Exploring New Zealand's Capability to Strategically Manage Logistical Responses to Major Civil Defence and Emergency Management Events

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Abstract

Effective management and leadership in readiness for and response to disaster events can mean the difference between life and death, as well as shaping the scale of the impact that these events can have on the economy and social stability of New Zealand.

The purpose of the current study is to contribute to the research field of Humanitarian Logistics, with a particular focus on New Zealand's management capability to logistically respond to civil defence and emergency management (CDEM) events. In the wake of the 22 February 2011 Christchurch earthquake, it is timely to contribute academic literature that focuses directly on New Zealand's readiness and response, and assesses the country's capabilities should such a significant scenario occur again.

The thesis focuses on three contributing research fields that set the foundation of the study's research framework. These are Humanitarian Logistics, Emergency Management and Leadership, and Governance and Policy. An extensive literature review examines these areas with the aim of drawing together common themes and contemporary issues that have shaped the subsequent research questions. The research design is centred on a simplified model of research (without hypotheses), and used a 'Hierarchy of Concepts' to facilitate an inductive approach to data collection and analysis. Data collection resulted in a high response rate to a questionnaire survey that saw the contribution of 84 emergency management professionals, along with the cooperation of seven of New Zealand's senior executives from the wider CDEM sector who agreed to participate in a thorough interview process. Audit assessments and independent performance reviews also provided a basis with which to compare and contrast the data collection set.

Research analysis found that New Zealand possesses the foundation of a robust framework of emergency management legislation, a National CDEM Plan, and other policies, yet implementation and performance against this framework indicated a range of deficiencies. In a number of cases these areas require urgent attention.

The main findings are categorised under six common and interrelated themes: Logistics Development, Enhancing Collaboration, Smart Integration, Strengthening Governance, Smarter Resource Management, and Enhancing Professional Development. Under each of these themes a number of potential improvements are identified that would benefit the wider CDEM sector as a whole. Analysis and associated deductions, conducted through the lens of these six themes, resulted in 17 key recommendations.

Acknowledgements

I would like to offer my sincere thanks to all those who have helped me during the course of my research into this important and stimulating topic. Humanitarian Logistics goes to the heart of how our nation can respond and support those in need at a time of crisis. The spirit of support that I have received as I've travelled New Zealand researching and interviewing CDEM professionals has demonstrated to me the strength of character that abounds in our country.

Importantly I pay my respects to the memory of those brave souls who have died in CDEM disaster events across New Zealand and overseas. A major focus area of this thesis has been on the 22 February 2011 Christchurch earthquake. The 184 lives that were lost on that tragic day will forever be remembered in the chronicles of New Zealand's history. It is the hoped that the research contained in this thesis will assist in the future advancement of CDEM, and may add in someway to alleviating the heartache suffered by the families and friends of those lost or injured.

I thank the leadership of the New Zealand Defence Force (NZDF) who have allowed me full-time study leave to focus on this research project. The NZDF plays an important role as a supporting agency to CDEM. It is my hope that the analysis and recommendations of this research will assist in the development and effectiveness of the vital support the NZDF can provide in a time of need.

To my supervisors, Professor Paul Childerhouse and Walter Glass, I thank for their academic support and guidance. In particular, I thank Walter for finally convincing me to undertake the Masters degree some 10 years after he lectured me through the Massey University Diploma of Logistics.

A special acknowledgement is due to the leadership within CDEM, particularly John Hamilton, Bruce Pepperell and their executive teams who have been very open with information, both oral and written. I also thank the wider CDEM community, especially those who willingly participated in the data collection interviews and questionnaire survey that generated such a thorough data set with which to conduct analysis.

To Helen McDonald and Sam McCutcheon, I thank you both for assisting with proofreading the chapters as they rolled off the press. Gratitude also to Wally for the coffee and encouragement during our meetings at the BNZ Bank café, Clyde, Central Otago.

My last thank you goes to my wife, Felicity. Without her forbearance, understanding and support I would surely have struggled to complete what has been a wonderfully rewarding piece of work.

Finally, I acknowledge the research approval obtained from the Massey University Ethics Committee. In doing so I make the following statement:

> *"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher named above is responsible for the ethical conduct of this research.*
>
> *If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher, please contact Professor John O'Neill, Director (Research Ethics), telephone 06 350 5249, email: humanethics@massey.ac.nz."*

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Glossary

ADF	Australian Defence Force
AFP	Australian Federal Police
AoG	All of Government
ASEAN	Association of Southeast Asian Nations
AUSAID	Australian Aid and International Development
CARE	Cooperative for Assistance and relief Everywhere
CBD	Central Business District
CDEM	Civil Defence Emergency Management
CERA	Canterbury Earthquake Recovery Authority
CIMS	Critical Information Management System
CIPD	Chartered Institute for Professional Development
CIVMIL	Civilian-Military
CoS	Chief of Staff
CRC	Christchurch Response Centre
C2	Command and Control
DDIS	Directorate of Defence Intelligence and Security
DESC	Domestic and External Security Coordination
DFID	Department for International Development
DHB	District Health Board
DIA	Department of Internal Affairs
DPMC	Department of Prime Minister and Cabinet
DVI	Disaster Victim Identification
EMIS	Emergency Management Information System
ECC	Emergency Coordination Centre
EOC	Emergency Operations Centre
FMCG	Fast Moving Consumer Goods
GCSB	Government Communications and Security Bureau
GFC	Global Financial Crisis

GR	General Research
HADR	Humanitarian Assistance and Disaster Relief
HUMLOG	Humanitarian Logistics
HQ	Headquarters
ICG	Intelligence Coordination Group
ICRC	International Committee of the Red Cross
IFRC	International Federation of the Red Cross
ILD	Institute for Leader Development
INCIS	Integrated National Crime Information System
INGO	International Non Governmental Organisation
INTERFET	International Forces in East Timor
ISL	Institute for Strategic Leadership
JMAP	Joint Military Appreciation Process
JSP	Joint Service Plan
KPI	Key Performance Indicator
LDC	Leadership Development Centre
L&SCM	Logistics & Supply Chain Management
LUC	Lifeline Utility Coordinator
LG	Lifeline Group
MBIE	Ministry of Business, Innovation and Employment
MCDEM	Ministry of Civil Defence and Emergency Management
MFAT	Ministry of Foreign Affairs and Trade
MNZ	Maritime New Zealand
MoD	Ministry of Defence
MoH	Ministry of Health
MoU	Memorandum of Understanding
NAB	National Assessment Bureau
NCMC	National Crisis Management Centre
NGO	Non Governmental Organisation
NSS	National Security System
NZDF	New Zealand Defence Force

NZFS	New Zealand Fire Service
NZLC	New Zealand Lifelines Committee
NZP	New Zealand Police
NZRC	New Zealand Red Cross
NZSIS	New Zealand Security Intelligence Service
NZTA	New Zealand Transport Authority
ODESC	Officials Domestic & External Security Committee
OGA	Other Government Agency
RAAF	Royal Australian Air Force
RNZAF	Royal New Zealand Air Force
RNZN	Royal New Zealand Navy
SAR	Search and Rescue
SCM	Supply Chain Management
SR	Specified Research
SRG	Security and Risk Group
SSC	State Service Commission
TLA	Territorial Local Authority
UN	United Nations
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
UNTAET	United Nations Transitional Administration in East Timor
WFP	World Food Programme
WoG	Whole of Government
WREMO	Wellington Region Emergency Management Office
4Rs	Reduction, Readiness, Response & Recovery

Chapter 1 Introduction

Most countries and emergency management organisations often question if they "are ready for the big one?" and consider their response and management of a major disaster. In the past three years New Zealand has been challenged on this front with a number of major catastrophes. The Pike River mining disaster of 19 November 2010 resulted in the deaths of 29 miners in an underground explosion. This was followed by a spate of earthquakes, the most significant of which occurred on 22 February 2011 in Christchurch resulting in 184 deaths. More recently the grounding of the MV RENA on the Astrolabe Reef in the Bay of Plenty resulted in one of New Zealand's worst maritime environmental disasters. Each of these disasters required immediate and well-coordinated responses.

> "Disasters create chaos. Existing structures break down, authority is dispersed and many people are left to fend for themselves in critical conditions. An effective disaster response should, therefore, at least mitigate the chaos and, ideally, overcome it."
>
> (Blansjaar & van der Merwe, 2011, p. 49)

In life-threatening events such as the these, key government agencies including the Ministry of Civil Defence and Emergency Management (MCDEM), the New Zealand Police (NZP), the New Zealand Fire Service (NZFS), the Ministry of Health (MoH) and the New Zealand Defence Force (NZDF) are all required to work collaboratively to implement plans and operational outcomes that address the complexities each disaster event presents. A high degree of collaboration and relationship management is required across a cross-section of government departments, regional and local bodies, as well as non-governmental organisations (NGOs) and commercial companies. History has shown that this collaboration and maintenance of important relationships is no easy task and to

effectively manage this it requires experienced, competent people and adequate resourcing (Tomasini & van Wassenhove, 2009). It is therefore critical that New Zealand is prepared with robust plans, strategies and processes that have been regularly tested, maintained and updated.

Fundamental to disaster readiness and response efforts is the effectiveness of Logistics and Supply Chain Management (L&SCM). This important function can be the difference between the success and failure in emergency management, but often suffers from a lack of recognition and under-funding (Moore & Taylor 2011). This thesis employs a mixed methods approach and a simplified model of research (without hypothesis) to explore L&SCM as it relates to Humanitarian Logistics at a time of crisis. The research topic of this study is 'Exploring New Zealand's capability to strategically manage logistical responses to major CDEM events'. This thesis aims to extend understanding further from the existing literature in emergency management, leadership, and governance and policy. This is done through offering insights into the current position of emergency management in this country, as well as identifying areas that should be developed to improve New Zealand's readiness and response efforts to disasters that will certainly occur in the future.

1.1 Chapter Introduction

This chapter introduces the focus, aim and objectives of this thesis. It begins with a background section highlighting the importance of the research area and topic, why this subject has been selected, and the boundaries within which it has been researched. Central to this study are the three research fields:

1. Humanitarian Logistics.
2. Leadership and Emergency Management.
3. Governance and Policy.

The aim and objectives of the thesis are then defined, followed by an introduction to the research questions and an explanation of the research

framework. This framework lays the foundation that dictates how the research was undertaken, analysed and assessed. The research framework introduces the methods applied during the data collection phase and highlights the inductive approach used in this study. The chapter structure of the thesis is then summarised and highlights the flow of information and how each chapter interconnects and builds on the previous. Finally, the chapter identifies any bias that may be associated with the author's background and experience.

1.2 Background and Scope

Humanitarian Logistics and its associated developments has been a growing discipline, particularly over the past two decades. Although logistical support for disaster response has existed for centuries, it has only been in the last decade that theorists, academics and practitioners have increasingly adopted Humanitarian Logistics as a profession in its own right. This increased interest in this field is no coincidence and can be directly related to the increase of natural and man-made disasters that have occurred around the globe (Tomasini & Van Wassenhove, 2009). The question still remains whether this increased activity around Humanitarian Logistics has sufficiently influenced New Zealand's approach to disaster readiness and response.

Humanitarian Logistics can be defined as:

> "The process of planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials, as well as related information, from point of origin to point of consumption for the purpose of meeting the end beneficiary's requirements."
>
> (Thomas & Mizushima, 2005, p. 60)

Humanitarian Logistics often focus on the disaster response efforts in underdeveloped third world countries. This thesis will highlight that neither

Mother Nature, nor the transgressions of human nature, differentiate between the economic wealth of a nation when ascertaining where a disaster may impact next. New Zealand has experienced both natural and man-made disasters with the following historical events:

- 1931 Napier earthquake (256 deaths)
- 1953 Tangiwai rail accident (151 deaths)
- 2004 Manawatu floods (no deaths but large economic costs)
- 2010 Pike River mining accident (29 deaths)
- 2011 Christchurch earthquake (184 deaths)
- 2011 MV RENA maritime grounding (no deaths but large-scale environmental damage).

These are all examples of situations during which this country's emergency management organisations have needed to respond to a major disaster that has cost the lives of many New Zealanders. How then does New Zealand prepare itself to respond to these sorts of disasters? While many CDEM professionals surveyed consider this country to be a world leader in CDEM best practice, this study will suggest that there is still scope for improvement.

Most recent New Zealand governments have adopted a whole-of-government (WoG)[1] approach to the management and coordination of its domestic affairs. The 2011 version of the National Security System (NSS), explained in Chapter 2, is New Zealand's primary system to manage national security risks on an 'all hazards' basis. This means that:

> "All risks to national security whether internal or external, human or natural, are included within the ambit of the National Security System."
>
> (NSS, 2011, p. 5)

[1] Sometimes referred to as all-of-government (AoG).

While having a system is one part of the equation, the other part is actually making it work. By the nature of WoG's inclusive philosophy, the NSS requires substantial collaboration from those agencies involved, and this culture of cooperation and sharing can often prove difficult in large government bureaucracies. The adequate resourcing of agencies engaged also plays an important part. The recent global financial crisis (GFC), and pressures on public spending have both had a significant effect on the operational budgets of agencies at the forefront of the NSS. In light of this, how effective is New Zealand's current WoG approach? Is there room for this approach to perform better integration? These types of questions are explored through this study.

The second field of research relates to Emergency Management and Leadership. Competencies in these areas within the CDEM sector are essential elements of Humanitarian Logistics in the lead up, and response to, a disaster event. The important leadership role of MCDEM, together with the layered management model of CDEM down through regional groups and local council authorities, each require quality, experienced leaders and managers in order to operate effectively.

Effective leadership requires management systems that work (Van Wassenhove, 2009). Information systems that share knowledge across a widely dispersed grouping of CDEM professionals are essential and need to be underpinned by management systems that are understood and applied by staff in a time of crisis. Relationship management between other government agencies (OGAs), the military and NGOs can be a defining factor in the readiness and response to a major event. The use of the military has historically been a double-edged sword driven by the need to access military equipment and expertise, but conflicted by the perception that most first world nations have less reliance on the military (Cross, 2011). The option of utilising the military as a last resort is often referred to as one of the United Nations' (UN) central

philosophies (UN, 1991). This important subject of relationship management and the use of the military are further developed in the current study.

The third research field of this study is the important topic of governance and policy. New Zealand's governance frameworks, policies and associated legislation have been developed over a number of years. These crucial documents lay the foundation for CDEM strategies and processes to be established, tested and improved. Without this platform of doctrinal literature any attempt to establish effective and sustainable systems to cope with disaster will be difficult. The effectiveness of New Zealand's current governance and policy frameworks is also examined, and potential improvements suggested.

The broad nature of the three research fields has required a disciplined and defined approach to the associated research considerations and material. As a general rule the literature reviewed for this study has been confined to contemporary literature, published within the past 20 years, that relates to disaster events. This constraint has been adopted to reflect the progressive nature of the study as well as to reflect the current practice of contemporary emergency response organisations. For the purpose of this thesis the 22 February 2011 Christchurch earthquake has been used as a primary reference point for data collection and associated analysis. Although this event remains relatively recent and fresh in the minds of most New Zealanders, only limited post-earthquake reviews and critical analysis has been conducted. One independent review that has been significant in nature and depth in its analysis of the CDEM response has been a Cabinet approved independent review led by Mr Ian McLean. This review made 108 recommendations relating to improving CDEM preparedness and response measures and these have almost all been accepted in their entirety by the Minister of CDEM (MCDEM, 2012e).

In addition to the Christchurch earthquake, links will be made to other recent disaster events to provide an element of balance and diversity. Major disaster events such as the MV RENA maritime disaster of October 2011, the Indonesian

tsunami of 2004, and the Haiti earthquake in January 2010, all highlight a number of unique requirements that necessitated variations to the humanitarian response by the international community, the military, and those involved with CDEM within New Zealand. While there will continue to be a steady stream of post-event analysis of the Christchurch earthquakes, it is the intent of this thesis to contribute to the wider CDEM literature that will inform debate and direction of CDEM policies and strategies in New Zealand.

The scope of this study has intended to focus on the management capabilities to logistically respond to CDEM events. It is not intended to examine to any great depth the logistics assets or supply chain systems that exist in the country, rather to analyse the management aspects of how these functions are led and coordinated.

1.3 Research Aim and Objectives

The aim of this study is to conduct research into the area of Humanitarian Logistics in relation to the readiness and response to disaster events in New Zealand. It is envisaged that this research will contribute to the academic literature and thinking associated with L&SCM in an environment of chaos and uncertainty. This thesis is intended to stimulate further debate and discussion, and promote action in the development of the logistics profession in New Zealand's CDEM sector.

To achieve this aim the thesis has four objectives. Each of these objectives are achieved through research using the Hierarchy of Concepts methodology introduced in Section 1.4 and explained in detail in Chapter 3. The application of this method requires research questions to be developed that are focused on the four main objectives:

1. Analyse New Zealand's policies and strategies to logistically respond to humanitarian assistance and disaster relief.

2. Examine and assess New Zealand's Civilian-Military (CIVMIL) relationship in the context of CDEM and with a focus on the provision of Humanitarian Logistics.
3. Analyse the broad aspects of Emergency Management and Leadership across the CDEM sector to determine shortcomings and opportunities for further development.
4. Analyse New Zealand's governance within CDEM, it policies, strategies and relationships across inter-agency partners who are responsible for the primary provision of Humanitarian Logistics in a major disaster event.

1.4 Research Design

An integrated approach to research design has been utilised for this study and is explained fully at Chapter 3. Figure 3.1 illustrates how this design approach has sought to integrate the following essential elements:

1. A research framework.
2. Research questions have then been developed using a Hierarchy of Concepts.
3. Data collection method.
4. A simplified model of research (without hypothesis).

1.5 Research Framework

A conceptual research framework of this thesis has been developed in order to visualise the approach taken to the three research fields and identify overlapping themes (Figure 1.1). The three fields – Humanitarian Logistics, Emergency Management and Leadership, and Governance and Policy – are depicted in an overlapping venn diagram to highlight that the themes intersect and interrelate. A key aim of this study is to identify the common and related themes and use these as a central focus for detailed discussion and major recommendations.

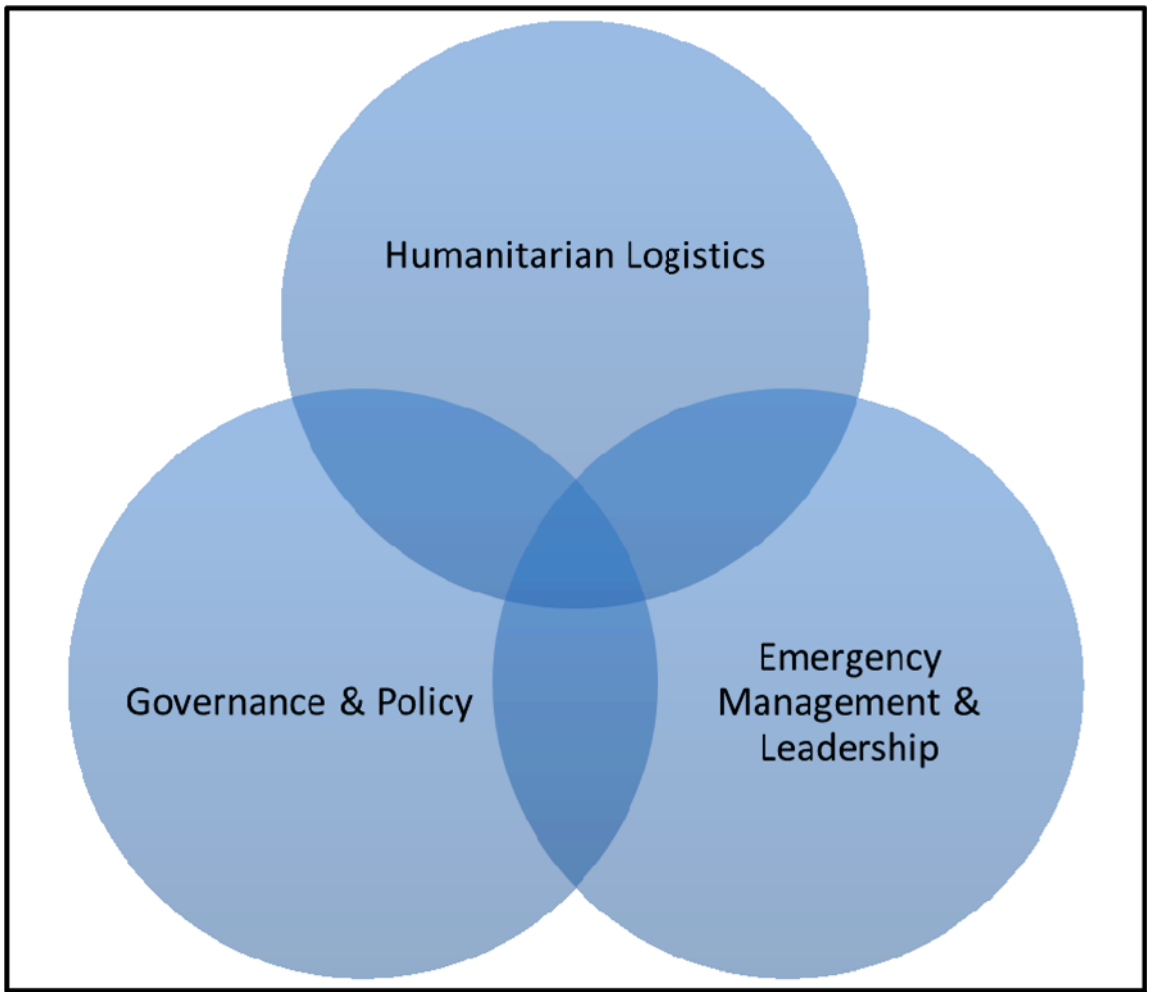

Figure 1.1: Research Framework

1.6 Research Questions

The research questions for this thesis have been devised using the five-tier model called the Hierarchy of Concepts (Punch, 2012). Each tier varies in its level of abstraction, as does the nature of the research questions developed at the three lower tiers. Structuring and planning the research through the five tiers achieves a layered approach from the general and most abstract, down to the most specific and defined (Figure 3.3). This approach achieves tight links between the levels promoting internal consistency, coherence and validity

(Punch, 2012). The five levels of the hierarchy, detailed fully in Chapter 3, are summarised as:

1. Research Area. A generic and briefly worded description of the overarching focus of the research, which is abstract in nature.
2. Research Topic. A more defined but short statement narrowing the topic within the broader research area.
3. General Research (GR) Questions. A number of GR questions that will be the focus of the data collection, but are not often specific enough to link directly with the data collection questions.
4. Specific Research (SR) Questions. These are questions aimed to deliver tangible results that aim to satisfy the GR questions, and at the same time provide clear linkages for the framing of data collection questions.
5. Data Collection Questions. These highly detailed questions are used in the data collection phase of the research. They generate answers to SR and GR questions which escalate up to the more abstract research topic and research area. Data is gathered from primary and secondary sources.

It is also important to consider the context within which these three research areas will be analysed and tested. New Zealand has developed a CDEM strategy based on four phases: reduction, readiness, response and recovery (4Rs). This strategy is shown in Figure 1.2 and discussed further in Chapter 2. It should be noted that this thesis is primarily focused on the readiness and response phases where Humanitarian Logistics plays the most important role.

