MARCH 2004

Wellington Region Civil Defence Emergency Management Group Plan

FOR FURTHER INFORMATION

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CIVIL DEFENCE

WELLINGTON REGION EMERGENCY MANAGEMENT GROUP

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Part 1 - Introduction

1. What is this Plan?

The Civil Defence Emergency Management Act 2002 (CDEM Act) requires every regional council and every territorial authority to establish a Civil Defence Emergency Management Group (CDEM Group). The organisational structure and administrative arrangements of the Wellington CDEM Group are set out in Part 5 of this Plan.

Section 48 of the CDEM Act requires every CDEM Group to prepare and approve a Civil Defence Emergency Management Group Plan (CDEM Group Plan). This Plan has been prepared to meet the requirements of Sections 48 – 57 of the CDEM Act.

The CDEM Group Plan provides the context and strategic direction for civil defence emergency management in the Wellington Region. It focuses on issues that the CDEM Group considers will benefit from a collective approach. The Group recognises that there are other emergency management issues that will be more appropriately dealt with by individual agencies or local authorities.

2. Who is the Plan for?

This Plan is for individuals and organisations with a civil defence emergency management role in the Wellington Region.

Section 59 of the CDEM Act requires that every individual or organisation required to perform functions and duties in this CDEM Group Plan should take all necessary steps to do so.

2.1 Local Authorities

The Plan sets out the significant emergency management issues in the Wellington Region and contains objectives and targets that are designed to address these issues. A CDEM Group work programme is agreed annually to implement the objectives and targets (Annex A).

Individual local authorities incorporate relevant parts of the CDEM Group work programme into their own strategic and financial planning processes.

Local authorities also use the operational part of this Plan to determine their roles and responsibilities during emergency events.

2.2 Other emergency management agencies

Other emergency management agencies incorporate relevant parts of the CDEM Group work programme into their own strategic and financial planning processes.

They also use the operational part of this Plan to determine their roles and responsibilities during emergency events.

3. Duration of Plan and Review

This plan is operative for five years following its approval by the CDEM Group. It will be reviewed when it has been operative for five years or, if required, in the interim period.

4. Relationship with National CDEM Plan and the National CDEM Strategy

Section 53 of the CDEM Act specifies that the CDEM Group Plan must not be inconsistent with the National Civil Defence Emergency Management Strategy and must take account of guidelines, codes or technical standards issued by the Director of Civil Defence Emergency Management.

5. Requirement for local authority civil defence emergency management planning

Section 64 of the CDEM Act requires local authorities to plan and provide for civil defence emergency management within their districts. They must be able to function to the fullest possible extent, during and after an emergency, even though this may be at a reduced level. Therefore, this CDEM Group Plan does not replace planning at a local level.

6. How the Plan was prepared

Local authorities, emergency services, lifeline organisations and other agencies with a role in civil defence emergency management in the Wellington Region participated in the development of this Plan.

The key steps were:

- Draft Plan approved by the CDEM Group for public consultation (25 November 2004)
- Draft Plan notified (DATE) and public submissions received by (DATE)
- Submissions heard on (DATE)
- Amended Draft Plan reviewed by the Minister of Civil Defence (DATE)
- Final Wellington Region Civil Defence Emergency Management Group Plan approved by the Wellington Region CDEM Group (DATE)

Part 2 – The Wellington Region

1. Key characteristics of the Wellington Region

The Wellington Region is unique because of its special geographical features and human settlement characteristics - these features have consequences for the Region's civil defence emergency management.

Wellington Region's physical geography, with mountain ranges running north-south and dynamic river systems, has both created and restricted human settlement over the centuries. Risks the Region currently faces reflect choices made about such things as where we live and work and how we travel between them.

Wellington City, with a population of 200,000, is New Zealand's capital city and seat of government. The national importance of Wellington city is illustrated in its pivotal infrastructure linking the Region with the rest of the North Island, the South Island, and overseas. For example, Wellington's airport is the country's busiest domestic airport, while the port carries considerable volumes of freight and passengers. Wellington is also the nexus of State Highways 1 and 2 as well as commuter and long-distance train lines. While a substantial proportion of those who work in Wellington city may commute from outside the city, recent development has seen an increase in high-density inner city living.

Wellington city therefore functions as a major population centre and the headquarters of many services and business for the lower North Island. Access to, from and through the city is crucial.

However Wellington's key role in politics, business and transport faces a number of threats from a range of natural hazards. The most notable hazards are the active fault lines that pass through or near the city. A major earthquake would damage many valuable assets and isolate the city, while a tsunami generated by such an earthquake could cause damage all around Wellington harbour.

The ***Hutt Valley*** is home for nearly 100,000 people and several thousand businesses, most with premises on the Hutt River floodplain. The western edge of the Hutt Valley has the same fault line that passes through central Wellington, posing a major threat of earthquake-related damage (including landslides).

The ***Wairarapa*** represents the largest area of land in the Wellington Region, though is home to only 9% of the Region's population. Nevertheless, the Wairarapa is very important to the regional economy. The Wairarapa Plains are bisected by several major river systems and faultlines, while Lake Wairarapa stores large volumes of water that flow through the area. The risk of flooding across the Wairarapa Plains is an important consideration for the CDEM Group Plan both because of the threat to life in major settlements and because of the consequences for the rural economy.

Much of the growth along the ***Kapiti Coast*** is on the coastal dune and river plains systems that stretch from Paekakariki into the Manawatu. The hazards facing the Kapiti communities range from earthquakes, landslides and tsunami through to floods from the steeply-flowing rivers that flow down from the Tararua Ranges. Kapiti is connected to Wellington by one major road and two rail tracks - both transport links pass over fault lines and alongside steep coastal cliffs. As such, the area's communication connections with the capital - and Wellington's most direct link with the rest of the North Island - are especially vulnerable.

The ***Porirua area*** and ***Pauatahanui Inlet*** are also growing in population, and exposed to a similar range of hazards as the Kapiti coastal communities. Porirua has limited communication links to adjoining areas because of the steep hills defining the edge of the Porirua basin.

2. The Region's people

The Wellington Region has more than 450,000 people. According to June 2003 population figures the main population centres are Wellington (40%), Lower Hutt (22%), Kapiti (10%), and Upper Hutt (8%). Masterton, South Wairarapa and Carterton districts make up nine percent of the total regional population.

The Region's population growth is likely to reach 15% by 2021, according to projections, with the fastest growing areas of **Wellington**, **Kapiti** and **Porirua.** This population growth may mean more people are exposed to the hazards in the Region.

