NEW ZEALAND

- **[NATIONAL PROFILE](#)**
- **[DISASTER RISK PROFILE](#)**
- **[INSTITUTIONAL SETUP](#)**
- **[INITIATIVES](#)**

1. NATIONAL PROFILE

1.1 General[1]

New Zealand is an Oceania island country in the southwestern Pacific Ocean. New Zealand is located in the western South Pacific Ocean, and south-east of Australia. It is comprised of North Island, South Island, and numerous smaller islands including Stewart Island. The most of the area with 270,534 square kilometers is occupied by mountains. The central part is volcanic area, which causes earthquakes. The coastline is indented with Fjord.

New Zealand is situated some 1,500 kilometers (900 mi) east of Australia across the Tasman Sea and roughly 1,000 kilometers (600 mi) south of the Pacific island areas of New Caledonia, Fiji, and Tonga. The country's varied topography and its sharp mountain peaks, such as the Southern Alps, owe much to the tectonic uplift of land and volcanic eruptions. New Zealand's capital city is Wellington, while its most populous city is Auckland. New Zealand has a population of about 4.23 million. It consists mostly of Anglo-Saxon descent, and has some Maori, and Asian descent people.

New Zealand's culture is mainly derived from Māori and early British settlers, with recent broadening arising from increased immigration. The official languages are English, Māori and New Zealand Sign Language, with English predominant. The country's economy was historically dominated by the export of wool, but exports of dairy products, meat, and wine, along with tourism, are more significant today.

1.2 Physiography[1]

The two main islands (the North Island, or Te Ika-a-Māui, and the South Island, or Te Waipounamu) are separated by the Cook Strait, 22 kilometers (14 mi) wide at its narrowest point. Besides the North and South Islands, the five largest inhabited islands are Stewart Island, the Chatham Islands, Great Barrier Island (in the Hauraki Gulf), d'Urville Island (in the Marlborough Sounds) and Waiheke Island (about 22 km (14 mi) from central Auckland). The country's islands lie between

latitudes 29° and 53°S, and longitudes 165° and 176°E. New Zealand is long and narrow (over 1,600 kilometers (990 mi) along its north-north-east axis with a maximum width of 400 kilometers (250 mi)), with about 15,000 km (9,300 mi) of coastline and a total land area of 268,000 square kilometers (103,500 sq mi. Because of its far-flung outlying islands and long coastline, the country has extensive marine resources. It's Exclusive Economic Zone, one of the largest in the world, covering more than 15 times its land area.

The South Island is the largest landmass of New Zealand, and is divided along its length by the Southern Alps. There are 18 peaks over 3,000 meters (9,800 ft), the highest of which is Aoraki / Mount Cook 3,754 meters (12,316 ft). Fiordland's steep mountains and deep fiords record the extensive ice age glaciations of this south-western corner of the South Island. The North Island is less mountainous but is marked by volcanism. The highly active Taupo Volcanic Zone has formed a large volcanic plateau, punctuated by the North Island's highest mountain, Mount Ruapehu (2,797 meters (9,177 ft)). The plateau also hosts the country's largest lake, Lake Taupo, nestled in the caldera of one of the world's most active super volcanoes.

1.3 Climate[1]

New Zealand has a mild and temperate maritime climate with mean annual temperatures ranging from 10 °C (50 °F) in the south to 16 °C (61 °F) in the north. Conditions vary sharply across regions from extremely wet on the West Coast of the South Island to almost semi-arid in Central Otago and the Mackenzie Basin of inland Canterbury and subtropical in Northland. The southern and south-western parts of the South Island have a cooler and cloudier climate, with around 1,400–1,600 hours; the northern and north-eastern parts of the South Island are the sunniest areas of the country and receive about 2,400–2,500 hours. The general snow season is about early June until early October in the South Island. It is less common on the North Island, although it does occur.

1.4 Socio-economic Profile[2,3]

Socio-economic Indicators		
GDP: Gross domestic product (million current US$)	2011	162783
GDP per capita (current US$)	2011	36874.0
GNI: Gross national income per capita (current US$)	2011	35066.0
Population (millions)	2014	4.51
Urban (% of population)	2014	86.32
Sex ratio (males per 100 females)	2012	96.7
Life expectancy at birth (females/males, years)	2010-2015	82.8/78.9
Adult literacy rate (% ages 15 and older)	2014	99
Expenditure on education (% of GDP)	2014	7.24

1.5   Administrative Setup[1]

Nationally, legislative authority is vested in an elected, unicameral Parliament, while executive political power is exercised by the Cabinet, led by the Prime Minister, who is currently John Key. Queen Elizabeth II is the country's head of state and is represented by a Governor-General. In addition, New Zealand is organized into 11 regional councils and 67 territorial authorities for local government purposes. The Realm of New Zealand also includes Tokelau (a dependent territory); the Cook Islands and Niue (self-governing states in free association with New Zealand); and the Ross Dependency, which is New Zealand's territorial claim in Antarctica.

2. DISASTER RISK PROFILE[4]

New Zealand's dynamic physical environment and level of technological development means that it is exposed to a wide variety of hazards.
While flooding is the most frequent hazard, earthquakes and tsunamis are potentially the most damaging and disruptive hazards that New Zealand faces. New Zealand lies across the boundary of the Australian and Pacific tectonic plates. In the east of the North Island, the Pacific plate is being pushed under the Australian plate. In contrast, in the southwest of the South Island, the opposite is

happening – the Australian Plate is being pushed under the Pacific Plate. These two subduction zones are connected by the Alpine fault that runs through the South Island. As a result, New Zealand experiences many earthquakes. In fact, up to 'ten to fifteen thousand earthquakes are recorded each year in and around New Zealand, but only about 150 of these are felt.