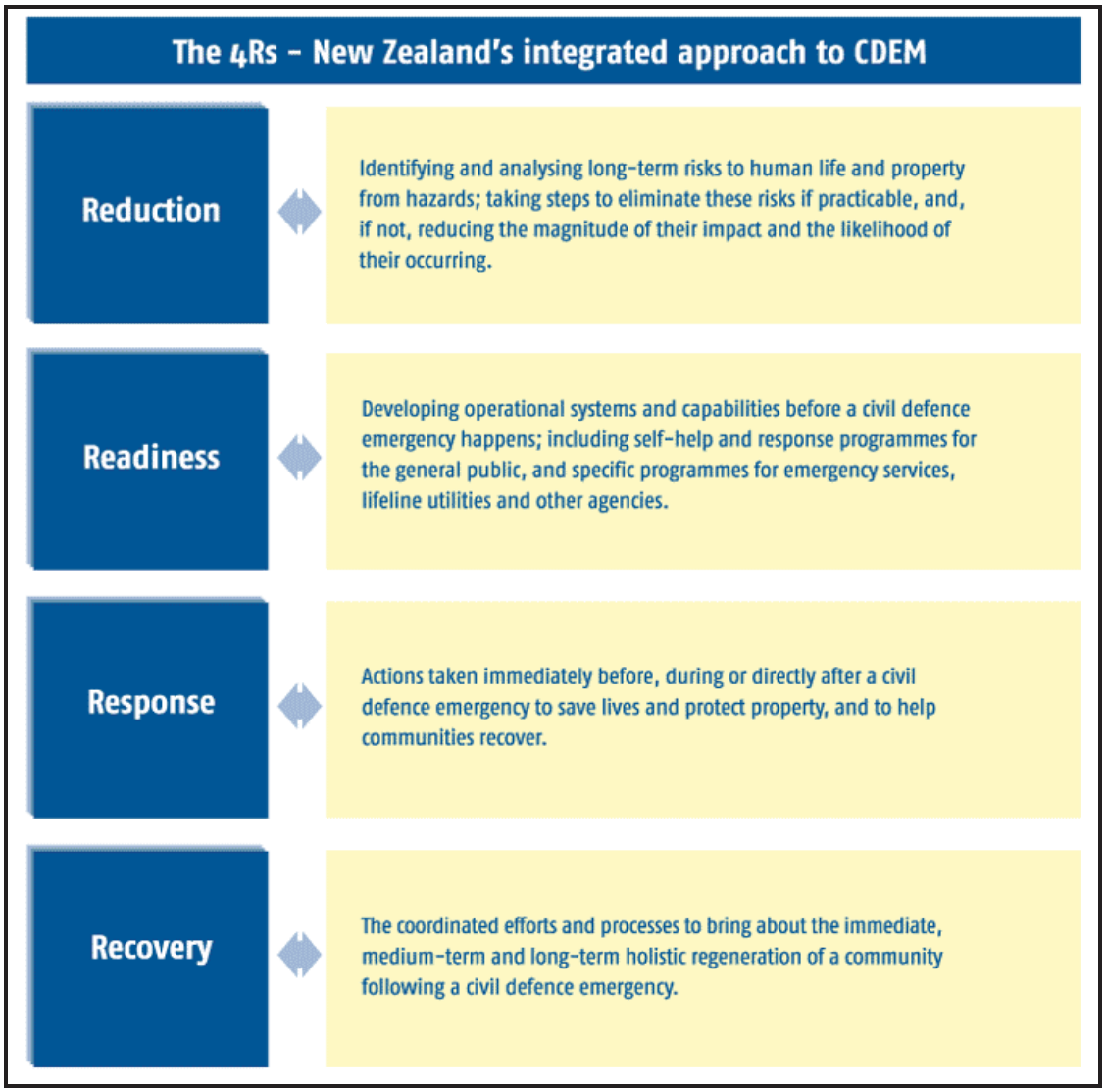

Figure 1.2: The 4Rs Strategy (MCDEM, 2007)

1.7 Thesis Structure

Chapter 1: Introduction. The purpose of this chapter is to introduce the reader to the topic of this thesis, and the approach taken to analysing Humanitarian Logistics in the context of CDEM in New Zealand. A background to the reasons for this choice of topic has been outlined and the significance of the research area explained. The chapter then addresses the research aim and objectives of the thesis followed by an outline of the methodology used to develop the study's research questions. The approach taken to research design has been outlined

and it consists of a strategy and framework. The thesis structure is then explained followed by a bias statement in relation to the author's background in Humanitarian Logistics.

Chapter 2: Literature Review. This chapter explores a wide range of literature associated with the three research fields. There is substantial academic literature in the area of Humanitarian Logistics where academic texts and journal articles have been the predominant sources of information in growing this subject. This chapter also analyses the proliferation of policy literature associated with emergency management and governance. In relation to CDEM, New Zealand is fortunate to have a vast array of official documents that span the levels of national and local government. This chapter seeks to synthesise the main themes and direction that CDEM has navigated in New Zealand over the past two decades.

Chapter 3: Methodology. This chapter aims to explain the methodology adopted for this study. First it explains the research design developed and its associated strategy and framework. It then describes the mixed methods approach adopted together with a detailed explanation of the Hierarchy of Concepts model which has been used as a systematic approach to collecting data, answering research questions, and addressing the overall objectives and topic of the thesis. The chapter concludes with a section on the ethical considerations that have been taken into account during this study.

Chapter 4: Analysis and Findings. This aim of this chapter is to address the SR questions that have been developed using the methodology explained in Chapter 3. This chapter is divided into various sections that examine the three main fields of research and include a separate section relating to the performance of the NZDF in relation to CDEM. The results and success of the primary data collection methods are explained, in particular the results of the quantitative and qualitative questionnaire survey, as well as the seven individual

qualitative interviews conducted with senior leaders in the CDEM sector. In addition to the primary data, a range of data has been collected and analysed from secondary sources including academic literature, independent assessment reports, and observations made from emergency management conferences and exercises conducted in New Zealand.

Chapter 5: Discussion and Recommendations. This chapter aims to conduct a detailed discussion of the three GR questions that address the research topic of the thesis. This discussion seeks to synthesise the key areas where the CDEM sector is performing well or where improvement is required. Major themes are identified which assist in the development of a series of recommendations for the CDEM sector. The final section of this chapter highlights areas of future research outside the scope of this thesis that would offer significant contributions to the expanding area of Humanitarian Logistics.

Chapter 6: Conclusion. This final chapter aims to summarise the previous five chapters with a particular emphasis on drawing together the main findings, discussion, common themes and recommendations.

1.8 Bias Statement

The author of this thesis has a military background, some of which has been involved at the delivery end of NZDF contributions as a supporting agency to CDEM in New Zealand. For reasons of transparency a bias statement has been provided at Annex A to explain the author's experience with humanitarian assistance and disaster relief as a Naval Logistics Officer.

Chapter 2 Literature Review

2.1 Introduction

This chapter examines literature related to Humanitarian Logistics and the associated research fields of Emergency Management and Leadership, as well as Governance and Policy. Specifically the focus of the literature reviewed has been restricted to the relevant scope and themes of this study, particularly related to the wider CDEM sector. The literature analysis is then applied alongside the research data collection in Chapter 4, applying the methodology detailed in Chapter 3. The chapter has been divided into the following three sections:

1. Introduction.
2. Academic literature related to Humanitarian Logistics.
3. CDEM literature related to Management, Leadership, and Governance and Policy.

Section 2 examines the literature related to Humanitarian Logistics. It begins with the study of humanitarianism that identifies the underlying principles of providing assistance to those in need resulting from a natural or man-made disaster. The history and philosophy of humanitarianism is researched to demonstrate the basis on which the field of Humanitarian Logistics has been founded. Contemporary academic literature is then explored in the specific field of Humanitarian Logistics, primarily over the past 10-15 years and particularly as it relates to New Zealand's wider CDEM sector. New Zealand and international studies are considered, as are the complex issues of collaboration in response to humanitarian disasters and the challenges that confront emergency management professionals when responding to a disaster. The literature regarding the use of the military across the spectrum of conflict and disaster

relief operations is considered, along with the contrast and lessons that can be learnt from the comparison between Commercial and Humanitarian Logistics.

The third section of the chapter focuses on the CDEM literature related to government legislation, policies, plans and strategies that have been developed to ensure a country's response mechanisms are sufficient to meet the needs of a disasters. Independent reports and reviews, specifically related to recent disasters and their associated management and leadership, have been very useful in gaining a perspective that is not necessarily 'political speak'. Policy documents, such as the CDEM competency framework, and the associated assessments on the application of these policies have provided a sound basis upon which to draw qualified viewpoints. Legislation related to CDEM is examined including Acts of Parliament and regional and local council statutory provisions. Literature relevant to organisations such as the UN and major international non-government organisations (INGOs) are also considered to draw out a basis of international norms and expectations leading up to and during a major disaster response.

The concluding section aims to link a range of common and overlapping themes that intersect the areas of literature studied. Other areas which are not able to be explored within the scope of this thesis but may be worthy of further research beyond this study are identified. This assessment of research gaps in the literature contributes to the discussion and recommendations provided in Chapter 5.

2.2 Academic Literature Related to Humanitarian Logistics

2.2.1 Background

The study of Humanitarian Logistics has steadily grown into an academic discipline over the recent decade as the world contends with a continuous stream of natural and man-made disasters that require a logistical response. While this discipline has centred mainly on the domain of under-developed third

world countries, a growing focus is on how first world countries also apply Humanitarian Logistics despite what the title implies (NZ Govt, 2010). The central question in this regard is whether the concepts and principles developed for third world countries are equally applicable to first world developed nations that may be regarded as being self-sufficient to manage in a major disaster events without Humanitarian Logistics support?" To answer this we only need to examine recent events. The New Orleans floods in 2005, the Victorian bushfires of 2009 in Australia,[2] and the devastating Japanese tsunami in 2011 that resulted in thousands of deaths. These are all tragic events where Humanitarian Logistics played a critical role in response to disasters in first world developed nations (IASC, 2013). Each of these events, particularly Japanese tsunami, required massive international support and the reliance on the logistical efforts of foreign supply chains. This was the case in New Zealand after the 22 February 2011 Christchurch earthquake when many partner and friendly nations responded to this country's need for assistance. International Search and Rescue (SAR) teams, and strategic airlift and logistical equipment, were just some of the resources offered and accepted by New Zealand during this time of need (McLean, Oughton, Ellis, Wakelin & Rubin, 2012).

Whether domestic or global in nature, significant disaster events will commonly require the assistance of the international community in the response and early recovery phases. L&SCM plays a critical role in any response and recovery. Thus as the frequency of disasters is increasing, the field of Humanitarianism Logistics continues to expand correspondingly (Cozzolino, 2012). Van Wassenhove (2006) considers that logistics in a disaster relief effort is the most important element, but also the most expensive, making up 80% of the cost of a disaster relief event.

[2] Also referred to as the Black Saturday bushfires that claimed 173 lives.

2.2.2 Humanitarianism

The philosophy of 'humanitarianism' and its history are important to understand, as are the principles and themes involved. These are considered instrumental to the way in which L&SCM is applied in a disaster response environment. In the field of Humanitarian Logistics it is useful to begin with defining humanitarianism and its origins. As far back at the mid-1800s organisations adopting Henry Durant's three principles of humanity, neutrality, and impartiality began to emerge. Durant saw the need for these principles after the Battle of Solferino in 1859 to protect the rights of combatants (Tomasini & Van Wassenhove, 2009). Over time differing ideologies have emerged, dividing the aid community into three broad camps:

1. Durantists. Those who chose to follow the beliefs of Henry Durant and saw the launch of the Red Cross and Crescent movement in 1875. The movement now involves Medicines Sans Frontiers, Oxfam and Save the Children.

2. Faith-based organisations. These are organisations that aim to conduct their aid work based on their social goals and religious values. They do not aim to indoctrinate beneficiaries, as this would be counterproductive to the core principle of 'impartiality'. Catholic charities, Lutheran Social Services and Jewish charitable organisations are examples of faith-based organisations.

3. Wilsonians. On 8 January 1918 Woodrow Wilson, the President of the United States, spelt out a policy of free trade, open agreements, democracy and self-determination. His aim was to project United States values, and key to this was a 14-point plan that sought to influence political and economic structures while promoting democracy and capitalism (Snell, 1954). While the Wilsonian movement began in the

United States, it has grown to span the whole political spectrum and includes aid organisations such as the Cooperative for Assistance and Relief Everywhere (CARE) and World Vision International (Tomasini & Van Wassenhove, 2009).

Tomasini and Van Wassenhove (2009) consider that the Wilsonians and faith-based organisations have a conflict of interest with respect to the extent that their ideologies influence their agenda. While this may be a valid position, what is often found in many disaster relief scenarios is the overwhelming intent to do the right thing and assist those in need. This was certainly the case in the aftermath of the 22 February 2012 Christchurch earthquake where a large number of NGOs sought to assist without overtly pushing an agenda (NZ Govt, 2011b). These included the Adventist Development Relief Agency (faith-based), the Christian World Service (faith-based), Oxfam (Durantist), Save the Children (Durantist), and World Vision (Wilsonian).

Academics and prominent aid organisations have now widely accepted the three principles of humanity, neutrality and impartiality as the foundation stones for disaster relief and the provision of humanitarian assistance (Seipel, 2011). In 1864 the principles became part of the Geneva Convention while on 19 December 1991 the UN General Assembly adopted them as "core humanitarian principles." The UN defined them as:

1. Humanity. Human suffering must be addressed wherever it is found, with particular attention to the most vulnerable in the population such as children, women, and the elderly. The dignity and rights of all victims must be respected and protected.

2. Neutrality. Humanitarian assistance must be provided without engaging in hostilities or taking sides in controversies of a political, religious or ideological nature.

3. Impartiality. Humanitarian assistance must be provided without discriminating as to the ethnic origin, gender, nationality, political opinions, race or religion. Relief of the suffering must be guided solely by the needs and priority must be given to the most urgent cases of distress.

(UN Resolution 46/182)

Seipel (2011) includes 'independence' as a fourth principle arguing that all humanitarian organisations follow, to varying degrees, these four basic principles. This basis for this fourth principle centres on the need to separate the distribution of aid from political, economic, and military objectives. Most developed countries and their militaries endorse these principles, acknowledging the importance they play particularly for INGOs (NZDF, 2013). The UN provisions go into further detail related to the 'needs-based assistance being free of discrimination', specifically the access rights of vulnerable populations, security of humanitarian personnel, respect for culture and customs, using the military as the 'option of last resort', and the avoidance of reliance on the military (UN, 2012). These principles and provisions are similar to that articulated as Principle 2 in 'The Code of Conduct for the International Red Cross and Red Crescent Movement and Non-Governmental organisations (NGOs) in Disaster Relief' (ICRC, 2013).

Thomas and Kopczak (2005) consider that disaster relief is and will continue to be a growth market. They contend that "natural and man-made disasters are expected to increase another five-fold over the next fifty years due to environmental degradation, rapid urbanization and the spread of HIV/AIDS in the developing world." Their research shows that over the last five decades annual economic losses arising from natural or man-made disasters have been steadily growing. The Munich Reinsurance Group has produced data showing that real annual economic losses have been growing steadily, averaging US$75.5 billion in the 1960s, US$138.4 billion in the 1970s, US$213.9 billion in the 1980s and US$659.9 billion in the 1990s (Thomas & Kopczak, 2005).

Thomas and Mizushima's (2005) definition of Humanitarian Logistics (refer Section 1.2) emphasises that L&SCM needs to achieve point of origin to point of consumption for meeting the end beneficiary's requirements. Thomas and Kopczak (2005) add to this when they argue that the function encompasses a range of activities including preparedness, planning, procurement, transport, warehousing, tracking and tracing, and customs clearance.

Van Wassenhove (2006) states that:

> "Since disaster relief is about 80% logistics it would follow that the only way to achieve this is through slick, efficient and effective logistics operations and more precisely, supply chain management."
>
> (Van Wassenhove, 2006, p. 45)

Following this belief that such a high percentage of disaster management relates to logistics, it could be assumed that logistics would therefore be one of the highest priorities for emergency management organisations in the disaster management cycle. Recent humanitarian disaster literature and operational experience has demonstrated that this is commonly not the case with logistics being under-resourced with respect to competent professionals and the right tools to undertake this critical enabling function. James (2008) points to inadequate funding and poor management as causing failure of response systems. Wakolbinger and Toyaski (2011) add support to this by their assessment that misallocation of resources reduces the efficiency and effectiveness of humanitarian operations.

Many of the emergency management models used globally have similarities that have been developed over the past decade. The disaster management cycle as described by Tomasini and Van Wassenhove (2009) consists of four steps that are in a continual flow: mitigation, preparedness, response, and rehabilitation. This correlates to New Zealand's approach to emergency management and the

strategy established by MCDEM referred to as the 4Rs (Figure 1.2). Reduction (mitigation), readiness (preparedness), response (the same) and recovery (rehabilitation) make up what is commonly referred to as the 4Rs.

Tomasini and Van Wassenhove (2009) consider that the phases of preparedness and response, or in the New Zealand context readiness and response, is where Humanitarian Logistics plays its most important role. In the preparedness (readiness) phase there are five building blocks that, if addressed effectively, can prove to be the critical success elements of any disaster management event (Figure 2.1). The five blocks of Human Resources, Knowledge Management, Logistics, Financial Resources and Community feed into the preparedness block and down to disaster response. How well these are managed (the bottom block), combined with the performance in the previous two phases, should determine the overall management outcome and impact of crisis.

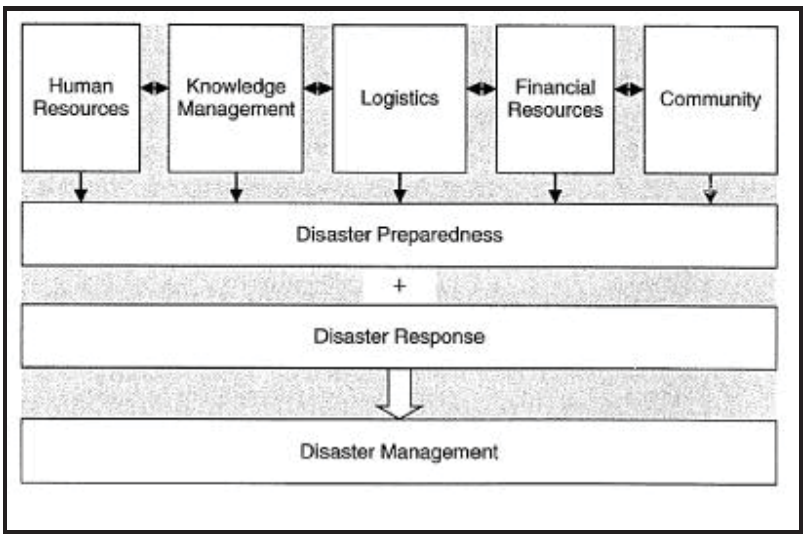

Figure 2.1: Five Building Blocks of Preparedness
(Tomasini & Van Wassenhove, 2009)

These five building blocks provide a useful basis with which to frame analysis and research. Of the five blocks logistics lies at the centre and, based on an

80% assessment of effort (Van Wassenhove, 2006), it will play a major role in the building blocks that follow. Under this model Tomasini and Van Wassenhove (2009) consider the logistics function to encompass procurement, planning, warehouse management, training and reporting. The other four building blocks are discussed further in Section 2.3 where they are more aligned to the other research fields of Emergency Management and Leadership, and Governance and Policy.

2.2.3 Humanitarian Disaster Relief Supply Chains

When a major disaster does strike somewhere in the world the impact, particularly on L&SCM systems, can be considerable. Kovacs and Spens (2007) highlight the multitude of organisations and various supply chains that are either affected or involved in the response. The supply chains may be commercial, humanitarian or military, each of which bring their own uniqueness in methods and drivers. Figure 2.2 demonstrates the variations that each of these categories of supply chain brings under two different environments: uninterrupted and interrupted.

	Environment	
Organization	Uninterrupted	Interrupted
Commercial	*Business as usual*	*Business at risk*
Humanitarian	*Development aid*	*Disaster relief*
Military	*Peace*	*War*

Figure 2.2: Six Types of Supply Chain (Kovacs and Spens, 2007)

There will be a great deal of difference between a military's L&SCM during relief operations as opposed to a business as usual commercial operation in a normal peacetime environment. Barber (2012) points to the need for understanding and appreciating each supply chain's differences. She highlights that the military's

main driver will be supplying the soldier “in the foxhole”, whereas a commercial operation will be driven by costs and associated profit margins.

All supply chains seek to have commonality in their ability to be agile and react to the environmental conditions. Larson (2011) contends that there is a lot that humanitarians can learn from business logisticians and vice versa. He considers that commercial L&SCM expertise, particularly with efficiencies in supply chain management (SCM) systems, can bring a disciplined focus that reduces any excesses and streamlines responsiveness. They are also very relationship-focused to ensure that partnerships are effective and sustained. Similarly Larson (2011) argues that commercial logisticians can learn from their humanitarian counterparts, particularly in preparing for contingencies and having agile systems in place to react to change. Kovács and Tatham (2009) demonstrate this agility with a model of commercial and humanitarian L&SCM (Figure 2.3), which, after acquiring a local presence and credible intelligence, can behave with agility and in action ability within their logistics organisation.

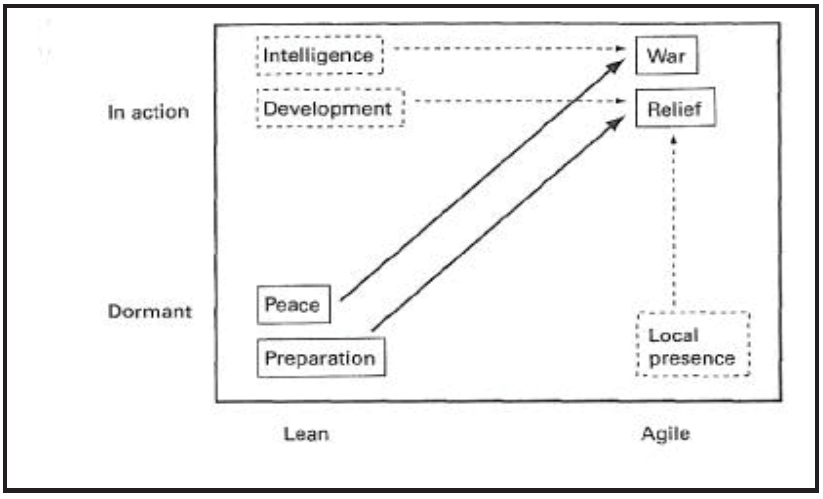

Figure 2.3: Active, Lean and Dormant, Agile Supply Chains
(Kovács & Tatham, 2009)

The agility of the L&SCM in New Zealand’s CDEM sector should also be considered, as well as the collaboration between commercial, humanitarian and

military logisticians. These questions are addressed in the data collection and subsequent data analysis and discussion. Needless to say, it is quickly apparent that this theme of collaboration and cooperation in the logistics community is a key ingredient to success within Humanitarian Logistics (Seipel, 2011; Cross, 2011).

Partnerships and relationships play a critical role in the 4Rs of emergency management. In order to consider the interplay that occurs across the spectrum of Humanitarian Logistics readiness and response it is important to understand the organisations that play a critical role, often in partnership with other organisations. Cozzolino (2012) demonstrates this with a humanitarian relationships model (Figure 2.4) in which he highlights the various connections that exist across the major entities. This model aptly demonstrates the linkages necessary between central government, aid agencies, the NGO community, and the military. Logistics companies also play a key element in this model due to the people expertise and professional and efficient supply chain approach.

