessed

* Not aggregated schools not safe from disasters (specify absolute number)

* No: Gender disaggregated vulnerability and capacity assessments

* Yes: Agreed national standards for multi hazard risk assessments

Description:

The Officials' Committee for Domestic & External Security Coordination has published the National Hazardscape Report (2007) (link below), based on contributions from agencies responsible for addressing hazard risk. The report provides a contemporary summary of the physical nature, impacts, distribution and frequency of occurrence of the seventeen key hazards affecting New Zealand. These include geological, meteorological, biological, technological and infrastructure failure hazards. It also provides general information on the current management of hazards, though focusing on reduction and readiness initiatives.

The National Hazardscape Report assists with identifying and assessing hazards and risks to be addressed through national policies and plans, and the relevant legislative frameworks. More precise risk assessments are carried out as part of these processes.

Additionally, specific hazards (such as seismic and wind loadings) are modelled at a national scale to support national standards for construction.

Local authorities undertake hazard and risk assessment as part of their risk management processes in environmental planning and developing Civil Defence Emergency Management Group plans. It is at this level that research on specific hazards and risks, and management options, generally takes place.

Context & Constraints:

Challenges include improving ability to assess the full range of consequences and vulnerabilities, especially in regard to secondary impacts, undertaking comparative economic analyses and assessing non-monetary (social & environmental) costs.

Other challenges concern improving understanding of inter-dependencies across sectors, and overcoming commercial sensitivity that may limit disclosure by private entities in some circumstances.

For means of verification regarding school and hospital assessments (assigned NA above), it is important to note that all New Zealand schools and hospitals are required to meet existing stringent seismic safety codes. Additionally, key facilities such as regional hospitals and emergency operations centres are expected to have critical systems redundancies.

Related links:

> National Tsunami Risk Assessment http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-Publications-Tsunami-Risk-and-Preparedness-in-New-Zealand?OpenDocument

> Ruapehu Lahar Risk Assessment http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-Publications-Ruapehu-Lahar?OpenDocument

> National Hazardscape Report http://www.civildefence.govt.nz/memwebsite07.nsf/wpg_URL/For-the-CDEM-Sector-Publications-National-Hazardscape-Report?OpenDocument

Priority for action 2: Core indicator 2

Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities

Level of Progress achieved:

3: Institutional commitment attained, but achievements are neither comprehensive nor substantial

Means of verification:

* Are disaster losses systematically reported, monitored and analysed? No

* No: Disaster loss database

* Yes: Reports generated and used in planning

Description:

There is no centralized system for collecting and collating all hazard information and risk data.

There are different systems for monitoring the main natural hazard agents (meteorological or geological), and these generally form part of, or link to, early warning systems (see Core Indicator 3 below).

Data on the human elements of hazards, including vulnerabilities, are collected and disseminated through many means. Base population statistics are collected five yearly by Statistics New Zealand, with data available at different scales often down to small mesh-blocks. Statistics New Zealand also collects other relevant data on a more regular basis. Local government, central government and NGOs may collect additional data relevant to their responsibilities.

Various agencies gather information on different aspects of losses from actual hazard events. For example, the Earthquake Commission collects claims data for earthquake and land deformation damage to private dwellings and associated land that it insures. Private insurance companies may collect and

disseminate their data also. The Ministry of Agriculture and Forestry maintains information on the rural sector economy that includes its losses from hazard events.

A multi-hazard disaster loss modelling capability at the regional scale is being developed under a national research funding contract. It aims to provide decision support for hazard risk planning and for response and recovery.

Context & Constraints:

Work is continuing on developing data sharing protocols and mechanisms, to be underpinned by a common national geospatial infrastructure. Development costs and a lack of consistent data are the key constraints on quick progress in increasing loss modelling capability.

Related links:

> Reid Report on 2004 Floods [http://www.civildefence.govt.nz/memwebsite07.nsf/Files/Reid-report-February-2004-floods/\\$file/Reid-report-February-2004-floods.pdf](http://www.civildefence.govt.nz/memwebsite07.nsf/Files/Reid-report-February-2004-floods/$file/Reid-report-February-2004-floods.pdf)

Priority for action 2: Core indicator 3

Early warning systems are in place for all major hazards, with outreach to communities.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

- * Do risk prone communities receive timely and understandable warnings of impending hazard events?
Yes
- * Yes: Early warnings acted on effectively
- * Yes: Local level preparedness
- * Yes: Communication systems and protocols
- * Yes: Active involvement of media in early warning dissemination

Description:

Regional councils and the National Institute of Water & Atmospheric (NIWA) monitor, model and advise on river flows (flooding), climatic events (droughts), storm surge, sea level rise, and coastal geomorphologic processes. Climate and weather-related event forecasting is increasingly becoming more accurate, with services tailoring information that enables people and businesses to undertake preparedness steps such as moving farm stock.

GeoNet is a project to build and operate a modern geological hazard monitoring system in New Zealand. GeoNet comprises a network of geophysical instruments, automated software applications and skilled staff. It detects, analyses and informs responses to earthquakes, volcanic activity, large landslides, tsunamis, and the slow deformation that precedes large earthquakes.

The MetService is contracted by Government to monitor and disseminate free, via website and other

media, severe weather warnings, outlooks and watch forecasts. Select organisations, and others using a paid for service, may also receive direct notice.

New Zealand receives advisories and warnings from the Pacific Tsunami Warning Centre in Hawaii, and has commenced with installation of a local sea level monitoring network. Local public alert systems have been upgraded in many areas over the last 18 months.

A 24/7 National Warning System operates as part of the National Civil Defence Emergency Management arrangements. Warning messages are communicated to relevant response agencies and, when necessary, directly to the public via the media. Response agencies develop their own internal and local area systems as an extension of the national network.

Memoranda of Understanding, supported by procedures and exercises, are in place with major radio and TV broadcast companies to provide public warnings. These have been recently tested with tsunami warnings in the Pacific. Following improved understanding of agencies' needs, and advances in technology, these arrangements have been revised and strengthened.

Context & Constraints:

The efficacy of early warning systems for meteorological events is generally well established.

National warning messages for tsunami have also been improved. However, ongoing awareness and appropriate responses may tail off from the high level of support following recent events and exercises. Establishing effective warning systems and response arrangements for near source tsunami events, especially during the holiday season in isolated coastal areas, is an ongoing challenge because of limited local resources.

Keeping abreast of new forms of informal networks of social media for receiving and sharing information also poses ongoing challenges, due to resource constraints.

For some hazard risks, for example earthquake and local source tsunami, the key concerns are less about public warnings, and more about individuals being prepared for self-action, necessitating ongoing public education programmes at both the national and local level.