New Zealand's tsunami risk is comparable to or larger than its earthquake risk. Reasonably large tsunamis have occurred in New Zealand throughout history, but have resulted in few deaths and only minor damage. Tsunami risks in New Zealand can be labelled as being either distant sourced (from the rim of the Pacific Ocean), regionally sourced (from earthquakes in the tectonically active areas to the north of New Zealand) or locally sourced (from earthquakes occurring in off shore faults). Thirteen locally sourced tsunamis have been recorded in New Zealand since 1840. All of them were generated by earthquakes and some accompanied by coastal landslides.

The most underrated natural hazard in New Zealand is a volcanic eruption. While volcanic eruptions have been rare and relatively small since human settlement, the impacts from these eruptions have been significant. "Volcanic activity has caused at least 338 deaths over the past 150 years, more than any other natural hazard" (DPMC, 2007, p.29). The city of Auckland with a population of 1.1 million sits on a volcanic field that contains 50 known volcanic vents. While none of Auckland's existing volcanoes is likely to erupt again, the Auckland Volcanic Field is geologically young and potentially active. There are also extensive geothermal areas in the central North Island where geysers, mudpools and hot springs exist. Occasionally these areas experience violent hydrothermal eruptions.

Other hazards that are common in New Zealand include:

- Landslides – triggered either by earthquakes or intense and prolonged rainfall. Two more recent, but significant, landslide events occurred in Abbotsford, Dunedin (South Island) (1979) and Matata, Eastern Bay of Plenty (North Island) (2005).

- Coastal Hazards – with 18,000 kilometres of coastline constantly changing through high swells and storm surges, managing the residential, recreational and economic use of the coastal environment is

challenging. With increased coastal residential activity more people, property, infrastructure and recreational activities are placed at risk.

- Severe winds – as New Zealand lies in the path known as the "roaring forties," strong winds can be extremely damaging. The most common damage is to buildings, infrastructure, transportation and land use.

- Snowfall – while winter snowfall is common above 1000 meters in the Southern Alps and the North Island ranges, snowstorms may occasionally bring snow to lower altitudes. While not accompanied by long periods of intense cold, they may nonetheless cause significant disruption as was the case with the June 2006 Canterbury snowstorm.

- Droughts – are one of New Zealand's most common and costly hazards because they can affect a very large area and because the effects are felt for several years afterwards. Dry periods in New Zealand usually last for 3 - 4 months and may run over more than one summer or one year. Droughts cause water shortages or restrictions and irrigation supplies may be affected. With New Zealand's electricity generation relying greatly on river and lake levels, this is of concern (as was witnessed in the 1991/92 Hydroelectric Drought and 1993/94 Auckland water supply drought). Droughts therefore affect the rural agricultural sector heavily, although the economic impact generally has a lag effect (1987/88 Canterbury drought; 1997/98 El Nino Drought). Droughts can also have significant psychological and social impacts on farming communities. Bushfire risk also increases during dry periods and droughts (2000 Marlborough Bushfires).

Like many other countries, New Zealand is also being affected from the risks associated with technological and other man-made events, such as 1998 forty-day Auckland power crisis which cost approximately NZ$300 million (National Civil Defence Emergency Management Strategy 2003-2006). Hazardous Substance Incidents are of particular concern as growing urban populations become ever reliant upon stable infrastructure and levels of technology become more complex.

There are also a number of risks from other hazards that threaten New Zealand. These may include: animal and plant diseases (potential foot and mouth);

infectious human disease pandemics (1918 Influenza pandemic); major transport accidents (1968 Wahine sinking and 1979 Air NZ crash at Mount Erebus); and Terrorism (bombing of the Rainbow Warrior in Auckland Harbour in 1985).

2.1 What Vulnerabilities Exist?

New Zealand's location and geological characteristics mean that as a country there is a reasonable likelihood that parts of New Zealand will, at any one time, be involved in a potential disaster event. To date, these events have not been as devastating (in terms of deaths), but they are still very severe in terms of economic, social and environmental impacts. It is not a matter of "if," but rather "when" a disaster will occur.

New Zealand's vulnerability to hazards is very much influenced by the structure of its economy and society. New Zealand's economy depends very heavily on agriculture, tourism and international trade, all of which could be severely affected by New Zealand's hazardscape. In addition, the nature of New Zealand lifestyle, settlement patterns and resource uses affect its vulnerability to hazards. Reliance on lifeline utilities (including electricity, gas, water, sewerage, communication and transport systems) leads to greater vulnerability in the event of their failure. The increasing complexity and interdependency of these services raises the possibility of multiple failures, progressive failures, or extended outages beyond the control of individual utilities.

New Zealand also has a very multicultural population. Statistics show that, of New Zealand's population of 4 million, 20% were born overseas. "New Zealanders belong to over 180 language groups, with approximately 250,000 New Zealanders speaking a language other than English at home" (MCDEM, 2006, p.5). According to Ministry Civil Defence and Emergency Management (2006), New Zealand's Maori, Pacific and ethnic communities are a particularly vulnerable part of New Zealand society. Socio-economic factors, unfamiliarity with New Zealand's hazards, lack of proficiency in the English language, and cultural differences or linguistic peculiarities that distort the meaning of messages are all reasons for this group's vulnerability.

New Zealand also attracts a large number of tourists to its shore each year and, in some popular tourist locations, the population can be increased dramatically during

certain seasons. Figures indicate that over "2.4 million people visit New Zealand each year. By factoring this potentially vulnerable population into emergency management structures demands much in terms of information, logistics and resources.

In addition to the vulnerabilities outlined above, there are four key variables that will play a continuing role in determining the nature of hazards and risks that New Zealand faces.