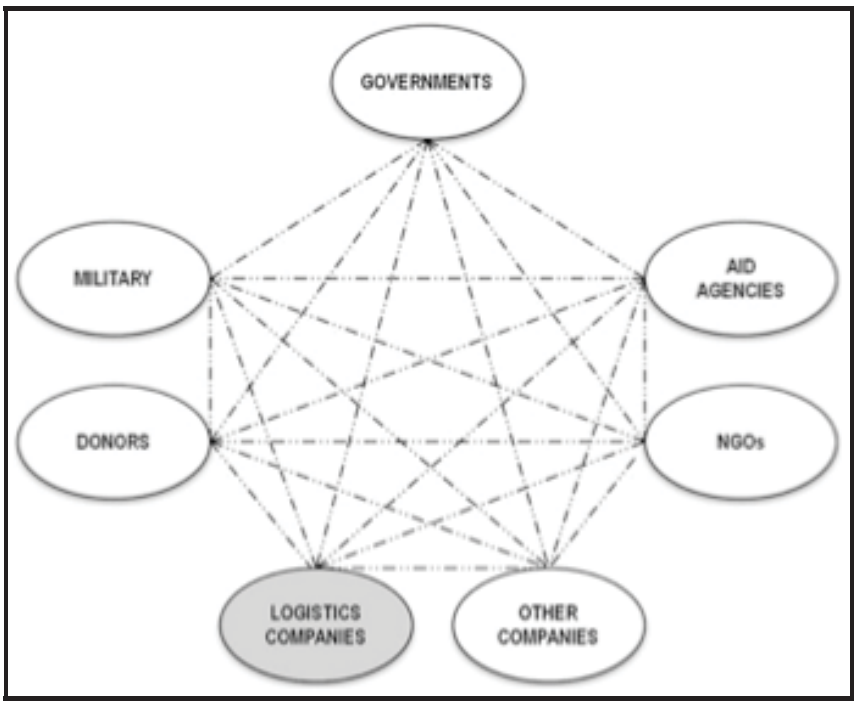

Figure 2.4: The Humanitarian Relationships Model (Cozzolino, 2012)

2.2.4 NGOs and Civilian-Military Relationships

Larson (2011) is of the view that the Red Cross is a global leader in maintaining a dormant, agile local capability. He argues that Kovács and Tatham (2009), while promoting the role of local chapters or national societies, “neglect the fact that many humanitarian NGOs are engaged primarily in development aid.” Antill (2001) believes that NGOs constitute the main interface between the relief system and the beneficiaries and often play the more prominent role at the end of the supply chain.

Seipel (2011) describes the challenges facing the military and NGO community when attempting to cooperate with each other. He outlines how the four key principles of many NGOs – humanity, neutrality, impartiality and independence – will often become the obstacles that create challenges for the CIVMIL interaction and cooperation. Due to these challenges, Seipel (2011) has little faith in an integrated approach between NGOs and the military in logistics unless there is a change of philosophy. Moore and Antill (2000) emphasise that overcoming this philosophical change is an important step of an effective supply chain in a humanitarian aid operation should be “owned” i.e. responsibility is taken by one of the players in the scenario. This will often prove to be the ultimate ‘sticking point’ in CIVMIL relationships.

Conversely, Seipel (2011) considers that both the military and NGOs have been dealing with each other at an increasing rate, particularly since the Asian ‘Boxing Day tsunami’ of 2004. This cooperation does have success, particularly when staff are trained professionally in L&SCM. He emphasises the need for NGOs to be better trained in the field of Humanitarian Logistics and the associated advances in supply chain technology. Blansjaar and van der Merwe (2011) support this by highlighting the developments by various agencies, including OXFAM and the World Food Programme (WFP), to the professional development of their SCM staff.

Seipel (2011) also calls on the military to increase their understanding of the philosophical mind-sets of a vast array of NGOs they may be dealing with, and professionally respect the agenda that many of these organisations work under. An ever-constant dilemma, but unrelenting practicality, is the turnover of military staff in CIVMIL liaison roles, or in key HADR and response positions (McLean et al, 2012). This creates a revolving door of knowledge that can create significant risk should a disaster hit at the time of transition between key personnel, both in the military and within NGOs. Cross (2011) goes further when examining this issue in relation to British military relations with NGOs. He promotes the need for military personnel to be embedded into other agencies such as the Department for International Development (DFID) and local councils to ensure that the British military can better assimilate into the operational response to domestic and international crises.[3]

While there may be a perception held by military professionals that they prove more effective in a disaster response, experience has demonstrated that it is often the smaller and less resourced NGOs that are some of the more effective. The British military have recognised this in their guidelines for engagement with NGOs from a military perspective. Also NGO programs may appear inefficient but they are likely to be culturally attuned, using local capacity, and therefore sustainable. It is not just what is done, but how it is done, which can be important to long-term success (UK MoD, 2008). Cross (2011) adds to this view, believing that this lack of military understanding in NGOs is often due to the fact that very few former military personnel hold key NGO positions. Without this cross-over of experience and cultural background, the CIVMIL relationship will continue to be a significant challenge.

3 DIFD has a similar role to the NZ Aid Programme (and the Australian Government Overseas Aid Programme (AUSAID).

2.2.5 Effective Use of the Military

The use of the military in a CDEM response can be a complex and highly contentious issue; this is often due to the political, strategic and operational objectives of the country providing the military assistance. Equally the relationship between CIVMIL organisations can be as complex and problematic, particularly when the urgency of the situation or the personalities involved are considered.

A substantial amount of material has been written about the use of military forces in CDEM operations (Crawford & Harper, 2001; Beeres & van Fenema, 2008; Cross, 2011; Seipel, 2011; Barber, 2012). Inherent to this utilisation are some key strengths and weaknesses. According to Cross (2011), the military often plays a critical role early in disaster response with airlift and security. This was evident during the early phases of the East Timor conflict in September 1999 where the Darwin-East Timor air-bridge was a critical lifeline for humanitarian support, as were military helicopters for intra-country transport and distribution to highly inaccessible places due to weather and terrain. During the initial deployment of INTERFET[4] into East Timor, each New Zealand Hercules C130aircraft made two return flights to Dili daily. By the end of September 1999 the RNZAF had moved nearly 200,000 kilograms of equipment and supplies and 350 personnel into East Timor (Crawford & Harper, 2001).

According to NZDF contingency plans, this air-bridge capability rests with the New Zealand military (NZDF, 2011a). Should a national disaster be declared, the responsibility for controlling national assembly areas for fixed wing aircraft and helicopters will be managed and coordinated by the NZDF. This will include flight-line control, airframe tasking, freight/passenger preparation, loading and logistics support such as fuel, catering, accommodation and medical supplies (NZDF, 2011c). This not only applies during military-style operations, but also to

4 UN sanctioned International Forces in East Timor.

natural disaster environments where humanitarian disasters can manifest should there be a shortage of accessibility by road or sea and where basic human needs are desperately short.

2.2.6 The Option of Last Resort

New Zealand CIVMIL principles are guided by internationally recognised principles. These are primarily driven by the Oslo Guidelines: Guidelines on the use of Foreign Military and Civil Defence assets in Disaster Relief (UNOCHA, 2007); and the Civil-Military Guidelines and Reference for Complex Emergencies (UNOCHA, 2008). Of critical importance to New Zealand's WoG approach to humanitarian assistance, both domestically and in the region, are the two key principles that are driven by international norms:

1. State sovereignty; and
2. Respect for international humanitarian law and instruments.[5]

The use of any military resources is a decision not taken lightly. A term often used is the “option of last resort” i.e. being careful to ensure that all other avenues are exhausted before resorting to the use of military assets. While there may be tensions having the military involved in disaster response, the literature and policy in New Zealand clearly outlines that the NZDF should be used as a supporting agency only and very rarely, if ever, take the lead (NZ Govt, 2011a; NZDF, 2012a).

The most recent New Zealand Government Defence White Paper (2010) clearly tasks the NZDF to respond with rapid support during natural disasters and emergencies and to contribute to WoG efforts at home and overseas in resource protection, disaster relief and humanitarian assistance (NZ Govt, 2010). In relation to reliance on the military and its associated use as an option of last resort, it is useful to note that the New Zealand Government has clearly stated

[5] 1949 Geneva Conventions plus two additional protocols in 1977 and 2005.

policies that are consistent with the application of its military forces. These policies are further articulated by the Ministry of Foreign Affairs and Trade (MFAT) and the NZDF in their strategic policy documents.

The International Committee of the Red Cross (ICRC) policy is explicit in that military assets should be deployed for disaster relief or initial response assistance only at the request or, or with the express consent of the affected state after comparable civilian alternatives have been considered (ICRC, 2013). It is here where the tension between CIVMIL has the potential to grow as civilian resources are quickly overwhelmed in a large crisis and only military organisations have the capacity to respond effectively. The NZDF is also explicit in its doctrinal policy of being a supporting agency and leaving the domestic leadership to other more appropriate agencies and that it should be withdrawn as soon as possible (NZDF, 2012a).

This supporting agency status was evident in recent disasters. The case of MCDEM as lead agency in the 2011 Christchurch earthquake, or Maritime New Zealand (MNZ) in the MV RENA disaster, highlight how the NZDF can play a supporting but critical role. United Kingdom military policy states that, “The military response must have a comparative advantage over civilian options; the advantage is usually speed of reaction, scale of effort or availability of specific resources. The principle is one of ‘demand pull’ rather than ‘supply push’ and a joint MoD and DFID analysis of desired effects and outcomes should precede the determination of capabilities and ultimately individual assets” (Joint Defence Publication, 2012).

2.3 CDEM Literature Related to Governance and Policy

2.3.1 Scope

The scope of this section has been to focus on the examination of formal documents of Management and Leadership, and Governance and Policy as they relate to the CDEM sector. This content is primarily in the form of grey literature[6] where government legislation has been examined, specifically the NSS, the CDEM Act 2002, the Defence Act 1991, and the Local Government Act 2002. Other government department policies have also been examined with a particular focus on crisis management through policies, strategies and plans.

Within New Zealand and its associated government agencies, there is a robust framework of written material related to CDEM plans for readiness, response and recovery. This is expected in a developed country where resources have been allocated for the ability of a country to be prepared and respond to a disaster event. Specific attention has been paid to the NZDF's response capabilities and associated plans and strategies to respond to CDEM/HADR, both domestically and regionally, with the provision of Humanitarian Logistics (Majumdar, 2006). This contributes to one of the main objectives of this thesis to consider how well the NZDF collaborates and integrates with other government agencies, particularly MCDEM.

2.3.2 National Security System

The importance of national security is paramount to a well-functioning and disciplined government. The machinery with which to monitor and manage the risks involved with maintaining national security is of the highest importance and

[6] Grey literature is a type of material produced by government departments, corporations and other organisations that has not been published in book or journal form. See: http://owll.massey.ac.nz/referencing/referencing-other-material-in-apa.php#grey-literature

requires a robustness that can equal the most complex of problems that a country can face.

In 2011 the Department of Prime Minister and Cabinet (DPMC) created a new NSS framework used to manage in a time of crisis (NZ Govt, 2011a). It is the primary tool to enable New Zealand's senior leadership to address and manage highly complex, often life-threatening, and economically damaging events. In essence, it aims to identify national security risks on an 'all-hazards' basis across the range of personal security to international security, as shown in Figure 2.6.

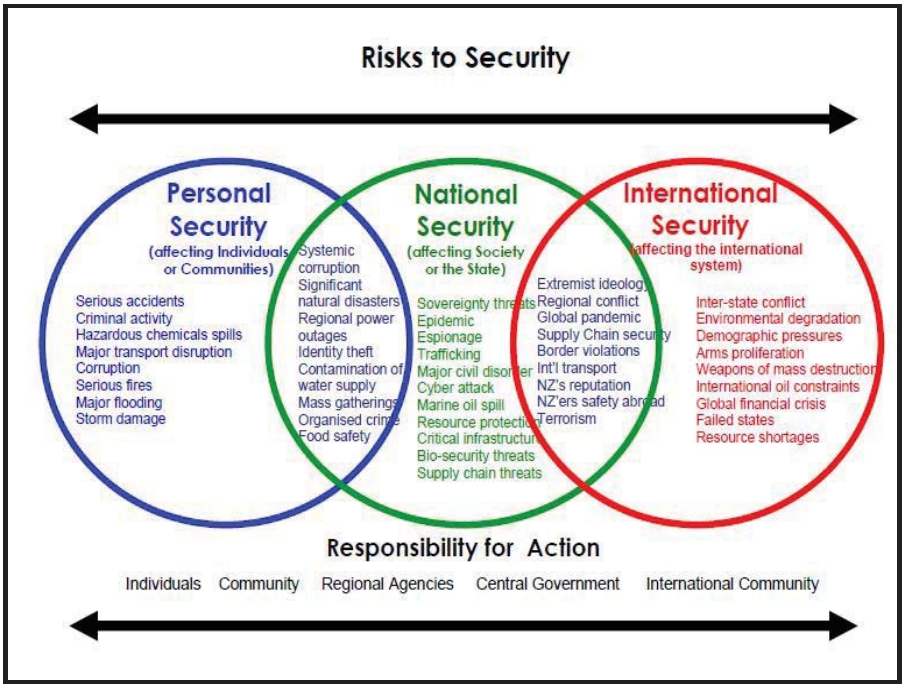

Figure 2.5: National Security Risks (NSS, 2011)

The NSS has seven key objectives that are designed to encompass the broad range of risks that may face New Zealand in the future. These objectives inform the strategies and plans which are then developed by government departments and agencies to mitigate and tackle the associated risks. The objectives are:

1. Preserving sovereignty and territorial integrity.

2. Protecting lines of communication.
3. Strengthening international order to promote security.
4. Sustaining economic prosperity.
5. Maintaining democratic institutions and national values.
6. Ensuring public safety.
7. Protecting the natural environment.

Of note in relation to the topic of CDEM is Objective 6 about "ensuring public safety." This objective aims to "provide for, and mitigate risks to, the safety of citizens and communities (all hazards and threats, whether natural or man-made)" (NZ Govt, 2011a, p. 3).

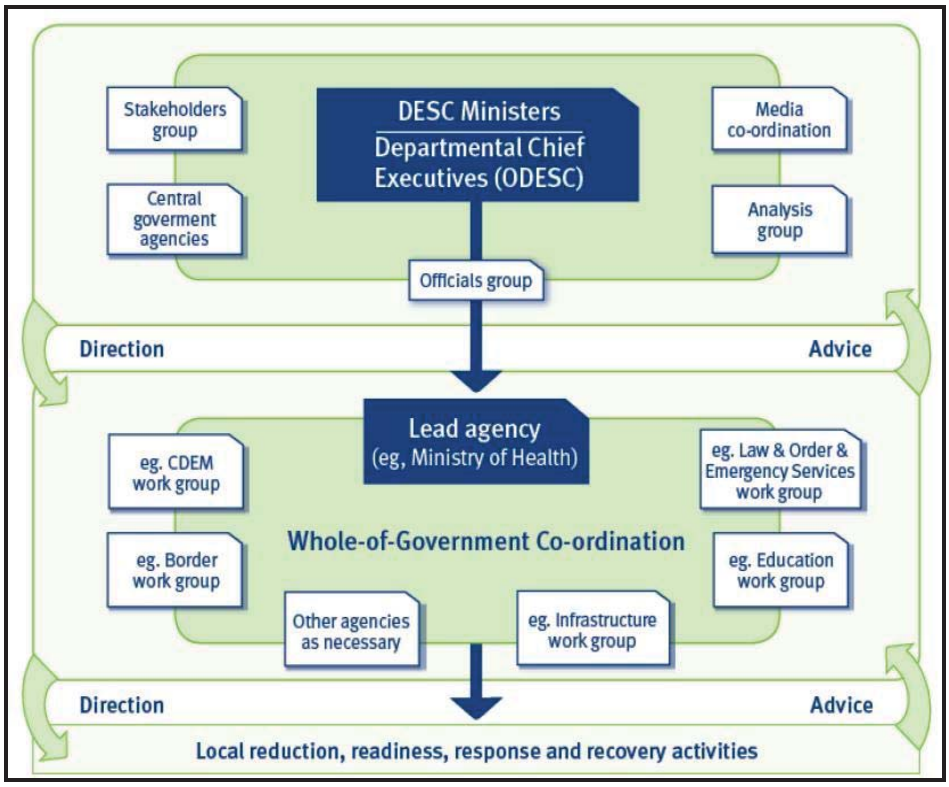

Figure 2.6: The National Security System (NSS, 2011)

At the centre of the NSS process are the relevant Ministers responsible for the portfolios affected by the crises, and who have decision-making responsibility,

including the Prime Minister. This grouping, called DESC,[7] receives formal advice from a committee made up by the Chief Executives of each relevant department and from a grouping called ODESC.[8] In turn ODESC is informed by various working groups that contact subject matter experts, and they are usually made up of people with a broad range of skill-sets to ensure as many views and opinions are considered in the process of key decision-making.

2.3.3 Legislative Framework and Hierarchy of Documents

CDEM in the New Zealand context is controlled and managed through a body of legislative documents, strategies, plans and guides which define responsibilities and directions of agencies and council bodies to act. The following diagram highlights the hierarchy of these documents and how they flow through to the 16 regional groups that exist across New Zealand.

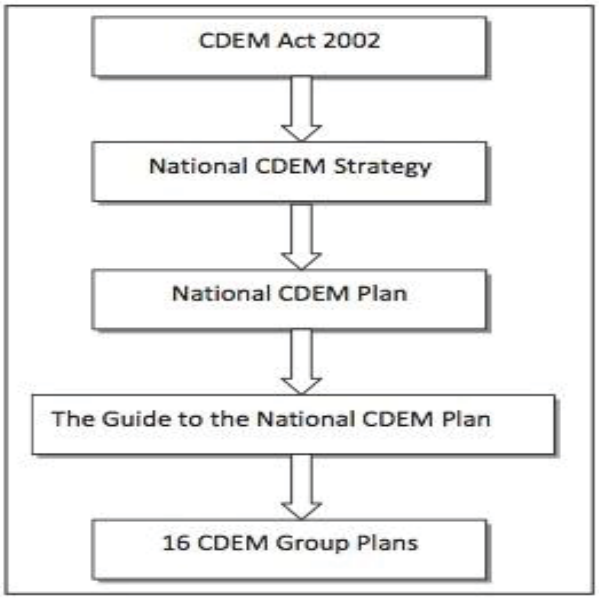

Figure 2.7: Hierarchy of CDEM Legislation and Documents (NZ Govt, 2011a)

[7] Cabinet Committee on Domestic and External Security Coordination, consisting of Cabinet Ministers and chaired by the Prime Minister. See: http://www.dpmc.govt.nz/cabinet/committees/des

[8] Officials Committee on Domestic and External Security Coordination, consisting of Chief Executives of relevant government departments and chaired by the DPMC.

2.3.4 The CDEM Act 2002

The CDEM Act is the keystone legislative document that directs how New Zealand, through its agencies and council authorities, will manage CDEM events. The Act aims to improve sustainable management of hazards while encouraging communities to assess and achieve acceptable levels of risk (NZ Govt, 2002). It provides for the planning and preparation of CDEM events and for the complex aspects of response and recovery. It requires local authorities to manage CDEM events in accordance with the 4Rs strategy (Figure 1.2) and aims to instigate a basis of integration across all levels of CDEM in New Zealand in line with the National CDEM Plan.

2.3.5 National CDEM Plan

Reinforcing the CDEM Act is the National CDEM Plan Order 2005 that became operational on 1 July 2006. The plan is a regulatory document, which carries the weight of a statute and therefore sets the 'rules' for national level CDEM requirements of the Act. It is required to be reviewed, renewed or replaced every five years at the instigation of the Minister. The last review was conducted in July 2010. The plan's key objectives are to: "provide for effective management of states of national emergency through a planned and coordinated WoG response; and to provide for effective recovery and national support under similar circumstances" (MCDEM, 2005c, p. 7).

The core aim of the plan is to identify hazards and risks at the national level, and the statutory basis by which Ministers and senior MCDEM officials have the power to act. This includes the declaration of emergencies at a national or local level. In addition the plan defines the roles of government agencies and the lifeline utilities groups that have a responsibility to act when called upon.

There are a large number of other government agencies that are key stakeholders in this strategy including the NZP, the NZFS, the MoH and the NZDF. They each have legislation related to, and supporting, MCDEM's ability

to react effectively to emergencies. These include the: Biosecurity Act 1993; Building Act 2004; Fire Service Act 1975; Forest and Rural Fires Act 1977; Hazardous Substances and New Organisms Act 1996; Health Act 1956; Health and Safety in Employment Act 1992; Local Government Act 1974; Local Government Act 2002; Resource Management Act 1991; and the Defence Act 1990.

2.3.6 National CDEM Strategy

The CDEM Act also requires the Minister of Civil Defence to develop and implement a National CDEM Strategy that describes the vision and desired outcomes for CDEM in New Zealand. The Strategy, based on a 10-year timeframe, was enacted in March 2008 and is required to be comprehensively revised in 2017. The Minister is also required to provide a periodic report to Cabinet on the progress being made with the strategy. The latest report was submitted to the Cabinet Economic Growth and Infrastructure Committee by the Minister of Civil Defence in April 2013. In her executive summary the Minister stated:

> "The progress report shows that the Canterbury earthquakes have significantly heightened the focus on emergency preparedness and addressing earthquake risks, in particular, earthquake-prone buildings and infrastructure."
>
> (Minister of Civil Defence, Hon Nikki Kaye[9])

The Strategy's four goals and 16 objectives (Figure 2.8) detail a framework continuum aimed at achieving higher levels of improvement to New Zealand's resilience. The April 2013 progress report features an appendix that specifies the performance achievement level for each goal and the focus of improvements to be made in the future.

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[9] See: http://www.beehive.govt.nz/release/nz-civil-defence-strategy-report-released

Figure 2.8: The National CDEM Strategy Framework (MCDEM, 2012a)

Trends in addressing these goals were examined in a Colmar Brunton poll which measured the success of a preparedness campaign called ‘Get Ready, Get Thru’ that has been running since 2006. The results relate to Goal One: “Increasing community awareness, understanding, preparedness and participation in civil defence emergency management.” Recent statistics highlight diverging results across New Zealand. On the one hand, 51% of those living outside Christchurch have taken steps to prepare in the last 12 months, down from 60% in 2011. Conversely, over half (55%) of those living in New Zealand have taken steps to prepare in the last 12 months. This national result remains higher than in 2010 (45%), before the Christchurch earthquakes struck (MCDEM, 2012a).

2.3.7 MCDEM Policy and Assessments

Supporting the National CDEM Plan and Strategy are a numbers of guidance and frameworks documents that MCDEM are either required to produce by legislation, or have been produced at the initiative of MCDEM staff. These are developed to strengthen the policy framework that the layers of CDEM and OGAs can align to. Most of these are available publically on the MCDEM website and those that have informed and often been referenced in this study include:

1. CDEM Competency Framework 2009. This framework seeks to define the competencies required by CDEM staff to successfully perform the functions within emergency management. It specifies eight key areas of competence that are required or need to be developed. Essential to the success of this framework is how the recruitment of competent staff and the ongoing professional development of competencies occur.
2. CDEM Capability Assessment Reports (Parts 1 & 2) 2012. These reports provide an internal assessment of the performance of the 16 CDEM groups against the MCDEM goals of the National CDEM Strategy.
3. Lifelines and CDEM Planning. This guidance document aims to develop a consistent approach to lifeline utilities involvement in CDEM planning and the consequential response during a disaster event.
4. Review of the CDEM Response to the 22 February Christchurch Earthquake. This comprehensive report focuses on the performance of CDEM and other key government agencies to the associated CDEM response. It is a critical report instigated by the Cabinet, but was written independently by a group of highly experienced emergency management professionals.

2.3.8 1990 Defence Act and 2010 Defence White Paper

The Defence Act 1990 is the primary legislative document that permits the deployment and use of the NZDF to assist in a time of civil emergency. Under the provision of this Act the use of Armed Forces to provide public service or assist civil power can be authorised by the Minister of Defence. It states that "the Armed Forces may be used in New Zealand or elsewhere – to perform any public service; or to provide assistance to the civil power in time of emergency" (NZ Govt, 1990, Sec 9). Naturally this is a decision never taken lightly by a civilian government, as it is a key indicator that civilian authorities or resources have or will be overwhelmed by the magnitude of a disaster relief event.