Older people and children can be more vulnerable to hazards. Population densities of people over 65 years are concentrated in **Kapiti** (22.3%) and to also to a lesser extent in the **Wairarapa** (14.1 - 15.5%) compared to the national average of 12.1%. The percentage of families with children is higher in **Porirua** (71.1%), and also in **Upper Hutt** (63.6%), compared to the national average of 61%, and lower everywhere else especially in Kapiti (51%).

People for whom English is not a first language can be more vulnerable in an emergency due to being unable to access the same information and advice. The level of European ethnicity is lower in **Porirua** particularly (63.9%), and also in **Lower Hutt** (76.7%).

3. Civil Defence Emergency Management context in the Wellington Region

The Wellington Region is vulnerable to a wide range of hazards. Although considerable effort is taken to mitigate against these hazards, it is not always possible to eliminate the risks.

There have been many emergency events in the Wellington Region since records began. Some notable events in the Region's history include:

1855 Earthquake on the Wairarapa fault line measuring 8.2 on the Richter Scale. This earthquake caused significant destruction to properties across the Region and one person was killed.

1909 Shipwreck of SS Penguin at Cape Terawhiti. Seventy-five of 102 people on board died.

1918 Influenza pandemic. Up to 800 people in the Wellington Region died. Between a third and a half of the population was infected.

1942 Earthquake in Masterton measuring 7.2 on the Richter Scale caused considerable damage across the Wairarapa.

1940 Plane crash in Waikanae. Fifteen people were killed.

1968 Cyclone Giselle caused winds of up to 200kph and the sinking of the Wahine ferry on Barrett Reef in Wellington Harbour. Fifty-one of the 733 people on board died.

1976 Hutt Valley surface flooding due to heavy rain. All roads we disrupted and many severe slips occurred on hillsides.

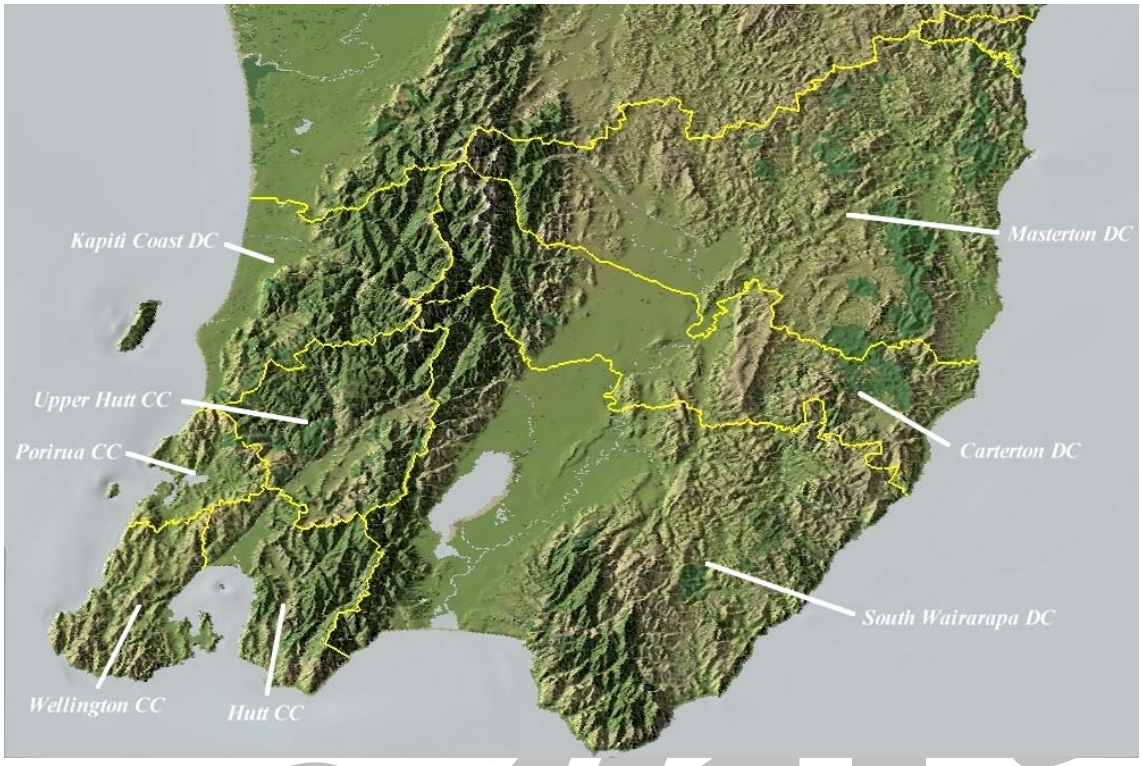
1998 Kapiti river flooding caused the death of one person.

2003/4 Flooding events in the Kapiti Coast, the Hutt Valley and Wairarapa.

4. Map of the Wellington Region

The major geographic features of the Wellington Region and the local authority boundaries can be seen in Figure 1 below.

Figure 1. Map of the Wellington Region.



Part 3 - Strategic Direction

1. Introduction

This part of the CDEM Group Plan:

- states the vision of the Plan and the outcomes it is designed to achieve
- identifies the hazards and risks that the CDEM Group will manage
- identifies the strategic issues that need to be resolved
- describes what the CDEM Group is going to do in order to address these issues

