

Exercise Capital Quake '06



Final Report on Exercise CAPITAL QUAKE 06



Te Rākau
Whakamarumaru

Ministry of Civil Defence
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Final Report on Exercise CAPITAL QUAKE 06

Table of Contents

Executive Summary	1
1. Introduction	3
2. Exercise Concept and Arrangements.....	5
3. Exercise Issues and Observations.....	8
3.1 Review of Functions Exercised	8
3.2 Cross-Function Issues.....	14
4. Outcome Summary and Next Steps	17
4.1 General	17
4.2 Key Themes	17
4.3 Next Steps	18
5. Summary of Recommendations.....	19
Appendix A: List of Principal Exercise Participants	22
Appendix B: List of Abbreviations.....	24

Executive Summary

Exercise CAPITAL QUAKE 06 was an all-of-nation earthquake simulation exercise held on the 14 and 15 of November 2006. This exercise focused on key agency arrangements at local and national levels, and featured the direct involvement of approximately 1,000 participants from more than 50 organisations, including local and central government agencies and private companies. The scenario was based on a magnitude 7.6 earthquake on the Wellington fault.

The participation of all of the agencies was enthusiastic and constructive, with significant commitment evident from a number of the individual organisations and cluster/sector co-ordinating agencies. The considerable preparatory work undertaken by most participating agencies in the lead-up to Exercise CAPITAL QUAKE 06 was a key element in the success of the exercise.

Based on the observations and feedback from those involved in the exercise, it is considered that the exercise aim and objectives have been met. A number of important operational lessons within and across agencies have resulted from this exercise, and capability development needs identified.

The key themes from the exercise that provide a focus and framework for ongoing 'readiness' improvements for sectors involved in CDEM response are:

1. Continue to understand, develop and practice *roles and responsibilities*;
2. Embed planning *arrangements* more effectively in standard processes;
3. Continue to improve the *connections* between local, regional, national and international agencies;
4. Enhance the use of systems and tools in response;
5. Increase the understanding of the potential impact of a major earthquake; and
6. Improve the readiness of key facilities and services.

Key exercise observations include:

- The impacts of geophysical events such as a major urban earthquake or volcanic eruption are greater when compared to other emergencies such as extreme weather events. Correspondingly, the degree of difficulty in managing these catastrophic events is also greater, particularly for large urban population centres.
- While strategic short-term solutions for access into the Wellington region were developed during the exercise, specific planning needs to be undertaken to address the critical issue of the rapid restoration of air, sea and road access into affected regions.
- The challenges of achieving rapid delivery of key medical, food and water supplies across badly affected cities also require more specific planning. These remain the critical issues from a community perspective, together with the issue of receiving clear information about the situation.
- The Ministry of Civil Defence and Emergency Management (MCDEM), in conjunction with the Domestic and External Security Group (DESG) and CDEM Groups, needs to establish pre-programmed response actions to initiate national support for access, medical support and emergency re-supply.
- The management of the response was primarily driven by *process* rather than *strategic forward planning* at regional and national levels. The strategic forward planning that was undertaken was not communicated effectively. Civil Defence Emergency Management

Exercise CAPITAL QUAKE 06

(CDEM) Group Emergency Operations Centres (EOCs) and the National Crisis Management centre (NCCMC) need to place more emphasis on a solutions-based approach and the early communication of the strategic focus.

- The heavy reliance of key emergency response facilities on the use of landlines for telephones, fax and data transfer, as well as on cellphones, highlighted a lack of robust alternative communication.
- The exercise highlighted the need to involve the private sector to a greater extent in future exercises thereby provides greater clarity in terms of roles and responsibilities between the government response and the private sector response.
- The exercise highlighted the importance of recently commissioned work by several organisations to update seismic hazard and risk modelling for the Wellington region. The projected impacts of regional scale disaster events need to be informed by hazard and risk modelling and be extended to identifying likely physical and organisational impacts.
- All organisations need to have adequate investment in 'readiness' on an ongoing basis and the level of ongoing preparatory effort should reflect the complexity of organisational structures (both everyday and crisis response), and must include specific and regular engagement of key sectors.
- Agencies with key response roles should do more in terms of basic venue preparedness for earthquake and other disasters, including standby power, emergency water, structural evaluations prior to and arrangements immediately following a major earthquake.

This report contains 25 recommendations, with the agencies responsible for leading this work highlighted where appropriate. The lessons identified should be the basis on which to build and improve, rather than 'start again' for subsequent exercise or actual event, and this will require commitment to capability enhancement and regular engagement.

All participating agencies and cluster or sector groups are encouraged to develop a consolidated work programme to improve their organisational and procedural arrangements for major natural hazard events. At national level, it is proposed to develop jointly with CDEM Groups a *Major Natural Hazard Event Contingency Plan* for major urban areas. While this plan would draw upon the issues raised from this earthquake exercise, it is envisaged that it will evolve in terms of its scope of application through the Auckland volcanic scenario exercise in 2007/08 and subsequent major exercises.

The all-of-nation Auckland exercise will also require central government agencies and many others involved in Exercise CAPITAL QUAKE 06 to work together to actively progress their 'readiness' plans.

1. Introduction

Exercise CAPITAL QUAKE 06 was a major national disaster preparedness exercise held on the 14 and 15 of November 2006. It was an all-of-nation earthquake simulation exercise which focused on key agency arrangements at local and national levels. Approximately 1,000 participants from more than 50 organisations were directly involved, including local and central government agencies and private companies, making it one of the largest exercises held in New Zealand.