The most recent Defence White Paper issued by the 2010 National-led government goes further to state that a principal task for the NZDF includes the "contribution to whole of government efforts at home and abroad in resource protection disaster relief and humanitarian assistance" (NZ Govt, 2010, p. 33). Further, under the section titled National Security and Defence it states:

> "The NZDF is the only agency of state that maintains disciplined forces available at short notice and that operates large-scale and integrated fleets of vehicles, ships, and aircraft. It is therefore able to undertake or support a range of tasks, including maritime resource protection, humanitarian assistance and disaster relief, and search and rescue, as part of a whole-of-government effort directed by civil authorities."
>
> (NZ Govt, 2010, p. 15)

The White Paper places a heavy emphasis placed on the NZDF's role in support of other government agencies. Specifically, in the emergency management realm is the clear direction to support MCDEM where disaster events occur.

Doctrinally the NZDF itself has developed its own policies and procedures as it aims to ensure it can assist and collaborate with OGAs in a disaster response event. The New Zealand Defence Doctrine (2012) is the authoritative publication that introduces the philosophical concept of military doctrine and its application (NZDF, 2012c). It depicts the application of military use in humanitarian assistance and in domestic response to disasters or civil unrest during a range of security events (Figure 2.9).

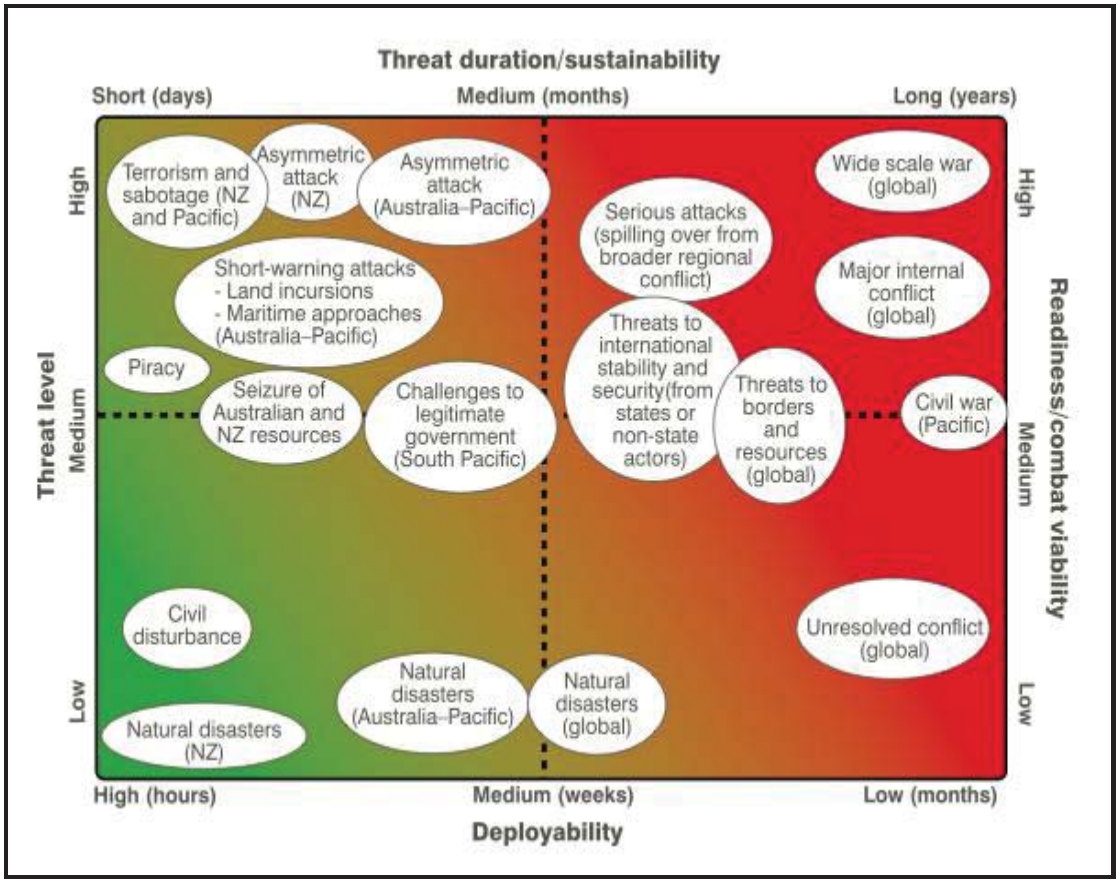

Figure 2.9: Range of Security Events (NZDF, 2012c)

Of note is the bottom left-hand quadrant that features Natural Disasters (New Zealand), Natural Disasters (Australia-Pacific) and Civil Disturbance. It is in these areas that NZDF can be quickly deployed where the threat is low but where the local civilian resources may be quickly overwhelmed to cope with the situation being faced.

2.3.9 NZDF Doctrine

In September 2012 the NZDF published an aide memoire with the primary aim of providing guidance to its leaders and units who are charged with responding to the support needs of a national disaster. This document was as a result of the lessons identified and learnt from the Pike River disaster, the MV RENA maritime grounding, and the Christchurch earthquakes (NZDF, 2012a).

The command and control (C2) aspects of a response by the NZDF, as shown in Figure 2.10, highlight an interesting aspect of the relationship between the NZDF and MCDEM. At no time is there any direct command authority over NZDF assets by the Director of MCDEM or other CDEM authorities at the various levels shown. NZDF policy specifically states, “Regardless of the NZDF support arrangement the supported agencies have no authority to task and/or re-assign military forces.” Instead the Director has to rely on the liaison and agreement of the military to respond as he or she wishes. This is an issue that will be explored further in Chapter 5 when considering the C2 arrangements that confront a CDEM controller in a disaster event. This relationship with the military is crucial to the timely delivery of essential elements of New Zealand’s national asset base (NZDF, 2012a).

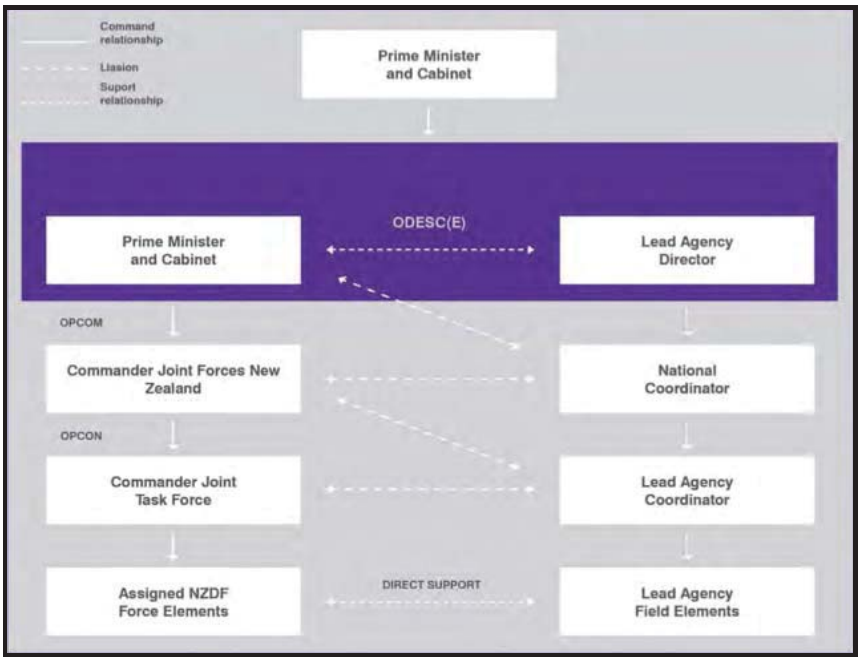

Figure 2.10: Domestic Command and Control (NZDF, 2012a)

2.4 Summary

In considering the literature related to the three research fields of this study – Humanitarian Logistics, Governance and Policy, and Leadership, Emergency Management (Figure 1.1) – a disciplined approach has been required to focus the wealth of available material to the research topic of 'Exploring New Zealand's capability to strategically manage logistical responses to major civil defence and emergency management events'. Chapter 1 identifies common and related themes that will form the basis of discussion and major recommendations. This chapter has further developed these themes focusing on the interrelationship across the three fields of research. This approach has supported the conduct of meaningful analysis that can contribute original academic literature in the research area of Humanitarian Logistics.

2.4.1 Management of Logistics Resources

The following conceptual model has been synthesised from the literature and are themes identified from the three fields of research in this study. These themes have informed the research questions developed for this study, and also provided a foundation to reference the data collected in the analysis of information. A conceptual model related to these themes has been developed at Figure 2.11. This aims to illustrate the key influences that result in the effective or ineffective management of logistics resources in a CDEM event. Later in Chapter 5 this conceptual model will be re-examined in light of the findings of the research.

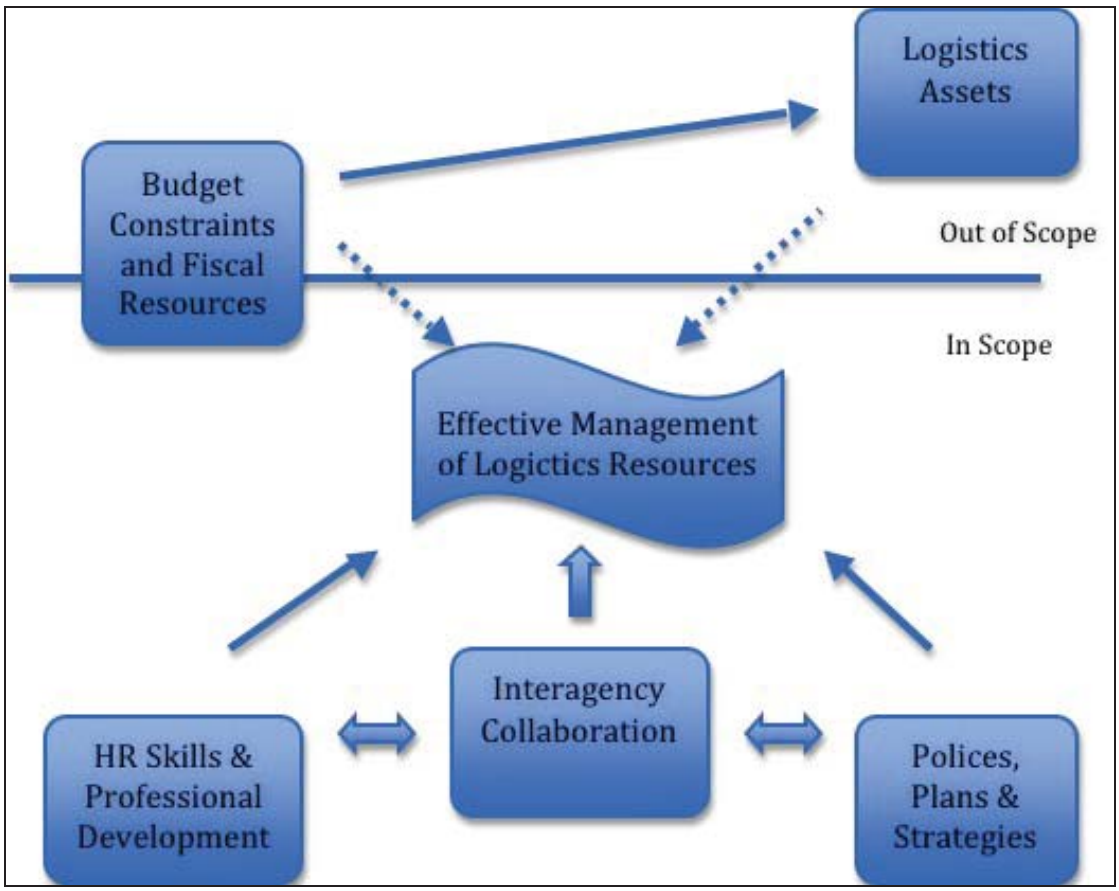

Figure 2.11: Conceptual Model – Management of Logistics Resources

1. Development of Logistician Skills and Knowledge. There is common acknowledgement that the professional knowledge, competency development and attention to the growth of logistical skill-sets is a constant challenge that exists across the domain of Humanitarian Logistics (Cozzolino, 2012; Tomasini & Wassenhove, 2009; Barber, 2012; Cross, 2011; Seipel, 2011; UK MoD, 2008; MCDEM, 2009a, 2012f & 2013; Kovács & Tatham, 2009; Joint Defence Publication, 2012; Larson, 2011; McLean et al, 2012; NZDF, 2012a, 2012b & 2013). There is a strong consensus from the literature that the development of a strong HR skills and knowledge based staff will be a critical factor to success. The arrows in the model represent the contribution to the effective

management of logistics resources and the critical relationship that HR skills play with interagency collaboration. It is the researcher's view that the theory and views of referenced academics are certainly compelling and can be agreed with. These will be tested against the analysis as well as the relationship that occurs with and impacts the other themes.

2. Collaboration Between Organisations. Consistent with virtually all academic commentary is the necessity for agencies and organisations to collaborate in times of emergency. This brings considerable challenges, particularly when militaries work alongside NGOs with contrary ideologies. It also raises the dilemma of how organisations communicate and cooperate in the important readiness phase of emergency management planning (McGuire, 2006; McLean et al, 2012; Majumdar, 2006; Lee, 2011; Seipel, 2011; Cross, 2011; James, 2008; UK MoD, 2008; Beeres & van Fenema, 2008; MCDEM, 2009a & 2012c; Kovács & Tatham, 2009; Joint Defence Publication, 2012; Larson, 2011; NZDF, 2011a & 2011c). From the literature it is determined and agreed that interagency collaboration is central to the success of effective management of logistics resources as demonstrated by the major arrows connecting this interrelated themes. In the author's view the relationship with human resource skills and knowledge, combined with effective plans, strategies and policies, will essentially determine success or failure.

3. The Effective Use of Scarce Resources. The impact of the 2008 GFC, and the focus within New Zealand of more streamlined and efficacy-driven government departments, has created an environment where scarce resources must be used to the best possible effect. The literature demonstrates that the challenge to the allocation and application of resources is significant and often susceptible to political or agenda-driven priorities (Tomasini & Wassenhove, 2009; James, 2008, Van Wassenhove, 2006; Wakolbinger & Toyaski, 2011; NZ Govt, 2010 &

2012b). Figure 2.11 highlights that this theme is only partially examined within the scope of the study, however, there is certainly agreement with scholars that without adequate fiscal resource and effective management of those resources, then the outcomes will be less than optimal.

4. Robust Policies and Plans. It is recognised that New Zealand possesses what appears to be a robust set of legislation, plans and strategies aimed at successfully preparing and coping with disaster events. However, reviews and assessments have documented a variety of deficiencies or concerns that indicate the application of these policies can be held to question (Cozzolino, 2012; McLean et al, 2011; MCDEM, 2012a, 2012b & 2012e; NZDF, 2012a & 2012c). There is consensus across the literature that the necessary foundation planning and strategy documents, are critical to successfully responding to CDEM events. How these plans and strategies have actually been enacted is what this study aims to test.

Chapter 3 Methodology

3.1 Introduction

This chapter explains the methodology approach that has been applied in order to effectively address the research area and topic. The research design and strategy are outlined and include both the primary and secondary data collection methods used throughout the study. These data collection methods are explained and their respective advantages and disadvantages analysed. The research framework used is then described to establish the context and boundaries within which the data will be analysed. Importantly, the methodology chosen aims to extract and analyse a credible range of data in order to support the analysis, findings and recommendations in this study. Finally, ethical issues relating to the research design are discussed.

3.2 Methodological Approach

3.2.1 Research Philosophy

The philosophy of epistemology concerns the question of what is or what should be (Bryman, 2008). Central to the position of epistemology is the concept of positivism where the social world can be analysed from a natural science perspective and used to consider social phenomena. In addition to the principle of phenomenalism, others include deductivism (hypotheses driven) and inductivism (gathering of facts). The principle of inductivism has been used as a central basis for the methodology of this thesis.

Social ontology is concerned with the nature of social entities (Bryman, 2008). Constructivism and objectivism form the two main positions that differ in their ontological philosophy. Constructivism is based on the premise that social actors and interactions are central to the effects on social phenomena. In contrast, objectivism asserts that external effects are beyond reach or influence, in other words, independent of social actors (Bryman, 2008). The position of

constructivism has formed the basis for this paper as the author considers that the actions and decision of social actors can have a direct impact on the outcome of events as they relate to leadership and management of humanitarian logistics.

3.2.2 Research Strategy

In his book *Developing Effective Research Proposals*, Punch (2012) advocates keeping methods simple and clear. There is a need to first consider whether the study will be quantitative, qualitative, or if there is to be a combination of both (mixed methods). As the research is based on a relatively unstructured approach where answers and themes unfolded throughout, a mixed methods model has been chosen. Data collection methods used for generating material to analyse were also considered as part of the strategy. This study adopted both primary and secondary data collection methods. Three primary data collection methods consisted of semi-structured interviews, a questionnaire survey, and a strengths and weaknesses analysis.

Secondary data was collected through academic research. This research focused mainly on independent reviews and reports, performance monitoring reports and academic literature.

3.2.3 Research Framework

The research framework applied to this thesis is based on the Venn diagram previously shown at Figure 1.2. This framework consisted of three broad areas of research:

1. Humanitarian Logistics.
2. Leadership and Emergency Management.
3. Governance and Policy.

The aim of the GR questions detailed in Section 3.3 is to support this research framework. Chapter 4 analyses the findings with a focus on identifying overlapping themes, which are then investigated in further detail. The common themes chosen were then taken forward for further discussion and recommendations from those discussions are made in Chapter 5. Due to the broad nature of the three fields of research, a number of themes were identified. The main themes are analysed here, while the other emerging themes pose potential areas for future research.

3.2.4 Research Design

The methodology for this study has been to develop a research design with two main elements: a strategy and a framework (Punch 2012). First, the strategy explains the logic and rationale by which the research intends to proceed in order to connect the research questions with the data collected. The second element is a conceptual research framework that defines the research fields explored and outlines the approach taken to the research methods; this specifically examines whether a qualitative, quantitative or mixed methods approach should be taken. Figure 3.1 below provides a holistic depiction of the research design. This demonstrates how the method used to gather data was based on an inductive approach using a Hierarchy of Concepts set against a conceptual framework (Figure 1.1).

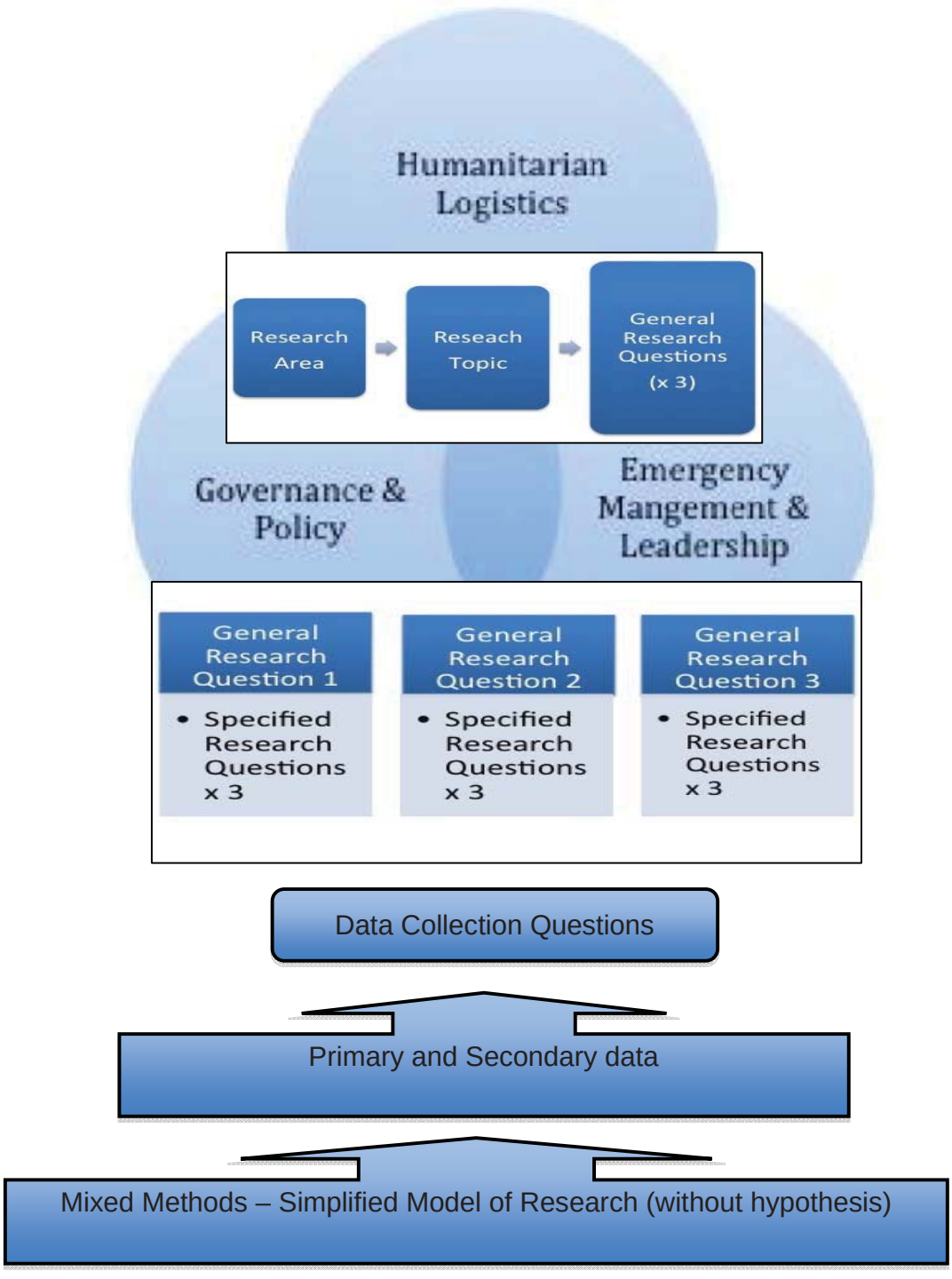

Figure 3.1: Research Design

In determining an effective strategy and framework to suit the research area and topic three important questions were considered:

1. What the research is trying to find out (i.e. creative thought and original thinking)?
2. How does the research propose to answer its questions (i.e. dealing with the methods)?
3. Why is the research worthwhile (i.e. its importance)?

(Punch, 2012, p. 20)

These questions have helped shape the strategy based on the conceptual framework introduced in the first chapter. Having considered these three questions and the related literature, the next step was to determine whether the thesis would test a defined hypothesis. Veal (2005) argues that in an inductive approach, the researcher collects data and then conducts the analysis, making deductions and recommendations based on the information gathered. An inductive approach to research design was adopted, based on a "simplified model of research without hypothesis" (Figure 3.2). The Hierarchy of Concepts is used to support this research approach (Figure 3.3).

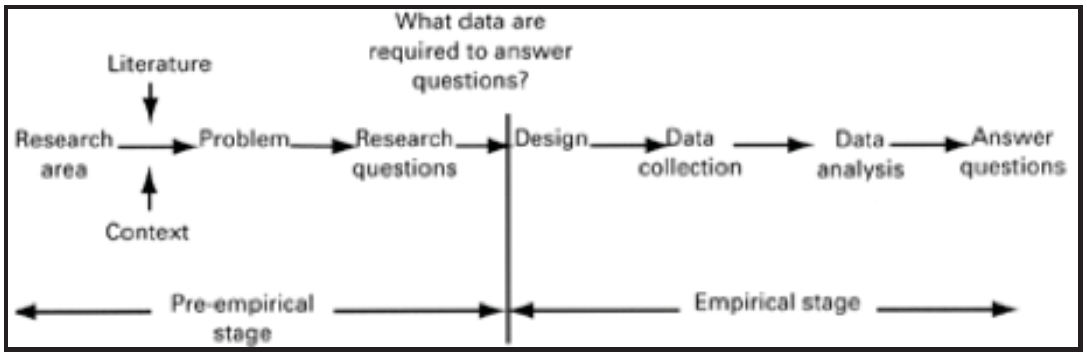

Figure 3.2: Simplified Model of Research Without Hypotheses (Punch, 2012)

This simplified model of research allows for an inductive, bottom-up, approach that is not pre-structured, and recognises the fluid and ontological nature in the research area of Humanitarian Logistics (Punch, 2012). This approach was chosen over a more pre-structured approach resulting in a top-down deductive analysis better suited to research methods where a hypothesis is being tested (Bryman, 2008). By utilising a simplified model of research various themes were able to emerge that were either connected to, or independent of, the research questions asked. The model also allows the ability to re-examine and cross-reference these themes to the literature. This provided an opportunity for research questions, both general and specified, to unfold as the subjects related to the questions asked, having a significant influence on the overall findings of the study.