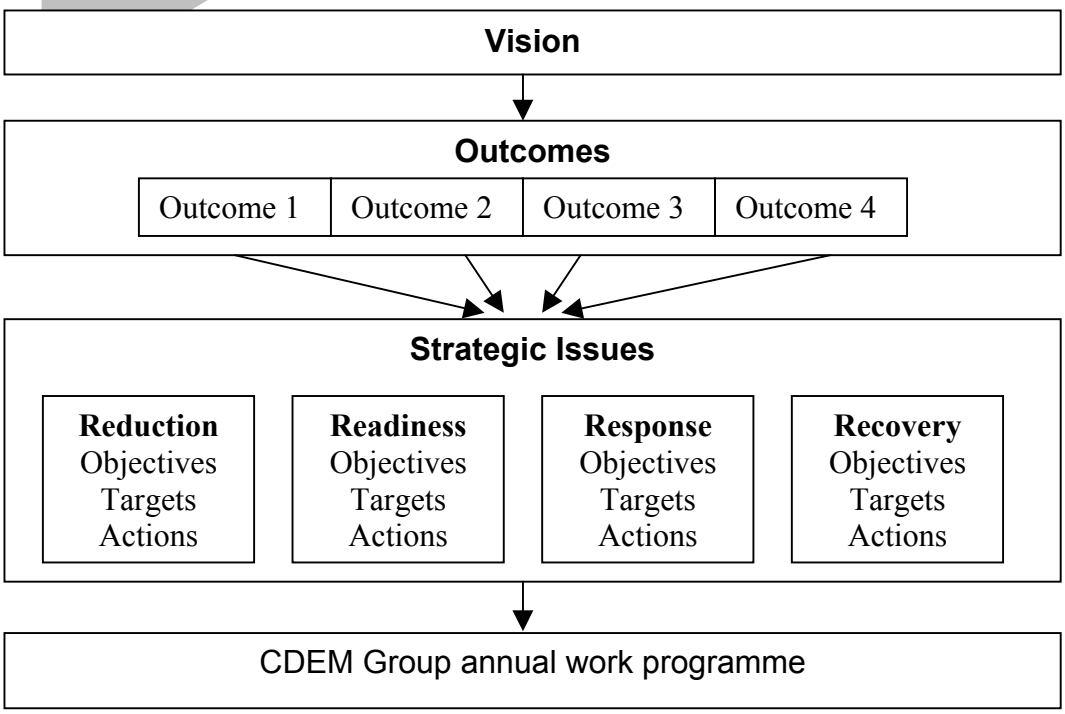
2. Strategic Planning framework

The strategic direction of the Plan was developed by creating a vision and identifying high level outcomes.

Hazards were identified and associated risks were analysed. This process produced a number of strategic issues that face the Region in respect to emergency management. These were categorised into **reduction, readiness, response and recovery issues**. For each issue, a set of objectives and targets were developed. These, in turn, led to a CDEM Group work programme that specifies tasks, responsibilities and timeframes (Annex A).

The strategic planning framework is shown in the Figure 2 below.

Figure 2: The strategic planning framework



3. Vision

The vision of the CDEM Group Plan is that:

"The communities of the Wellington Region are resilient".

Resilient communities are ready for emergencies and have the knowledge, skills and resources to respond to and recover from an emergency event.

4. Outcomes

4.1 Plan outcomes

If the CDEM Group Plan is successful, the following four outcomes will be achieved:

- **Outcome 1**: The community and emergency management agencies will **be aware of the risks** they face.
- **Outcome 2:** The community and emergency management agencies will **manage** the risks they face.
- **Outcome 3:** The community and emergency management agencies will **know their role and responsibilities**.
- **Outcome 4:** The community and emergency management agencies will be able to **respond to**, and **recover from**, emergency events effectively.

4.2 Relationship to national CDEM strategy

This section will be finalised when the National CDEM Strategy is published.

The vision and the four high level outcomes identified for this Plan support the goals of the National CDEM Strategy.

The national vision statement is *"Resilient New Zealand: Strong communities understanding and managing their hazards".*

The National CDEM Strategy has the following goals:

- **Goal 1**: To increase community awareness, understanding and participation in CDEM. (Supported by CDEM Group Plan Outcomes 1, 2, 3 and 4)
- **Goal 2**: To reduce the risks from hazards to New Zealand. (Supported by CDEM Group Plan Outcomes 1 and 2)
- **Goal 3**: To enhance New Zealand's capability to manage emergencies. (Supported by CDEM Group Plan Outcome 4)

- **Goal 4**: To enhance New Zealand's capability to recover from disasters. (Supported by CDEM Group Plan Outcome 4)

5. Summary of hazards

The Wellington Region is vulnerable to many hazards that could cause an emergency.

The hazards described in this Plan are all **significant** as they require CDEM Group involvement and management.

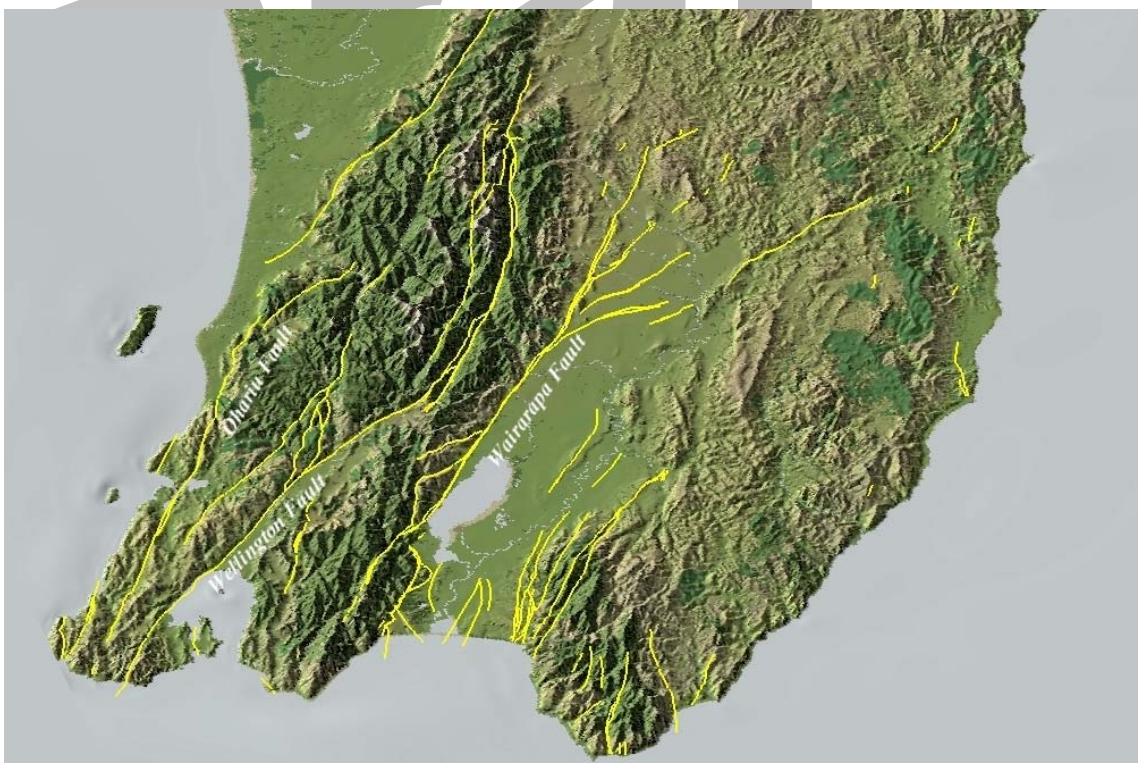
A brief description of significant hazards follows.[1]

5.1 Earthquake

Description:

The Wellington Region is crossed by numerous earthquake fault lines, including the Wellington Fault, Wairarapa Fault, and Ohariu Fault (Figure 3). Other faults in the Region include the Gibbs Fault, Shepherds Gully Fault, Masterton Fault, Carterton Fault and the Mokonui Fault.