Priority for action 2: Core indicator 4

National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

* Does your country participate in regional or sub-regional DRR programmes or projects? Yes

* Yes: Programmes and projects addressing trans-boundary issues > IOC Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG-PTWS) Steering Committee (2010)
<http://www.ioc-tsunami.org/>

* Yes: Regional and sub-regional strategies and frameworks

* Yes: Regional or sub-regional monitoring and reporting mechanisms

* No: Action plans addressing trans-boundary issues

Description:

Because New Zealand shares no land boundaries with other countries, its risk assessments are in the main domestic processes only. New Zealand agencies operating at the regional and local levels are expected to consider cross-jurisdictional boundary issues in their risk reduction and planning.

New Zealand cooperates globally within international science fora, such as climate change, tsunami and seismic modelling. New Zealand agencies also participate in international fora that undertake risk assessments and set policy and best practice standards, to manage regional and global risks. For example, the Ministry of Health works with the WHO on public health monitoring and pandemic risks and the Ministry of Civil Defence & Emergency Management with the IOC/PTWS on pan-Pacific tsunami hazards.

The New Zealand Government is committed to helping to combat climate change and reducing New Zealand's greenhouse gas emissions as one of its key environmental priorities. The Government's principal policy response to climate change is the New Zealand Emissions Trading Scheme (NZ ETS) (link below).

New Zealand's major climate change mitigation policies are detailed in the Policies and Measures chapter of New Zealand's 5th National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) (link below). Major policies and measures are also illustrated in a table of policies and measures contained within the same document (link below).

New Zealand supports regional efforts in the South Pacific to improve disaster management capacity under the Community Risk Programme of the South Pacific Applied Geoscience Commission (SOPAC). New Zealand also works directly with many countries of the region (notably Tokelau, Niue, Cook Islands, Tonga, Samoa) on disaster risk reduction and resilience capacity building through the Ministry of Foreign Affairs & Trade's Pacific Division and International Development Group programmes.

Context & Constraints:

The key challenge is that New Zealand's relatively small size and distant location can mean that ongoing involvement in many regional and international activities is a significant resource issue for the key agencies and personnel concerned.

Related links:

> Table of policies and measures (from New Zealand's 5th National Communication)

<http://www.mfe.govt.nz/publications/climate/nz-fifth-national-communication/page13.html>

> New Zealand's 5th National Communication <http://www.mfe.govt.nz/publications/climate/nz-fifth-national-communication/index.html>

> New Zealand Emissions Trading Scheme <http://www.climatechange.govt.nz/emissions-trading-scheme/>

Priority for action 3

Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Priority for action 3: Core indicator 1

Relevant information on disasters is available and accessible at all levels, to all stakeholders (through networks, development of information sharing systems etc)

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

- * Is there a national disaster information system publicly available? Yes
- * Yes: Web page of national disaster information system
- * Yes: Established mechanisms for accessing DRR information

Description:

Civil defence emergency management legislation encourages and seeks to enable communities to achieve acceptable levels of risks through:

- identifying and managing risks
- consulting and communicating about risks
- identifying and implementing cost-effective risk reduction
- monitoring and reviewing the process.

Relevant government agencies, local authorities, emergency services and lifeline utilities have a legislative responsibility to participate in emergency planning at the national and local level. Statutory national and local plans are open to public submission during preparation, are approved and managed by political representatives of communities, and are made publicly available while in force (most easily accessible through the relevant agencies' websites). These arrangements facilitate open information-sharing and accountability. Similar processes exist for environmental planning.

Plans are based on risk assessments to identify priority concerns, and may include hazard risk mapping or zoning. Publicly funded hazard and risk information from research institutions and government agencies is generally available, and is often packaged for targeted outreach programmes.

Information on hazards associated with a particular parcel of land or property may be linked to its legal title documents. This Land Information Memoranda (LIM) or Property Information Memoranda (LIM) is available from the local council to any party upon request and payment of a fee. This information may have a bearing on people's decisions to purchase a property, and indicate restrictions on further development or changes in use.

Public information campaigns (leaflets, media) are based on the steps that citizens should take to help protect themselves from nationally generic and locally specific hazards and risks (see Indicator Three for more information).

Context & Constraints:

Raising people's awareness of hazards and risks needs to be linked to means for them to reduce their risks. For example, an ongoing challenge is increasing community involvement in, and hence support for, land-use policy and planning development processes that will achieve hazard risk reduction.

Priority for action 3: Core indicator 2

School curricula , education material and relevant trainings include disaster risk reduction and recovery concepts and practices.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

* Is DRR included in the national educational curriculum? Yes

* Yes: Primary school curriculum

* No: Secondary school curriculum

* Yes: University curriculum

* Yes: Professional DRR education programmes

Description:

A comprehensive package for teachers and schoolchildren enables civil defence emergency contexts and activity-based learning across all areas of the New Zealand curriculum for students aged 8–12 years. Called "What's the Plan Stan", and produced by emergency management personnel and teachers, the resource covers what to do before, during and after six types of emergency events: earthquakes, tsunamis, volcanoes, storms, floods and non-natural disasters.

In 2008 a version was developed in Te Reo, the language of New Zealand's indigenous Maori people. In 2009 the entire resource was revised to align with the new 2010 NZ School Curriculum, and provided free to all primary and intermediate schools.

The feedback from schools continues to be positive. The resource has been identified as a potential "international best practice" model, and is the focus of a Fulbright scholar's research project during 2011.

Learning about hazards management also forms part of social studies and geography programmes at the secondary school level in line with national curricula requirements.

A CDEM Competency Framework was published by the Ministry of Civil Defence & Emergency Management in June 2009. It provides a useful evidence basis for evaluating the relevance and effectiveness of current and proposed programmes of study in the tertiary education sector. Tertiary education providers worked constructively with the Ministry in late 2009 to identify areas of alignment with the Framework, and areas for further development. Generally tertiary providers in New Zealand have particular complementary niches within the hazards and emergency management fields (e.g. Canterbury University has a physical science focus, whereas Massey University has a social science focus) which enables them to work together to form learning pathways. The Framework is also informing

the development and review of unit standards to support practitioner work-based learning.

Context & Constraints:

Challenges include linking general messages in national curricula to local awareness of, and involvement in, local hazard and risks reduction processes and emergency planning. Ongoing challenges in relation to the tertiary education fields are largely around capacity and resources.

The Ministry of Civil Defence & Emergency Management is working closely with training providers to ensure that they are committed to, and being supported with, implementing the CDEM Competency Framework. A key finding through the development of the Framework is the lack of emphasis on risk management in relation to the emergency management context, particularly in work-based learning programmes. This will be addressed by the Ministry in the short to mid-term through participation in educational institutes' Boards of Studies and Programme Advisory Groups.