3.3 Research Questions – A Hierarchy of Concepts

Central to a well-defined research strategy are well-articulated questions (Bryman, 2008). Data collection methods and analysis are essential factors in designing a strategy that then ultimately delivers on answering the GR questions. The Hierarchy of Concepts (Punch, 2012) allows for varying levels of abstraction, forming an inductive-deductive layering which permits the researcher to consider various options in their approach. Structuring and planning the research through the five levels shown in Figure 3.3 achieves a layered approach from the general and most abstract, down to the most specific and defined.

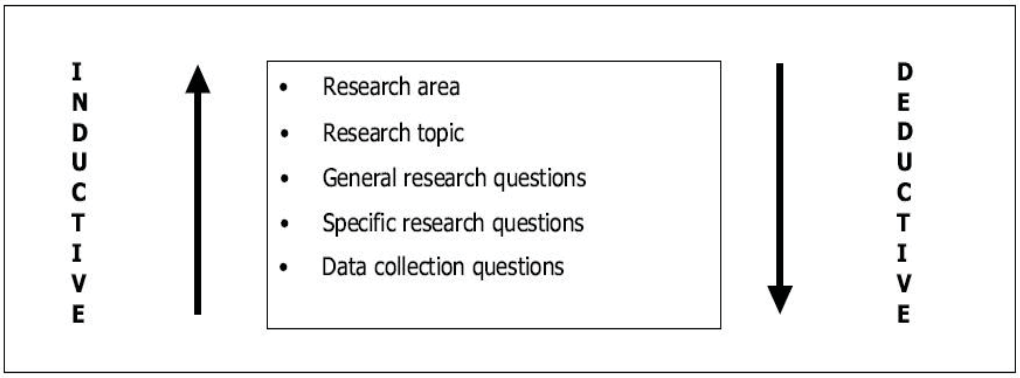

Figure 3.3: Hierarchy of Concepts (Punch, 2012)

An advantage of the Hierarchy of Concepts approach is the ability to link the levels of abstraction that flow from a very broad area, drilling down to the SR questions and finally to the data collection questions. The approach should achieve tight links between the levels in order for the research to have internal consistency, coherence and validity (Punch, 2012, p. 21).

A generic explanation of the five levels and what each level aims to provide has been outlined in Chapter 1. This chapter details each of the five levels and how each of them have been translated and applied to this thesis through an inductive, bottom-up approach following the simplified model of research without hypotheses.

3.3.1 Research Area

The highest level of Hierarchy of Concepts is the research area, which typically should only be a few words describing the overarching focus of the study (Punch, 2012). The research area chosen for the thesis is: **Humanitarian Logistics** (Figure 3.4). The broad scope of this area is demonstrated in the literature review chapters. The global focus of responding logistically to humanitarian crises and suffering has become a growing discipline, particularly by government agencies, international organisations and major NGOs.

Militaries, in particular, are increasingly focused on Humanitarian Logistics to respond more effectively to regional and domestic disaster events.

3.3.2 Research Topic

Underpinning the research area at the second tier of the Hierarchy of Concepts is the research topic. A research area may contain a number of topics, so it becomes important to clarify the actual topic focus within the research area in order to provide greater definition of the research parameters and constraints that will ensure the study has a logical flow. The research topic for this thesis is:

> **Exploring New Zealand's capability to strategically manage logistical responses to major civil defence and emergency management events.**

3.3.3 General Research (GR) Questions

At the third tier of the Hierarchy of Concepts is the GR questions, which are set at the macro level and provide the ultimate focus for the data collection questions and associated methods. The GR questions are not necessarily specific enough to link directly with data collection questions, hence the need for a fourth tier of SR questions. These questions drive the framework approach taken to source primary and secondary data and they are explained in the next section. By virtue of the three fields of research examined in this thesis – Humanitarian Logistics, Emergency Management and Leadership, and Governance and Policy – three corresponding GR questions have been developed. These are detailed below with a short explanatory summary of their reasoning.

GR Question 1: Humanitarian Logistics

> *Does New Zealand possess effective CDEM capabilities, particularly within the MCDEM[10] and the New Zealand Defence Force (NZDF), to respond with Humanitarian Logistics to major disaster events?*

This GR question aims to explore and assess existing readiness and response capabilities that New Zealand possesses to respond with Humanitarian Logistics. Of particular focus in this question are the capabilities relating to the MCDEM and the NZDF, how they collaborate with each other, as well as with OGAs and commercial organisations. The subsequent SR questions delve into more detail related to systems and procedural tools that MCDEM operates in a crisis. The SR questions also aim to assess the effectiveness of NZDF logistics in emergency management and how this agency was perceived to have performed during recent disaster events.

GR Question 2: Emergency Management and Leadership

> *Does New Zealand have effective Emergency Management and Leadership capabilities for responding to CDEM events in New Zealand?*

The aim of this GR question is to examine actual management and leadership performance competencies that exist or that may be deficient in the CDEM sector. Complicit with this analysis are the strategies and procedures that CDEM has established to be ready for and respond to disaster events.

[10] MCDEM is the Ministry level of New Zealand's wider CDEM sector.

GR Question 3: Governance and Policy

Do the current legislative framework, policy and plans provide an optimal basis for CDEM to be managed in New Zealand?

This GR question seeks to explore the current state of legislation, policy and plans, to assess their robustness against the backdrop of a major disaster event.

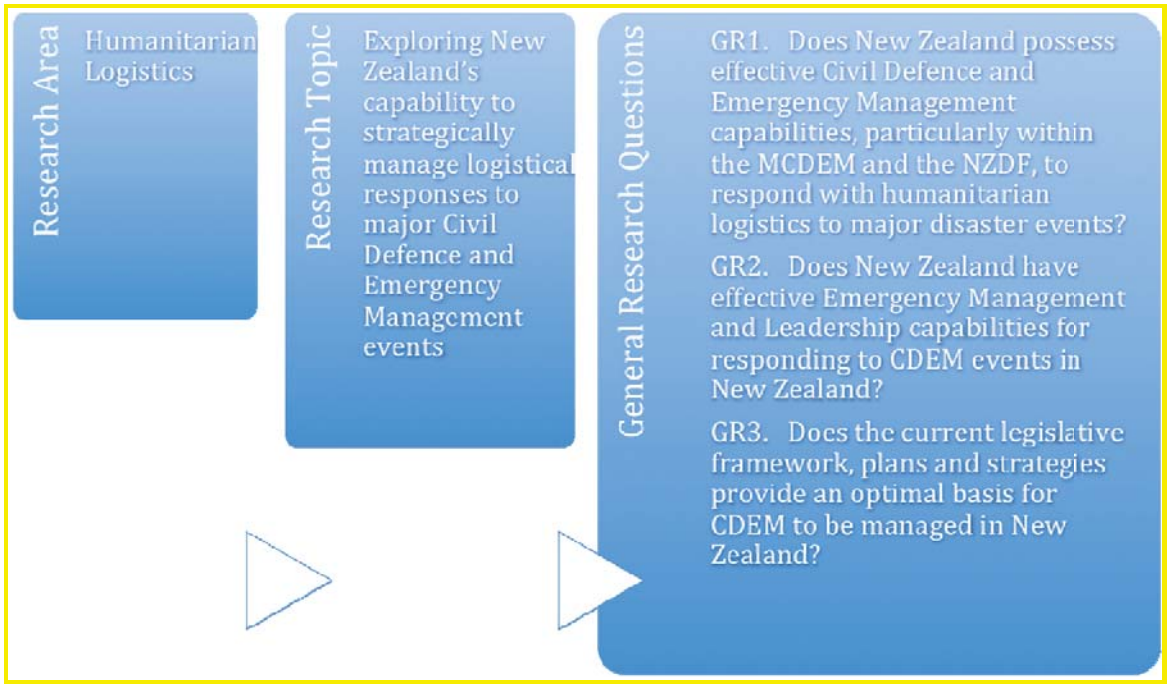

Figure 3.4: Research Area, Topic and GR Questions

3.3.4 Specific Research (SR) Questions

Underpinning the three GR questions, and providing a critical linkage to the research area and topic, are the SR questions at tier 4 of the Hierarchy of Concepts (Figures 3.5, 3.6 and 3.7). These questions expand on the GR questions by exploring them in greater detail to provide a more critical analysis. At the same time they provide clear linkages for the framing and reasoning of data collection questions that are put to tactical use in the primary and secondary data collection framework. The SR questions provide the basis for

the survey questionnaire, as well as the questions put to those in senior leadership positions who were interviewed on a one-to-one basis.

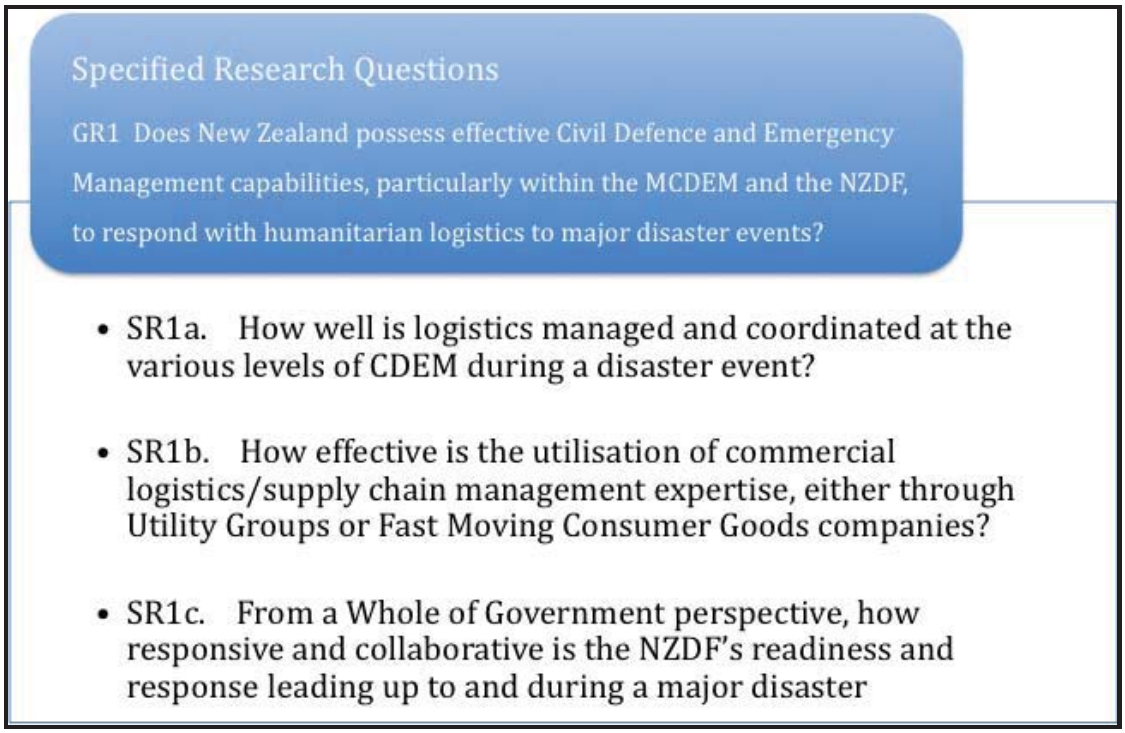

Figure 3.5: SR Questions Related to GR Question 1

SR Question 1a

> *How well is logistics managed and coordinated at the various levels of CDEM during a disaster event?*

This SR question aims to explore how effectively logistics are managed and coordinated, and the 22 February 2011 Christchurch earthquake is used as a case study. The effectiveness of key logistics management functions are examined for their effectiveness, as well as gaining a 'bigger picture' understanding of logistical assets that have the potential to be utilised.

SR Question 1b

How effective is the utilisation of commercial logistics/supply chain management expertise, either through utility groups or fast-moving consumer goods (FMCG) companies?

Within New Zealand there is a wealth of individuals with logistics expertise who could be called upon, and who will also be responding to their company's needs during a disaster event. The aim of this SR question is to assess if the CDEM sector is optimising its use of commercial logistics expertise in the private/commercial sector.

SR Question 1c

From a whole-of-government perspective, how responsive and collaborative is the NZDF's readiness and response leading up to and during a major disaster?

The NZDF has a directed responsibility to be prepared and to respond as a supporting agency during a time of crisis. Importantly the NZDF possesses significant logistics assets, as well as operational and planning expertise, that can be provided to support the wider CDEM effort. This SR question aims to assess how collaborative the NZDF is in its readiness and response approach to CDEM.

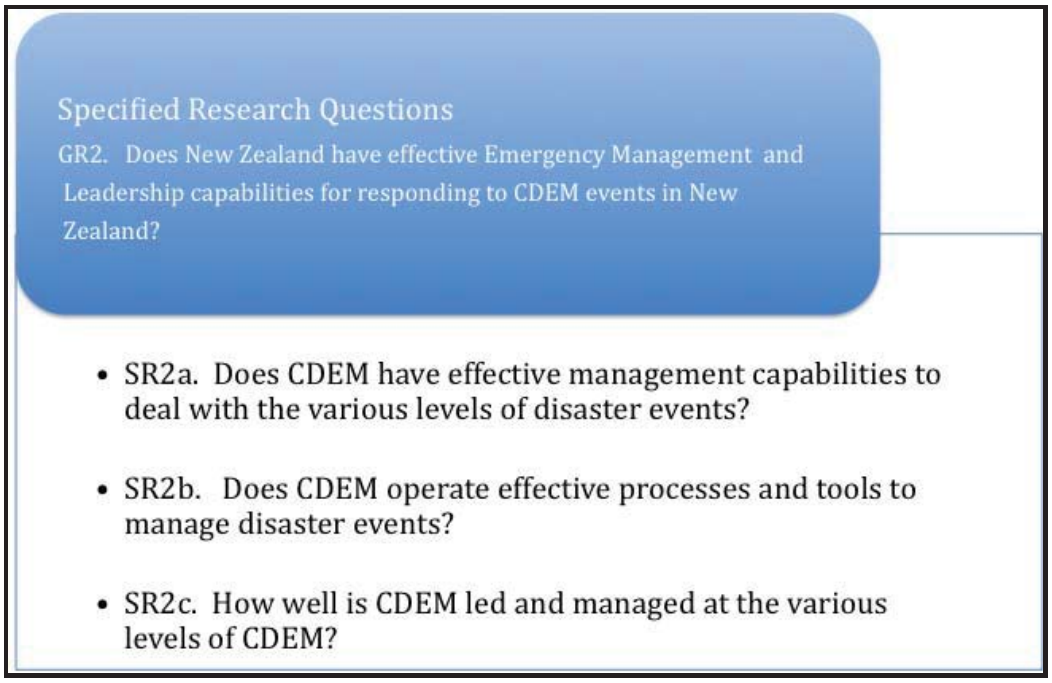

Figure 3.6: SR Questions Related to GR Question 2

SR Question 2a

Does CDEM have effective management capabilities to deal with the various levels of disaster events?

Effective management at a time of crisis is a critical factor, particularly in a major CDEM response. Within New Zealand's CDEM framework there are three levels where responses are managed and elevated, depending on the severity of the disaster (national, regional or local). This SR question seeks to assess the management capabilities at each level and how effectively each level of CDEM interacts.

SR Question 2b

Does CDEM operate effective processes and tools to manage disaster events?

This expands on the previous SR question. Effective management processes and tools are essential to the readiness and response ability of CDEM. This SR question aims to assess the state and effectiveness of current processes and tools.

SR Question 2c

How well is CDEM led and managed at the various levels of CDEM?

The level of effective leadership and management associated with CDEM readiness and response correlates with how an actual event is handled. This SR question explores the perceived performance of leadership and management across CDEM, and the associated competency levels of leading personnel.

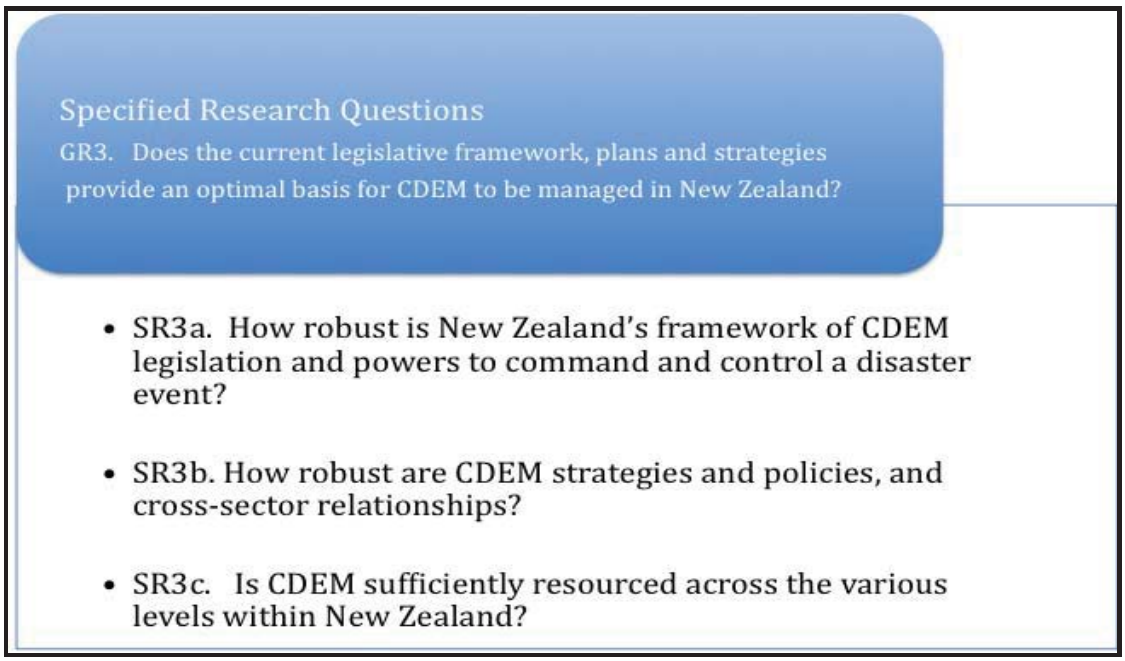

Figure 3.7: SR Questions Related to GR Question 3

SR Question 3a

How robust is New Zealand's framework of CDEM legislation and powers to command and control a disaster event?

New Zealand's legislation for CDEM is built on the Civil Defence and Emergency Management Act (CDEM Act, 2002) and the CDEM plan (2005), both of which have been discussed in Chapter 2. A variety of other Acts that instruct government agencies and utility groups form a framework of legislation that contributes to support the wider efforts of CDEM across New Zealand. The aim of this SR question is to examine the robustness of this framework.

SR Question 3b

How robust are CDEM strategies and policies, and cross-sector relationships?

Sitting below the legislation are strategies and guidance that provide the CDEM sector with a basis with which to plan and respond to disaster events. This SR question explores how robust these strategies and policies are and how effective the relationships across CDEM and supporting agencies are.

SR Question 3c

Is CDEM sufficiently resourced across the various levels within New Zealand?

Across New Zealand CDEM operates in the same resource-constrained environment as all other entities. The aim of this SR question is to assess the level of resourcing that exists across CDEM and seek opinion about how robust this resourcing is in order to be ready and respond effectively to CDEM events.

3.3.5 Data Collection Questions

The final layer of the Hierarchy of Concepts involves the detailed collection of data in the form of data collection questions. These questions provide the raw substance and critical analysis that will feed up and answer the SR questions. The data collection questions form the foundation of what is being asked in the primary data collection detailed below in Section 3.4.1 and essentially goes to the crux of the tactical operation of the CDEM sector: how it is performing or perceived to be performing. The data collection questions are contained in the survey questionnaire shown in Appendix 1 and also featured in Chapter 4 where they are analysed and findings presented.

3.4 Research Methods

3.4.1 Determining the Research Methodology

There are two primary research methods that are commonly considered for conducting research, quantitative or qualitative (Bryman, 2008). Often the decision of determining which research method to select will be relatively straight forward and dependent on the research topic being examined and the nature of the data that is being assessed as part of the research. When there is a combination of qualitative and quantitative data being explored then a hybrid model, commonly referred to as the mixed-methods research methodology, may be elected.

Quantitative Research Methodology. This form of research deals with empirical data that often relies on a structured collection and draws upon numerical and statistical information. Surveys are a commonly used tool to extract quantitative data, as are laboratory experiments, financial records and statistical information where there is the ability for data to be extracted and analysed (Veal, 2005).

Qualitative Research Methodology. Alternate to the quantitative method is this method that enables the ability to study social and cultural phenomena and deals more in the abstract and the complexities of views and opinions (Myers, 2009). Methods such as interviews, open-ended survey questions, and documents and texts can all be used. Researchers impressions and determinations can be utilised in a qualitative approach to research, however a thorough understanding of the research topic is required for there to be credible analysis and findings.

Mixed Methods Methodology. Where a combination of qualitative and quantitative research methods has been applied, then a mixed methods approach is justified. The strength of this method is the ability to harness empirical data in addition to the more interpretive undertakings of qualitative research.

In relation to this study, the mixed methods research methodology has been adopted. The reasoning for this choice has principally been because of the decision to undertake an extensive survey questionnaire of the wider CDEM sector that will contain quantitative and qualitative question. In addition, comprehensive one-to-one qualitative interviews are also conducted with senior CDEM sector officials. The following sections expand on the reasoning to adopt a mixed methods approach.

3.4.2 Primary Method of Data Collection

The research methods and associated data collection for this thesis have been approached from a primary and secondary perspective. The first approach taken to the collection of data was to conduct three primary data collection methods. First, a questionnaire survey, or self-administered questionnaire as described by Bryman (2008), was completed by a wide cross-section of 84 professionals across the CDEM. The survey provided quantitative data as a basis for statistical analysis of answers and trend observations. In addition, qualitative

data in the form of commentary and opinions were offered by participants, which provided a more personal viewpoint (Punch, 2012). Prospective candidates targeted for undertaking the survey were chosen based on their profession and experience in the wider CDEM sector. Where possible, candidates who had first-hand experience in actual disaster events were chosen. This selection was commonly based on recommendations from other CDEM professionals.

The second method used to collect primary data was a series of one-on-one semi-structured interviews conducted with leading figures in the wider CDEM sector. A large number of the same questions used in the survey were applied during the interview process, but were also expanded further, particularly where the expertise of the interviewee could be utilised. These interviews provided in-depth qualitative data to support the GR and SR questions in the Hierarchy of Concepts.

The third data collection method allowed for a strengths and weaknesses analysis. This utilised a combination of data obtained from within the survey questionnaire, opinions from interviewees, and data collected from CDEM Group Monitoring reports. A strengths and weaknesses analysis provided a valuable perspective, especially when respondents and interviewees felt strongly about where the CDEM sector was performing well or where there was a need to improve.

3.4.3 Secondary Method of Data Collection

Secondary data relates to existing data that has been gathered by another person for the purposes of another project or reason (Veal, 2005). This data can be useful in cross-referencing and validating primary data material, as well as proving to help inform the themes and findings that are being established as part of the overall research strategy. One of the main advantages of using secondary data is the reduction in time and cost that can be achieved by accessing high-quality information (Bryman, 2008). Secondary data also provides a vehicle to

open up an array of other research avenues and lines of thought that might not have otherwise been explored. A negative, or downside, to these 'new leads' with secondary data is the need to ensure that the data being referenced is credible and has been produced by an author worthy of referencing.