Exercise CAPITAL QUAKE 06 was based on a magnitude 7.6 earthquake on the Wellington fault, and was conducted over two days at local, regional and national levels.

The exercise was jointly led by the Wellington Civil Defence Emergency Management (CDEM) Group and the Ministry of Civil Defence and Emergency Management (MCDEM). The planning for and delivery of the exercise was co-ordinated by Kestrel Group.

The aim and objectives of Exercise CAPITAL QUAKE 06 were:

Aim

- To test New Zealand's all-of-nation arrangements for responding to a major disaster resulting from an earthquake in Wellington.

Objectives

- ***Roles and responsibilities:*** understand, develop and practice the respective roles and responsibilities of local, regional and national agencies in response to the exercise scenario.
- ***Arrangements:*** embed the planning arrangements in standard processes for all participating agencies.
- ***Connections:*** confirm the connections between local, regional, national and international agencies.

The underpinning assumptions of the exercise were that it would be:

- a learning activity designed to educate agencies on *roles and responsibilities, arrangements* and *connections*;
- for all participating agencies to exercise according to their own arrangements and plans, and use the exercise to evaluate their response capability;
- co-ordinated at the regional and national level so that related issues are reflected and addressed at local, regional and national level; and
- at national level based on the arrangements in the National CDEM Plan, and at the local level based on the Wellington CDEM Group Plan.

This overall report summarises the process involved in developing the exercise, key elements of the exercise itself and evaluation of the exercise functions. High-level recommendations as to how individual agency and the collective response to major natural hazard events can be enhanced are also outlined. While this report is provided by MCDEM, it has been developed in conjunction with the Wellington CDEM Group and other participating agencies, and incorporates issues they identified at the operational and strategic levels.

Exercise CAPITAL QUAKE 06

The principal purpose of this report is to inform exercise participants to assist them in implementing their own sector or organisation's lessons and action points. There are many sector- or agency-specific action points identified by participants that are not included in this report. This report is also intended to inform executive management and others from participating organisations who were not directly involved in the exercise.

Familiarity of the readers of this report with government crisis management arrangements is assumed. These arrangements are outlined in Section 12 of the National CDEM Plan and Section 3.1 of the accompanying Guide.

The focus of this document and the associated analysis is on *operational lessons* and *capability development needs* to have emerged from Exercise CAPITAL QUAKE 06.

2. Exercise Concept and Arrangements

Scenario

Exercise CAPITAL QUAKE 06 was based on a magnitude 7.6 earthquake on the Wellington fault. This scenario has been used a number of times in recent years for Project Phoenix exercises conducted by the Greater Wellington Regional Council in conjunction with MCDEM. The scenario impacts were taken largely from earthquake risk assessment work undertaken in 1994 by Works Consultancy Services for the Wellington Regional Council.

Critical Needs and Functions to be Exercised

The initial planning focus for this exercise was on:

- Specific functions and arrangements based on core needs
- Overall co-ordination and management of processes

The six critical needs from the Wellington CDEM Group Plan, which had in turn been derived from the previous Phoenix exercises, were used as the starting point (or 'event issues') for exercise planning. These community-based needs are:

- Treatment and movement of the injured
- Urban Search and Rescue
- Welfare
- Lifelines restoration
- Sanitation
- Health

From these, the following eleven functions were identified on which to base the Exercise processes:

1. Public Information Management
2. Governance
3. National Financial System
4. Logistics and Other Support Co-ordination
5. International Assistance and Liaison
6. Rescue
7. Health
8. Welfare
9. Building Safety
10. Restoration of Access
11. Restoration of Lifelines

Key sub-themes of *Access*, *Emergency Water* and *Fuel Supplies* were also used as a means of focusing the exercise development and delivery process.

Participating Agencies

The participating agencies broadly encompassed the following (Appendix A):

- Government agencies with roles in respective plans relating to the functions to be exercised
- Wellington CDEM Group organisations
- Auckland, Manawatu-Wanganui, Marlborough and Canterbury CDEM Groups
- Other organisations involved in the delivery of the functions exercised

A United Nations Disaster Assessment Co-ordination (UNDAC) team comprising representatives from Australia and the Pacific Islands also participated in the exercise.

Exercise Planning

Preparation for Exercise CAPITAL QUAKE 06 involved a programme of activities undertaken principally over a five-month period.

An exercise working group comprising representatives from MCDEM, the Wellington CDEM Group, Department of the Prime Minister and Cabinet (DPMC) and Kestrel Group was established to provide oversight and direction of the exercise planning, and to develop the various scenario strands and to monitor progress on preparatory activities.

A Working Group of key cluster/sector lead co-ordinating agencies was also formed to assist with exercise planning, both within those clusters/sectors and for the exercise overall. These agencies were tasked with establishing the extent to which their sector was to be exercised, and organising meetings of each cluster/sector as required. The Wellington CDEM Group was represented on this working group as the lead co-ordinating agency for local authorities and agencies.

Participating groups and organisations were invited to identify particular issues and tasks that they wished to exercise within the context of the scenario and exercise structure.

The timeline in the three months leading up to the exercise was framed around the delivery of information out to the participant groups. Briefing meetings were scheduled at the outset, and documentation deadlines set accordingly.

Exercise Documentation

The principal document which framed the exercise was the *Exercise Co-ordinating Instruction* (final version no. 3 dated 25 October 2006). This document defined the nature of the exercise, outline scenario, scope of participation and the respective organisational responsibilities for delivering the exercise.