Related links:

> Whats the Plan, Stan? http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-Public-Education-Whats-the-Plan-Stan?OpenDocument

Priority for action 3: Core indicator 3

Research methods and tools for multi-risk assessments and cost benefit analysis are developed and strengthened.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

- * Is DRR included in the national scientific applied-research agenda/budget? Yes
- * Yes: Research outputs, products or studies > Natural Hazards Research Platform Interim Research Strategy (2009) http://preventionweb.net/files/14579_interimstrategyfornhrpv1.8jul2009.doc [DOC]
- * Yes: Research programmes and projects
- * No: Studies on the economic costs and benefits of DRR

Description:

New Zealand's National CDEM Strategy emphasizes the importance of well promoted, coordinated and accessible hazards and disaster research in underpinning national aspirations towards resilience. A wide range of basic and applied research is undertaken in New Zealand for the purposes of improving our quantitative understanding of our complex hazardscape, assessing community and infrastructural vulnerabilities, understanding community preparedness and response behaviours, and developing models and tools that can be applied to inform hazard, risk and emergency management.

Priorities for central government funding of hazards and disaster research emphasises an all-hazards approach with research objectives linked to national outcomes.

Central government (via the Earthquake Commission) funds science capability and technology for a

nationwide geological monitoring and reporting network (GeoNet). National research and science capabilities are applied to national models and to specific regional level issues within the constraints of local resources.

Since 2010 the New Zealand Government has moved towards longer-term negotiated funding for hazards and disasters research, principally through the establishment of a multi-agency, trans-disciplinary Hazards Research Platform. The self-managed Platform aims to enhance collaboration between researchers from different organisations (including Crown-owned research institutes, universities, and private researchers), and promote effective engagement between researchers and research users. Funding is contingent on the research directly contributing to improved economic, infrastructural and social resilience to natural hazards in New Zealand. The science capability supported by the Platform will also be available to assist decision makers during significant hazard events.

Context & Constraints:

Key challenges are:

- New Zealand's relatively small economy which limits the total available investment in hazard and disaster research;
- Effective engagement between researchers and research users to support improved accessibility, transfer and uptake of research;
- Developing more robust formal and informal pathways to practice.

The newly evolving Natural Hazards Research Platform seeks to address aspects of these challenges through better alignment of funding streams, promoting strategic integration across research organisations, and requiring participation of research users in the development of research programmes that include identifying mechanisms of transfer and uptake into practice

Priority for action 3: Core indicator 4

Countrywide public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

- * Do public education campaigns on DRR reach risk-prone communities? Yes
- * Yes: Public education campaigns.
- * Yes: Training of local government
- * Yes: Availability of information on DRR practices at the community level

Description:

The challenge for emergency management agencies is to sell messages of preparedness, resilience, self-responsibility and community responsibility. Achievement is defined by a growing increase in percentages of people aware of the risks of hazards and taking action to mitigate or prepare.

Research had indicated that, despite high levels of awareness of the potential for disasters in New

Zealand, many individuals and communities are not as prepared as they need to be to deal with, and recover from events when they happen.

A long-term national public education programme and social marketing campaign, “Get Ready Get Thru” (link below), was launched in 2006 aimed at increasing individual and community preparedness for disasters.

Research in 2010 indicates that the preparedness messages are continuing to have an impact with increased awareness of hazards and growing numbers of people who are prepared.

Other national public education activities related to other hazard risk management include:

- The On-farm Adverse Events Recovery Framework promotes a shared understanding of the roles and responsibilities of central government, local government and the primary production sector in preparing for, and recovering from, adverse events; Adverse Events are severe climatic events or natural disasters that are beyond the ability of the community to cope with (link below)
- Earthquake preparedness, EQ-IQ (link below);
- National brochure and signage for tsunami hazards
- Fire-safety: “C'mon guys, get fire-wise” (link below);
- Pandemic health messages are broadcast at times of heightened risk (link below);
- Biosecurity risks are heavily promoted to travellers and workers at border entry points (link below)
- Climate change (link below).

Information on many websites is now available in nine languages to ensure ethnic communities have access to the information. Resources have also been developed for people with a hearing disability.

Context & Constraints:

Awareness of hazards is increasing with inter-agency engagement at all levels, from local to national, public and private, on risk reduction and civil defence emergency management matters. In part, this increase is attributed to increasing knowledge from ongoing research, public education, and to news media portrayal of emergencies and disasters in New Zealand and in other countries.

The major challenge is changing behaviour of individuals and organisations, and progressing intentions into actions.

Behaviour changes can result from sustained education campaigns over the long term, for which the maintenance and refreshing of programmes are an ongoing requirement.

Related links:

- > Biosecurity <http://www.maf.govt.nz/biosecurity-animal-welfare>
- > Adverse events -rural communities <http://www.maf.govt.nz/agriculture/rural-communities>
- > Climate Change <http://www.mfe.govt.nz/issues/climate/index.html>
- > Pandemic Health Messages <http://www.moh.govt.nz/pandemicinfluenza>
- > Fire Safety <http://www.fire.org.nz/Pages/Home.aspx>
- > EQ-IQ <http://www.eq-iq.org.nz/>
- > Get Ready Get Thru <http://www.getthru.govt.nz>

Priority for action 4

Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Priority for action 4: Core indicator 1

Disaster risk reduction is an integral objective of environment related policies and plans, including for land use natural resource management and adaptation to climate change.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

* Is there a mechanism in place to protect and restore regulatory ecosystem services? (associated with wet lands, mangroves, forests etc) Yes

* Yes: Protected areas legislation

* No: Payment for ecosystem services (PES)

* Yes: Integrated planning (for example coastal zone management)

* Yes: Environmental impacts assessments (EIAs)

* Yes: Climate change adaptation projects and programmes

Description:

The Resource Management Act seeks to achieve the sustainable management of natural and physical resources and this includes addressing the potential adverse effects of natural hazards, and requiring particular regard to climate change.

Under this Act, local authorities undertake hazard assessments and mapping, set overarching policy in Regional Policy Statements, and apply specific policies and methods (rules, advocacy and services) through Regional Plans, and District Plans. Quality Planning Best Practice Guides are available online nationally, and include guidance notes on:

- climate change
- natural hazards
- coastal land development (with aspects on coastal hazards), and
- use of emergency powers to undertake necessary works and activities to manage an event that normally are subject to environmental regulatory controls (Quality Planning link below).

Hazard risk reduction within the environmental area is linked to communities' broader goals and aspirations through Long-Term Council Community Plans, community asset management plans and annual plans (setting out budgets & outputs) of local authorities, produced in accordance with the Local Government Act 2002.