During the course of researching this thesis topic a number of documents have been sourced and included in the desktop research data collection. The secondary data sourced for this study covered a number of areas and included governmental and independent reports and reviews, international Humanitarian Logistics journals, SCM journals, government legislation and policy documents, and defence doctrine and policy.

A number of these documents have been peer reviewed. This establishes credibility and provides a valuable basis from which to compare and scrutinise the primary data collection. This assists in establishing reliability for findings, deductions and subsequent recommendations. Three data collection items feature in the analysis and findings chapter and are worth noting here. Brief summaries of these follow.

Independent Reviews and Reports. The Review of the CDEM response to the 22 February Earthquake 2011 has proven to be a highly valuable resource for comparing the primary research data findings with the findings and recommendations of the review itself (McLean et al, 2012). It is a highly regarded report instigated by MCDEM with the approval of Cabinet, where the majority of the findings and recommendations have either been accepted by the government or remain under consideration. Various studies conducted by Lifeline Groups (LG) have also provided a valuable resource for analysis. LUG studies into the effect of a major earthquake in both Wellington (Lifeline Group, 2012) and Christchurch (CAE, 1997) have influenced the approach taken to research analysis and associated questions which form part of the Hierarchy of Concepts.

CDEM Group Monitoring Reports. Periodic monitoring reports conducted by MCDEM of the regional CDEM Groups have been another valuable resource of secondary data collection. They provide a critical insight into the performance of CDEM Groups and contain both qualitative and quantitative data that offers a sound basis to either support or oppose the other data collected.

3.4.4 Analysis Approach to Data Collection Methods

Chapter 3 has explained the various primary and secondary methods of data collection for which material has been gathered. In considering how to present the data relating to each SR question two viable options were available. The first of these is to analyse each form of data collection against each SR question i.e. how the survey related to each question followed by how each interview related to each question. The advantage of this option is to neatly address each data collection method, but the disadvantage is the potential for repetition of addressing each SR question multiple times. The second option is to approach each of the nine SR questions as a single entity and incorporate all related analysis from the various data collection methods under each question. This integrated approach has the benefit of synthesising the most important findings that then helps to determine the key issues and themes to consider taking forward for further discussion and recommendations. For example, the analysis related to an SR question may have a mixture of data sourced from the questionnaire survey, comments from one or more interviewees, a strengths and weaknesses analysis, observations from independent and MCDEM reports, and international journals and academic texts. This second option provides a more comprehensive analysis of the key issues and was adopted for the purposes of this study.

3.4.5 Mixed Method Questionnaire Survey

A questionnaire survey supports “a research strategy involving the collection of data from a range of respondents” (Punch, 2012, p. 156). Veal (2005) also notes

that most businesses use a questionnaire survey as the primary instrument for gaining information. The main body of the questionnaire was divided into four sections that mirrored the research fields of this study. A copy of the survey questionnaire is provided at Appendix 1.

The survey contained 39 questions, 36 of which related to the primary data collection questions.[11] The majority of survey questions aimed to produce quantitative data that could be measured and analysed for trend and statistical purposes. In addition, most questions also asked respondents to provide qualitative opinions or statements to support the rating they provided. These qualitative responses provided a valuable source to determine themes and trends related to the SR questions, and to the overall research topic generally.

Respondents' Information. In this introductory section respondents were asked to provide their name, position and contact phone number. They were also asked to provide permission for their answers to be attributed to them or to remain anonymous. Forty-four percent of respondents preferred to have their responses remain anonymous. Finally respondents were asked if they performed a leadership or management role in their organisation when a CDEM event occurs, to which 88% indicated they did.

Selection of Respondents. In determining the range and skill-sets of potential respondents, a conscious decision was made to target a majority of personnel who were directly or closely connected to the wider CDEM sector.[12] A wide cross-section of staff from the three levels of CDEM (national, group and local) made up 68% of respondents. This high percentage was deliberate as these people are considered to have the expertise and detailed knowledge of CDEM practices and procedures to provide authoritative comments. The remaining

[11] The three initial questions of the survey gathered information related to the respondent's name, employment position and preference for anonymity.
[12] The wider CDEM sector for this thesis is defined as CDEM officials, NZ Police, NZFS, NZDF, MoH and relevant NGOs.

32% of respondents were made up of OGAs (24%), NGOs (4.5%), and commercial sector (3.5%). Of the government agencies, most of the respondents were prominent people from CDEM's supporting agencies – NZP, NZFS, NZDF and MoH. These people were considered to have first-hand experience of emergency management, many having been directly involved with the Christchurch earthquakes disaster response effort. Commercial industry respondents included a chief executive of a prominent Chamber of Commerce, and senior staff of LGs responsible for the provision of electricity, water and communications. The NGO respondents included senior management of the New Zealand Red Cross (NZRC), who provide significant welfare support to people affected in a disaster, and St John's Ambulance, who also play a critical role in any immediate disaster response effort. Logistics managers from FMCG companies, whose job is to maintain a severely interrupted supply chain, were also included in the survey. The following table details the categories of respondents and the percentage that each group contributed to the final total of 84 individuals who participated in the questionnaire survey.

	CDEM	Police	NZDF	OGA	Commercial Industry	NGO	**Total**
Actual No.	57	5	5	10	3	4	**84**
%	68	6	6	12	3.5	4.5	**100**

Table 3.1: Category and Percentage of Respondents

Survey Selection. The survey was conducted by electronic means and communicated by email to prospective respondents. The electronic software product 'Survey Monkey', a survey tool that is used widely in academic institutions, was chosen to administer the survey. There were two main reasons for this selection:

1. The tool's reputation and functionality means it is understood by respondents and can be easily administered.
2. The ability for the author to access a NZDF Survey Monkey account through the NZDF Command and Staff College.

Conducting the Survey. Initially contact with potential respondents was made via a telephone call seeking their involvement with the study.[13] With recent disasters still fresh in many minds it was encouraging to find that most of those contacted were receptive to undertaking the survey. A large number of those contacted were also keen to recommend others who they considered to be appropriate candidates for the study, in particular, people who had been involved with recent events such as the Christchurch earthquakes or the MV RENA maritime disaster. Another method used to identify potential respondents was the inclusion of an introductory message in the email containing the electronic survey link, which invited recipients to reply advising of any other prospective respondents they considered appropriate. At this point the survey entered a 'viral phase' with the initial target of 35-40 survey requests growing to a list of 103 people eventually invited to complete the survey. Respondents were given a five-week period by which time 84 completed surveys had been received. This response far exceeded initial expectations and resulted in a response rate of 81.6% of the 103 surveys sent out.

Strengths and Weaknesses of this Survey Approach. Conducting a survey of this type over a range of respondents brought with it some potential positives and negatives. A positive result was the number of respondents who are CDEM sector professionals, many of whom have extensive experience in emergency management. Some respondents brought strong views and robust opinions that can be explained by the passion and commitment this brings to the CDEM sector, especially those who had experienced, first hand, recent disaster events.

[13] MCDEM officials were helpful in providing a nationwide list of contacts.

This had the potential to be perceived as agendas being pushed, but this was not a negative as any agenda being advanced was a result of recent traumatic events that related specifically to the research questions. Another significant positive was that a number of respondents were in senior leadership positions, and that they answered survey questions freely and open to attribution. The ability to connect with experienced professionals, as opposed to conducting a random untargeted survey, resulted in responses of a far higher quality (Bryman, 2008).

From a weaknesses viewpoint, one aspect that needed to be considered carefully was the significant number of respondents directly employed in the three levels of the CDEM community. The high number (68%) of CDEM-sector respondents had the potential to dilute the voices of those responding from other government agencies, the commercial sector, or the NGO community. To mitigate this the analysis was carefully conducted to assess the various groupings and determine where one sector's voice may have swayed the comparative voices of others. Interestingly, the results provided little evidence that this actually occurred with robust views observed from across the spectrum of respondents. Another weakness that had the potential to occur was the inability to answer some of the questions outside a particular respondent's area of knowledge. To reduce this effect, the analysis was only focused on actual responses to questions. The functional ability of Survey Monkey was utilised to exclude unanswered responses for quantitative calculations.

3.4.6 Qualitative Interviews

The second means of data collection was to conduct a series of one-to-one interviews with prominent people directly involved at a senior leadership level across the wider CDEM sector. These interviews were conducted after the questionnaire survey results had been collected. Bryman (2008) considers the interview as the most widely employed method of qualitative research. He goes

on further to identify the key attributes of performing the role of an ethnographer, which in this case involves "interviews conducted with informants that are not directly amenable to observation or that the ethnographer is unclear about and writes up a detailed account of that setting" (Bryman, 2008, pp. 402-403). According to Kvale (1996), the interview helps to understand the world from the subject's point of view and to unfold the meaning of individual experiences.

An important aim of these senior leadership interviews was to seek the views of leaders to either validate or offer contrary opinions on the data generated from the survey. It can often be the case that the perspective of senior leadership and the lens with which they view an issue may well differ from those considering the same issues at a different level in the organisation and potentially from a different contextual lens.

Interviewee Selection. The study had a target of seven in-depth interviews. The range of interviewees was determined based on position and sector with specific focus on people holding key leadership positions. A 100% success rate was encountered, with those approached making themselves available similar to the enthusiastic response found with the questionnaire survey. From the outset the intention was not to specifically name those interviewed and nor is this seen as necessary in the analysis and validation of data gathered. All interviewees agreed to have comments attributed except for some views offered under the Chatham House rule.[14] In these instances recording of the interview was temporarily suspended. Despite interviewees providing permission to have their views attributed to them, an undertaking was given to not specifically name any interviewees but to reference them by interview number. To provide an overview

[14] When a meeting, or part thereof, is held under **Chatham House Rules**, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.

of those interviewed a generic list of interviewees, and a high-level description of their position, is provided in Table 4.1. Discretion and professional courtesy is therefore requested in not attempting to determine the identification of those who agreed to be interviewed.

Organisation	Leadership level
1. Department of Prime Minister and Cabinet	Executive level
2. Ministry of Civil Defence Emergency Management	Executive level
3. Regional Civil Defence Emergency Management	Executive level
4. New Zealand Defence Force	Executive level
5. Regional Lifelines Group	Senior management
6. Major NGO in New Zealand	Executive level
7. Ministry of Civil Defence Emergency Management	Senior management

Table 3.2: Generic List of Interviewees

Interview Method. Due to the roles and senior leadership status of those being approached for interviews, a 'semi-structured' interview process was adopted as the chosen interview method. This method ensures a list of questions of fairly specific topics to be covered, but with a great deal of latitude to allow the interviewee to reply (Bryman 2008).

Conducting of Interviews. Consistent with Bryman (2008), a significant amount of preparation was required to successfully conduct interviews that had the outcome of providing meaningful data for analysis. A thorough and detailed review of the data collection material from the questionnaire survey, the McLean Review, and CDEM Group Assessment reports was conducted in order to develop relevant interview questions. To maximise the quality of data collected

for each subject matter, a range of individual questions were prepared based on the background and current role of the specific interviewee.

Before conducting the interview each interviewee was contacted personally whereby the request for an interview was broached and an introductory explanation provided. After the subject agreed to undertake an interview, and consistent with a semi-structured interview method, the interviewees were sent a preliminary list of questions that would be explored. It was emphasised at this stage that interviewees would be afforded flexibility in how they would like to approach the questions, including the option to expand on any themes identified or to ignore any questions if they preferred not to answer them. After the questionnaire survey had been returned, a range of questions were constructed that would inform and expand on themes emerging in the survey data. The interviews were conducted either at the interviewees' workplace or in a more neutral setting such as a cafe. Each interviewed lasted between 60-90 minutes and with the subject's permission was recorded electronically using a voice recorder. A transcript summarising the main dialogue was written up on completion of each interview.

3.4.7 Strengths and Weaknesses Analysis

A consequence of gathering primary data through the use of a survey questionnaire and interviews has been the ability to conduct a strengths and weaknesses assessment in certain areas. This strengths and weaknesses analysis is focused on two areas: the first relates to CDEM management structures and processes; and the second focuses on leadership and management competencies. Specifically, management structures and the resources being provided across CDEM were explored, as were the leadership abilities and competencies that respondents and interviewees considered worthy of comment. The combination of data collection, survey and interviews provided a focused analysis in these areas. The strengths and weaknesses analysis of these two areas is summarised at Annexes B and C respectively.

3.5 Ethical Considerations

Ethical principles and issues are important considerations when conducting research, and the University's Ethics Guidelines have been referred to in this study (see Appendix 2). Bryman (2008) summarises the four main areas of ethical consideration:

1. Whether there is harm to the participant?
2. Whether there is a lack of informed consent?
3. Whether there is an invasion of privacy?
4. Whether deception is involved?

In addition, Massey University (2013) provides that principles should be followed to ensure:

- Respect for persons.
- Minimisation of harm to participants, researchers, institutions and groups.
- Informed and voluntary consent.
- Respect for privacy and confidentiality.
- Avoidance of unnecessary deception.
- Avoidance of conflict of interest.
- Social and cultural sensitivity to the age, gender, culture, religion and social class of the participants.
- Justice.

This thesis has taken all of these considerations into account, particularly noting the sensitive nature of exploring disaster events that have resulted in the loss of life. Considering the aims, objectives and associated research questions, there has been no agenda or attempt to seek the apportionment of any blame or culpability in the course of this research project. Accordingly a low risk notification was submitted to Massey University Human Ethics Committees on

28 March 2013, and was subsequently recorded in the Low Risk Database. A copy of the notification is included at Annex E.

Respondents undertaking the questionnaire survey did so on a voluntary basis and with the option of remaining anonymous should they wish. They were informed that should the author seek to identify them with their answers or viewpoints, that their permission would be sought. This same provision was applied to those being interviewed. That said, as research progressed a decision was made to preserve respondents anonymity, negating the need to seek permission from survey respondents or interviewees.

3.6 Chapter Summary

This chapter has aimed to explain the research methods and design that have been used in the construction of this thesis. The research design consists of primary data collection in the form of a questionnaire survey and interviews, and secondary data collection in the form academic desktop research. These combine to produce the analytical data being tested. A mixed-methods model has been adopted to incorporate both the quantitative and qualitative material. All this is set against the research framework of the three areas of research – Humanitarian Logistics, Emergency Management and Leadership, and Governance and Policy. Figure 3.1 provided a visual understanding of the overall research design. The chapter concluded by identifying the ethical considerations.

Chapter 4 Analysis and Findings

4.1 Introduction

The aim of this chapter is to provide an analysis of the research data collected in order to answer the GR and SR questions and address the research topic underpinning this thesis. The chapter has been divided into five sections. Following the Hierarchy of Concepts model discussed in the Chapter 3 (Figure 3.3), the analysis and findings presented in this chapter explore the final layer of data collection. The principal aim of this chapter is to answer the nine SR questions and identify the progressive outcomes that relate to the highest level of the hierarchy, the research area of Humanitarian Logistics.

The next four sections are broken into sub-sections analysing each of the three fields of research (refer Figure 1.2) and a section that focuses specifically on SR questions related to CIVMIL relations and the performance of the NZDF. As CIVMIL relations span all three areas of the research, this area is addressed as a separate section of analysis, rather than incorporating it into the analysis of the three research fields. The analysis identifies key themes that will be taken forward to Chapter 5 as part of further discussion and recommendations.

4.2 Humanitarian Logistics

> "While not an end in itself, good logistics are a precondition for those running emergency programmes to ensure that their programmes are successful."
>
> (James, 2008, p. 227)

4.2.1 Introduction

The main aim of this section is to seek to answer the GR 1 question: **"Does New Zealand possess effective CDEM capabilities, particularly within the MCDEM and the NZDF, to respond with Humanitarian Logistics to major disasters events?**" In Section 2.2.3 a definition of Humanitarian Logistics by Thomas and Kopczak (2005) helps to identify the key elements of logistics management during a crisis or disaster event. A detailed analysis of the CDEM community in New Zealand shows that there is a weak understanding of what 'logistics' means and how the community should attempt to understand the terminology associated with this critical function. Due to the lack of any formal CDEM logistics doctrine or guidelines, which are still under-development, research efforts to find a definition of logistics being applied within CDEM proved difficult. A copy of the draft *CDEM Logistics Director's Guideline* was provided by MCDEM that contained the following explanation of logistics:

> Logistics is an enabling function; it exists to support the other functions so that they may complete their tasks. It is a vital function to consider when launching an effective incident response (particularly in extended operations), as it makes it possible for the other functions to operate effectively. Logistics supports responses through the provision of resources that help maintain the response and the affected population. It is responsible for procuring and providing resources such as personnel, equipment, supplies, services, facilities, and finance.
>
> (MCDEM, 2012c)

This statement was included in the preamble to the logistics section of the questionnaire survey in order to provide respondents with some form of common understanding of the terminology. As presented previously, to answer GR 1 there have been three SR questions developed to explore this topic in greater depth. The questions focus on: The effectiveness of emergency management and coordination; the performance of the Coordinated Incident Management System (CIMS) and its associated management; CIMS' main management elements; the importance of the logistics function within CDEM; and the utilisation of logistical expertise from the commercial sector and the military.

4.2.2 Logistics Management and Coordination

SR 1a asks: **"How well is logistics managed and coordinated at the various levels of CDEM during a disaster event?"** This question explores how logistics is managed and coordinated in more detail, in particular using the February 2011 Christchurch earthquake as a case study. Key logistics management functions are examined for their effectiveness, as well as taking a 'bigger picture' understanding of logistics assets that have the potential to be called upon.

The questionnaire survey contained four dedicated questions related to logistics management and coordination, as well as a number of secondary supporting questions that also contributed data to this SR question. The first data collection question 4 (n = 72) related to the general management of logistics and asked respondents: "**How well do you consider logistics to be managed generally at the various CDEM levels?"**

At the national level of CDEM logistics, the survey result showed that respondents generally felt logistics was handled satisfactorily despite the lack of formal doctrine and policy (Figure 4.1). At the Group level, management of logistics was regarded as slightly better than the national level and comments

reflected this through the ability of regional logistics arrangements to have been established and tested. At the local level, however, the general management of logistics was seen as less than satisfactory.

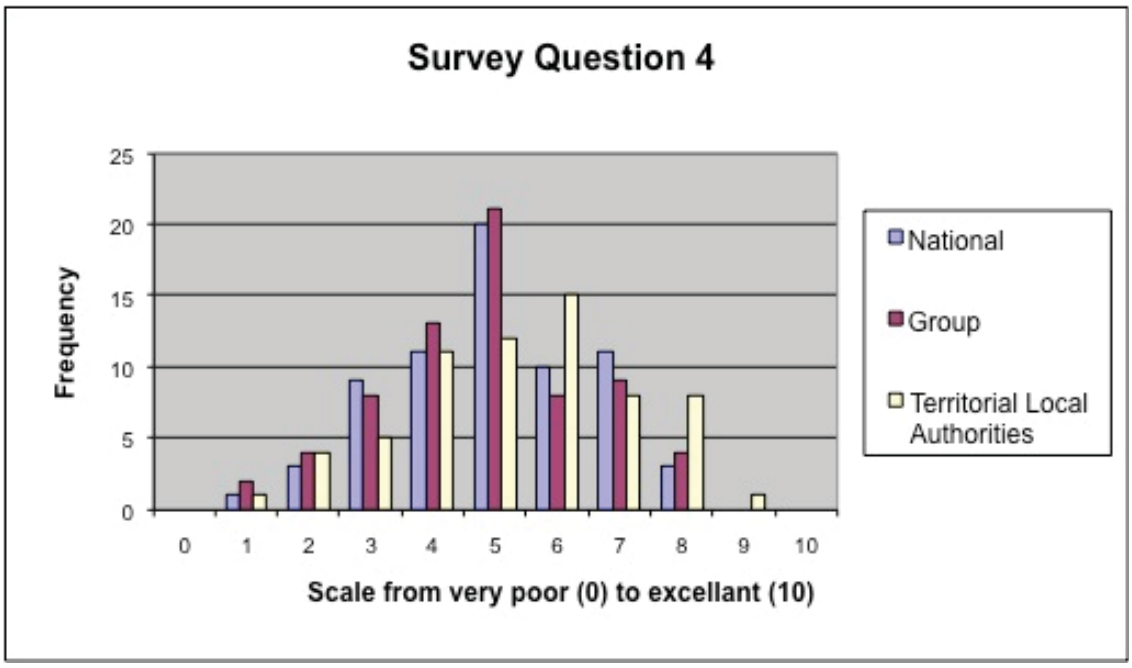

Figure 4.1: CDEM Logistics Management (n = 72)

Survey comments provided a number of themes. Most notable was that logistics was often seen as the ‘poor cousin’ within the CIMS, and is often regarded as secondary to the other main functions of Plans and Operations. Forward planning of logistics was also identified as an area of under-performance, particularly at the local level where respondents felt that it was not afforded sufficient priority or resourcing. This view is consistent with the results of survey question 7 (n = 71) that reported that respondents regarded the logistics planning function as less than satisfactory.

Interviews with senior officials acknowledged that logistics is commonly the weak link within CDEM as it is often not well understood or given priority due to its inherent supporting role to operations and plans. One CDEM official stated

that maintaining situational awareness of the supply chain could often be very challenging. He regarded purchasing and distribution as key areas where CDEM logistics can make an important impact. He also stated that situational awareness of what equipment is required, and the supply chain procedures with which to purchase and distribute items, are areas that require further work.[1] A consistent view of respondents was that speed of response was the 'make or break' for a logistical response. This view is supported in the literature where the need for speed of logistics deployment and supply chain awareness are critical, not just in a humanitarian sense, but also in most logistics operations. (Tomasini, 2009; James, 2008). Tomasini (2009) agues that humanitarian supply chains have a more hierarchical set of performance indicators and that lead-time reduction becomes the all-important factor due to the overriding need for speed once a disaster hits. James (2008) considers that speed and urgency in collaboration amongst initial responders is the real weak point of most logistics responses.

Logistics is seen as under-committed or poorly resourced alongside other CDEM functions; this is consistent with the result from survey question 4. Survey question 11 (n = 73) explores this in finer detail by asking, "**When comparing logistics to the other functions within the Coordinated Incident Management System (Operations, Plans, Welfare) how would you rate the attention/resourcing it receives against what it requires?"** Sixty-five percent of respondents considered that logistics rates lower attention than the operations, planning, or welfare functions of CDEM. There was also a common view among those respondents who provided supporting comments that a review of national CDEM logistics is required and that a section needed to be included in the National CDEM Plan as a matter of urgency. The McLean Review was also critical of the lack of a logistics section to the plan, and recommended that this be attended to with a matter of urgency. MCDEM have

[1] A section to the current guide to the National CDEM Plan is still being written.

accepted this recommendation and it is widely accepted by CDEM leadership that this *Logistics Director's Guidelines* is overdue.

In MCDEM's subsequent Corrective Action Plan to the McLean Review, a commitment has been made to develop a CDEM *Logistics Director's Guidelines* in the 2012/2013 timeframe for inclusion in the National CDEM Plan (MCDEM, 2012d, p. 12).[2] The question must be asked why this delay has occurred in developing and publishing logistics policies. Van Wassenhove (2006) believes that in most disaster response organisations, Humanitarian Logistics continually struggles for recognition. He refers to this as "The vicious circle of logistics" (Figure 4.2). This results from a lack of understanding of logistics, which in turn impacts on the inclusion in the planning and budgetary process and then leads to a fire-fighting mentality where reviews of logistics are not seen as advantageous. Ultimately this results in an even greater lack of understanding of logistics and the absence of any real drive to develop and maintain logistics doctrine and policy.