The media communications plan developed by MCDEM was included in the *Exercise Co-ordinating Instruction*.

Due to the highly distributed nature of the exercise, each cluster or sector was tasked with preparing their own *Exercise General Instruction*. This document defined the detailed arrangements for how each sector would participate in the exercise. Advice was provided by MCDEM on how each sector should structure their version of this document. The exercise co-ordinators prepared an overarching *Exercise General Instruction* document which outlined the common elements of the 'rules of play' and associated arrangements.

Exercise Evaluation

MCDEM had the overall responsibility for exercise evaluation, with evaluation of the government crisis management arrangements being the responsibility of DPMC through an external evaluator.

Each participating agency and sector was responsible for undertaking its own evaluation. Exercise evaluation forms containing between 12 and 18 criteria in the form of questions corresponding to the objectives/ sub-objectives were provided to all participating organisations, which were categorised into:

- Cluster/Sector Lead Agency
- Cluster/Sector Supporting Agency
- Other Participating Agencies
- International Agencies

The organisational evaluation criteria were structured within a workbook in such a way that enabled correlation of responses from individual agencies within a cluster against those from the cluster lead agency.

Although individual sectors/ agencies were encouraged to develop their own specific evaluation criteria, the limited time frames generally precluded this.

Participant evaluation forms were also provided through the organisations to all participating individuals.

The responses were analysed by the exercise co-ordinators and a draft Discussion Document produced for consideration at the exercise review workshop, held one month after the exercise itself. The draft Discussion Document formed the basis for this overall report.

3. Exercise Issues and Observations

High-level observations on the issues arising from the exercise are summarised in this section. They are presented firstly with respect to the eleven functions exercised and then the cross-cutting issues are explored further.

These comments are drawn from observations from exercise control members who delivered the exercise, along with notes from the exercise review workshop held on 15 December 2006 where key sector representatives shared their exercise highlights and achievements.

3.1 Review of Functions Exercised

1. Public Information Management

Issues

Public Information Management is the crucial visible connection between local, regional and national elements of a response, and the processes must be aligned. There was some confusion over the role of Public Information Management (PIM) at the respective levels during a national declaration. Clarification of the roles at local, regional and national levels requires further work and practice.

The objectives and outputs of Wellington CDEM Group and NCMC PIM didn't appear to be effectively co-ordinated in this exercise. The significant (pre-planned) difference in timing of start-up for the regional PIM led to interface difficulties. It is noted that these groups do not have regular engagement opportunities.

Recommendation

- **Wellington and Auckland CDEM Group** PIM representatives should meet with **MCDEM** PIM plus other representatives from the Government Ad-Hoc Communications Group to revisit exercise experiences to align thinking and objectives.

2. Governance

Issues

There is a need to clarify the process implications of a national declaration. A national declaration has not previously been experienced or exercised. In the *directly affected region*, the Wellington Group Controller was unclear on what functions would be co-ordinated by MCDEM/ National Controller. In the key region *not directly affected*, the Auckland Group Controller and Recovery Manager were unclear about the changing relationship between CDEM Groups resulting from the national declaration.

There has been a lack of specific thought given to how the strategic response *focus* should differ between the local, regional and national levels, and from this, how the *processes* should differ. Specifically, the role and output objectives of regional CDEM Group Emergency Operations Centres (GEOCs) need to be better articulated (by

Exercise CAPITAL QUAKE 06

contrasting their functions with those of the TA EOCs and the NCMC), and process adjustments made.

The management of competing demands was primarily driven by process rather than strategic forward planning at regional and national levels. While some activities at these levels addressed the required solutions in areas of health, transport and re-supply early on the second day, this was not communicated effectively. Situation reports ('Sitreps') became a hindrance for many due to the repetitive content; establishing what was new information was difficult, and providing detailed data for the next pending situation report took valuable time and resources.

There is a need for a framework for pre-programmed response actions following large-scale emergencies to initiate national support for access, medical support and emergency re-supply, rather than waiting for detailed impact assessments and specific requests to be prepared.

The value of the Watch Group in relation to operational CDEM activities requires consideration.

Having the Wellington Co-ordinating Executive Group (CEG) Chair present at Officials Committee for Domestic and External Security Co-ordination (ODESC) meetings provided a valuable local government perspective. The role of the Chair of CEG of an affected region in providing input to ODESC should be developed further.

Recommendations

- **MCDEM** should clarify the process implications of a national declaration by reviewing information in the National CDEM Plan and Guide and CDEM Group plans, and develop additional guidance notes as necessary.
- **MCDEM** and the **Wellington and Auckland CDEM Groups** should review the desired form of outputs of key EOCs (Group and National).
- **MCDEM** and **DESG** should develop jointly with CDEM Groups a '*Major Natural Hazard Event Contingency Plan*' to identify the key immediate decisions and 'automatic actions' at all levels following a major emergency event, and the key response elements prior to the private sector being able to provide essential services.
- **DESG** should review the role and activity scope of the Watch Group for large-scale natural hazard events, and the role of CEG chairs in providing input to ODESC.

3. National Financial System

Issues

Whilst it did not prove possible to meaningfully involve the financial sector in this exercise, the likely impacts of the scenario earthquake (or any other major natural disaster) upon this sector and hence the community make it important that they actively participate in future exercises.

Recommendation

- The **Reserve Bank of New Zealand** should actively seek and manage the participation of key financial sector players in future major natural disaster simulation exercises.