To help New Zealand build its resilience and plan ahead for climate change, the government has formed partnerships with organisations such as local government, engineers, the insurance industry and the agriculture sector. The Ministry for the Environment also produces a range of information and guidance

materials on the impacts of climate change and how different groups within New Zealand, can adapt to, and prepare for these impacts (see Related Links below):

- Adaptation and local government (link below)
- Adaptation and planning (link below)
- Adaptation in agriculture and forestry (link below)
- Engineering Lifelines and Emergency Management (link below)
- Adaptation in the community (link below)
- Adaptation and central government (link below)
- Adapting to sea-level rise (link below).

Context & Constraints:

A continuing challenge is translating known hazard information into effective and integrated policies and plans for risk reduction, and undertaking coordinated and concerted action across different agencies' roles, functions and processes.

Of particular concern are the existing use rights attached to developments in areas with long-term high hazard exposure. An increasing concern are coastal properties now recognised to be at higher risk from storm surge, coastal erosion, tsunamis and the effects of climate change. Key to this challenge is changing the risk perceptions and behaviours of individuals and communities

Related links:

- > Natural hazards management <http://www.mfe.govt.nz/issues/land/natural-hazard-mgmt/>
- > Hazardous substances & new organisms management <http://www.mfe.govt.nz/issues/minimising-environmental-hazards.html>
- > Environmental Protection Authority <http://www.mfe.govt.nz/rma/central/amendments/preparing-for-an-epa.html>
- > Adapting to sea-level rise <http://www.mfe.govt.nz/issues/climate/adaptation/sea-level-rise.html>
- > Adaptation and central government <http://www.mfe.govt.nz/issues/climate/adaptation/central-govt.html>
- > Adaptation in the community <http://www.mfe.govt.nz/issues/climate/adaptation/community.html>
- > Engineering Lifelines and Emergency Management <http://www.mfe.govt.nz/issues/climate/adaptation/engineering.html>
- > Adaptation in agriculture and forestry <http://www.mfe.govt.nz/issues/climate/adaptation/agriculture-forestry.html>
- > Adaptation and planning <http://www.mfe.govt.nz/issues/climate/adaptation/planning.html>
- > Adaptation and local government <http://www.mfe.govt.nz/issues/climate/adaptation/local-govt.html>
- > Local Government Guidance Materials <http://www.mfe.govt.nz/issues/climate/resources/local-govt/index.html>
- > Climate Change Resources <http://www.mfe.govt.nz/issues/climate/resources/index.html>
- > Quality Planning <http://www.qualityplanning.org.nz/>

Priority for action 4: Core indicator 2

Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

- * Do social safety nets exist to increase the resilience of risk prone households and communities? Yes
- * No: Crop and property insurance
- * Yes: Employment guarantee schemes
- * No: Conditional cash transfers
- * Yes: DRR aligned poverty reduction, welfare policy and programmes
- * No: Microfinance
- * No: Micro insurance

Description:

A wide range of policies and programmes of central and local government address different concerns of at-risk or vulnerable groups within society. These policies and programmes are often integrated within broader strategies aimed at addressing the needs and life opportunities of socially disadvantaged persons and communities. These strategies can increase peoples' ability to help themselves in further reducing their vulnerability to hazards and risks. However, as these strategies support broad social outcomes, they are not necessarily classed and evaluated as a hazard risk reduction measure per se.

A no-fault national accident compensation scheme (ACC) covers the costs (with limits) of injury treatment and rehabilitation of disaster victims.

A national natural disaster insurance scheme (EQC) provides automatic coverage (with a maximum cap) for home property and contents for those residences covered by private general household insurance. Other than earthquakes, the scheme covers damage from land subsidence and slips affecting a house and its utility structures, access ways and adjacent land areas. By international standards New Zealand also has a high percentage of property (structures and content) covered for flood damage in that this cover is a standard part of household insurance policies. Asset insurance, and in some cases income protection, are generally required as part of a lenders mortgage and loan agreements. Many businesses may also have additional business interruption, loss of income and liability insurance.

The National Welfare Coordination Group, made up of government and non-government agencies, plans for the provision of coordinated welfare services during major emergency events. In response to recent earthquakes in Canterbury the Government has developed a range of additional targeted financial support [see Related Link below].

See other core indicators in this section for further context.

Context & Constraints:

Building community resilience to disasters is recognised as an ongoing activity that is linked to issues associated with improving social and economic outcomes generally.

Related links:

> Social support measures for Canterbury earthquakes [http://http://www.msd.govt.nz/index.html](http://www.msd.govt.nz/index.html)

Priority for action 4: Core indicator 3

Economic and productive sectorial policies and plans have been implemented to reduce the vulnerability of economic activities

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

* Are the costs and benefits of DRR incorporated into the planning of public investment? Yes

* Yes: National and sectoral public investment systems incorporating DRR.

* Yes: Investments in retrofitting infrastructures including schools and hospitals

Description:

Recent national pandemic planning has led to better collaboration and improvements in business continuity planning within the fast moving consumable goods (FMCG) sector.

New Zealand has stringent border protection controls, and arrangements for rapid response to suspected disease outbreaks. These are in place for bio-security threats to the agricultural and horticultural industries, and also the natural environment upon which tourism is based.

Lifeline utility infrastructure (water, wastewater, energy, communications, and transport) risk reduction and recovery is a core component of emergency management/disaster risk reduction planning. A duty of utilities under the Civil Defence Emergency Management Act is to ensure that they can function to the fullest extent possible, even though this may be at a reduced level, during and after an emergency. A variety of intra and inter-sectoral arrangements and plans are evolving, as a result of experiences from exercises and actual events.

The On-farm Adverse Events Recovery Framework is building primary sector resilience to adverse events through clarifying the roles and responsibilities of central government, local government and the primary sector in preparing for and recovering from adverse events. The Ministry of Agriculture & Forestry, Ministry of Social Development, and local emergency agencies are working with regional Rural Trusts. After an event, an adverse event committee is established to aid recovery planning, and the Agricultural Recovery Programme provides a means for additional Government financial assistance to be provided.

Context & Constraints:

New Zealand moved towards a more market-driven economy during the late 1980s and 1990s with increasing private ownership of key lifeline infrastructure. Capital investment over this period varied, with possible low investment in some sectors increasing vulnerability. More recently, greater awareness of risks, including business risk, is leading to higher levels of business continuity planning, intra-sector collaboration, and resilience. However, progress is dependent on economic drivers within the economy as a whole.