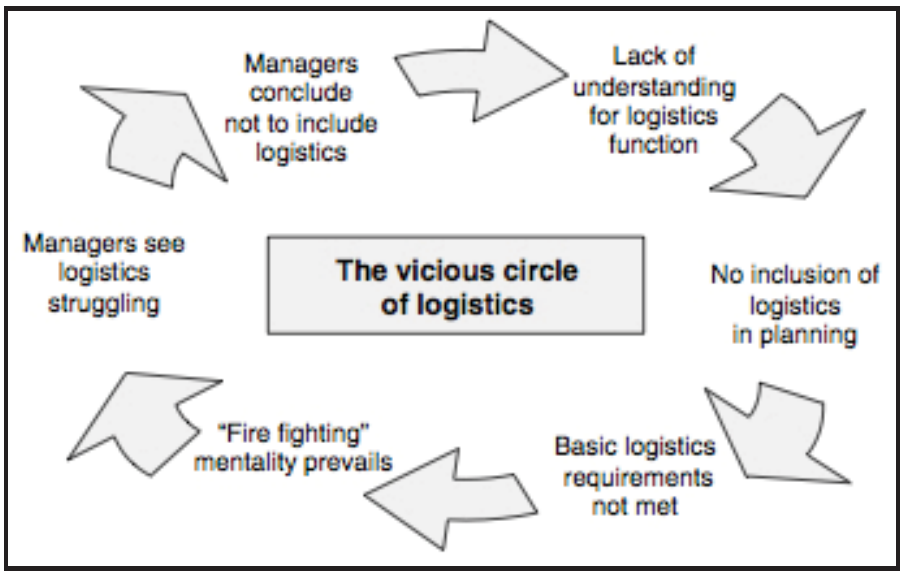

Figure 4.2: The Vicious Circle of Logistics

[2] A copy of the draft *Logistics Director's Guidelines* have been reviewed and referenced as part of this study.

Respondents' supporting comments aligned with Van Wassenhove and raised specific concerns related to a lack of logistics processes and doctrine that can be applied during actual events and training exercises. Those that commented on this issue felt that unless robust doctrine and processes are put in place that can then be evaluated, it would not be possible to maintain a continuous improvement approach. These observations are consistent with another theme that emerged relating to the lack of trained logistics professionals. Within CDEM this often eventuates from a deficiency in actual training or the appointment of inexperienced or untrained staff to logistics roles where 'a gap' has needed to be filled. Often these staff members, particularly at the local level, will have dual roles where their 'business as usual' role may take higher precedent over their CDEM responsibilities. This issue of training and professional development is addressed in detail in Section 4.4.4.

Survey questions 5 (n = 73) and 6 (n = 67) related specifically to the 22 February 2011 Christchurch earthquake, and the coordination of logistics, both from a general perspective and at each of the CDEM levels. In survey question 5 respondents were asked whether they agreed with the statement, "**The Review of the CDEM response to the 22 February 2011 Christchurch earthquake noted logistics as an area that could have been coordinated more effectively."** Figure 4.3 demonstrates that an overwhelming 94% of respondents agreed with the statement; 26% of them giving the highest grading of 10 for 'absolutely agree'.

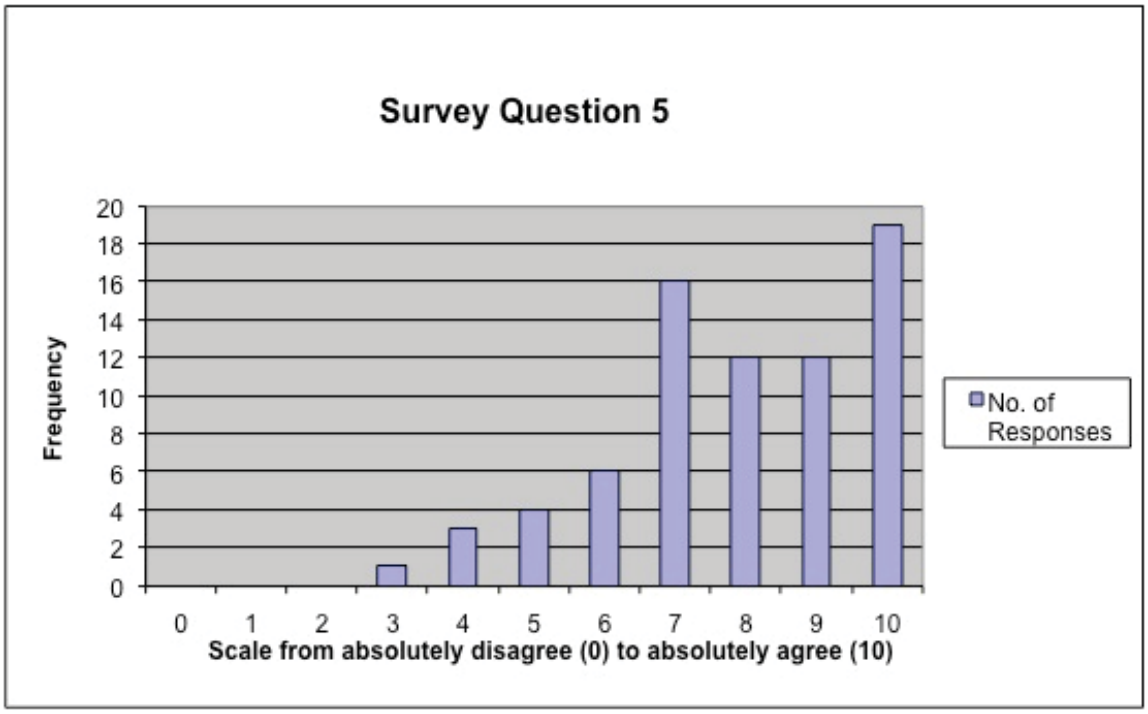

Figure 4.3: CDEM Logistics Coordination – Christchurch Earthquake (n = 73)

Comments from respondents mirrored common themes emerging from survey question 4, the difference being that question 5 related to a real-life major disaster event as opposed to an exercise scenario. Specific comments focused on the need for better freight reception, loading and distribution, and the critical requirement for experienced staff to be appointed to these responsibilities. A theme from respondents was that military logistics staff could play an important secondment role to this function, as could experienced L&SCM staff from the commercial sector. Related to the movement of equipment were comments concerning the inadequate information management systems used to handle logistical requirements. This observation aligned to observations made in McLean Review which was critical of the disparate nature of the logistics function during the response phase.

Survey question 6 (n = 67) concerned the coordination and management of logistics at a functional level during the major earthquake event. Just over half (51%) of respondents considered logistics at the national level was below the

midway point, while at the group level logistics coordination and management were considered to be slightly worse, with 56% of respondents giving a rating of satisfactory or below satisfactory. Local level logistics coordination and management fared slightly better with 56% of respondents considering that logistics was of a satisfactory or better standard.

An oddity with the management structures put in place at the time of the Christchurch earthquake was the combining of the Group level Emergency Coordination Centre (ECC) and the local level Emergency Operations Centre (EOC), into a combined operations centre called the Christchurch Response Centre (CRC). This had the effect of co-locating the Canterbury CDEM Group logistics staff and the Christchurch City Council CEDM logistics staff under the same construct. Each staff group was given the responsibility for the plans and operations functions respectively. However it has been emphasised by respondents' comments, and in the McLean Review, that relationships between the Canterbury CDEM Group and Christchurch City Council CDEM staff had been largely dysfunctional since the September 2010 earthquake due to considerable friction in working relationships (McLean et al, 2012, p. 47). It should also be noted that this reactive arrangement was criticised by the McLean Review as being contrary to doctrine and also for the dysfunctional and stove-piped aspects of the CRC organisational structure. It is however interesting that the McLean Review eventually recommends that, given the opportunities that the Canterbury rebuild presents, a single combined EOC should be established for future CDEM operations in Canterbury. This recommendation has been acted upon in Canterbury with the intent of an integrated EOC being established in the new Justice Precinct.

Survey data question 24 (n = 62) has a logical follow-on from question 6 so is included at this point. It asks respondents, **“Would a single Emergency Operations Centre during a CDEM event avoid duplication and assist in collaboration of various functions?**” Figure 4.4 shows that 70% of

respondents rated this recommendation at 5 or above with 45% rating it between 8 to 10.

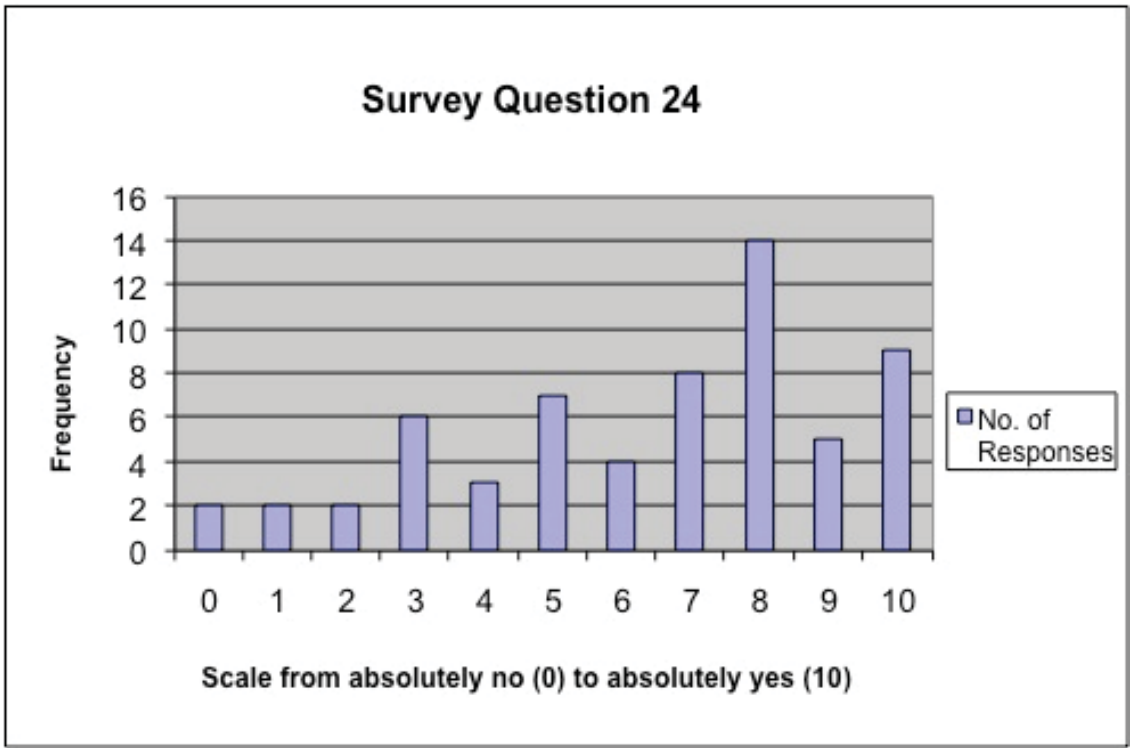

Figure 4.4: CDEM Emergency Operations Centers (n = 62)

It is also interesting to observe that in 2012 an integrated strategy was implemented in the Wellington region that has received wide praise in largely removing council politics from CDEM, and reduced the potential for tension between the group and local levels of CDEM. CDEM staff, previously funded by the regional council or local councils, have now been incorporated into one organisation, the Wellington Region Emergency Management Office (WREMO). In effect WREMO combines the group and local levels to a greater extent and seeks to manage CDEM in the Wellington region more seamlessly. It is now funded jointly by the councils on a population-based ratio.

4.2.3 Utilisation of Commercial Logistics and SCM Expertise

> "Since disaster relief is about 80% logistics it would follow then that the only way to achieve this is through slick, efficient and effective logistics operations and more precisely, supply chain management."
>
> (Van Wassenhove, 2006, p. 475)

The second SR question (SR1b) relating to Humanitarian Logistics asked, **"How effective is the utilisation of commercial logistics/SCM expertise, either through utility groups or fast moving consumer goods companies?"** This SR question aims to assess if CDEM is maximising its use of commercial logistics expertise in the commercial sector. Within New Zealand there is a wealth of logistics expertise across the commercial sector that could potentially be utilised for CDEM, particularly in the readiness and response phases of the CDEM 4Rs strategy. This includes the potential to incorporate highly trained commercial sector staff whose day-to-day L&SCM expertise involves the efficient and effective management of commercial operations. Taking advantage of this expertise would optimise any logistical response to a major disaster event and appears a logical move.

The survey questionnaire posed three questions directly related to this issue. Survey question 8 (n = 73) asked, **"How good is the level of understanding of logistics assets available domestically and internationally in our region that could be planned for in readiness and requested in response to a CDEM event?"** This question seeks to assess how much of an understanding there is within CDEM organisations of the logistics assets that may be available as a potential resource at a time of an emergency event.[3]

[3] Sourced publically, commercially, from the military, or from NGOs.

While 16% regarded this understanding as satisfactory, a majority view of respondents (47%) indicated that they felt this understanding was less that satisfactory. The general opinion voiced in the comments to this question was that the location and utility of logistics assets, and the associated corporate knowledge, was not well understood across the CDEM sector. A few individuals possessed this understanding creating a risk should they ever leave CDEM. Two respondents felt strongly that the Emergency Management Information System (EMIS) should be the receptacle for holding this corporate knowledge, but processes would need to be established to ensure the collection and sustainment of up-to-date information could be managed within the EMIS.

Aid agencies are another resource where significant logistical assets can be obtained to assist those affected at a time of crisis (Seipel, 2011). The NZRC was a significant first-responder to the humanitarian response to the Christchurch earthquakes, distributing more than $86 million in aid grants and providing items such as 43,400 torch radios and over 6,000 winter warmer packs for affected residents.[4] A senior executive interviewed from the NZRC explained the very effective global logistics framework that it can access to achieve huge efficiencies in its supply chain. The NZRC Auckland logistics centre consistently carries standard non-food items worldwide. The inventory consists mainly of tarpaulins, blankets, water containers and kitchen sets that have been procured under a global framework agreement. Purchasing items in bulk amounts allows the NZRC to receive a low unit price for these items and 'bang for buck' for the Red Cross internationally. A contingency of 2,000 family sets are maintained in the Auckland centre that can be quickly accessed and distributed.[5]

[4] The September 2010 and February 2011 earthquake appeals totalled over $128 million in donations, the largest NZRC appeal since the Second World War. See: https://www.redcross.org.nz/canterbury

[5] A standard family set consists of tarpaulins, blankets, a kitchen set, toolkit, and mosquito nets.

Not only does NZRC provide equipment to assist with Humanitarian Logistics, but also the people skills needed for its management. Key to the professional development of NZRC personnel is operational experience. The NZRC senior executive interviewed stated, “Many Red Cross personnel have witnessed huge disasters whereas a large proportion of MCDEM people have not been exposed to huge events. Most of the work is the humanitarian touch after the event” (Interview 6).

There are some encouraging developments in certain parts of the CDEM sector. For example, the Waitaki District Council recently undertook a resources audit that now provides it with a valuable understanding of what can be accessed within the region. Just as importantly, it has prompted discussion with local companies in terms of access and possible memorandums of understanding (MoU) for the application of commercial resources. The Wellington region is another good example where dialogue with the NZDF and the logistics assets that it can bring to bear is a regular discussion point. Likewise, the Wellington LG has a good understanding of major logistical assets in the Wellington region (Interview 5).

Following on from understanding the visibility of logistics assets that exist, is the optimisation of private and commercial logistics expertise before and during a disaster event. Survey question 9 (n = 74) asked respondents, “**From a CDEM perspective, good use is made of the logistics expertise within the private/commercial sector. Do you agree with this statement?”** Figure 4.5 demonstrates that a clear majority of 64% of respondents did not agree with this statement, each to a varying extent. Many respondents, as well as some of those interviewed, considered that this is an area where CDEM logistics could advance rapidly if there was greater use of commercial and private expertise from logistics and supply chain professionals.

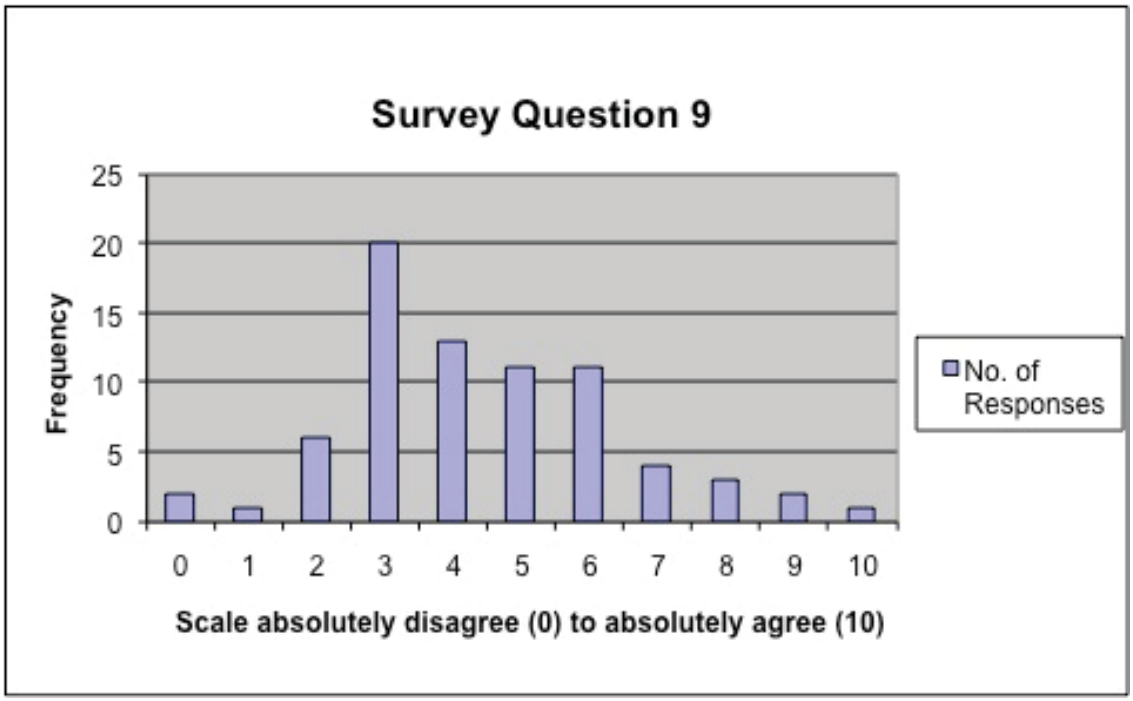

Figure 4.5: Utilising Commercial Logistics Expertise (n = 74)

Some of the common themes reflected in survey comments were:

> "No I don't think it is something that is utilised well. There is expertise out there but the CDEM sector have not worked together sufficiently yet to plan for utilising their services better in a time of need."

> "I believe it is getting better since the Canterbury event but I still believe that there is a huge gap between CDEM and the logistics professionals."

A senior executive interviewed from the DPMC was strongly of the view that all public and commercial expertise should be harnessed wherever possible. He stated, "Logistics is the strongest form of resilience that we have as a country. We should be thinking how to improve resilience and what could we do to make

sure logistics functions well" (Interview 1). This view is supported by Thomas and Kopczak of the Fritz Institute who state:

> "Corporate logisticians can contribute not only by sharing knowledge and best practices, but also by sharing successful approaches to interacting as a community as well."
>
> (Thomas & Kopczak, 2005, p. 9)

FMCG companies play a critical role in the sustainment of a national macro SCM (Tomasini, 2009; Larson, 2012; Kovacs & Spens, 2007). Two major FMCG companies in New Zealand, Progressive Enterprises and Foodstuffs Limited, dominate the country's grocery store chains.[6] The communication and support between the two major providers in recognition of the potential for food shortages in the devastated population following the Christchurch earthquake is worth noting. Progressive Enterprises lost most of its South Island storage capacity as a result of damage to its main distribution centre in Christchurch, and as a result had to manage distribution from its Palmerston North hub. By virtue of professional communication and cooperation the FMCG companies generally managed to get most of its inventory to the customer, but not without some very challenging distribution and warehousing hurdles to overcome. Much of this success story can be put down to the expert management and professional staff work that played out during the first few weeks after the earthquakes and saw the two companies, despite being competitors, in communications to ensure that foodstuffs were maintained to the affected areas.

What was evident was the relatively limited connections with CDEM and the reactive approach from CDEM that, "They'll let us know if they need help." Relationship building, contingency planning and exercises are all areas where MCDEM and the wider CDEM sector can play a lead coordination role.

[6] Presentation by the Progressive Logistics Manager – 2013 National CDEM Conference, Wellington (2012).

Communication and tactful collaboration between key entities, while treading a careful path between commercially competitive companies, is the space that national and group CDEM, together with LGs, can actively navigate in the quest for readiness and response to major disasters. What is concerning is that neither of the two FMCG companies mentioned above are included in the LG, nor does the CDEM Act stipulate FMCG grocery companies as organisations that should be. This is an area that could be easily addressed with a degree of enhanced relationship management. As one survey respondent offered:

> "There is a need to develop a Logistics Advisory group at the CDEM Group level, along the same lines of the existing Welfare or lifeline groups. To involve organisations within the Group area with a supply and distribution specialty i.e. Fonterra, Foodstuffs, Air NZ, freight companies."

The McLean Review also noted this theme of under-utilising the commercial expertise available in New Zealand. It cited the example of the General Manager for Toll Logistics New Zealand assisting the CRC, almost by fluke through him offering his services as a volunteer. His contribution was eventually described as making a significant contribution to procurement and transportation (McLean et al, 2012).

When considering the FMCG challenges that faced Christchurch in 2011, the same response outcome is not as assured if a disaster of a similar magnitude was to occur in the Wellington region. Restricted harbour access and the high likelihood of road and airport closures, coupled with the potential for greater damage to city infrastructure, could easily result in FMCG companies being exhausted quickly and the supply chain struggling to replenish sufficiently. This is where commercial logistics companies from outside of the damaged region, as well as the military, can and will need to play a critical role (Interviews 2, 3 & 4). The added value that can be gained through applying logistics expertise,

both in staffing and in applying proven processes and systems, may be a critical factor in assisting a CDEM sector that may be overwhelmed in a major disaster event. McLean et al (2012) recommends that for significant emergencies, the expertise available in commercial logistics companies be incorporated into EOCs at an operational level. This recommendation arose from observations such as:

> "The scale and diversity of procurement and other logistics requirements after the February earthquake went far beyond anything that had been envisaged in local CDEM planning or even at a National level."
>
> (McLean et al, 2012, p. 158)

While commercial logistics companies can assist with critical restoration of the supply chain, regional LGs also have a role to plan in making plans and ensuring major utility providers are aware of critical vulnerabilities and these are accounted for. According to the CDEM Act:

> "Every lifeline utility must ensure that it is able to function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency."
>
> (NZ Govt, 2002, s. 60.a).

Defining exactly what is meant by "fullest possible extent" is subject to interpretation. An interview with a senior member of a regional LG considered this legislative measure "wide enough to drive a bus through", and held the view that only through effective relationships between CDEM and LGs will response measures strengthen and resilience be enhanced to cope in a disaster (Interview 5).

Survey question 10 (n = 64) asked respondents to consider the role that LGs can play in readiness and response phases of MCDEM's 4Rs strategy. The question asked, "**Lifeline utilities play a significant role in a major disaster response. From a logistics perspective how well integrated is CDEM and Lifeline utilities at the national and group levels?"** Survey results show that respondents consider the integration between CDEM and LGs to be more positive than not. At the national level, 28% believed the relationship is satisfactory while a further 47% believed it to be either good or very good. On average at the group level, acknowledging that some groups will have better relationships with LGs than others, 20% considered the relationship to be satisfactory, while 62% rated the logistics integration as either good or very good. It is not surprising that at the CDEM Group level this should be the case as it appears widely acknowledged within the CDEM sector that it is in CDEM and LGs interests to have workable contingency plans at the regional level that have buy-in from both sides.