4. Logistics and Other Support Co-ordination

Issues

The lack of resources within the region and difficulties in securing access to them from other areas emphasised once again the importance of transportation and access. Development of plans and procedures to support people in place and the assistance provided by external support requires further consideration at all levels. Logistically, existing business-as-usual regional networks should be utilised.

The Auckland CDEM Group experienced difficulties in providing the Wellington CDEM Group with logistical support without receiving a specific request list. The lack of early information on the disaster effects of the earthquake forwarded to the Auckland CDEM Group did not enable them to get a clear picture of the extent of support that would be required. CDEM Groups need to incorporate in their operational planning how to operate in crisis mode while supporting another region at times of limited information, and developing further Memoranda of Understanding between different CDEM Groups.

Greater clarity is required around the private (civil)/ military interface. The arrangements for directly activating New Zealand Defence Force (NZDF) technical support to key airports to assist with damage assessments were unclear to many directly involved. There also appears to be a lack of 'already in place' arrangements for activating a response from the Fast Moving Consumer Goods (FMCG) sector. There is also an incomplete understanding of how emergency food/ water supply arrangements should interact with the market-based mechanisms of the FMCG sector.

There is a need to develop specific procedures for the management of airspace, and ensure this is undertaken at the appropriate level and appropriately resourced. The GEOC-based process modelled in this exercise highlighted that there is insufficient CDEM expertise to undertake this task. Managing airspace is a major task that requires specific expertise, and national oversight for events of this scale. 'Air bridge' dispatch/ management and logistical supply co-ordination is highly likely to be undertaken outside the affected area.

Recommendations

- The **Wellington CDEM Group** should prepare an 'options list' of likely resources required, and issue this to relevant CDEM Groups (and keep updated).
- **MCDEM** should work with **NZDF** and the **Ministry of Transport** to develop criteria for the direct activation of Defence Force technical support to key airports and seaports.
- **MCDEM** should progress the development of arrangements for activating a response from the FMCG sector (i.e. build upon the pandemic work).
- **MCDEM** should hold further discussions with the **Ministry of Transport**, Airways New Zealand, Civil Aviation Authority of New Zealand (CAA), and Wellington CDEM Group EMO regarding the management of airspace, with the aim of developing specific procedures and resource agreements.

5. International Assistance and Liaison

Issues

The exercise gave UNDAC the opportunity to deploy a team into a developed (as opposed to a developing) country, with valuable lessons gained at both national and regional levels.

Further refinement of roles and responsibilities is required between MFAT and the relevant organisations with respect to the co-ordination of requests for and offers of international assistance; the provision of information to diplomatic missions, overseas posts and government representatives; and in contributing to the management of off-shore perceptions and confidence, particularly in the early phase of a disaster. There is a need to clarify linkages for these tasks within the overall response structure, and communication arrangements.

Recommendation

- **The Ministry of Foreign Affairs and Trade (MFAT)** and relevant organisations should clarify the respective roles, responsibilities and communications linkages for the co-ordination of requests for and offers of international assistance; the provision of information to diplomatic missions, overseas posts and government representatives; and in contributing to the management of off-shore perceptions and confidence.

6. Rescue

Issues

Urban Search and Rescue (USAR) teams were limited in terms of the effectiveness of their response, being unable to bring people or the associated significant volumes of equipment into the affected areas. This applied to both the international teams and New Zealand's task forces. The inability to effectively move the injured was another concern exposed through this exercise.

Recommendation

- **DPMC** and **MCDEM**, in conjunction with **NZDF**, should give consideration to the requirement for a rotary wing heavy lift capability suitable for bringing rescue and other assets into and removing casualties from isolated regions following major emergencies.

7. Health

Issues

There is a need to develop detailed arrangements around a number of the response activities in the health arena. One example is the logistics associated with medical evacuation from the region - the practicalities of evacuating casualties by air and accommodating and treating several hundred injured people on a ferry require specific and detailed planning (refer recommendation above under Rescue).

The severe impact on the operations of Wellington's hospital facilities due to the likely disruption caused to bulk and local water supplies was highlighted. It is noted that the lack of reticulated water is likely to continue for several weeks under this scenario.

Exercise CAPITAL QUAKE 06

Recommendation

- The **Ministry of Health** should further develop detailed logistic arrangements around possible response activities in the health arena.
- The **Ministry of Health** and **Capital and Coast DHB**, in conjunction with water supply authorities, should continue to make arrangements to ensure adequate water supplies for operational purposes following a major earthquake.

8. Welfare

Issues

The National Welfare Recovery Co-ordination Group (NWRCG) once again worked together well, reflecting their operational experience in previous events. The roles and responsibilities of this group however require further clarification, particularly with respect to the interaction between regional and national levels and with CDEM Groups.

Having the NWRCG operating in Wellington as well as the Regional Welfare Advisory Group at the Wellington CDEM Group EOC added complexity to aspects of this interface.

Recommendation

- **MCDEM** should organise a meeting between the **Wellington CDEM Group**, the **Wellington Regional Welfare Advisory Group**, and the **NWRCG** to clarify the operational interfaces with NCMC, the GEOC desks and the NWRCG.

9. Building Safety Evaluation

Issues

New Zealand's post-earthquake building safety evaluation arrangements are being revised, and it was decided not to include them within the operational scope of this exercise. Information and awareness briefings and workshops were however held with the territorial authorities of the Wellington region.