Related links:

> Pandemic Influence plans <http://www.moh.govt.nz/moh.nsf/indexmh/pandemicinfluenza-resources-plans>

> Biosecurity measures <http://www.biosecurity.govt.nz/regs>

Priority for action 4: Core indicator 4

Planning and management of human settlements incorporate disaster risk reduction elements, including enforcement of building codes.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

- * Is there investment to reduce the risk of vulnerable urban settlements? Yes
- * Yes: Investment in drainage infrastructure in flood prone areas
- * Yes: Slope stabilisation in landslide prone areas
- * Yes: Training of masons on safe construction technology
- * Yes: Provision of safe land for low income households and communities

Description:

At the local level, the Resource Management Act requires addressing natural hazards in the context of managing the use and development of land. Local authorities are to plan to avoid, mitigate or remedy adverse effects of land development that includes risks of creating or adding to natural hazard exposure (and any changes resulting from climate change).

A revised National Coastal Policy Statement 2010, under the Resource Management Act, provides additional policy direction to local authorities in managing land use and development within coastal areas, including to mitigate the risks of hazards.

The Building Act 2004 establishes a national building code and regulations, with compliance managed by certified persons. All new buildings and renovations are to meet current code, and commercial and multi-resident buildings are also generally required to have additional compliance schedules and undergo a regular 'warrant of fitness'. Building products are also required to meet 'fit for purpose' standards.

Context & Constraints:

New building techniques and materials, and changes in performance code requirements and certification processes led to building quality issues for a period from the mid-1990s. In 2004 the Building Act was revised, along with the establishment of a new Department of Building and Housing, though concerns subsequently arose that the process was too costly and slow. The Act is now undergoing further review that proposes more clearly defined processes commensurate to the level of risk and liability involved.

Related links:

> Building design & construction regulatory framework <http://www.dbh.govt.nz/building-index>

Priority for action 4: Core indicator 5

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

- * Do post-disaster recovery programmes explicitly incorporate and budget for DRR? Yes
- * 0 % of recovery and reconstruction funds assigned to DRR
- * No: Measures taken to address gender based issues in recovery

Description:

New Zealand has developed post-event recovery structures and policies as part of its comprehensive 4Rs (reduction, readiness, response, recovery) approach to disaster risk management. Consideration is given to social, economic, natural and built environments, including reducing ongoing risk exposure during recovery whenever it is practicable to do so. Key recovery principles in the New Zealand framework include:

- Using community-led approaches: Successful recovery is most effective when conducted at the local level with an understanding of the community context.
- Ensuring coordination of all activities: Successful recovery requires mechanisms that support integrated planning, reporting and effective communications at all levels.
- Recognising complexity: Recovery management arrangements are successful when they recognise the dynamic nature of emergencies and communities and how their needs change over time.
- Acknowledging and building capacity: Successful recovery supports and recognises the diverse needs and capacity of groups within a community including local Iwi.
- Sharing, analysing and applying quality information:
- Successful recovery is based on a common and comprehensive recovery picture underpinned by robust analysis, monitoring and reporting.

Local authorities are expected to factor future risk reduction into their recovery efforts. Some funding is available post-event to assist local authorities with the recovery costs for core infrastructure assets and river management systems. The level of funding received is contingent on local authorities meeting their share of recovery costs first (based on an individualized threshold, above which the central government pays 60%).

Context & Constraints:

New Zealand has had limited recent experience of recovery from major disasters. The 2010 and 2011 earthquakes in Canterbury are now testing testing local and national disaster recovery arrangements. For example, a concern now highlighted is finding a balance between the social, economic and safety aspects of earthquake prone buildings, especially those with heritage value, and the extent to which they can be strengthened against ongoing earthquake risks.

New Zealand also seeks to learn from relevant overseas experiences, and adapt its planning accordingly. For example, a multi-disciplinary team visited Chile early in 2010 to learn from its experiences following its earthquake in 2009.

Related links:

> New Zealand Disaster Recovery Guidelines http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-Recovery-Index?OpenDocument

Priority for action 4: Core indicator 6

Procedures are in place to assess the disaster risk impacts of major development projects, especially infrastructure.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

* Are the impacts of major development projects on disaster risk assessed? Yes

* Yes: Assessments of impact of projects such as dams, irrigation schemes, highways, mining, tourist developments etc on disaster risk

* Yes: Impacts of disaster risk taken account in Environment Impact Assessment (EIA)

Description:

New Zealand has, over the last twelve years, developed significant lifeline engineering projects that address risk reduction for critical infrastructure. Following developments in the U.S.A., the New Zealand Centre for Advanced Engineering initiated a lifeline engineering project in the Wellington area. Wellington, the capital, is particularly exposed to earthquake and slope stability hazard risks. The Wellington project piloted, for New Zealand, the establishment of hazard reviews across all lifeline sectors, the formation of sectorial work groups, the establishment of an Engineering Lifeline Group, and the expenditure of significant funds to improve lifeline resilience. Following the Wellington successes, additional lifeline engineering groups have been initiated across most of New Zealand. All involve public and private lifeline utility operators.

The Lifeline Engineering Projects have resulted in a number of improvements to infrastructure, including:

- strengthening transport infrastructure, such as motorway bridges;
- increasing resilience of energy infrastructure, including electricity, gas and fuel oils
- improving the resilience of bulk water supplies, including reducing risks by decommissioning reservoir dams now known to be built across active faults
- improving the resilience across sectors by strengthening road bridges that carry services additional to road traffic, such as water, power, gas, and telecommunications.

The significance of lifeline utilities is recognised in the Civil Defence Emergency Management Act 2002. All Lifeline Engineering Projects are recognised by, and are integrated with, their respective local Civil Defence Emergency Management Groups' structures and planning (Lifeline Utilities link below).

The Government has also recently established a national Environmental Protection Authority able to consider environmental approvals for proposals that are of national significance. The criteria include proposals that will assist the Crown in fulfilling its public health, welfare, security, or public safety obligations and functions.

Context & Constraints:

A major challenge is to progress lifeline engineering actions beyond the current reduction (prevention)

and readiness (preparedness) focus. A need for lifeline engineering coordination during the response and recovery phases is recognised, and the establishment of a pool of lifeline coordinators is underway.

Related links:

- > Lifeline Utilities http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-Lifeline-Utilities-Index?OpenDocument
- > Auckland Engineering Lifelines Group <http://www.aelg.org.nz/>

Priority for action 5

Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Priority for action 5: Core indicator 1

Strong policy, technical and institutional capacities and mechanisms for disaster risk management, with a disaster risk reduction perspective are in place.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

* Are there national programmes or policies to make schools and health facilities safe in emergencies?
Yes

* Yes: Policies and programmes for school and hospital safety > Emergency management in health sector <http://www.moh.govt.nz/moh.nsf/indexmh/emergencymanagement> > What's the Plan, Stan? (2009) http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-Public-Education-Whats-the-Plan-Stan?OpenDocument

* Yes: Training and mock drills in school and hospitals for emergency preparedness

Description:

A National Crisis Management model based on executive Government, departmental heads, and a fully serviced operations centre oversees national preparedness arrangements. A National Civil Defence Emergency Management Plan, national pandemic plan, and other hazard specific plans (such as biosecurity threat responses and tsunami warning response) exist at the national level.