Figure 3. Faultlines of the Wellington Region



[1] A comprehensive description of each hazard is contained in the supporting document "*Hazard and Risk analysis for the CDEM Group Plan*", available from the CDEM Group Office.

Earthquakes are characterised by ground shaking. Other effects that may occur include liquefaction, surface fault ruptures, landslides and, sometimes, tsunami.

In the Wellington Region, faultlines run through highly populated areas and close to major infrastructure. They are also located on or nearby vulnerable land that has been reclaimed as a result of previous earthquakes.

Likelihood

An earthquake on the Wellington Fault is expected to occur every 500 – 770 years. A total of 335 – 485 years have elapsed since the last major earthquake on that faultline. Other faults in the Region vary in how often they are expected to move, with a range of every 700 to 5000 years.

Consequences

A major earthquake in the Wellington Region will have significant consequences. It is possible that hundred of people could die and thousands could be injured if the event happened during work hours. Transport and utility networks are likley to be disrupted, buildings to collapse and fires to break out. Normal community and business life will be distrupted for a considerable period of time.

5.2 Tsunami

Description

The Wellington Region is vulnerable to tsunami that either is generated close to New Zealand (local tsunami) or across the Pacific Ocean (distant tsunami). Tsunami are large ocean waves that are generally caused by undersea earthquakes, landslides or volcanic activity. Possible local sources of tsunami are movements on the offshore portions of the Wellington Fault, faults offshore of Kapiti or the Hikurangi Trough.

On the open coast tsunami are characterised by high speed water inundation (up to 70kph) which carries sediment and debris. They can run up to 1km inland in low lying areas and cause seiching (sloshing) in harbours and flooding. Tsunami can destroy coastal properties and infrastructure.

The tsunami risk is highest on the eastern coastlines of the Region. The settlements of Castlepoint and Riversdale are particularly at risk. The southern and western coastlines are also vulnerable to tsunami. As these areas are heavily developed, the consequences of a tsunami event are likely to be very serious.

Likelihood

On average, a wave of 5 –10 metres high can be expected somewhere on the Wellington Region coastline every 84 years. The same size wave can be expected to occur on the Region's west coast every 250-400 years, the south coast every 100-250 years and the east coast every 100-150 years.

Consequences

A tsunami in a populated coastal area, at high tide, could cause widespread damage and result in deaths and injuries. If there is a warning period, large scale evacuations would be necessary. Some property and infrastructure may be permanently destroyed with the consequent economic impact. If the tsunami was caused by a local earthquake the damage it causes will likely compound any earthquake damage.

5.3 Volcanic hazards

Description

There are no volcanoes in the Wellington Region.

The prevailing wind conditions in the Wellington Region mean it is more likely to be affected by ash falling from eruptions of Mt Taranaki, than from the volcanoes in the central plateau.

Likelihood

An ash fall from Mt Taranaki, with a depth of 1-5 mm, is expected in the Wellington Region every 1300-1600 years.

Consequences

Ash fall in the Wellington Region may disrupt infrastructure, such as lifeline utilities and transportation networks, particularly the air travel network. Social, economic and agricultural disruption is likely and those vulnerable to respiratory problems may be affected.

The Wellington Region may suffer some downstream consequences, such as disruption to electricity supply or telecommunications.

5.4 Storms

Description

Storms are characterised by heavy rain, strong wind, hail, lightning, extreme cold, snow, high waves or storm surge. Secondary consequences include flooding, landslides and coastal erosion. Ex-tropical cyclones can be experienced in the Wellington Region.

The Region experiences numerous storm events every year. The most common cause of heavy rain in the Region is a southerly front meeting a north-westerly front.

One of the most notable storms in recent memory was the 1968 ex-tropical cyclone Giselle that contributed to the grounding of the vessel Wahine with the loss of 51 lives.

Likelihood

Ex-tropical cyclones of varying intensities can be expected in the Wellington Region every 3 – 6 years. An extreme rainfall event of 40mm per hour can be

expected approximately every 100 years. Numerous heavy rain and strong wind warnings are issued every year. On average, the Wellington Region experiences 173 days of strong wind each year.

In the future, there will probably be more frequent and intense storm events due to global climate change.

Consequences

The weather conditions prior to a storm event influence the severity of its consequences. Storms may cause loss of life and injuries, particularly if they contribute to transportation accidents. Storms are likely to cause social disruption for their duration and clean up period, as well as physical damage to property and infrastructure.

5.5 Flooding

Description

Flooding is caused when watercourses, such as rivers, streams, creeks, pipes and canals, are unable to hold all the water being received.

In this Region, the Hutt, Otaki, Waikanae, Porirua, Waingawa, Waiohine and Ruamahanga rivers could flood significant areas, such as urban areas or large tracts of rural land. All other watercourses have the ability to cause localised flooding.

A single weather system can cause high river flows in the Hutt, Waikanae and Otaki Rivers, meaning that flooding can occur at the same time across a wide part of the Region.

Floodwaters frequently contain debris, such as branches, rocks, and sewage. Most floodwaters leave a significant amount of silt behind when they recede.

Likelihood

The likelihood of a damaging flood of a specific watercourse depends on the natural amount of water the channel can hold plus any protection measures in place to stop the water flooding assets at risk (e.g. stopbanks, raised houses, restricted building areas).

A flood that occurs on average once every hundred years may cause much more damage on one river than on another.

Flooding will also occur when more rain falls than can be soaked up by the land or the storm water systems are designed to hold.

Consequences

Flooding can result in direct loss of life and injury. The major effects of a flood will be social disruption (resulting from evacuations and disruption of access) and economic disruption (resulting from property damage, business losses and prolonged clean up periods).

5.6 Landslides

Description

Landslides can be triggered by an earthquake or, most commonly in the Wellington Region, by rainfall. It is unlikely that rainfall less than 120mm in a 24-hour period will trigger a major landslide. However, less rainfall can trigger landslides if the ground is already wet. There have been many historical significant landslide events in the Wellington Region, including incidents where houses have been destroyed by sliding banks. The topography of the Region is vulnerable to landslides and the siting of houses in relatively vulnerable locations is commonplace.

The main transport links for Wellington are particularly vulnerable to landslides and it is not uncommon for roads to be blocked by falling debris.

Likelihood

Landslides are relatively commonly in the Ranges where rainfall is highest. Luckily, in these areas they generally have little effect on people or property. However, some urban areas receive sufficient rainfall to cause landslides about every 3 years.

Consequences

Landslides have the potential to block access routes, and destroy property and infrastructure, with significant social and economic consequences for the area affected. Loss of life or injury is possible.