There is no specific legal mandate via either the Building Act 2004 or the Civil Defence Emergency Management Act 2002 for undertaking building safety evaluations following earthquake or other major disaster. This process is undertaken 'on the day' by territorial authority Building Control officials in the context of a declared emergency, and does not require an operational response role by a government agency. However the ongoing leadership of government agencies is required to support territorial authorities to ensure they are fully prepared to deliver this vital function.

Recommendation

- The **Department of Building and Housing**, **MCDEM** and **DPMC** should establish appropriate national arrangements for pre-event support to individual territorial authorities for the delivery of the post-earthquake building safety evaluation process.

10. Restoration of Access

Issues

The Transport Response Team (the operational group of the Transport Emergency Management Co-ordination Group) worked together well, noting that this was the first time this team had activated. The roles and responsibilities of this group however

Exercise CAPITAL QUAKE 06

requires further clarification, with a clearer understanding on how they support each other at local, regional and national levels.

There was uncertainty around the level of tactical and operational information and requests to be channelled through the Transport Response Team. The Transport National Emergency Response Plan is, however, a brand new document, and as yet does not address all of the operational relationships. In particular, there is a need to develop specific procedures and practices for the management of the maritime environment and sea access in emergencies across the various agencies involved.

In a related matter, there is a need for more efficient sharing and co-ordination of early reconnaissance information in relation to access. Transit New Zealand, Wellington CDEM Group and the Wellington City Emergency Management Office each undertook aerial reconnaissance, but there was no process for co-ordinating the resulting information. The Wellington CDEM Group Reconnaissance Plan requires further development and finalisation.

Recommendations

- The **Ministry of Transport** should review the Transport National Emergency Response Plan to ensure clarity about the role of the Transport Response Team. This work should involve MCDEM, Wellington and Auckland Region Lifeline Utility Co-ordinators
- **MCDEM** should hold discussions with the Ministry of Transport, Maritime New Zealand and Wellington CDEM Group regarding the management of the maritime environment and sea access in emergencies, with the aim of developing specific procedures and resource agreements.
- The **Wellington CDEM Group** EMO should meet with all parties involved in reconnaissance as part of finalising the Group Reconnaissance Plan.

11. Restoration of Lifelines

Issues

Only a relatively limited number of lifeline utilities were asked to participate in this exercise, as there had been strong involvement of this sector on the same scenario in a regional exercise in the preceding year.

From those that did participate, it was noted that the estimated times for service restoration provided by some agencies were very optimistic given the scale of impacts. Operators and advisers do not always fully appreciate the wider 'event context' – i.e. the regional physical impacts, and their dependency upon other affected organisations.

The principal fuel companies participated in a workshop at the Greater Wellington Regional Council on the second day of the exercise. Discussions highlighted the urgent need for the development of a fuel contingency plan to address the questions relating to priority allocation of petrol and diesel that arose during the exercise.

Recommendation

- **MCDEM**, in conjunction with the petroleum industry and other responsible government agencies, should progress the development of a CDEM petroleum contingency plan.

3.2 Cross-Function Issues

The following issues are separately highlighted as they occurred in relation to two or more of the above functions.

Establishment of Sea and Air 'Bridges' into Wellington

Issues

The inevitability that the vulnerable road and rail routes into the Wellington metropolitan area will be disrupted for some time following an earthquake of this scale makes it even more critical that arrangements be in place for short-term sea and air 'bridges'. The purpose of these 'bridges' is to enable emergency services and specialist rescue teams to be brought into the affected area with their equipment, along with emergency medical, food and water supplies, and to enable limited capacity for medical evacuations.

However the airport and harbour berthing facilities have their own distinct physical vulnerabilities with respect to earthquakes. In the case of the airport, there is no alternative location for fixed-wing aircraft within the Wellington metropolitan area, and limited scope for mitigating the vulnerabilities. In addition to utilising rotary-wing aircraft to the greatest extent possible, the focus needs to be on obtaining rapid technical advice to re-open the airport runway and facilities to the extent that damage permits, and to commence repairs as quickly as possible.

Harbour port facilities typically have an even greater vulnerability to earthquakes. While it is understood that there has not been an overall assessment of the vulnerability of Wellington's harbour facilities to seismic effects, the apparent lack of a berthing facility for 'Roll On – Roll Off' ferries capable of resisting strong earthquake shaking represents a significant strategic weakness.

Recommendation

- **DPMC, MCDEM, the Ministry of Transport, and Wellington CDEM Group** should organise a review of the seismic resilience of Wellington's heavy berthing facilities, with a view towards establishing the location of a dependable post-earthquake berthing facility for shipping.

Telecommunications Dependency and Information Management

Issues

Some aspects of the exercise were acknowledged to be unrealistic given the nature of the scenario, with communication available (even though restricted), and the use of email for situation reports enabled. These enabling assumptions were considered necessary in keeping with the exercise being a learning activity. In a real event it is apparent that communications would be severely constrained, with the use of alternative means of communication such as satellite phones, and radio telephones being essential.

For all forms of information processing and transmission, the heavy dependence upon electronic processes that rely on public communications channels (Public Switch Telephone Networks, email, mobile phones, text messaging) was observed in the

Exercise CAPITAL QUAKE 06

exercise and in pre-planning. Few organisations and EOCs have robust alternative arrangements, and this remains an area of operational vulnerability for major emergency responses.