A National Hazardscape Report published in September 2007 provides a contemporary summary of the physical nature, distribution, frequency of occurrence and impacts and consequences of 17 key hazards affecting New Zealand. The hazards described in the National Hazardscape Report include geological, meteorological, biological, technological and social hazards. The report also provides information on how the hazards are currently managed across reduction, readiness, response and recovery.

Sixteen civil defence emergency management groups (regional groupings of local authorities supported by emergency services, lifeline utilities and welfare support agencies) prepare plans for the hazards and risks in their area that, in turn, are supported by local plans covering individual districts and communities.

Other hazard specific national and local plans exist, for example covering biosecurity, pandemic, marine oil spill response and wildfire. Recovery guidelines have been developed, and further work is scheduled in this area in the immediate future.

Plans are exercised and regularly reviewed. Reviews to follow the Canterbury earthquake event (September 2010) are also expected to highlight what has and has not worked well.

Context & Constraints:

A challenge is ensuring an ongoing CDEM 'operational readiness' that is consistent across agencies and sectors

A New Zealand standard assessment tool for assessing emergency management capability and readiness has been developed to support requirements of agencies under the CDEM Act to monitor and evaluate performance and outcomes. The aim is to have consistent means to assess readiness regardless of the organisation, its size, and the sector or area of work. Benchmarking against anticipated industry standards is the ultimate goal.

Reviews of regional CDEM Groups are underway during the period late 2009 -2010, and an assessment of national agencies is to follow.

Related links:

> National Crisis Management Arrangements [http://www.civildefence.govt.nz/memwebsite.nsf/Files/The-Guide-2009-revision/\\$file/section-3-statutory-basis.pdf](http://www.civildefence.govt.nz/memwebsite.nsf/Files/The-Guide-2009-revision/$file/section-3-statutory-basis.pdf)

> CDEM Sector Monitoring and Evaluation http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-CDEM-Monitoring-and-Evaluation-Index?OpenDocument

> National CDEM Plan and Guide http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-Publications-The-Guide?OpenDocument

Priority for action 5: Core indicator 2

Disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training drills and rehearsals are held to test and develop disaster response programmes.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

- * Are the contingency plans, procedures and resources in place to deal with a major disaster? Yes
- * No: Contingency plans with gender sensitivities
- * Yes: Operations and communications centre
- * Yes: Search and rescue teams
- * No: Stockpiles of relief supplies
- * No: Shelters
- * Yes: Secure medical facilities
- * No: Dedicated provision for women in relief, shelter and emergency medical facilities

Description:

National and local plans are required under the Civil Defence Emergency Management Act 2002 that set, among other matters, readiness, response and recovery arrangements. These plans are supported by operating procedures and protocols to support inter-agency and inter-sector collaboration.

A National Exercise Programme provides means to test response arrangements nationally. The

Programme supports a ten year plan for national level and regional level exercises in alternate years covering different hazards and scenarios. Local exercises are also held within each region.

Lessons from exercises and events (including precautionary warnings) are used to improve policies and response arrangements. Recent experiences of tsunami within the Pacific have led to improved warning and public messaging for these events.

Context & Constraints:

Preparing, undertaking and evaluating national exercises are major activities that require significant planning, budgets and staff time, with lead times of more than a year. Getting all agencies to participate to a level whereby their continuity arrangements are properly tested can be difficult. The exercise programme requires ongoing promotion so that appropriate levels of commitment are planned for by all participants.

Related links:

- > Wellington Earthquake National Initial Response Plan http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-Publications-Wellington-earthquake-response-plan?OpenDocument
- > National Exercise Programme http://www.civildefence.govt.nz/memwebsite.nsf/wpg_url/for-the-cdem-sector-cdem-exercises-national-exercise-programme?opendocument

Priority for action 5: Core indicator 3

Financial reserves and contingency mechanisms are in place to support effective response and recovery when required.

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

- * Are financial arrangements in place to deal with major disaster? Yes
- * No: National contingency funds
- * Yes: Catastrophe insurance facilities
- * No: Catastrophe bonds

Description:

National arrangements are in place for providing emergency relief assistance (welfare of individuals, local authorities' costs for response and repair of infrastructure assets, and supporting clean-up efforts of communities and the farming sector).

Lifeline infrastructure companies are expected to have prudent risk management strategies, including recovery planning and insurance.

A levy for loss or damage to residential property, land and personal possessions from earthquake, natural landslip, volcanic eruption, hydrothermal/geothermal activity, tsunami, or fires resulting from any of these events, is a compulsory component of all home and/or contents fire insurance policies (see

Earthquake Commission Act 1993).

The Local Authority Protection Programme Disaster Fund (LAPP) is a cash accumulation mutual pool to help local authority members pay their share of infrastructure replacement costs for water, sewage and other generally uninsurable essential services damaged by natural disaster. The LAPP is to cover a local authority's 40% share above the threshold set by central government for recovery assistance. Of the 85 local authorities in New Zealand, 59 are currently LAPP members. The Fund equity is approximately NZ\$40 million, supplemented with reinsurance to enhance this balance.

The Accident Compensation Corporation (ACC) provides comprehensive, no-fault personal injury cover for all New Zealand residents and visitors that includes disaster related injuries.

Individuals and businesses are encouraged to manage their risks, including trade/income interruption insurance and contingency plans. Following the Canterbury earthquake the Government has recognised a need to support local businesses unable to trade with staff income support as part of recovery. Hardship assistance to uninsured individuals is also being considered on a case by case basis.

Context & Constraints:

While household insurance is high (approximately 95% nationwide), it is likely that some are under-insured for total losses. Small to medium businesses especially are identified as not having the capacity to withstand an extended period of trading disruption. Further public education is needed to raise awareness of hazard risks (as distinct from hazard sources), individuals' responsibilities to address them, and reasonable expectations for state support following an event.

Arrangements for rapid assessments of building and infrastructure are being further developed. Also, as major events, the Canterbury earthquakes are now testing the nation's resources and capacity for insurance claim settlement and rapid re-building of housing and infrastructure.