5.7 Drought and extreme heat

Description

Drought is a deficiency of soil moisture, rainfall, or flow of water in rivers and streams. Extreme high temperatures often accompany drought.

Droughts heighten the risk of wild fire. There is a threat to public health if there is a water shortage or a long period of excessive heat.

Likelihood

Droughts with significant consequences can be expected approximately every 10 years in the Wellington Region.

Consequences

Human consequences from drought and extreme heat can be severe. Certain sectors of the community, for example, the elderly, young children or those with existing illnesses, are particularly vulnerable. Water and electricity systems can be disrupted, causing both social and economic hardship.

5.8 Fire (Rural)

Description

Most rural fires in this Region are the result of human action, either accidental or deliberate.

Fires are most common between November and March. Fire intensity is directly related to past and present weather conditions. High winds and high temperatures are the worst combination for rural fires.

Rural fires can damage crops, farmland, forests, sensitive ecosystems, commercial buildings, houses, recreational facilities and essential infrastructure.

Likelihood

Twenty percent of the Region's rural area is at 'high', 'very high' or 'extreme' risk from wildfire at some time during any year. Small fires are experienced every year; large fires are less common but still a threat.

Consequences

Fires can cause deaths and injuries, although in most instances it is possible to remove people from the path of a fire. There are significant economic consequences from property loss, including commercial agriculture and forestry. The costs of fighting fires are high. Smoke, evacuations and restricted access can cause social disruption. Rural fires may have some permanent environmental effects.

5.9 Fire (Urban)

Description

Urban fires can be caused deliberately or accidentally. They may be the result of a natural event, e.g. earthquake, lightning.

Large urban fires are most likely to occur in areas where highly flammable material are stored (e.g. oil or chemical stores) or where there are industrial processes involving heat energy.

Likelihood

Many small-scale events occur each year. There are on average 4 large incidents in the Wellington Region each year that require a significant co-ordinated response from the emergency services.

Consequences

Urban fires can cause death and injury as they often progress very quickly. Economic consequences of large events are significant. Property and infrastructure can be damaged and business activities interrupted. Consequences are exacerbated if fires are in an industrial area or involve hazardous substances.

5.10 Hazardous substances

Description

The following toxic gases are stored in, or transported through, the Wellington Region: phosgene, hydrogen cyanide, hydrogen sulphide, chlorine, sulphur dioxide, ammonia and carbon monoxide.

The most frequently spilled substances in the Wellington Region are sulphuric acid, ammonium nitrate, caustic soda, hydrochloric acid, petrol/diesel/oils, CNG, natural gas, chlorine and calcium hypochlorite.

The most hazardous substances, if spilled, in the Wellington Region are anhydrous ammonia, toluene, nitric acid, phenol, methanol, chlorine, calcium hypochlorite.

Vapour cloud explosions would most commonly be caused by methane, ether, or propane.

Some substances, if spilled, may not be harmful to humans, but may have significant environmental impacts, for example, milk or urea.

Likelihood

There are regular small-scale hazardous substances incidents each year, and there is potential for these incidents to escalate to major events.

Consequences

Major hazardous substance incidents can cause deaths and injuries, as they are generally highly volatile. They are likely to have significant social consequences in the short term and longer term economic consequences, particularly for the industries involved. Hazardous substance incidents can lead to significant and permanent environmental damage.

5.11 Transportation accident (land, marine, air)

Description

Transport accidents may be caused by human error, mechanical failure, system/procedural failure, or by a natural hazard event (e.g. earthquake or storm event).

An accident on a passenger bus service may involve up to 40 people, a full commuter train up to 750 people, a full passenger ferry or cruise ship 400 – 4000 people, and a domestics/trans-Tasman plane flight, up to 240 people.

Likelihood

Each year people are killed and injured in transportation incidents.

Consequences

There are often very high human consequences associated with transportation accidents, such as deaths and injuries. Economic and infrastructure

consequences are generally limited to the industry or transport mode affected, but could cause some social, economic or environmental disruption.

5.12 Biological and public health hazards

Description

Communicable diseases, food and waterborne illnesses and damage to the physical environment (e.g. hazardous substance accidents or biosecurity incursions) are the primary causes of public health emergencies.

Examples of public health hazards include:

- new and emerging diseases affecting humans, such as SARS and pandemic influenza strains
- bioterrorism using biological agents (e.g. anthrax, smallpox)
- water supply incidents leading to communicable disease outbreaks (e.g. cryptosporidium, salmonella, giardia, or E-coli contamination)
- mosquito-borne illnesses
- outbreaks of a severe communicable disease (e.g. meningitis, VTEC, measles)
- a severe and prolonged heat wave or cold spell.

Likelihood

A pandemic or significant outbreak of communicable disease can be expected on average every 20 –30 years.

Consequences

Biological hazards have the potential to cause wide spread social and economic disruption. Apart from the impact on human health, such hazards are likely to affect international relations and tourism.

5.13 Agricultural hazards (animal diseases, biosecurity)

Description

The most significant animal diseases that could affect the Wellington Region include:

- anthrax
- avian influenza strains that affect humans (bird flu)
- bovine spongioform encephalopathy (mad cow disease)
- other encephalopathies such as scrapie in sheep or chronic wasting disease in deer
- rabies
- foot-and-mouth disease.

The most significant plant biosecurity issues are: MAF to provide.

Likelihood

Foot and Mouth Disease has never occurred in New Zealand but there have been recent outbreaks overseas which show the threat is always present.

Consequences

In many cases of agricultural outbreaks, public concern and panic are greater than actual human illness or death. Significant animal losses will occur, either due to the animal disease, or the controls necessary to stop its spread. This will result in significant economic consequences (e.g. Gross domestic product drop of $6 billion per year, and 20% drop in the exchange rate after an outbreak of mad cow disease).

5.14 Disruption of infrastructure systems

Description

Infrastructure failure could affect lifeline utilities, such as water supply, wastewater systems, electrical supply, gas supply, telecommunications (including radio) systems, transportation centres or routes (port, airport, highways, rail systems), fuel supply or information technology and financial systems.

Failure may be due to internal system failure, or due to the effects of other hazards (e.g. earthquake). The biggest impacts are likely when there is a failure in a single system that directly impacts on other utilities, possibly leading to cascading failure. Multiple simultaneous failures are also possible. Failures of systems can lead to overload and disruption of service.

Likelihood

There is no information available to determine how often these failures can be expected to occur. Small service interruptions are experienced regularly in many of the systems, and most systems have backups or redundancy built into them.

Consequences

Consequences are generally felt within the industry affected, and also by those sectors relying on that industry. Social and human effects can occur if disruption is longer term.

