2. Hazards and risks

Summary

The National CDEM Plan identifies core functions for national management of the consequences of civil defence emergencies. It may also address the management of consequences of other emergencies not otherwise able to be managed by a lead agency.

The hazards and risks to be managed under the Civil Defence Emergency Management Act 2002 (CDEM Act) and the National CDEM Plan include any hazard that may result in a civil defence emergency. The National Hazardscape Report identifies the seventeen most prevalent hazards in New Zealand and the principal means by which each of them is managed.

Contents

The section contents are:

2.1 Hazards and risks to be managed at national level .................................................2
2.2 National hazard risk assessment .................................................................3
2.3 Risk reduction ..................................................................................4
2.4 National consequences to manage .........................................................5
2.5 References and links .........................................................................6
2.1 Hazards and risks to be managed at national level

Part 3
Hazards and risks

9 Hazards and risks to be managed at national level

(1) This part states and provides for the hazards and risks to be managed at the national level and this plan identifies the civil defence emergency management necessary at the national level to manage them.

(2) An emergency occurs when the safety of the public or property is endangered and a significant and co-ordinated response under the Act is required. The emergencies covered by this plan include those traditionally managed by civil defence arrangements and those indicated through the CDEM Group planning processes.

(3) Examples of emergencies include—
   (a) natural disasters such as flood, storm, cyclone, snowstorm, earthquake, volcanic, geothermal incident, tsunami, landslide, and lahar; and
   (b) non-natural events such as lifeline utility failure.

(4) An emergency may be local or national in its effect. National civil defence emergency management may be necessary to manage the consequences of hazards and risks if these result in either a state of national emergency or a civil defence emergency of national significance. The latter includes, without limitation, any case where the Minister considers that—
   (a) there is widespread public concern or interest; or
   (b) there is likely to be significant use of resources; or
   (c) it is likely that the area of more than one CDEM Group will be affected; or
   (d) it affects or is likely to affect or is relevant to New Zealand’s international obligations; or
   (e) it involves or is likely to involve technology, processes, or methods that are new to New Zealand; or
   (f) it results or is likely to result in or contribute to significant or irreversible changes to the environment (including the global environment).

(5) The consequences of hazards and risks to be managed can include those relevant to human, economic, social, infrastructure, and geographic factors.

(6) A range of agencies other than MCDEM may take the lead in an emergency. Indicative examples include the Ministry of Agriculture and Forestry (biosecurity), the Ministry of Health (pandemic), and the New Zealand Police (counter-terrorism). Aspects of such emergencies can be managed under the Act and using parts of this plan. In these cases, the responsibilities of the lead agency are in no way diminished even though a state of local or national emergency is declared under the Act to support that lead agency.

(7) Civil defence emergency management arrangements may be activated to support lead agencies if these arrangements are included in those agencies’ plans.

Note – Plan Clause 9(6)
The lead agency for a biosecurity emergency is MAF Biosecurity New Zealand. MAF Biosecurity New Zealand was established after the making of the National CDEM Plan.

New Zealand’s prevalent hazards

Plan Clause 9(3) provides examples of hazard disasters and events that may result in emergencies. In 2007, after the making of the National CDEM Plan the Department of the Prime Minister and Cabinet (DPMC), as chair of the Officials Committee for Domestic and External Security Co-ordination (ODESC), published the National Hazardscape Report. The report identifies the seventeen most prevalent hazards in
New Zealand, and the principal means by which the risks associated with each are managed across the 4Rs of reduction, readiness, response, and recovery.

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.

**2.2 National hazard risk assessment**

The National CDEM Strategy seeks comprehensive and integrated approaches to hazard risk management. All hazards and risks are to be addressed. Risk reduction aims to avoid creating further risk and to mitigate existing risk. Readiness, response and recovery arrangements recognise that hazard events will occur and that not all risk can be reduced. Good preparation before and management of consequences during an event can lessen its impacts. The recovery stage can also present opportunities to further reduce risks for the future.

**Determining risk**

Determining acceptable levels of risk, and how best to achieve this across the 4Rs, therefore requires integrated and co-ordinated approaches to CDEM and hazard management planning. Identifying risks and the best means to manage them across the 4Rs is part of a risk management process (see Figure 2.1).

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![Figure 2.1: The AS/NZS 4360 Risk Management standard has been adapted for CDEM practice](adapted_from: AS/NZS 4360: 2004 Risk Management, SNZ HB 4360:2000 Risk Management for Local Government)
The application of risk management at the national level extends beyond CDEM arrangements. This application underlies the design, development, implementation, and endeavours to integrate legislation, policies, and services across central government and other sectors.

**Sources of information on risk**

Within this overall context national CDEM planning is primarily concerned with risks that may lead to national emergencies and emergencies of national significance. Understanding what to plan for involves information from many sources including:

- CDEM Group risk assessments;
- hazard risk research of universities, Crown Research Institutes, and other organisations;
- hazard and risk reports prepared by government agencies and the managers of strategic assets, such as lifeline utilities.

Risk assessment at the national level has identified the lead agencies responsible for managing particular risks (see Plan clause 9(6)). The lead agencies’ hazard specific plans are supported by generic CDEM plans. For example, an infectious human disease pandemic may result in interruptions to lifeline services. CDEM planning allows for the management of the consequences of lifeline failure, integrated with the arrangements of the Ministry of Health’s New Zealand Influenza Pandemic Action Plan, and coordinated by the Domestic and External Security Co-ordination (DESC) system.