Satellite phones proved difficult for many to use in practice. Difficulties included:

- Many subscribed numbers were found to have not been activated;
- frequent mis-dialling due to unfamiliarity with long numbers;
- having to move into reception range from usual locations;
- the signal fading during the day; and
- very quiet ring tones.

In addition to the technical issues involved, this lack of familiarity arose from a lack of regular usage of satellite phones due to perceptions of cost, and limited induction processes for on-the-day users.

Greater use of mapping and other forms of graphical representation is required to visually convey key concepts. There continues to be little interoperability between key responding agencies for the transfer of mapping information. Only limited use of GIS tools to present the nature and extent of the emergency to responding stakeholders and all-of-govt agencies was apparent. An emergency management information system that has integrated GIS which is capable of importing and sharing GIS data from other organisations remains an area of need.

Recommendations

- **All organisations with key response roles** should:
 - review fall-back arrangements for processing and communicating information in situations where electronic communications are not available;
 - establish policy and procedures for the collection, management and distribution of geospatial information based on interoperable standards; and
 - establish policies and procedures for specific training and induction in the use of satellite phones.
- **MCDEM** should discuss with **Land Information New Zealand** the integration of the New Zealand Geospatial Strategy into operational response, particularly to establish policy and procedures for the collection, management and distribution of geospatial information based on interoperable standards.

Key Facility Dependency

Issues

A number of organisations do not know how their buildings would be expected to perform in a major earthquake. Few government agencies appear aware of the importance of having a structural evaluation of their key operating facilities (which in many cases are their day-to-day offices) undertaken. The related issue is that many agencies are not aware of the need to have specific standing arrangements with structural engineers for post-earthquake evaluation of their premises.

Exercise CAPITAL QUAKE 06

A number of key organisations do not have effective standby power generation, and many have only limited emergency water supplies and alternative sanitation arrangements.

Recommendations

- **All organisations with key response roles** (central and local government and private agencies) should:
 - have a seismic performance assessment of their premises undertaken;
 - establish a priority response agreement with a structural engineering practice for post-earthquake building safety and occupancy evaluation; and
 - review the adequacy of their emergency power, water, and sanitation arrangements for a prolonged response activation.

Lack of Understanding of the Scale of Impacts

Issues

Greater understanding of the likely physical and organisational impacts of major earthquakes is required across key agencies. Pre-exercise discussions revealed limited knowledge by many of the likely scale of impacts. The previous region-wide risk modelling was undertaken in 1994/95, and pre-dates the CBD apartment boom.

Recent research outcomes (e.g. vulnerability of the lower Hutt Valley to inundation following rupture of the Wellington Fault; fire following earthquake in CBD areas) have yet to be incorporated into specific impact modelling studies. Such information represents the starting point for a pro-active strategic response and highlights the importance of the *It's Our Fault* project recently commissioned by the Earthquake Commission, Accident Compensation Corporation, and Wellington City Council, to update seismic hazard and risk modelling for the Wellington region and extend this to identify likely physical and organisational impacts.

Recommendations

- The **Wellington CDEM Group** should:
 - prepare and circulate to key agencies a non-technical paper which summarises previous and current work on the physical and organisational impacts of a major Wellington earthquake, including resource demands and constraint aspects.
 - ensure the risk modelling opportunities presented by the *It's Our Fault* project incorporate elements highlighted in this exercise, and updates previous work to reflect developments in the built environment.
 - involve key infrastructure agencies in discussions around additional risk modelling proposed/ required (noting their responsibilities as lifeline utilities).

4. Outcome Summary and Next Steps

4.1 General

Based on the observations and feedback from those involved in the exercise, it is considered that the exercise aim and objectives have been met.

The participation of all of the agencies was enthusiastic and constructive, with significant commitment evident by a number of the key agencies and cluster/sector co-ordinators.

It is noted that the considerable preparatory work undertaken by most participating agencies in the lead-up to Exercise CAPITAL QUAKE 06 was a key element in the success of the exercise. The continuance and extension of this work is essential to the maintenance of each agency's response capability. The extent of effort required by all participants to 'dust off and polish up' arrangements in the lead-up to the exercise did however indicate that there has been inadequate time investment in 'readiness' on an ongoing basis between exercises and events.

The exercise highlighted to many organisations and individuals the realisation of the impact of an earthquake of the magnitude in Exercise CAPITAL QUAKE 06 scenario would have not only on Wellington but the whole of the country.

This exercise also demonstrated the importance of regular exercises to familiarise sectors and organisations with their Response and Business Continuity Plans, and to identify where further work and training is required to enhance these plans. Also highlighted is the need for organisations to build on relationships and networks established prior to and during the exercise, and to understand others' roles and responsibilities.

Pre-planning for major natural hazard disaster events is essential. Ways of addressing the requirements and demands of the community within the six critical needs (identified by the Wellington CDEM Group) should be established, with the appropriate arrangements and connections made by the sectors in conjunction with the Wellington CDEM Group and MCDEM.

4.2 Key Themes

The following six key themes have emerged as overarching outcome statements from the exercise which provide a focus and framework for ongoing 'readiness' improvements for sectors involved in CDEM response:

1. **Continue to understand, develop and practice *roles and responsibilities*.**
2. **Embed planning *arrangements* more effectively in standard processes.**
3. **Continue to improve the *connections* between local, regional, national and international agencies.**
4. **Enhance the use of systems and tools in response.**
5. **Increase the understanding of the potential impact of a major earthquake.**
6. **Improve the readiness of key facilities and services.**

Exercise CAPITAL QUAKE 06

The first three themes correspond directly to the exercise objectives. Achieving greater clarity around *roles and responsibilities* and *arrangements* provides the foundation for effective *connectivity*. Lack of understanding/ definition of roles and responsibilities led directly to some operational disconnects observed during the exercise.