5.15 Terrorism

Description

Terrorism targets include political and economic interests, critical infrastructure, mass gatherings of people, and events that capture high media attention. The methods of committing a terrorist act change and evolve over time.

Most acts of terrorism are designed for maximum effect, especially economic destruction. Destroying the infrastructure needed for normal economic activities or killing important persons are common modus operandi.

Likelihood

There is no information available to determine how often these events can be expected to occur in New Zealand.

Consequences

Terrorist activities damage the local or national economy, destroying infrastructure or killing and injuring human targets. Social and environmental consequences may also be experienced (e.g. developing fear in the community or harming the environment).

6. Risk analysis

A risk analysis was carried out for each of the hazards identified in the above section in order to:

- identify the key strategic issues for the Plan
- ensure every aspect of each hazard is considered
- compare the risks imposed by each hazard
- determine priority actions, if necessary.

At least two scenarios were developed for each of the identified hazards. Scenarios differed in their severity – both within and between hazard categories. Using a "seriousness, manageability, urgency and growth" (SMUG) analysis, the following hazard scenarios were identified as posing the most significant risk to the Wellington Region (in the order of risk):[2]

Rank	Hazard	Scenario
1.	*[3]Earthquake	Wellington Fault event affecting all of central New Zealand
2.	*Public Health Hazard	Pandemic/emerging disease (SARS, influenza type event)
3.	Storm	Rain/wind/hail/lightning
4.	Flooding	Hutt River (a 440 year event)
5.	Storm	Storm surge & coastal erosion (event affecting whole Region's coastline)
6.	Tsunami	locally generated
7.	Drought	Water deficit and extreme heat effects
8.	Landslide	Multiple incidents, isolating the Region and affecting an urban area
9.	Fire (rural)	Urban/rural interface fire
10.	Public Health Hazard	Mosquito/water borne illness or food safety issue
11.	Hazardous Substances	LPG incident with explosion and gas cloud
12.	Tsunami	Distant source tsunami
13.	Disruption of Infrastructure Systems	Information technology disruption affecting utilities and essential services
14.	*Terrorism	Explosion in an urban area
15.	*Disruption of Infrastructure Systems	Loss of gas supply close to the Wellington Region.

[2] Full details of the rankings allocated to each hazard scenario and the criteria for each of the SMUG ratings can be found in *Hazard and Risk Analysis for the CDEM Group Plan available from the CDEM Group Office.*

[3] Items with an asterix (*) are considered nationally significant hazard scenarios, according to the definition of *national significance* in the CDEM Act.

16.	Fire (urban)	Fire in an industrial area close to an urban area
17.	*Disruption of Infrastructure Systems	Water supply affected by a biological agent
18.	*Disruption of Infrastructure Systems	Electricity disruption affecting utilities and essential services
19.	Disruption of Infrastructure Systems	Telecommunications disruption affecting utilities and essential services
20.	Transportation accident	Marine passenger accident
21.	Transportation accident	Air crash near a populated area
22.	Transportation accident	Rail accident during peak commuter period
23.	Volcanic	Ash fall from Mt Taranaki eruption
24.	*Agricultural Hazard	YET TO BE ASSESSED

6.1 Identification of strategic issues

During the risk analysis process the principal strategic emergency management **issues** for the Region were identified.

These issues provide the focus for this current CDEM Group Plan. As the Plan is implemented and reviewed, it is likely that issues will change.

The following sections divide these strategic emergency management issues into **reduction, readiness, response** and **recovery** issues.

6.2 Addressing the strategic issues

For each issue section, objectives and targets are specified.

The ojectives and targets are implemented through the work programme of the CDEM Group (Annex A), or addressed in the operational part of this Plan.

7. Reduction

7.1 Strategic Issues

7.1.1 **Information about hazards is incomplete**. More research is required into some hazards; information needs updating for others. In some cases, information is not specific enough for planning purposes. Some hazards have not previously been considered in CDEM planning. Further, there is often insufficient information about the consequences of hazards.

7.1.2 There is a **lack of co-ordination** when communicating hazard information, leading to inconsistency and duplication. Access to information is difficult because there are numerous providers and a wide range of audiences.

7.1.3 There is **undue reliance on emergency agencies and local authorities**. The community does not fully understand risk management and is reluctant to take action to reduce the risks they face.

7.1.4 **There is a need for hazards, especially new hazards, to be analysed at the local level**. Local emergency events are most common. These are not considered at the CDEM Group level, but they are, nevertheless, an integral part of emergency management planning. Some localised hazards are found across the Region; they have the capacity to escalate to Region-wide events.

7.1.5 **Insufficient consideration is being given to hazard information in planning decisions**. Long-term land use and developmental plans often fail to consider hazards and their consequences. Various planning mechanisms are employed to manage liability (e.g. s. 221 notices under the RMA, PIMs, LIMs) but these do not reduce the risk.

7.1.6 **Insufficient attention has been given to business continuity planning** by those organisations with emergency management roles. The CDEM Act requires that local authorities, lifeline utilities and public listed departments are able to function to the fullest possible extent during and after an emergency (ss. 58, 60, 64). It is important that emergency management organisations set a good example.

7.1.7 **Some emergency management organisations feel that they have not been consulted adequately about local authority strategic plans**. The community outcomes process for the Long Term Council Community Plans provides an opportunity for more involvement and shared goals.

7.1.8 **Civil defence emergency planning has, in the past, given insufficient attention to the private sector**. As the survival of business after an emergency is crucial to economic recovery, it is important that stronger links are forged.

7.1.9 **Individuals and small businesses are not adequately insured**. Insurance is vital to economic recovery following an emergency.

7.1.10 Some **infrastructure systems are ageing** and are reaching the end of their useable life span. Any upgrades should consider robustness in the long-term.

7.1.11 **Flood mitigation measures are not in place for every watercourse that could cause an emergency**. A few watercourses have not been assessed to determine the potential flood risk or appropriate flood mitigation mechanisms.

7.2 Objectives and targets

References	Objective	Targets
Outcome 1 Issues 7.1.1, 7.1.2, 7.1.3	7A Information about all hazards is available, current, accessible and communicated to all audiences in a way that enables informed decision making.	A review of available hazard information will be carried out that assesses currency and identifies any gaps. Regional and local research strategies will be developed that incorporate the findings of the information review. A review of hazard information will be carried out every 5 years or in conjunction with the review of the CDEM Group Plan. A CDEM Group education strategy will be developed that addresses ways of communicating hazard information to a wide range of audiences.
Outcome 1 Issue 7.1.4	7B The CDEM Group has sufficient information about all local level hazards.	All local level hazards will be analysed and reported to the CDEM Group in time for the next Group Plan review.
Outcomes 2, 3 Issue 7.1.5	7C Resource management plans (district and regional) and consent decisions reflect an understanding of hazards and their consequences.	Relevant sections of operative resource management plans will be reviewed and, where necessary, amended to ensure hazard information is appropriately incorporated.