- Climate change – New Zealand's climate varies from year to year, but it is strongly influenced by natural climate cycles. The two main approaches to the management of climate change impacts are the reduction of greenhouse gas emissions and adaptation for the effects of climate change. The responsibility for avoiding or minimising the risks associated with climate change lies with local government under the Resource Management Act (DPMC, 2007).

- Human modification of the natural environment – much of the natural landscape has been modified since New Zealand was first settled. Urbanisation and altered land use patterns have generally led to an increase in hazards (particularly floods, landslides and coastal hazards). Restoration of catchments, wetlands, dunes and other natural systems is therefore recognised as an integral part of hazard management in New Zealand. (DPMC, 2007).

- Demographic trends – while New Zealand's population is increasing, as is the aging population, the most significant trends will be continued urban growth and an increase in the Asian population (MCDEM, 2006).

- Reliance on technology – New Zealand society relies very heavily on technology and interconnected infrastructure. New Zealand's commercial environment and social conditions rely on the opportunities technology provides. There is a high expectation of immediate access to goods and services and lifeline utilities are highly dependent on each other. As New Zealand's reliance on these technological systems continues to grow, so too does its vulnerability

to failure of these systems due to external or internal causes (DPMC, 2007).

The prevalent hazards are:
- earthquakes;
- volcanoes;
- landslides;
- tsunamis;
- coastal hazards;
- floods;
- severe wind;
- snow;
- droughts;
- wildfires;
- animal and plant diseases;
- infectious human disease pandemics;
- infrastructure failures;
- major transport accidents;
- terrorism; and
- food safety.

Top 10 Natural Disasters in New Zealand for the Period 1900 to 2014 Sorted by Number of Killed[5]

Disaster	Date	No Killed
Epidemic	Nov/1918	6700
Earthquake (seismic activity)	3/Feb/1931	256
Earthquake (seismic activity)	22/Feb/2011	181
Volcano	25/Dec/1953	150
Storm	14/Apr/1968	50
Flood	Feb/1938	21
Earthquake (seismic activity)	Jun/1929	17
Storm	7/Mar/1988	6
Flood	17/Feb/1985	4
Earthquake (seismic activity)	24/May/1968	3

Top 10 Natural Disasters in New Zealand for the Period 1900 to 2014 Sorted by Number of Total Affected People[5]

Disaster	Date	No Total Affected
Earthquake (seismic activity)	22/Feb/2011	301500
Earthquake (seismic activity)	4/Sep/2010	300002
Earthquake (seismic activity)	21/Jul/2013	13840
Earthquake (seismic activity)	3/Feb/1931	11000
Earthquake (seismic activity)	2/Mar/1987	7025
Flood	27/Jan/1984	6805
Flood	18/Jul/2004	2850
Flood	13/Feb/2004	2500
Flood	12/Apr/1981	2250
Storm	30/Dec/1996	2000

3. INSTITUTIONAL SETUP [6]

3.1 Disaster Management System of New Zealand

Legal Framework

1. Public Safety Conservation Act 1932, empower the Government to proclaim a state of emergency anywhere in New Zealand at any time when "the public safety or public order is or is likely to be imperilled"(MCDEM, n.d. p.3). However, the Act made no provision for either central or local organisations to plan for disasters.
2. Local Authorities Emergency Powers Act , 1950 contained some provision to respond to natural disasters, but this was mainly to arrange for the rescue of the injured, the removal of debris and welfare needs. Apart from some loans which may have been provided by the Local Authorities Loans Board, there was no financial assistance from the central government.
3. In 1959, the Ministry of Civil Defence was established to deal with natural disasters were formalized.
4. The Civil Defence Act 1962 (designating both the need to address armed attack and natural disaster) was enacted. However, it was not until 1964 that

there was a marked change of emphasis away from the preparedness for nuclear attack.

5. In 1968, the Civil Defence Act 1962 was amended. The word "disaster" being replaced by the word "emergency" in the Act on the grounds that local authorities would be more willing to declare a state of emergency than a state of disaster.

6. Further changes (legislative and otherwise) continued to occur during the 1970s, including civil defence being made a mandatory function for regional and unitary councils; the provision of accident compensation for those engaged in civil defence operations and training in accordance with the Accident Compensation Act 1972; and the building of the National Civil Defence Headquarters in the basement of the Beehive (New Zealand Parliament building) which was designed specifically to monitor declared events, co-ordinate resources and, if necessary, control the overall civil defence effort in a major disaster.

7. The Civil Defence Act 1983 came into force. Within this Act, mention was made for the first time of the recovery function after an emergency. Provisions in this Act enabled the appointment of a Disaster Recovery Co-ordinator.

8. In the late 1980s, public apathy to civil defence [and emergency management] became the primary focus for the Ministry of Civil Defence. To deal with this the Ministry targeted the education system to incorporate civil defence as part of the curriculum. To support this initiative, civil defence kits were distributed to all primary and intermediate schools and later secondary schools. The purpose of these classroom resources were to "increase children's awareness of civil defence and hopefully improve their chances of surviving a major disaster. The second targeted area was households. With private sponsorship, radio, television and newspapers were utilised to increase publicity and disseminate information. The third main focus was the workplace. Instructions regarding equipment needed to cope with emergencies and the responsibilities of workplace management were issued to workplaces. During the latter part of the 1980s major exercises emphasising public awareness were conducted.

9. Further concerns about emergency management led to subsequent and significant legislative and policy changes. Amongst these changes included

the importance of hazard management in local authority plans; the strengthening of emergency management arrangements; and clearer roles and responsibilities across local communities, local authorities, central government, emergency services and lifeline utilities operators (MCDEM, n.d.).

10. **The Civil Defence Emergency Management (CDEM) Act 2002**

The CEDM Act 2002, repealed and replaced the Civil Defence Act 1983 and is supported by a vision of: **Resilient New Zealand: communities understanding and managing their hazards.** The vision of "a resilient New Zealand" is founded upon strong partnerships between communities and all levels of government.