Related links:

> Earthquake Commission - provider of natural disaster insurance to residential property owners
<http://www.eqc.govt.nz/abouteqc.aspx>

Priority for action 5: Core indicator 4

Procedures are in place to exchange relevant information during hazard events and disasters, and to undertake post-event reviews

Level of Progress achieved:

4: Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

Means of verification:

* Has an agreed method and procedure been adopted to assess damage, loss and needs when disasters occur? No

* Yes: Damage and loss assessment methodologies and capacities available > Conceptual framework for disaster impact assessment (2006) http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-Publications-Disaster-Impact-Assessment?OpenDocument

* Yes: Post disaster need assessment methodologies > Template for consistent hazard reporting (2006) h

[http://www.civildefence.govt.nz/memwebsite.nsf/Files/CDEMGROUP_Resources/\\$file/Consistent_hazard_reporting.doc](http://www.civildefence.govt.nz/memwebsite.nsf/Files/CDEMGROUP_Resources/$file/Consistent_hazard_reporting.doc)

* No: Post disaster needs assessment methodologies include guidance on gender aspects

* Yes: Identified and trained human resources

Description:

Standard procedures exist in national, regional and local emergency operations centres, and other agencies for the collation of a range of disaster impact data from across sectors. Within the CDEM sector there is general agreement on a consistent approach to reporting such information through impact assessment reports, situation reports and action plans. However, in detail, differences exist in approaches to collation and assessment of impact information between agencies and at different levels of response.

A National Emergency Management Information System (EMIS) is under development which will link all levels (national, regional, local) of the nationwide CDEM response in New Zealand. It will provide a more robust and consistent approach to the collection, collation and sharing of information within the hierarchy of response.

The chosen solution is web-based and allows end-to-end systems functionality, including standardised alerting, reporting, and GIS mapping. An integrated human welfare registration function is also being investigated. The solution will be centrally hosted from the National Crisis Management Centre in Wellington and replicated at a secondary site in Auckland using a dedicated WAN connection. An alternative connection to the internet will be provided for the NCMC in case of failure of the primary fibre connection.

Context & Constraints:

Further economic analyses of events would be beneficial to better inform hazard and risk impact modelling, emergency response and recovery planning, and cost-benefit analysis for risk reduction purposes. The Canterbury earthquake events are also likely to raise awareness nationally about the wider, secondary and longer term impacts of such events, as these become evident within regular and ongoing data collection and reporting processes at both the national and local levels.

Related links:

> Multi-hazard risk modelling <http://www.riskscape.org.nz/about>

> Emergency Management Information System <http://emis.projects.intergen.net.nz/default.aspx>

Drivers of Progress

a) Multi-hazard integrated approach to disaster risk reduction and development

Levels of Reliance:

Significant and ongoing reliance: significant ongoing efforts to actualize commitments with coherent strategy in place; identified and engaged stakeholders.

Do studies/ reports/ atlases on multi-hazard analyses exist in the country/ for the sub region?:

Yes

If yes, are these being applied to development planning/ informing policy?:

Yes

Description (Please provide evidence of where, how and who):

New Zealand's hazard and emergency management arrangements are based upon a comprehensive 'all hazards-all risks' approach. Assessing the risks to be managed, regardless of hazard source, and the setting of priorities accordingly, are important to this approach. The National Hazardscape Report lists 17 types of hazards and the principal means for their management.

All 16 CDEM Groups are required to undertake detailed multi-hazard risk assessments as the foundation for planning that addresses the management of those identified hazard risks, in accordance with the 4Rs (reduction, readiness, response and recovery).

An increasing emphasis is developing information management platforms that will enable data-sets on hazard attributes, at-risk elements and vulnerability factors, to allow for loss assessment modelling. This modelling will better able comparative risk analyses across hazards. Development of this modelling capability is currently variable across hazards and elements. Further progress requires:

- extending data collection on the types and characteristics of elements at risk
- accessing, and building compatibility between, databases, and
- standardising measures and indicators for quantifying losses and impacts.

Related links:

> Regional CDEM Group Planning http://www.civildefence.govt.nz/memwebsite.nsf/wpg_URL/For-the-CDEM-Sector-CDEM-Groups-Index?OpenDocument

> National Hazardscape Report http://www.civildefence.govt.nz/memwebsite07.nsf/wpg_URL/For-the-CDEM-Sector-Publications-National-Hazardscape-Report?OpenDocument

b) Gender perspectives on risk reduction and recovery adopted and institutionalized

Levels of Reliance:

Significant and ongoing reliance: significant ongoing efforts to actualize commitments with coherent strategy in place; identified and engaged stakeholders.

Description (Please provide evidence of where, how and who):

New Zealand has well-established human rights and equal opportunities legislation. While some gender-based institutional and cultural issues are present within New Zealand society they are not considered to present significant issues in the delivery of hazard risk and emergency management. Gender is a factor likely to be considered in developing and delivering policies and processes that have continuing relevance in an emergency context. For example psycho-social support services may adopt strategies recognising gender-based needs.

Also likely is that socio-economic factors and ethnicity are a greater determinant of vulnerability in New Zealand than gender alone (see driver d).

Related links:

> Bill of Rights Act 1990

[http://www.legislation.govt.nz/act/public/1990/0109/latest/DLM224792.html?search=ts_act_Bill of rights_resel&p=1&sr=1](http://www.legislation.govt.nz/act/public/1990/0109/latest/DLM224792.html?search=ts_act_Bill_of_rights_resel&p=1&sr=1)

> Ministry of Womens Affairs - general policy programme <http://www.mwa.govt.nz/our-work/policy-programme>

c) Capacities for risk reduction and recovery identified and strengthened

Levels of Reliance:

Significant and ongoing reliance: significant ongoing efforts to actualize commitments with coherent strategy in place; identified and engaged stakeholders.

Description (Please provide evidence of where, how and who):

New Zealand's hazard risk reduction and emergency management framework has the goal of building resilience from that of individuals to families, communities, organisations and institutions. It underscores the importance of collaborative effort, information sharing and local action. As such, analysis and decision-making at all levels in society is encouraged to identify capacity needs and make the most of available resources from all sources.

The NZ National CDEM Strategy places an emphasis on building capability across all levels and a key focus of New Zealand disaster risk management agencies is to support this capability development. This is achieved through a wide variety of programmes, policies and activities with an emphasis on delivery at the local level, coordinated regionally, and supported nationally.

The ongoing challenge is the continual reviewing and refining of risk reduction, readiness, response and recovery arrangements, and embedding their core principles and processes within agencies' and individuals' 'everyday' decision-making, prioritisation and activities.

d) Human security and social equity approaches integrated into disaster risk reduction and recovery activities

Levels of Reliance:

Significant and ongoing reliance: significant ongoing efforts to actualize commitments with coherent strategy in place; identified and engaged stakeholders.