Outcomes 2, 4 Issue 7.1.6	7D All local authorities and emergency agencies have taken steps to ensure that they can function to the fullest possible extent during and after an emergency.	All local authorities and emergency agencies will develop and implement business continuity plans.
Outcomes 2, 3 Issue 7.1.7	7E Emergency management organisations are given an opportunity to participate in the development of Long Term Council Community Plans, prepared under the Local Government Act 2002.	All local authorities will ensure that they specifically consult emergency management organisations when preparing the Long Term Council Community Plans.
Outcomes 1, 2, 3 Issue 7.1.8	7F The private sector is taking active responsibility for managing its own risks.	A CDEM Group education strategy will be developed that incorporates the private sector.
Outcome 2 Issues 7.1.9	7G Individuals and businesses in the Wellington Region have adequate insurance.	A CDEM Group education strategy will be developed that addresses insurance issues.
Outcome 2 Issue 7.1.10	7H Infrastructure systems are designed and maintained to ensure continuity of service.	The asset management plans of lifeline utilities will actively take hazards into account.
Outcome 2 Issue 7.1.11	7I Mitigation measures are in place for every watercourse that has the potential to cause an emergency.	Territorial authorities and GWRC will work together to identify those watercourses that have the potential to cause an emergency and thereafter implement appropriate mitigation measures.

8. Readiness

8.1 Strategic issues

8.1.1 **Emergency management personnel in the Region have varied qualifications and experience**. In particular, Controllers tend not have day to day CDEM responsibilities. There is not any structured, ongoing professional development in place for CDEM personnel.

8.1.2 **Education resources are duplicated and often inconsistent across the Region**. This is because a common approach or framework has never been agreed.

8.1.3 **The community is generally apathetic about being prepared for an emergency**. A small percentage of people have emergency supplies and emergency water, and few are skilled in basic rescue or first aid techniques.

8.1.4 Although there is no longer a statutory requirement for local authorities to prepare individual CDEM plans, **it is important that local planning is in place and consistent with the CDEM Group Plan**, especially as new hazards have been incorporated.

8.1.5 Historically, there has been a **lack of formal agreements to clarify roles and responsibilities** in an emergency. Formal arrangements (e.g. MoUs) would go some way to ensuring that agreed actions are carried out.

8.1.6 **Local level inter-agency planning is inconsistent across the Region** and, in some cases, important agencies are not included.

8.1.7 **Inter-agency training and exercises are currently carried out on an ad-hoc basis** and important aspects are not always covered, e.g., Co-ordinated Incident Management, long duration incidents, recovery, and the relationship between Group and local response.

8.1.8 **The pending changes to the management of hazardous substances have led to a possible reduction in Region's ability to manage these hazards**, at least in the short-term. Of particular concern is a reduction in skilled personnel and local knowledge. This is compounded by a perception that the hazardous substances industry itself has become complacent.

8.1.9 **Although volunteers are critical to emergency response, there are few plans in place for their management during an emergency**. Volunteers come from the community at large as well as from local authorities.

8.1.10 A **few important projects have been overlooked** for various reasons with the advent of the CDEM Group and the new direction. These need to be picked up.

- Planning for the temporary accommodation needs of large numbers (thousands) of people dislocated from their homes.
- Testing reconnaissance plans
- Developing evacuation plans for tsunami.
- Reviewing audible warning systems for consistency across the Region.
- Making arrangements for external assistance to the Region.

8.1.11 **The rural fire management structure is essentially separate from the CDEM Group structure**. Yet rural fires are a hazard for this Region and are likely to result in a CDEM Group response. Ironically, nearly all the same organisations are involved in both rural fire management and the CDEM Group.

8.2 Objectives and targets

References	Objective	Targets
Outcomes 3 & 4 Issues 8.1.1, 10.1.2	8A All emergency management staff and personnel are suitably qualified and experienced for the positions they hold.	The CDEM Group, through this CDEM Group Plan, will specify the qualifications and experience required for positions appointed by the Group (Group Controller, Local Controller(s), Recovery Manager). Professional development programmes will be developed for: a) local authority CDEM staff; and b) CDEM Group appointees (Group Controller, Local Controller(s), Recovery Manager).
Outcome 3 Issue 8.1.2	8B The public receives consistent messages about their roles and responsibilities in emergency management.	A CDEM Group education strategy will be developed. The CDEM Group education strategy will be implemented.
Outcomes 2, 4 Issues 7.1.3, 8.1.3	8C Every individual has the opportunity to gain the skills necessary to deal with an emergency event.	Public training opportunities will be provided across the Region.

Outcomes 2, 4 Issue 8.1.4	8D The CDEM Group Plan is supported by, and consistent with, local planning.	Local plans, if deemed necessary, will be prepared to support the CDEM Group Plan.
Outcome 4 Issue 8.1.5	8E Formal agreements are recognised as an appropriate means of ensuring smooth response and recovery.	Formal agreements will be prepared, as necessary, between organisations with roles in response and recovery.
Outcomes 3, 4 Issue 8.1.6 10.1.3	8F There are fora in place across the Region that enable all emergency agencies to contribute effectively to emergency management planning.	A review of the effectiveness of existing inter-agency emergency management fora will be carried out. Any identified changes required will be reported to the CDEM Group for implementation.
Outcomes 3, 4 Issue 8.1.7	8G Emergency management organisations are able to work together to respond to an emergency.	A joint agency training and exercise schedule will be developed and implemented.
Outcomes 2, 4 Issue 8.1.8	8H The manufacturing, storage and transportation of hazardous substances in the Region are carried out responsibly and in a way that minimises any risk.	The CDEM Group will advocate for high standards of risk management in the hazardous substances industry.
Outcomes 3, 4 Issue 8.1.9	8I All volunteers, trained and spontaneous, are able to be used efficiently and effectively.	All official CDEM volunteers will be trained to recognised standards. Progress will be reported annually to the CDEM Group. A common management system will be developed for using spontaneous volunteers across the Region.