**2.3 Risk reduction**

**Local risk reduction**

Most hazard events occur at the local or regional level. Even large events consist of many, small incidents that together give the event its scale. Hence, New Zealand’s hazard and risk management and CDEM planning frameworks place a strong emphasis on local initiatives for risk reduction. Individuals, communities and local government are best placed to decide on the management options suited to them, for example through land-use planning and building control activities.

**National risk reduction**

National risk reduction policies, programmes and services across central government aim to support local government, businesses and individuals to reduce risk at the community and personal level. Central government does so in many different ways. It develops and administers a broad framework of legislation.

**Legislation addressing risk reduction**

In addition to the CDEM Act, hazard risk reduction is addressed generally through other legislation such as the:

- Resource Management Act 1991;
- Building Act 2004;
- Local Government Act 2002; and

Other legislation addresses specific aspects of hazard and risk management, such as the:

- Soil Conservation and Rivers Control Act 1941;
- Earthquake Commission Act 1993;
- Maritime Transport Act 1994;
- Health Act 1956;
- Epidemic Preparedness Act 2006;
- Fire Service Act 1975;
• Forest and Rural Fires Act 1977;
• International Terrorism Act 1987;
• Hazardous Substances and New Organisms Act 1996; and
• Biosecurity Act 1993.

This framework of legislation underpins a wide range of national strategies, plans, policies, codes, and practices supporting risk reduction outcomes. Some examples are the Building Code and compliance regime, the Biosecurity Strategy and the New Zealand Coastal Policy Statement.

Central government and national agencies

Central government, along with national professional bodies and organisations, provides guidance to practitioners working within different sectors, and information to the public. The Government also establishes priorities for and funds research into hazards and risks to guide informed decision-making. Departments and State Owned Enterprises may also contribute to reduction outcomes through the services they deliver locally as part of their daily activities. These may vary from risk proofing capital infrastructure to that of providing social, education and health services that lessen individual and community vulnerability to their risks.

National lifeline utilities

National lifeline utilities and network providers proactively address reduction issues through their own actions and through regional lifeline engineering projects which address inter-dependencies.¹

2.4 National consequences to manage

Risks that are unable to be addressed through reduction initiatives are managed through readiness, response, and recovery arrangements at both the national and local levels². The Plan and Guide describe these arrangements at the national level.

When preparing their plans, CDEM Groups identify hazards and risks for which they may require the support of other CDEM Groups and/or National CDEM Plan arrangements to manage an emergency.

The criteria in Table 2.1 are used to evaluate whether the consequences of any emergency requires management under the National CDEM Plan.

<table>
<thead>
<tr>
<th>Category</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDEM Group planning for local emergencies identifies a hazard or consequence requiring management at the national level.</td>
<td>National planning is necessary for additional resources and/or higher levels of co-ordination.</td>
</tr>
<tr>
<td>Consequences of emergencies are likely to be of national significance.</td>
<td>Identified in accordance with Section 39(2)(a) and 39(2)(b) of the CDEM Act.</td>
</tr>
<tr>
<td>Where hazards and risks are already managed at the national level and require CDEM involvement.</td>
<td>The lead agency seeks the support of CDEM arrangements to address one or more consequences.</td>
</tr>
</tbody>
</table>

Table 2.1: Hazard and risk evaluation criteria

¹ For example, water supply systems are dependent on power and information telecommunication systems, and need to plan for contingencies for interruptions to these systems.
² For example, one aspect of reduction in the case of an earthquake is strengthening buildings; and although this will reduce damage, it will not stop an earthquake happening and the need to provide for Urban Search and Rescue in the event of collapse (See section 8, Fire Service).
Because hazards and risks may change with time, it is the responsibility of all agencies to:

- regularly identify, review, and assess all events that may result in an emergency;
- consider the likelihood and consequences arising from those events;
- undertake risk reduction and emergency planning, including agreeing any additional need for management under the National CDEM Plan.

These are part of the monitoring and review steps of the risk management process of (AS/NZ4360)(see Figure 2.1).

Exactly what form each emergency may take is unknown, and therefore national CDEM planning must provide for the consequences of any likely event, including impacts on the:

- **social environment**: displaced, injured or dead, immediate and long-term disruption/impacts to normal social functioning of a community/society;
- **economic environment**: short term and long term, direct and indirect across all economic activity;
- **built environment**: on key buildings, structures and utilities for private, public and commercial use;
- **natural environment**: the ecology, natural resources, physical landscape, amenity, and heritage values of an area.

Each consequence results in specific needs that are to be managed through CDEM planning. This planning includes defining and grouping agency roles and responsibilities, and developing common procedures for common functions irrespective of the cause of the emergency. This planning supports an integrated 4Rs approach to hazard and risk management, as well prepared and executed response and recovery arrangements will lessen the impacts of an event and maximise opportunities for further risk reduction.

### 2.5 References and links

**Other sections of the Guide**

- Section 1, Introduction
- Section 3, Statutory basis for national management of an emergency
- Section 4, General roles and responsibilities
- Section 5, Civil Defence Emergency Management Groups
- Section 9, Health services
- Section 19, National CDEM warnings

**Other documents**

- AS/NZS 4360:2004 Risk Management
- CDEM Group plans ([www.civildefence.govt.nz](http://www.civildefence.govt.nz))

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3 For example, one consequence could be the mass dislocation of people as a result of either a terrorist act or a volcanic eruption. In either case, this consequence requires generic planning for the functions of mass evacuation, providing temporary accommodation, public information, victim registration and inquiry systems, and welfare support.