The following principles are guides to action derived from the new approach to civil defence emergency management as laid out in the CDEM Act 2002.

- Individual and community responsibility and self reliance

- A transparent and systematic approach to managing the risks from hazards

- Comprehensive and integrated hazard risk management

- Addressing the consequences of hazards

- Making best use of information, expertise and structures (National Civil Defence Emergency Management Strategy 2008, p.7).

The Act therefore establishes a framework for civil defence emergency management aimed at building resilient New Zealand communities. Further, the Act seeks to improve public safety through sustainable management of hazards and coordination of emergency planning while also encouraging communities to achieve acceptable levels of risk. The Act further specifies the roles and function of civil defence emergency management organisations and also the responsibilities of government departments, lifeline utilities and emergency services.

Emergency management in New Zealand now encompasses an all-hazards, all-risks, multi-agency, integrated and community-focussed approach. The

Act requires a risk management based approach to the sustainable management of all hazards, with the risk management process being applied across risk reduction, readiness, response and recovery (4R's):

- Reduction – identifying and analysing long term risks to human life and property from hazards and taking steps to eliminate these risks if practicable, and if not reducing the magnitude of their impact and the likelihood of their occurring.

- Readiness – developing operational systems and capabilities (including public education) before an emergency happens.

- Response – taking action immediately before, during or directly after an emergency to save lives, protect property and to help communities to recover.

- Recovery – using coordinated efforts and processes to bring about the immediate, medium term and long term holistic regeneration of a community following an emergency (National Civil Defence Emergency Management Strategy, 2008, p. 5).

3.2 The New Zealand CDEM Framework

The relationship between the National CDEM Strategy, The National CDEM Plan, CDEM Group plans, the emergency plans of other agencies and other reduction mechanisms at the national and local level are critical to CDEM in New Zealand as illustrated in the diagram below.

(Source: New Zealand CDEM framework (National Civil Defence Emergency Management Strategy 2008,p. 4).
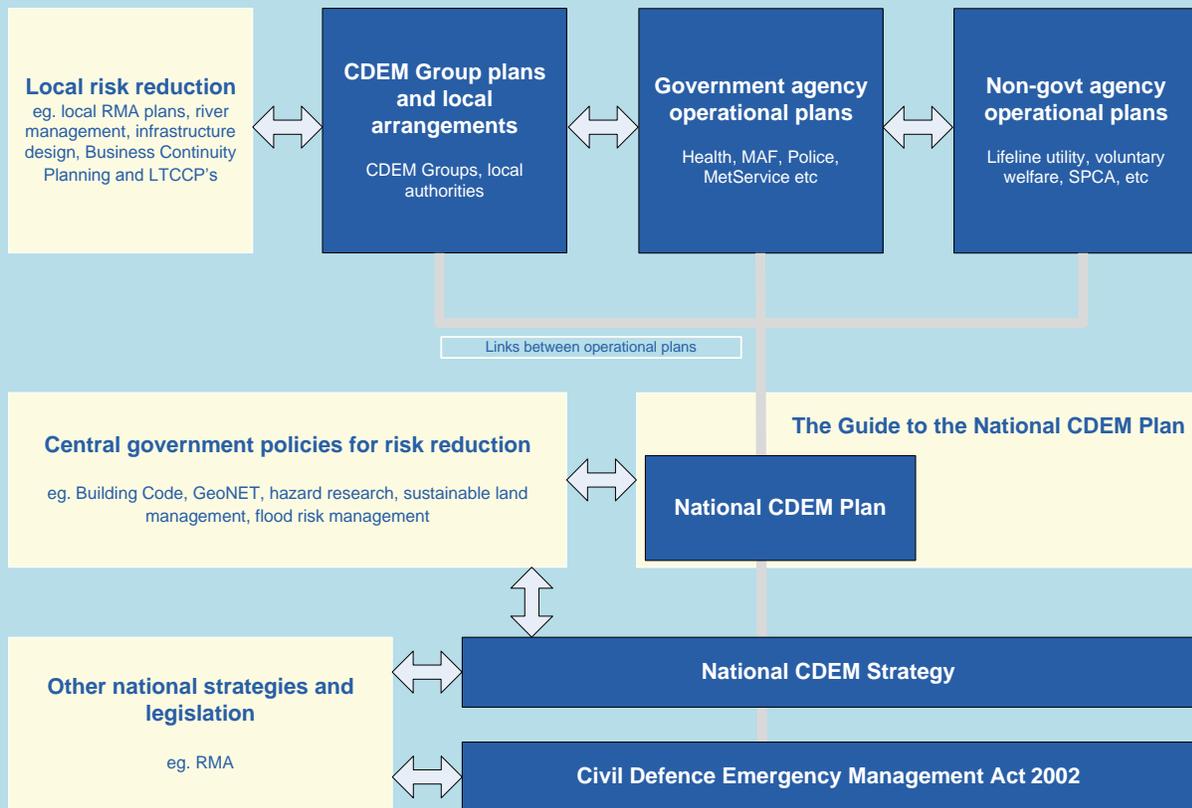
The CDEM Act of 2002 required the establishment of CDEM Groups. These CDEM Groups are a consortium of local authorities, based on existing regional council boundaries, working in partnership with emergency services, lifeline utilities, local businesses, community groups and others to deliver CDEM at the local level. There are 16 CDEM Groups in New Zealand. Each CDEM Group is required to prepare a CDEM Group Plan that state and provide for the hazards and risks to be managed. These Group plans are required to be consistent with the National CDEM Strategy.