Outcomes 2, 4 Issue 8.1.10	8J There will not be any known gaps in emergency management planning in the Region.	The new CDEM Group work programme will incorporate the following projects: i) Mass temporary accommodation planning ii) Reconnaissance testing iii) Tsunami evacuation planning iv) Audible warning systems review v) Arrangements for external assistance
Outcomes 2, 4 Issue 8.1.11	8K There is synergy between the CDEM Group and rural fire management structures.	The CDEM Group will investigate whether it is desirable for rural fire management and the CDEM Group to be more closely aligned.

9. Response

9.1 Strategic issues

9.1.1 **During an emergency event, s**upport, **in the form of personnel and other resources, may not be able to reach all areas in need immediately**. Therefore, there should be adequate local capability to respond to the initial stages of the event.

9.1.2 **Operational procedures vary across the Region**. This can pose difficulties when personnel assist another area. Common operational procedures are desirable.

9.1.3 **Local emergency agencies often require the support of the CDEM Group** for localised events. This may be because of a lack of resources, or because the local event has spin-off effects for the rest of the Region.

9.1.4 **Public information is sometimes disseminated in an ad-hoc fashion** during an emergency. In some cases agencies have provided conflicting information; and in others cases, critical information has not reached the public.

9.1.5 **The community appears to have unrealistic expectations about the capability of CDEM agencies** to assist them in an emergency. Debriefs of emergency events have shown that, in the first instance, communities have to be self-reliant.

9.1.6 **There is confusion at both the local and Group level about when to call for external assistance**. It is important to allow adequate time for assistance to arrive.

9.1.7 **Lifelines organisations vary in the manner in which they can respond**. It is sometimes difficult to co-ordinate these organisations because they use different communications systems and offices may be located outside of the Wellington Region. Further, it can be difficult to identify the service provider.

9.1.8 **Emergency communications systems do not have the capability to link all vital emergency management agencies in the Region**. This is currently being addressed and soon it will be possible to speak to all agencies. However, sending data will still be difficult.

9.2 Objectives and targets

References	Objective	Targets
Outcome 4 Issue 9.1.1	9A The distribution of local response capability ensures full regional coverage.	Response management facilities will be established across the Region in a way that provides for effective response and recovery management.
Outcome 4 Issue 9.1.2	9B Operations across the Region will be consistent.	A common standard operating procedure for Emergency Operations Centre (EOC) response will be developed.
Outcome 4 Issue 9.1.3	9C The CDEM Group is able to provide full support to local emergency agencies, even in a localised event.	A Group EOC facility is established with agreed protocols about how it links with local and national facilities.
Outcomes 2, 3 ,4 Issue 9.1.4, 9.1.5	9D The public receives timely, relevant and consistent information during an emergency event.	A CDEM Group public information management plan will be developed.
Outcome 4 Issue 9.1.6	9E Outside assistance is received in a timely manner.	Guidelines will be developed on when to call for outside assistance.
Outcome 4 Issue 9.1.7	9F The response of lifelines organisations in an emergency event is effectively co-ordinated.	Physical communications systems will be established between the CDEM Group and all regional lifeline organisations. The Group EOC will have the facility to co-ordinate the responses of lifelines organisations.

Outcome 4 Issue 9.1.8	9G Vital emergency management agencies can communicate effectively during an emergency.	Physical communications systems will be established between the CDEM Group and all vital emergency management agencies. These systems will be regularly maintained.

10. Recovery

10.1 Strategic issues

10.1.1 **There are not any documented plans or arrangements in place for a long-term recovery operation**. Dedicated recovery management personnel may be needed for weeks or months. Volunteers may have to return to their normal work.

10.1.2 **There are not enough properly trained recovery management personnel**. In particular, recovery personnel tend not have day to day CDEM responsibilities. There is not any structured, ongoing professional development in place for CDEM recovery personnel.

10.1.3 **Agencies who will be required for recovery operations differ from those who will be involved in emergency response**. There has been inadequate work to identify these agencies, and to ensure that they participate in pre-event planning. Of particular concern are emergency services and health providers, central government agencies with a local role, and those with Resource Management Act 1991 responsibilities.

10.1.4 **Public information during recovery is sometimes disseminated in an ad-hoc fashion**. The information required will vary according to the nature and location of the event. However, there is some core information that could be pre-prepared, such as health protection and insurance advice.

10.1.5 **There has been little research about recovery in New Zealand**. Consequently, there is uncertainty about where best to direct resources in order to get the best possible outcome.

10.1.6 **It is especially hard for small businesses to recover from an emergency event**. They invariably operate with limited resources and are unable to cope with any significant interruption to their business. These businesses are vital to the local economy.

10.1.7 **The psychological impacts of an emergency event have not been fully addressed.** Although there are professionals in the Region, there has been no planning for a co-ordinated approach. After an event, emergency workers are likely to suffer post traumatic stress and there will be psychological distress in the community.

10.1.8 **There are not any plans for the disposal of debris and wastes**. It is likely that there will be considerable waste material generated, some of which will be contaminated.

10.2 Objectives and targets

References	Objective	Targets
Objective 4 Issues 10.1.1	10A Arrangements are in place, and fully documented, for facilitating long term recovery.	A CDEM Group Recovery Plan will be prepared.
Outcomes 2, 4 Issue 10.1.2	10B The Region has an adequate number of suitably qualified recovery management personnel.	Recovery management personnel will be appointed and appropriately trained.
Outcomes 3, 4 Issue 10.1.3	10C Agencies with who can contribute to recovery know their roles and how they will co-ordinate their activities.	Key regional recovery agencies will be identified and a process will be developed for them to plan how they will co-ordinate their activities.
Outcomes 2, 3 ,4 Issue 10.1.4	10D The public receives timely, relevant and consistent information after an emergency event.	A CDEM Group public information management plan will be developed incorporating recovery.
Outcomes 1, 2, 4 Issue 10.1.5	10E The CDEM Group is well informed about recovery issues.	Recovery research will be afforded priority in the regional research strategy.
Outcomes 1, 2, 3 Issue 10.1.6	10F Small businesses take active responsibility for managing their own recovery.	A CDEM Group education strategy will be developed that incorporates recovery information for small businesses.

Issue 10.1.7	10G The psychological impacts of emergencies are understood and arrangements in place to assist the community and emergency management professionals.	Mental health professionals and counsellors will be brought together to determine how they will co-ordinate their activities. The above psychological support system will be incorporated in the CDEM Group Recovery Plan.
Issue 10.1.8	10H Arrangements are in place for debris disposal.	Provisional disposal sites and methods will be agreed with relevant authorities and incorporated in the CDEM Group Recovery Plan.

Part 4 – Operational Arrangements

Part 5 – Administrative Arrangements

Part 6 – Evaluation and Monitoring

Glossary

Annex A: CDEM Group Work Programme 2005 – 2010