4.3 Next Steps

A corrective action plan including a timeline for implementation will be developed from this report. Clusters/sectors and individual organisations should develop and implement specific work programmes to maintain the momentum from this exercise. These could include tabletop exercises within and across sectors (e.g. the National Welfare Recovery Co-ordinating Group and regional Welfare Advisory Groups, extending to involve CDEM Groups).

More work is clearly required on the linkages between key co-ordinating groups. It is also noted that some clusters/sectors have expressed frustration at not having a clearer understanding of how the whole response process is intended to knit together, as a prerequisite for them to be able to progress and enhance their own arrangements.

Further specific analysis around key documents such as the National CDEM Plan and Guide to identify gaps and opportunities to develop these documents further should be undertaken.

It is vital to consolidate the investment from Exercise CAPITAL QUAKE 06 and maintain the momentum. All agencies and cluster or sector groups are encouraged to develop a consolidated work programme to progress their organisational and procedural arrangements for major natural hazard events. At national level, it is proposed to develop a joint approach to a *Major Natural Hazard Event Contingency Plan*. Also the all-of-nation exercise based on the scenario of an eruption of the Auckland Volcanic Field to be held in 2007/08 will require central government agencies to work together to actively progress their work and implement lessons.

The specific inter-agency follow-up activity to follow Exercise CAPITAL QUAKE 06 is a workshop involving all cluster/sector lead agencies and representatives of the Wellington, Auckland and Canterbury CDEM Groups. The purpose of this workshop is for the key participants to re-engage on matters arising from Exercise CAPITAL QUAKE 06 that are applicable to other major natural hazard events. The intended output from this workshop will be an inter-agency programme of work on *improving the definition of roles and responsibilities, enhancing arrangements* and the joint approach to a *Major Natural Hazard Event Contingency Plan*.

5. Summary of Recommendations

The recommendations from Section 3 are summarised in this section under the principal exercise outcome themes. A number of agencies and sectors have identified other additional specific activities that they are planning to address.

Theme 1: Continue to understand, develop and practice roles and responsibilities

1.1. MCDEM and Wellington and Auckland CDEM Groups should review the desired form of outputs of key EOCs (Group and National).
1.2. The Ministry of Transport should review the Transport National Emergency Response Plan.
1.3. MCDEM should organise a meeting between the Wellington CDEM Group , the Wellington Regional Welfare Advisory Group and the NWRCG to clarify the operational interfaces with NCMC, the GEOC desks and the NWRCG.
1.4. DESG should review the role and activity scope of the Watch Group for large-scale natural hazard events, and the role of CEG chairs in providing input to ODESC.
1.5. MCDEM , in conjunction with the petroleum industry and other responsible government agencies, should progress the development of a CDEM petroleum contingency plan.
1.6. MFAT and relevant organisations should clarify the respective roles, responsibilities and communications linkages for the co-ordination of requests for and offers of international assistance; the provision of information to diplomatic missions, overseas posts and government representatives; and in contributing to the management of off-shore perceptions and confidence.

Theme 2: Embed planning arrangements more effectively in standard processes

2.1. MCDEM and DESG should progress a joint approach to a ' <i>Major Natural Hazard Event Contingency Plan</i> ' to identify the key immediate decisions and 'automatic actions' at all levels following a major emergency event, and the key response elements prior to the private sector being able to provide essential services.
2.2. Wellington CDEM Group should prepare an 'options list' of likely resources required, and issue this to relevant CDEM Groups (and keep updated).
2.3. MCDEM should clarify the process implications of a national declaration by reviewing information in the current National CDEM Plan and Guide and CDEM Group plans, and develop additional guidance notes as necessary.
2.4. MCDEM should work with NZDF and the Ministry of Transport to develop criteria for the direct activation of NZDF technical support to key airports and seaports.
2.5. MCDEM should progress the development of arrangements for activating a response from the FMCG sector (i.e. build upon pandemic work).

Exercise CAPITAL QUAKE 06

2.6. MCDEM should hold further discussions with the Ministry of Transport, Airways New Zealand, CAA and Wellington CDEM Group EMO regarding the management of airspace, with the aim of developing specific procedures and resource agreements.
2.7. MCDEM should hold discussions with the Ministry of Transport, Maritime New Zealand and Wellington CDEM Group regarding the management of the maritime environment and sea access in emergencies, with the aim of developing specific procedures and resource agreements.
2.8. The Ministry of Health and Capital and Coast DHB , in conjunction with water supply authorities, should continue to make arrangements to ensure adequate water supplies for operational purposes following a major earthquake.

Theme 3: Continue to improve the connections between local, regional, national and international agencies

3.1. The Wellington and Auckland CDEM Group PIM representatives should meet with MCDEM PIM plus other representatives from the Government Ad-Hoc Communications Group to revisit exercise event experiences to align thinking and objectives.
3.2. The Reserve Bank of New Zealand should actively seek and manage the participation of key financial sector players in future major natural disaster simulation exercises.
3.3. DPMC and MCDEM , in conjunction with NZDF , should give consideration to the requirement for a rotary wing heavy lift capability suitable for bringing rescue and other assets into and removing casualties from isolated regions following major emergencies.
3.4. The Department of Building and Housing, MCDEM and DPMC should establish appropriate national arrangements for pre-event support to individual territorial authorities for the delivery of the post-earthquake building safety evaluation process.
3.5. The Wellington CDEM Group EMO should meet with all parties involved in reconnaissance as part of finalising the Group Reconnaissance Plan.