As illustrated in the diagram above, the CDEM Act of 2002, the National CDEM Strategy, the National CDEM Plan, the Guide to the National CDEM Plan, and CDEM Group plans all form part of the New Zealand civil defence emergency management framework. They provide direction along with the support and participation of central and local government, emergency services, lifeline utilities, other general infrastructure providers, businesses and volunteer agencies.

The National CDEM Strategy provides the vision and strategic direction for civil defence emergency management in New Zealand while The Plan, the Guide and CDEM Group Plans support the strategy. The Strategy addresses the need to reduce hazards and risks and to be ready for, respond to, and recover from emergencies. The National CDEM Plan and Guide are two mechanisms that contribute to the goals of the National CDEM Strategy. The National CDEM Plan is aligned and integrated with a range of other strategies, policies, regulations and programmes across central government.

In New Zealand, the central decision making body of executive government that addresses emergency management is the Cabinet Committee for Domestic and External Security Coordination (DESC). This committee is chaired by the Prime Minister and includes those ministers of the crown responsible for departments that play essential roles in such situations. To support this process, the Officials' Committee for Domestic and External Security Coordination (ODESC) is the committee of government chief executives responsible for providing strategic policy advice to Ministers of the Crown on such matters.

11. Other legislation, regulations and policies set out responsibilities for hazard risk reduction and emergency management. These include the **Bio-security Act of 1993** (legal basis for excluding, eradicating and managing pests and unwanted organisms); **Building Act of 2004** (controls new construction and alteration, demolition and maintenance of existing buildings) and the **building code;** the **Epidemic Preparedness Act of 2006** (providing statutory powers around the prevention and response to outbreak of epidemics); the **Health Act of 1956** (covering all aspects of health including emergency powers); **Local Government Act of 2002** (provides for democratic and effective local government that recognises the diversity of New Zealand communities); **Policing Act of 2008** (states the functions and provides for the governance and administration of the New Zealand Police); and the **Resource Management Act of 1991** (promoting the sustainable management of natural and physical resources).

3.3 Organizations Involved in Emergency Management

The Ministry of Civil Defence and Emergency Management (MCDEM) was created on 1 July 1999. The fundamental driver for the Ministry has been to work with its stakeholders to create a new way of thinking about civil defence and emergency management. The goal is to build on existing civil defence practice. The Ministry's role is to:

- provide strategic policy advice on New Zealand's capability to manage and be resilient to the social and economic costs of disasters;

- ensure the establishment of structures to provide the capability to manage and respond to disasters in New Zealand;

- provide support to sector stakeholders in their delivery of civil defence emergency management;

- ensure a coordinated approach, at both national and community level, pertaining to planning for reduction, readiness, response, and recovery;

- manage central government response and recovery functions for large scale events that are beyond the capacity of local authorities (www.civildefence.govt.nz).

The **National Crisis Management Centre (NCMC),** situated below ground in the Beehive (Parliament Buildings) sub-basement, facilitates the Central Government crisis management arrangements and offers inter-agency and scalable operability to deal with any type of event or crisis. The NCMC is managed and maintained in a continued state of readiness by MCDEM.

Under the requirements of the CDEM Act 2002, **Emergency Services (Police, Fire, and Health)** are required to work in partnership with CDEM Groups**.** This allows for the development and implementation of a CDEM Group Plan that coordinates hazard management arrangements for the benefit of public safety. Emergency Services are required to participate in the development of a National CDEM Plan and there is also an expectation that as an emergency service they are

able to function to the fullest possible extent during and after an emergency – through sound continuity planning

Lifeline Utilities have a significant CDEM role to play in New Zealand. Lifeline utilities are responsible for strengthening relationship within and across sectors and individually committing to actions that ensure continuity of operation and delivery of service, particularly during and after an emergency. The **National Engineering Lifelines Committee** (NELC) was established in 1999 to maintain a watching brief over the activities of the various regional Lifelines Groups. The NELC focus is enhancing the connectivity of lifeline utility organisations across agency and sector boundaries in order to improve infrastructure resilience.

The CDEM Act 2002 encourages these types of arrangements based on co-operation, integration and co-ordination. The CDEM cluster approach, initiated by MCDEM seeks to address this need. This approach involves groups of agencies with related functions to work together to:

- clarify goals, responsibilities and roles for disaster management

- identify gaps in capability and capacity

- address the gaps through action plans (www.civildefence.govt.nz).

Under the Act, development of the new national civil defence emergency management plan has allowed for the co-ordination of national welfare support arrangements through the **National Welfare Co-ordination Group (NWCG)**. In 2003, MCDEM with the Ministry of Social Development (MSD) established the Group to oversee welfare arrangements. *The objective of the National Welfare function is to co-ordinate at a national level central government's welfare response for individuals and communities affected by an emergency.* Following the February 2004 and Bay of Plenty July 2004 flood events, MSD began to lead the NWCG, given its operational focus to deliver services and support to communities following an emergency. In undertaking national welfare co-ordination, the Ministry of Social Development is to:

- provide a national-level welfare response for individuals and communities affected by an emergency (that is, coordinating the response of all welfare agencies at a national level); and

- coordinate recovery centres for national welfare and related agencies in affected areas; and

- provide staffing at, and the lead agency role in, recovery centres where required; and

- co-ordinate government information helplines for those affected by an emergency; and

- provide social policy advice to the Government as requested (www.civildefence.govt.nz).

National level intervention with the provision of welfare will be required when an affected CDEM Group cannot meet this need themselves and requests assistance from the Ministry of Social Development (MSD) as lead agency, the NWCG or MCDEM. Support functions that the NWCG provide include the Government Emergency Response Line, and the National Inquiry Function.

The **National Animal Welfare Emergency Management Group** (NAWEM) was established in 2006, to provide a national coordination point for the management of animal welfare in emergencies. NAWEM is hosted and supported by the Ministry of Agriculture and Forestry. The group provides advice on animal welfare issues during emergencies through individual and multi-agency action. (www.civildefence.govt.nz).