Description (Please provide evidence of where, how and who):

Socio-economic factors, coupled with an aging population, are important considerations for developing effective risk reduction strategies in New Zealand. As New Zealand's population is thinly based in many areas, the costs per capita of community-based risk mitigation schemes can be relatively high. Establishing the spread of costs and benefits to elicit wider regional and national support for such schemes is an ongoing consideration.

Due to the importance of agriculture to the economy, New Zealand has a range of organisations and networks representing and supporting the rural sector. A strong emphasis on local civil defence emergency management planning is also aimed at understanding and accommodating the needs of different geographic areas, and how this may translate into the specific vulnerabilities for different communities and services.

Hazard risk management planning must account for cultural differences. New Zealand is becoming increasingly multi-cultural through new migrants and higher population growth within existing minority groups. As new migrants generally settle within urban areas, issues concerning social preferences are often more important for them than geographic isolation

The New Zealand Government, as representative of the Crown, has responsibilities to iwi Maori (the indigenous tribes) under the Treaty of Waitangi 1841. Principles and requirements flowing from the Treaty are incorporated within various legislation and policy, and also includes Crown redress for past injustices. Initiatives aimed at supporting Maori socially and economically should, in turn, improve their resilience to emergencies.

The efficacy of policies and communications for building disaster resilience must therefore address both socio-economic factors, and different cultural perspectives.

e) Engagement and partnerships with non-governmental actors; civil society, private sector, amongst others, have been fostered at all levels

Levels of Reliance:

Partial/ some reliance: Full acknowledgement of the issue; strategy/ framework for action developed to address it; application still not fully implemented across policy and practice; complete buy in not achieved from key stakeholders.

Description (Please provide evidence of where, how and who):

A robust legislative and planning framework promotes and enables participatory and collaborative approaches. Through the local government arrangements, public participation is encouraged in planning and decision making. The focus is on continuing reviews and incremental improvements in its implementation to meet both public and private needs (see driver C also).

Key partnerships have been forged with non-governmental organisations such as the New Zealand Red Cross and Salvation Army for delivery of important welfare functions in domestic disaster response.

Memoranda of understanding have also been formalised with other key groups. One example is the media due to the critical role they have in disseminating emergency information to the public. Another example are the science agencies involved in providing and interpreting hazard warning information.

f) Contextual Drivers of Progress

Levels of Reliance:

Significant and ongoing reliance: significant ongoing efforts to actualize commitments with coherent strategy in place; identified and engaged stakeholders.

Description (Please provide evidence of where, how and who):

The risks inherent in New Zealand's relative geographic isolation and the natural hazards associated with its location on the Pacific/Australian tectonic plate boundary were evident to its early settlers (Maori and European). Developments in modernity, and notably urbanisation and increasing reliance on inter-dependant technologies, make achieving and maintaining disaster resilience an ongoing challenge.

Engaging with the fast moving consumer goods sector and lifeline (network infrastructure) utilities to ensure robust strategies are in place to address interruptions in supply to disaster affected communities are important factors. Working to support community capability and build social capital, for example volunteerism and neighbour support and information networks, is another key factor for risk reduction and building community-level disaster resilience.

Future outlook

Area 1

The more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction.

Overall Challenges:

The Government's 10 year National Civil Defence Emergency Management Strategy has the vision of Resilient New Zealand – Communities understanding and managing their hazards. Achieving this vision is not a static endpoint. As such, the challenge is to ensure on-going improvement of risk management processes to avoid new, and mitigate existing risks (reduction), and that effective arrangements are developed and maintained (readiness) for when emergency events do happen (response, recovery).

Future Outlook Statement:

An immediate focus for the future is developing second-generation civil defence emergency management plans under the Civil Defence Emergency Management Act 2002. These local plans are to build upon and extend progress thus far for integrating and improving hazards and emergency management at the local level in New Zealand. Aligned to this process, a major nationwide monitoring and evaluation programme is underway to determine the level of progress for each CDEM group measured against the goals and objectives of the National CDEM Strategy. A similar process will be applied to the evaluation of national agencies and lifelines organisations.

Additionally, corrective actions arising from the reviews of recent major exercises and responses to real emergencies are to be implemented.

Area 2

The development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards.

Overall Challenges:

Advances in risk reduction are evident across all of the natural, built, social, and economic environments, assisted by convergence of approaches through common tools such as the Australian and New Zealand Standard for Risk Management "AS/NZS 4360: 2004" and ISO31000 Risk Management standard, and related guidelines. Making and maintaining links within and across sectors and organisations is an on-going challenge.

Future Outlook Statement:

Applying the risk management standard requires ongoing monitoring and review of risk reduction practices and including, where necessary, reviewing the institutional frameworks underpinning hazards and risk management. New and revised policy, for example updating of the building code, is an on-going institutional activity in order to account for new knowledge about our hazards and risks and/or changes in our vulnerability to them.

The Australian and New Zealand Standard for Risk Management "AS/NZS 4360: 2004" has been superseded by the ISO 31000 Risk standard.

Area 3

The systematic incorporation of risk reduction approaches into the design and implementation of

emergency preparedness, response and recovery programmes in the reconstruction of affected communities.

Overall Challenges:

Risk reduction is incorporated within emergency management by adopting a risk management approach whereby reduction (avoidance and mitigation), readiness (preparedness), response and recovery are all risk treatment options.

Future Outlook Statement:

Ongoing challenges are in managing existing risks for which risk reduction is costly, for example earthquake-prone buildings, or existing development in hazard zones. Increased adverse weather events resulting from climate change may also require reassessing existing reduction strategies, for example the adequacy of river and sea wall protection works, and the costs of alternatives.

It is likely that experience of the recent Canterbury earthquakes will generate increased awareness and interest in natural hazard risk reduction, especially seismic risk, in the near term. Already Christchurch City Council has, and other councils such as Wellington City are to consider, more stringent earthquake-prone building policies in terms of level of standards required and timeframe for achievement. It is anticipated that through recovery for this event, the economic and social costs and benefits of risk reduction in landuse planning and urban design will gain some prominence in the national dialogue.

Stakeholders

Departments/organizations that have contributed to the report

- * Ministry of Civil Defence and Emergency Management (Gov)
- * Department of Internal Affairs (Gov)
- * Department of Prime Minister and Cabinet (Gov)
- * Ministry of Social Development (Gov)
- * Ministry of Health (Gov)
- * Department of Building and Housing (Gov)
- * Ministry of Agriculture and Forestry (Gov)
- * Ministry for the Environment (Gov)
- * Ministry of Economic Development (Gov)
- * Ministry of Foreign Affairs and Trade (Gov)