Theme 4: Enhance the use of systems and tools in response

4.1. All organisations with key response roles should: <ul style="list-style-type: none">– review fall-back arrangements for processing and communicating information in situations where electronic communications are not available;– establish policy and procedures for the collection, management and distribution of geospatial information based on interoperable standards; and– establish policies and procedures for specific training and induction in the use of satellite phones.
4.2. MCDEM should discuss with Land Information New Zealand the integration of the New Zealand Geospatial Strategy into operational response, particularly to establish policy and procedures for the collection, management and distribution of geospatial information based on interoperable standards.

Theme 5: Increase the understanding of the potential impact of a major earthquake

5.1. The **Wellington CDEM Group** should:

- prepare and circulate to key agencies a non-technical paper which summarises previous and current work on the physical and organisational impacts of a major Wellington earthquake, including resource demands and constraint aspects;
- ensure the risk modelling opportunities presented by the It's Our Fault project incorporates elements highlighted in this exercise (e.g. extent of inundation of the lower Hutt Valley), and updates previous work to reflect developments in the built environment; and
- involve key infrastructure agencies in discussions around additional risk modelling proposed/ required (noting their responsibilities as lifeline utilities).

Note: The above activities should be replicated in other CDEM Groups with major metropolitan centres.

Theme 6: Improving the readiness of key facilities and services

6.1. The **Ministry of Health** should further develop detailed logistic arrangements around possible response activities in the health arena.

6.2. **DPMC, MCDEM, the Ministry of Transport, and the Wellington CDEM Group** should organise a review of the seismic resilience of Wellington's heavy berthing facilities, with a view towards establishing the location of a dependable post-earthquake berthing facility for shipping.

6.3. **All organisations with key response roles** (central and local government and private) should:

- have a seismic performance assessment of their premises undertaken;
- establish a priority response agreement with a structural engineering practice for post-earthquake building safety and occupancy evaluation; and
- review the adequacy of their emergency power, water, and sanitation arrangements for a prolonged response activation.

Appendix A: List of Principal Exercise Participants

Sectors	Organisations
Co-ordinating	Ministry of Civil Defence and Emergency Management (MCDEM)
Governance (DESC system)	Department of the Prime Minister and Cabinet (DPMC)
International Assistance	Ministry of Foreign Affairs and Trade (MFAT)
	United Nations Disaster Assessment Co-ordination (UNDAC)
	New Zealand Red Cross
	High Commissions
Emergency Services	New Zealand Fire Service (NZFS)
	New Zealand Police
Health	Ministry of Health (MoH)
	Capital and Coast District Health Board
	Hutt Valley District Health Board
	Wairarapa District Health Board
Welfare	Ministry of Social Development (MSD)
	Ministry of Agriculture and Forestry
	Ministry of Education
	Te Puni Kokiri
	Work and Income
	Housing New Zealand Corporation
	Salvation Army (Wellington)
	Accident Compensation Corporation (ACC)
	New Zealand Inland Revenue (IRD)
	Child, Youth, and Family (CYF)
	Victim Support
Transport	Ministry of Transport (MoT)
	Transit New Zealand
	Civil Aviation Authority of New Zealand (CAA)
	Maritime New Zealand
	Land Transport New Zealand
	Wellington Airport
	CentrePort Wellington
	ONTRACK (New Zealand Railways Corporation)
	Airways New Zealand
	Fulton Hogan
Wellington CDEM Group	Greater Wellington Regional Council
	Wellington City Council
	Porirua City Council
	Hutt City Council
	Upper Hutt City Council
	Kapiti Coast District Council
	Masterton District Council
	Carterton District Council
Other CDEM Groups	Auckland CDEM Group
	Manawatu-Wanganui CDEM Group
	Marlborough CDEM Group
	Canterbury CDEM Group
Public Information	Ministry of Civil Defence and Emergency Management (MCDEM)

Exercise CAPITAL QUAKE 06

Sectors	Organisations
Lifeline Utilities	Ministry of Economic Development (MED)
	Transpower New Zealand Limited
	Telecom New Zealand Limited
	Vodafone New Zealand
	TelstraClear Limited
	Watercare Services Limited
	Fuel Companies
Finance	Reserve Bank of New Zealand
Defence Force	New Zealand Defence Force (NZDF)
Science	GNS Science

Appendix B: List of Abbreviations

CDEM	Civil Defence Emergency Management
CEG	(CDEM Group) Co-ordinating Executive Group
DESG	Domestic and External Security Group within DPMC
DESC	System of Domestic and External Security Co-ordination
ODESC	Officials Committee for Domestic and External Security Co-ordination
EOC	Emergency Operations Centre
EMO	Emergency Management Office
FMCG	Fast Moving Consumer Goods (sector)
GEOC	(CDEM) Group Emergency Operations Centre
NCMC	National Crisis Management Centre
NWRCG	National Welfare Recovery Co-ordination Group
PIM	Public Information Management
SOP	Standard Operating Procedure
TA	Territorial Authority
UNDAC	United Nations Disaster Assessment Co-ordination
USAR	Urban Search and Rescue
WEMO	Wellington City Emergency Management Office