New Zealand is unique in having the **Earthquake Commission (EQC)**, a government owned organisation that insures the holders of residential fire insurance against natural hazard damage. EQC was originally established in 1945 to protect against earthquake or war damage (war damage coverage was removed in 1994). Today, EQC addresses earthquake, landslide, volcanic eruption, hydrothermal activity, tsunami, storm/flood (land only) and fire losses caused by any of these events. Residential houses are insured for up to NZ$100,000 worth of damage and contents for NZ$20,000. As well as providing insurance, EQC also

encourages preparedness through public education, natural hazard research funding and teaching, engineering standards development and the national geological hazard monitoring system "GeoNet" (DPMC, 2007, p.27).

The **Pacific Tsunami Warning Centre** (PTWC) in Hawaii was established in 1949 to provide Pacific nations, including New Zealand, with tsunami warnings. The PTWC issues a tsunami information bulletin when an earthquake between magnitude 6.5 and 7.5 is detected within or near the Pacific Ocean basin. A tsunami warning bulletin is issued for earthquakes greater than magnitude 7.5. These bulletins alert New Zealand civil defence emergency management (CDEM) agencies of the possibility that a tsunami may have been generated.

In New Zealand the **National Tsunami Advisory and Warning System** is complemented by geological hazards and sea level monitoring. MCDEM is the agency responsible for disseminating national tsunami advisories and warnings to the communities of New Zealand. The National CDEM Plan describes the procedures to receive, assess and disseminate tsunami notifications at the national level. However these warnings may not reach all local communities at all times. CDEM Groups (within their group plans) must maintain public alert systems and procedures to communicate warnings received from the national level down to local communities.

The consequences of the 2004 Indian Ocean tsunami prompted the New Zealand Government for improving national and regional management of tsunami risk. As a result, a Tsunami Working Group was set up in 2006 to focus on improving warning systems and, in the longer term, improving tsunami risk management (including support for developing local tsunami evacuation plans, tsunami planning and scenario modelling).

3.4 Local government structures

Consistent with its role of establishing and maintaining the emergency management framework for New Zealand, central government also approved a model for the delivery of emergency management at the local level. The model has been developed in consultation and collaboration with local government, to ensure

it has practical application and is flexible enough to be implemented in a wide number of different contexts.

The approved model is for Emergency Management Groups (EMGs) throughout the country. EMGs are consortia of existing local authorities (working with emergency services and lifeline utilities) that are tasked with overseeing risk-based emergency management for their area. Working within legislative frameworks and the National Emergency Management Strategy, and using national guidelines prepared by the Ministry, they are to define local structures, processes and direction. They will undertake periodic hazard analyses, vulnerability assessments (including trend and consequence analysis), and will apply appropriate risk assessment tools, and a risk-based emergency management process. Three advantages of this approach are:

- They will enable a consistent approach to a particular issue from the different local authorities represented on the EMG.
- They will provide for the co-ordination of resources and help ensure that emergency management considerations are integrated into the many relevant local authority activities and responsibilities.
- hey ensure wide involvement of the community in understanding their hazards and making choices about their management.

3.5 Risk management approach

New Zealand has recently adopted a non-mandatory risk management standard, AS/NZS 4360 – 1999, produced by a Joint Technical Committee of Standards Australia and Standards New Zealand. A senior officer of the Ministry for Emergency Management has been a member of the Committee since 1993. The standard articulates a process that can 'be applied to any situation where an undesired or unexpected outcome could be significant or where opportunities are identified'. The process outlined within AS/NZS 4360 - 1999 includes the following elements:
- Establish the context

- Identify risks
- Analyse risks
- Evaluate risks
- Treat risks
- Monitor and review
- Communicate and consult.

The process provides a robust checklist to ensure that a systematic approach to the management of risks can be undertaken. In many situations the process can be applied 'as-is', without significant problems. This standard has been adopted by the Ministry as the vehicle for developing its risk management approach to emergency management.

However, in the context of communities managing risks arising from natural hazards, it is clear that there is not one risk management process, but many processes within which the management of risks must be considered. These include public sector processes (such as those involved in land-use management) as well as private sector processes (such as asset management and business continuity management of private sector utilities). It is important that all of these processes are strategically aligned. For instance, the range of treatment options for risks includes aspects of reduction and of response. In order to make the most effective and efficient decisions about how to manage risks, the processes for determining the types and levels of reduction and response activities a community might utilize with respect to a particular risk, must be undertaken within the same overall framework. While the process is largely in place in New Zealand, there is a need for better integration.

Much recent legislation has implicitly, and often explicitly, put in place frameworks that require a risk management approach. Notable examples are:

- The Resource Management Act 1991, which includes requirements to identify hazards, assess the implications, and identify options for addressing the risks they pose

- The Bio security Act 1993, covering unwanted organisms, border control and pest management
- A 1996 amendment to the Local Government Act 1974 which requires local authorities to adopt a long-term financial strategy for at least ten years (it should include risks to assets, environmental liability and the like)
- The Hazardous Substances and New Organisms Act 1996, covers the importation and production of hazardous substances and new organisms and created the Environmental Risk Management Authority.

3.6 Providing comprehensive training and education

New Zealand's revised approach to emergency management is in line with international trends. It recognises that tomorrow's emergency managers will be required to tackle problems they have not confronted before and be required to act as a broker to work out solutions. This obligates them to understand complex physical and social systems, conduct sophisticated cost-benefit analyses, and broker long-term solutions relating to land-use management and resource allocation. Education in hazard management and emergency preparedness therefore needs to complement skills-based training and be expanded to include inter-disciplinary and integrated programmers.

The Ministry is tasked to identify and promote new professional development initiatives, oversee and assist in establishing new initiatives, and monitor the overall efficacy of professional development programmes in achieving Government's outcomes for emergency management. Themes that are influencing the New Zealand programme are:
- Greater emphasis on pre-disaster mitigation requiring multi-disciplinary knowledge and broad policy development skills.
- Higher levels of inter-agency co-ordination (across public and private sectors) requiring inter-personal and business planning skills.
- Making the most of the latest research and technology necessitating the continual updating of research knowledge, information technology and data analysis skills.

- Maintaining a response capability in the face of more widely spread and highly committed resources requiring contract management and logistical planning skills.

The New Zealand training programme also recognises that a broad range of individuals across a number of organisations require education and training to effectively carry out relevant emergency management tasks. The need for flexibility and diversity in training programmes is therefore paramount.

In New Zealand, depending on the scope of the emergency/disaster, responsibility may be handled at either the local or national level. Within each region, local governments are organized into 16 Civil Defence Emergency Management Groups (CDEMGs). If local arrangements are overwhelmed, pre-existing mutual-support arrangements are activated. Central government has the authority to coordinate the response through the National Crisis Management Centre (NCMC), operated by the Ministry of Civil Defence & Emergency Management (MCDEM). These structures are defined by regulation,[30] and explained in The Guide to the National Civil Defence Emergency Management Plan 2006, roughly equivalent to the U.S. Federal Emergency Management Agency's National Response Framework

4Rs is the emergency management cycle used in New Zealand, its four phases are known as.
- Reduction = Mitigation
- Readiness = Preparedness
- Response
- Recovery

4. INITIATIVES

4.1 Civil Defence Emergency Management Act 2002[4,7]

Through the Civil Defence Emergency Management Act 2002 (CDEM Act), central government has established a comprehensive, risk-based approach to the management of all hazards, with a primary goal being to support communities to be resilient and self-reliant. The new Act establishes structures at the local,

regional and national level to support the management of hazardous disasters at the local level. Communities, through their local authorities and other agencies, should aim to reduce the likely impact from, prepare for, and be able to respond effectively to, emergency events. Regional and national co-operation and co-ordination is one of the cornerstones of the approach.

The National Civil Defence Emergency Management Plan was made in November 2005, and became operational in conjunction with the Guide to the National Civil Defence Emergency Management Plan in July 2006. The National Civil Defence Emergency Management Strategy (March 2004) outlines national goals and objectives for hazards & risks and emergency management.

4.2 Guide to the National Civil Defence Emergency Management Plan[8]

The Guide sets out the arrangements and roles and responsibilities of agencies for the national management, or support to local management, of civil defence emergencies.

The Guide to the National Civil Defence Emergency Management Plan (the Guide) incorporates the wording of the National CDEM Plan, which states the principles, arrangements and frameworks that apply to the management of emergencies and supports these with further detail, diagrams and operational information.

Both the Guide and the National CDEM Plan became operational on 1 July 2006 following government approval.

I.   Revision - June 2009

As planning and operational arrangements develop in the sector, they are updated and reflected in the Guide, which is designed to be a 'living document'. The Guide has been revised and updated in relation to outdated information, policy or work programme changes and areas requiring further clarification and improvement. As a result all sections have undergone a general update and have been republished (version 1.2), and two appendices have been removed from the Guide.

4.3 National Civil Defence Emergency Management Strategy[9]

The National Civil Defence Emergency Management Strategy sets out the overall direction for CDEM in New Zealand.

Under the Civil Defence Emergency Management Act 2002, the Minister of Civil Defence must complete a National CDEM Strategy. The Strategy sits within the wider emergency management framework, which includes the National CDEM Plan and Guide, and supporting guidelines issued by the Director CDEM.

The Strategy sets out the overall direction for CDEM in New Zealand. It has a vision: *Resilient New Zealand: communities understanding and managing their hazards*. It also sets out principles and national level goals and objectives. Collectively, these define what we as New Zealanders want to achieve through our CDEM arrangements.

The Strategy was first developed following introduction of the CDEM Act in 2002 and revised in 2008. It will be revised and re-issued again before the end of 2018. By that time it is expected that the lessons from the Christchurch earthquakes will have been fully incorporated into CDEM arrangements and reflected in the Strategy.

National Civil Defence Emergency Management Strategy

Achievement of the vision defined in the Strategy requires the participation and commitment of the whole community including central government, local authorities, individual departments, businesses, volunteer organizations, and individual families.

I.   **Principles and Goals of the National CDEM Strategy**

The Strategy confirms five principles agreed by Cabinet that underpinned reforms resulting in the CDEM Act 2002. The principles are:

- Individual and community responsibility and self - reliance
- A transparent and systematic approach to managing the risks from hazards
- Comprehensive and integrated hazard risk management
- Addressing the consequences of hazards
- Making the best use of information, expertise and structures.

The Strategy contains four goals:

- increasing community awareness, understanding, preparedness and participation in civil defence emergency management
- reducing the risks from hazards to New Zealand
- enhancing New Zealand's capability to manage civil defence emergencies, and
- enhancing New Zealand's capability to recover from civil defence emergencies.

Each of these goals has a range of objectives supporting it.

II.   Progress in implementing the Strategy

In 2013, the Minister reported to Cabinet on the progress made in implementing the strategy. A further report is due in 2016.

National CDEM Strategy Progress Report April 2013

4.4 Civil Defence Emergency Management Regulations 2003[10]

The CDEM Regulations 2003 came into force on 1 June 2003. They cover:
- The form and use of the civil defence logo;
- The form for search warrants;
- The forms for declaring, extending, and terminating a state of national or local emergency.

[Civil Defence Emergency Management Regulations 2003](#)

4.4 Other CDEM Related Legislation[11,12]

Legislation relating to CDEM is not just limited to the Civil Defence Emergency Management Act 2002. A number of other Acts also play a role in CDEM by, for example, regulating activities of particular CDEM participants, assisting in land use planning, hazard identification and management, and emergency response. These Acts may be useful as reference points for those wanting additional information about a particular issue in the CDEM Act 2002. They include (but are not limited to) the:

[Biosecurity Act 1993](#)
[Building Act 2004](#)
[Canterbury Earthquake Recovery Act 2011](#)
[Defence Act 1990](#)
[Earthquake Commission Act 1993](#)
[Epidemic Preparedness Act 2006](#)
[Fire Service Act 1975](#)
[Forest and Rural Fires Act 1977](#)
[Hazardous Substances and New Organisms Act 1996](#)
[Health Act 1956](#)
[Health and Safety in Employment Act 1992](#)
[Local Government Act 2002](#)
[Maritime Transport Act 1994](#)
[Public Works Act 1981](#)
[Resource Management Act 1991](#)

I.   Guidelines

Guidelines and technical standards issued under the CDEM Act 2002: The purpose of these guidelines is to assist organisations with responsibilities under the Act to properly exercise those responsibilities. The Director has issued guidelines and standards on a wide range of CDEM – related issues. They are grouped in different series as follows:

- [Director's Guidelines (DGLs)](#)
- [Best Practice Guides (BPGs)](#)
- [Technical Standards (TS)](#)
- [Information Series (IS)](#)
- [Supporting Plans (SP)](#)

II.   Director's Guidelines (DGL)

Director's Guidelines provide guidance and advice on how a function defined by legislation or national planning arrangements should be performed.

[DGL 1/02 The Formation of CDEM Groups (pdf 383kB)](#)
[DGL 2/02 Developing a CDEM Group Plan (pdf 500kB)](#)
[DGL 4/05 Recovery Management (pdf 1.0MB)](#)
[DGL 06/08 Response Management: Director's Guideline for CDEM Group and Local Controllers (pdf 1MB)](#)
[DGL 07/08 Mass Evacuation Planning](#)
[DGL 08/08 Tsunami Evacuation Zones (pdf 2MB)](#)
[DGL 09/09 CDEM Group Plan Review (pdf 2.4 MB)](#) and associated file [Risk Profile Template (.xls 60kB)](#)
[DGL 10/09 CDEM Exercises (pdf 800kB)](#)
[DGL 11/10 Welfare in an Emergency](#)
[DGL 12/12 Guidance for Establishing and Operating New Zealand Response Teams](#)
[DGL 13/12 Declarations (.pdf 2.1mb)](#) and associated file [declaration form templates (.docx 48k)](#)
[DGL 14/13 Public Information Management: Director's Guideline for Civil Defence Emergency Management Groups](#)
[DGL 15/13 Volunteer Coordination in CDEM: Director's Guideline for Civil Defence Emergency Management Groups](#)
[DGL 16/14 Lifeline Utilities and Civil Defence Emergency Management Groups](#)

III.   Best Practice Guides (BPG)

Best Practice Guides supplement the CDEM Act, Regulations and Director's Guidelines. They are informative in nature, not being issued under the Act's authority. They serve to provide information, current best practice examples and advice on how to carry out a range of CDEM tasks and are usually developed in partnership with a range of agencies.

BPG 2/06 Donated Goods Management Planning (pdf 150kB)
BPG 4/10 Community Engagement in the CDEM context
BPG 5/10 Development Needs Analysis
BPG 6/11 Early Childhood Education (ECE) Services Emergency Planning Guidance

IV.   Technical Standards (TS)

These documents outline specific CDEM functions or activities. They are issued under section 115(e) of the CDEM Act 2002.

TS 01/08 Tsunami Signage (.pdf 700kb)
TS 02/09 CDEM Competency Framework
TS 03/14 Tsunami Warning Sirens

V.   Information Series (IS)

Information series documents supplement the CDEM Act, Regulations and Director's Guidelines. They are informative in nature, not being issued under the Act's authority. They serve to provide information, current best practice examples and advice on how to carry out a range of CDEM tasks and are usually developed in partnership with a range of agencies.

IS 06/05 Organisational Debriefing (.pdf 360kb)
IS 07/06 Pandemic Planning Guide
IS 10/09 Public Alerting: Options Assessment
IS 11/10 CDEM Resilience Fund (.pdf 1.5mb)
IS 12/13 Including Culturally and Linguistically Diverse (CALD) Communities

IS 13/13 Including People with Disabilities
IS 14/13 Rapid Impact Assessment: Information for the CDEM sector

VI.   Supporting Plans (SP)

SP 01/09 National Tsunami Advisory and Warning Plan
SP 02/10 Wellington Earthquake National Initial Response Plan
SP 03/12 National Civil Defence Emergency Management Fuel Plan (.pdf 2.2mb)

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[4] http://www.dia.govt.nz/Pubforms.nsf/URL/CDEMBIMOctober2005.pdf/$file/CDEMBIMOctober2005.pdf

[5] http://www.emdat.be/result-country-profile

[6] http://www.adrc.asia/countryreport/NZL/NZLeng99/NewZealand99.htm

[7] http://www.adrc.asia/nationinformation.php?NationCode=554&Lang=en&NationNum=26

[8] http://www.civildefence.govt.nz/cdem-sector/cdem-framework/guide-to-the-national-civil-defence-emergency-management-plan/

[9] http://civildefence.govt.nz/cdem-sector/cdem-framework/national-civil-defence-emergency-management-strategy/

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[11] http://civildefence.govt.nz/cdem-sector/cdem-framework/civil-defence-emergency-management-act-2002/

[12] http://www.civildefence.govt.nz/cdem-sector/cdem-framework/guidelines/

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