Respondents who provided supporting comments stated views consistent with the following themes:

> "I know the lifelines function is improving. This is a key relationship in terms of logistics."

> "Lifeline utilities and CDEM should be working much more closely in planning and exercises. This deficiency is very hard to bridge when not in response mode."

The regional LGs have generally been established to mirror the 16 regional CDEM Groups throughout New Zealand. Sitting above the lifeline groups is the New Zealand Lifelines Committee (NZLC) whose focus is to enhance the connectivity of utility organisations across agency and sector boundaries in order to improve infrastructure resilience (MCDEM, 2002). In a practical sense

the NZLC can add value by advocating consistency of action between LGs i.e. through sharing corporate knowledge of studies conducted, procedural advancements, and lessons learnt from recent events. Membership of the NZLC includes a cross-section of the nationally important utility companies with representation from MCDEM, the Ministry of Business, Innovation and Employment (MBIE), the Earthquake Commission and GNS Science. Realistically the NZLC is a relatively small committee with finite resources that essentially relies on the goodwill and voluntary nature of its membership. Its commitment and ability to influence positive change may vary in effectiveness due to a variety of factors i.e. personalities involved, economic conditions, and motivation levels of the various lifeline organisations. Schedule 1 to the CDEM Act details what utilities are subject to the provision of the Act, and defines their legislative responsibilities. The reality, however, is that a proactive input and commitment level of utility companies has to be actively nurtured and promoted. This is a role that regional LG, together with CDEM staff, can play a major factor in.

According to one senior leader within lifelines, the success of the regional LG is to focus on resilience and to build collaborative relationships such as telephone companies talking with electricity lines companies to identify vulnerabilities and to develop mitigation strategies and contingency plans. Lifeline Utility Coordinators (LUCs) can play an important role in facilitating these discussions, particularly through the employment of an effective project manager. WREMO is a good example where the LUC Project Manager is a member of the LG and also a contracted member of the WREMO. One of his primary roles is in promoting relationships and communication regionally.

Facilitating strategic alliances of MoUs between industry partners is an important value-add that regional LGs can undertake for the greater good of the CDEM sector (Interview 5). MoUs can prove very meaningful and can provide practical contingency plans to overcome utility downtime and restoration challenges at

the time of a disaster event. Once again, the goodwill and voluntary commitment of companies is required to establish MoUs, and while they are not contractually binding or may not specify cost recovery, they do provide a sound basis for communication and action at a real time of need. An excellent example of a MoU bringing together commercial partners is in Otaki, north of Wellington. It is considered likely that the river bridge that crosses State Highway 1 will collapse in a major earthquake. Nearby are two companies who have agreed to actively partner in the construction of an alternative bridge to restore this transport route. The New Zealand Transport Authority (NZTA) has facilitated this non-binding MoU with the input of the regional LUC Project Manager. The outcome is a win-win situation for the companies, the CDEM sector and the Wellington regional population. This is a good example of a proactive initiative that contributes to the drive for readiness as part of the 4Rs CDEM strategy (Interview 5). Another good example of collaboration is the development of a shipping MoU. As an immediate response to a major earthquake that disrupts transport links to Wellington, the parties to this MoU have agreed to mobilise barges from Marlborough to manage the flow of logistics required to sustain the Wellington population.

There appears to be a common view that LGs and the operation of major utility companies during a disaster event are considered outside of the logistics function operated under CIMS by CDEM. This lack of communication may be a result of leaving the companies to enact their own contingency plans, but this leaves a considerable risk in not understanding the overall situational picture. If CDEM logistics is not aware of the response priorities of major utility companies they will not be able to factor this into the critical decision-making and priorities being determined by CDEM officials. Fuel is a good example where MCDEM have a national fuel plan for major disruptions to the supply chain, while at the same time the major fuel companies have contingency plans to respond to a major event. In the event that fuel supply is affected the relationship between MCDEM logistics and the commercial sector needs to be robust. It therefore

makes sense that LGs play an active role in CDEM readiness and response, particularly in major exercises. Survey feedback demonstrated mixed opinions across the various regional LGs in relation to whether they should have a proactive role in CDEM exercises, or conversely whether CDEM should push to have LGs participate. An example encountered during the course of this study was observing the National Exercise Te Ripahapa from the National Crisis Management Centre (NCMC).[7] During the exercise the lifeline utilities desk remained unoccupied, and while it is understood that regional lifeline utilities played a role in the South Island, should the scenario actually ever occur any response would certainly be improved through having national level involvement.[8]

Another interesting challenge that can occur in the relationship CDEM has with the major utility companies concerns dealing with the media. This challenge revolves around the tensions between CDEM's public messaging at a time when the media are desperate for news of developments, which may be at odds against the priorities of the corporate communications team of a utility company responsible for repairing the affected infrastructure. It is at these times, particularly at the height of a disaster event, that the relationship between the CDEM controller, the LUC Project Manager and the utility company's key staff will be a defining factor as to how the public, through the media, perceive the disaster is being managed.

[7] Located under the Beehive in Wellington. National Exercise Te Ripahapa was a major Alpine Fault scenario conducted on 29 May 2013 involving all South Island CDEM groups, MCDEM, DIA Policy, MoH, St John's, NZP, NZDF and NZFS.

[8] At the time of the exercise the MCDEM staff position responsible for the national lifelines coordination was vacant and under recruitment. This may have been a factor in the lack of lifelines involvement at the national level.

4.3 The NZDF and Whole-of-Government Collaboration

> "Focused Logistics is the fusion of logistics and transportation technologies for rapid crisis response, deployment and sustainment, the ability to track and shift units, equipment and supplies even while en route."
>
> Lieutenant General John J. Cusick,
> Joint Staff Director for Logistics, 1996-1998
> (NZDF, 2012b)

4.3.1 Introduction

Analysis of the CIVMIL relationship contributes a main objective of this thesis "to examine and assess the CIVMIL relationship within New Zealand in the context of CDEM, particularly in the provision of Humanitarian Logistics." The SR question (SR1c) relates to the first research field of Humanitarian Logistics and is focused on the role that the New Zealand military needs to perform when called upon. The question seeks to assess how collaborative the NZDF is with its readiness and response approach to CDEM by asking, "**From a whole-of-government perspective, how responsive and collaborative is the NZDF's readiness and response leading up to and during a major disaster?"** In order to answer this SR question a number of data collection questions have been developed to assess:

1. The role the NZDF should play in response to a major CDEM event.
2. The performance of NZDF in collaboration in readiness for a major CDEM event.
3. How NZDF actually responded during the 22 February 2011 Christchurch earthquake
4. How NZDF actually performed during in management functions related to planning, communications, teamwork and operations.

4.3.2 Use of the Military – Priorities for the NZDF

The NZDF has a directed responsibility to be prepared and to respond as a supporting agency during a time of crisis. The Defence Act 1990 and the latest New Zealand Defence White Paper 2011 clearly require the NZDF to be ready and able to respond the CDEM events. New Zealand legislation provides powers for the military to assist the civil power by authorising:

> **Use of Armed Forces to provide public service or assist civil power**
>
> (1) Subject to the succeeding provisions of this section, the Armed Forces may be used in New Zealand or elsewhere—
> (a) to perform any public service; or
> (b) to provide assistance to the civil power in time of emergency.
>
> (NZ Govt, 1990, s. 9)

Importantly, the NZDF should only ever be a supporting agency within the New Zealand domestic environment for a crisis event, and will not be asked to be the lead agency except in the extremely unlikely scenario where there has been a major disruption in the democratic New Zealand government system or the system has ceased functioning (NZDF, 2011a). The application of this principle is a cornerstone of state sovereignty in a robust democratic system and reflects the UN principle of the military being the “option of last resort” (UNOCHA, 2008).

In the field of Humanitarian Logistics the military is often called upon to assist with the initial response, particularly if local resources become overwhelmed (Cross, 2011). In New Zealand’s case there are well-documented policies, plans and strategies for how the military can and should be used. Naturally it is recognised that each CDEM event will bring its own uniqueness that requires a quick response to an event that has not necessarily been planned for in detail. It is in these cases that the NZDF is often looked at to contribute to response options, particularly from a human resource and a logistics perspective (Interview 1 & 2). Importantly, the NZDF possesses some significant logistical

assets and logistics operational and planning expertise that can be provided to support the wider CDEM effort.

The use of the military in a domestic event has long been a question grappled with by most countries around the world (Antill, 2001; Barber, 2012). Careful prioritisation is required to utilise military and civilian resources to ensure that optimal use of the limited assets and resources is achieved (Cross, 2011). This is no easy task with agencies and organisations often competing for what they consider to be the most urgent need. Survey question 12 (n = 71) asked respondents, "**Noting that the New Zealand Defence Force (NZDF) will primarily be involved in the response phase to a major CDEM event, what do you consider are the main priorities of logistics support required of the NZDF?"**

The military can be used for a multitude of tasks, but the majority of respondents considered that the priority for the military in the initial response phase is the utilisation of military aircraft and other transport assets. The need for the military to conduct reconnaissance and medical evacuation, and deliver key personnel and logistical transport assets, were consistently referred to as the most essential requirement in the first 24-48 hours. This is supported by the literature and the examples provided by major disaster events in recent years. Seipel (2011) and Cross (2011) highlight the scale of transportation capacity that many militaries around the world can bring at a time of need. Crawford and Harper (2001) provide an excellent example of where military aircraft, led by the Royal Australian Air Force (RAAF) and assisted by the Royal New Zealand Air Force (RNZAF), provided a strategic air-bridge into East Timor from Australia at the height of the humanitarian disaster in September 1999.

Although the NZDF's inventory of aircraft, ships and land transport assets is limited in comparison to other western or regional ASEAN[9] militaries, when called upon it has generally met the needs of recent disaster events in New Zealand. That said, when competing operational commitments overseas play a factor, a significant risk is placed on the availability and quantity of air and sea assets. The topic of military capability or capacity is not addressed as part of this study. It is however a constant subject that regularly vexes politicians, military experts, academics and the public who often debate the size, strength and capabilities that the NZDF should possess.

Logistics support, either through the provision of logistics assets (i.e. water desalination or generators) or logistics planning and operations staff, are other areas where respondents and senior leaders interviewed consider the military is often able to play a vital role. Human resources through the provision of logistics planners, medical staff, and cordon security, are all examples of where competently trained personnel have the potential to integrate with civilian agencies or NGOs to assist with the response phase of a major disaster.

> "The trick is to understand and accept the differences (civilian and military), bring together the positive strengths and focus them on overcoming the crisis, be that man-made or natural"
>
> (Cross, 2011, p. 234)

4.3.3 Performance of the NZDF in Recent CDEM Events

> "The NZDF is a disciplined, flexible force which promotes initiative in emergency situations."
>
> (McLean et al, 2012, p. 95)

Having considered the generic application and challenges associated with utilising the military in a major disaster event, focus shifted to assessing the

[9] Association of Southeast Asian Nations.

actual performance by the NZDF in recent disaster events. Two survey questions 13 (n = 64) and 14 (n = 17) were put to respondents and senior leadership during interviews. Together they asked, "**Overall, how well do you consider the NZDF performed from a logistics perspective during the response to the 22 February Christchurch earthquake and the MV RENA maritime disaster of 5 October 2011?"**

Eighty-nine percent of respondents considered NZDF's logistical response to the Christchurch to have been good or very good (Figure 4.6). Before the 1931 Napier earthquake, naval vessels were stationed in close vicinity and it may be a coincidence that before the Christchurch earthquake naval ships were positioned at, or on transit to Lyttelton for the start of a major international military exercise. Even more fortuitous than in 1931 was the added presence of New Zealand and Singaporean army troops and equipment who were also preparing for the exercise. These military assets responded quickly after the earthquake struck.[10] As one senior MCDEM official pondered:

> "Would the NZDF's response have been so fulsome had they been more dislocated at the time of the quake?"
>
> (Interview 2)

This is a good question noting the distance that ships and personnel would have needed to travel had they not already been in the vicinity of Lyttelton. This was put to a senior military leader interviewed who played a leading role in the NZDF response during that period. He considered that while it was fortuitous that military assets were in the vicinity preparing for the exercise, had these assets been in their normal home location (i.e. ships in Auckland) they would have

[10] 129 Singapore Armed Forces personnel assisted NZDF personnel and the NZP in the red zone cordon. Two Singapore Armed Forces C-130 Hercules aircraft were based at Whenuapai and carried out taskings for freight and personnel movement (http://www.nzdf.mil.nz/news/media-releases/2013/20130630eoae.htm)

been able to be deployed in a matter of hours. Overall he considered a similar level of support would have been provided by the NZDF, albeit not quite as quickly (Interview 3).

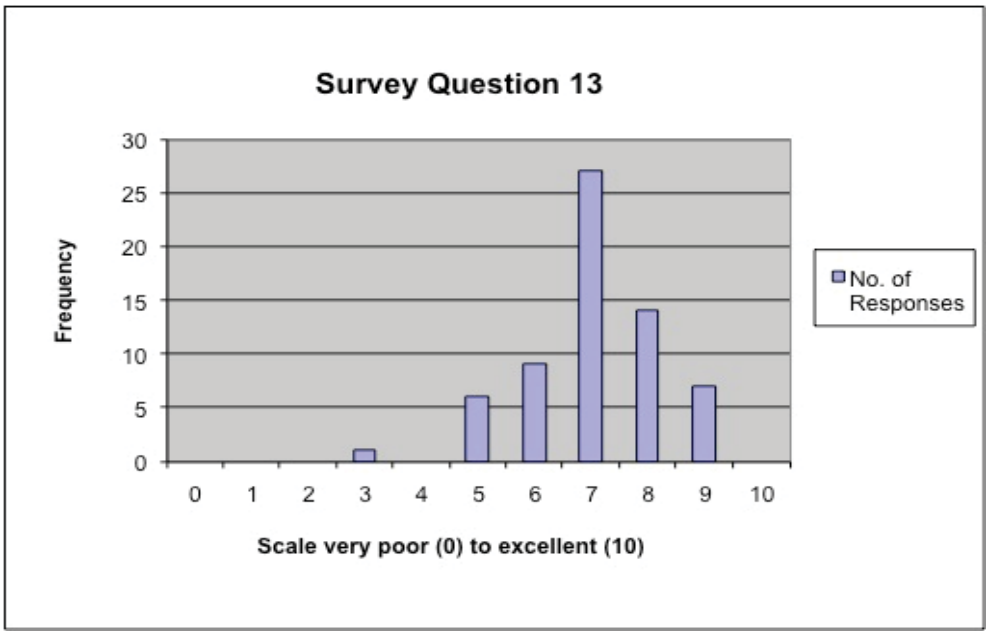

Figure 4.6: NZDF Performance – CDEM Logistics (n = 64)

Aerial reconnaissance is a highly regarded capability, and one that respondents commonly highlighted as an important asset that the NZDF could contribute. Initial assessments play a critical part in providing digital imagery of damage sustained over a large area, and if done well reconnaissance can provide early situational awareness of the planning and priorities required. While acknowledging the value of the RNZAF P3 Orion reconnaissance efforts, the McLean Review was critical of the technical challenges that occurred in transferring data from the aircraft to CDEM operational planners. This data would have helped with decision-making during the early stages of the earthquake response.

Management of strategic airlift continues to pose a challenge, particularly as the C130 Hercules fleet has been in an upgrade programme over the past decade.

This is improving with the fleet of five aircraft nearing completion of a major upgrade. The RNZAF helicopter fleet has reduced in number, albeit the new aircraft having been upgraded to the much more capable NH90, but there has yet to be a confirmed replacement to the RNZN's fleet tanker which goes out of service in 2017. It is pressures such as these that raise questions over the NZDF's ability to effectively contribute to a major disaster event such as a Wellington earthquake where a population of up to 500,000 could be severely effected.

Operational planning is another significant attribute of a competent military. Planning can add a great deal of value, particularly in applying a military's doctrinal approach and employing staff tools to develop options and various courses of action (Interview 3). Planning is inherent to successful military operations right across the board, from peacetime to war. In today's modern-day environment an increasing joint, multi-agency and a WoG approach is required (NZDF, 2008). Evidence of this approach was seen during the Christchurch earthquake response phase, albeit that planning was immediate and conducted at speed. NZDF planners were attached to the NZP to assist with longer-term planning, something that is not common to NZP operations which are generally focused on the short-term immediate scenario (Interview 3).

Planning support was also provided to MNZ during the MV RENA disaster, but data collected from respondents was not substantial enough to make many deductions on actual NZDF performance during this disaster event.[11]

Wider support to the NZP was a major focus for the NZDF in the aftermath of the earthquake. Logistics support was provided from Burnham Camp where meals and accommodation were provided, particularly to the AFP,[12] and a temporary morgue containing a Disaster Victim Identification (DVI) facility was

[11] MNZ was designated as the lead agency for the MV RENA maritime disaster event.
[12] Over 323 AFP were sworn in with NZP constabulary powers.

established (McLean et al, 2012). Another success was the security cordon around the 'red zone'[13] area of the central business district (CBD) that had sustained significant damage.

Management for the cordon was quickly delegated to the NZDF that rotated staff and equipment on eight to 12 hour shifts providing for safety and security of the surrounding CBD red zone. The allocation and performance of this task provides an interesting insight into C2 that is discussed later in this chapter. A senior MCDEM leader interviewed noted that one local NZDF commander did not consider the role of the NZDF to be 'security guards' and he was keen to cease the cordon duties (Interview 1). This situation highlighted a lack of inter-agency preparedness and conducting exercises may have addressed the issue of the NZDF role in such a scenario. The matter was elevated to higher decision-makers within NZDF and MCDEM and resolved with the NZDF being committed long-term to cordon management and control.[14] The long-term employment concerning cordon management does raise questions over the employment of the NZDF, particularly when the use of a security company may have been a viable option once in the recovery phase. Due to the pool of manpower the NZDF is able to call upon at relatively short notice there is a risk the NZDF will be seen as a cheap alternative for various tasks outside its primary responsibilities. The responsibility for ensuring that this is avoided rests partly with the NZDF itself. In relation to the response phase of the Christchurch earthquakes, the McLean Review raises concerns that:

> "The NZDF needed to be proactive at identifying suitable tasks to best use their expertise, rather than being used primarily as unskilled labour."
>
> (McLean et al, 2012, p. 91)

[13] A restricted area of the Christchurch, mainly around the CBD, that was deemed unsafe as a result of the 22 February 2011 earthquake.
[14] The NZDF managed the red zone cordon until it was taken down on 30 June 2013.

4.3.4 Whole-of-Government Collaboration – How Well Does the NZDF Contribute?

Over the past 20 years much has been made in western democracies of the need to have WoG approach in order to achieve an integrated approach to a well-functioning government and political system. The term dates from England in the late 1990s. At the time Prime Minister Tony Blair's New Labour government was driving for a 'joined up' public sector and a fresh form of control, coordination, accountability and power (Flinders, 2002). Equally in New Zealand there has been a continued drive from the Clark and Key governments to pursue a WoG agenda, particularly for domestic security and emergency management. One way with which New Zealand has operationalised its WoG approach is through the NSS previously shown in Figure 2.7. This system requires its national security machinery to be well led, strategically focused, coordinated, cost-effective, accountable, geared to risk management, and responsive to any challenges that arise or the needs of Ministers (NZ Govt, 2011).

Central to the NSS is the National Security Process, shown below at Figure 4.7. This process aims to manage everyday risks that departments and the intelligence community have to deal with, as well as WoG risk management of issues that require high-level coordination across multiple agencies (NSS, 2011). Across this process there are five phases that involves the collection of information by key government departments; including the NZDF and MCDEM which are two departments that feature prominently in the event of a major disaster. Assessment and planning through the DES and ODECS will then establish an implementation plan and a WoG response to the issue being dealt with.

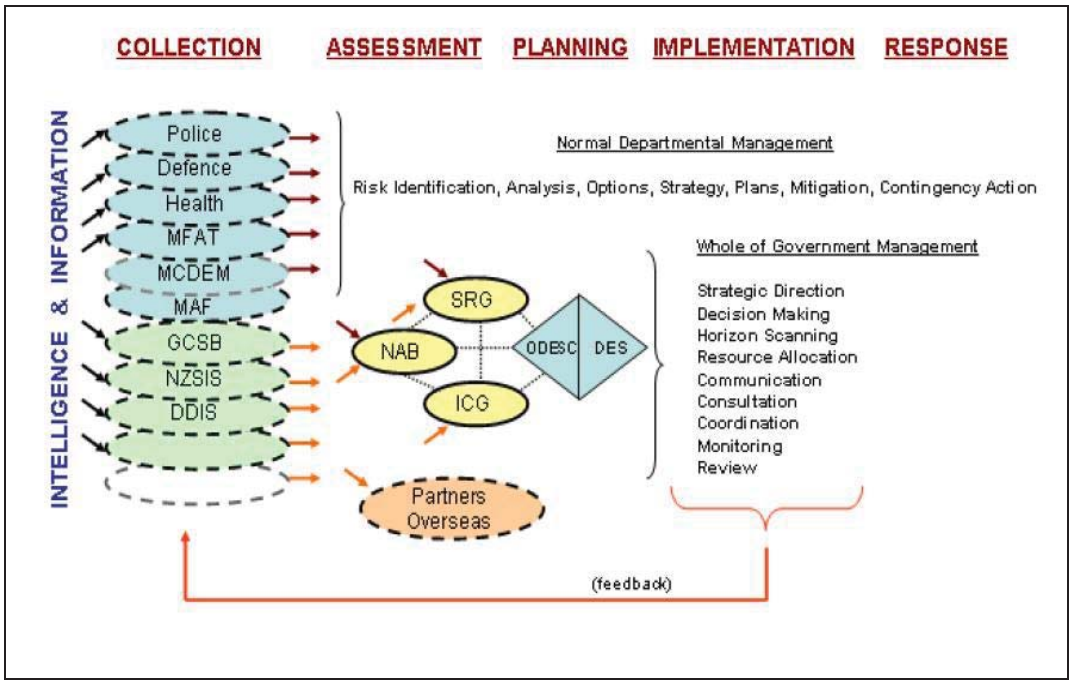

Figure 4.7: National Security Process

How well does the NZDF collaborate with its partner agencies and contribute to the mechanisms of government machinery? This is a complex question when considering the number of agencies and wide range of interactions that occur at the various levels across each organisation.[15] As this study is focused on Humanitarian Logistics in the context of CDEM, the data collected in relation to the effectiveness of NZDF's collaboration needs to be viewed in that context. As a result the findings in this study do not necessarily paint an accurate picture of how the NZDF collaborates generally, but does focus on those departments and organisations involved with emergency management readiness and response.

The first question relating to this WoG theme, survey question 15 (n = 55), asked respondents, "**How well do you rate the NZDF's 'whole-of-government' collaboration to planning for future CDEM events?"** The question was broken down into three sub-categories that related to planning, communication and teamwork. Overall the NZDF scored relatively highly with

[15] Political, strategic, operational or tactical level of interaction.

67% considering planning was good, communication rated at 70%, while teamwork rated the highest at 80%.

Common to many comments offered by respondents was the view that once the NZDF is engaged in the planning process they make a very valuable contribution. The flipside to this were comments that the NZDF could be engaged earlier in the readiness phase of the CDEM strategy, and that a higher level of contribution in this early phase would result in a more effective response. Specific comments that reflected these views were:

> "The NZDF is rigid in planning like any military operation. What they are good at is flexibility when the plan starts to fall apart. The crucial area lacking is pre-planning communications to work through those plans and be incorporated in joint training prior to activation. This is a fault on both sides at all levels."

> "WoG planning has become more focused since recent disasters. It's no longer a tick in the box activity but liaison, consultation and discussion with other players is required."

Within the NZDF there is some concern that the organisation will be perceived as heavy-handed when involved in collaborative planning. In the aftermath of the Christchurch earthquake the NZDF produced an aide memoire to be used for humanitarian assistance and disaster relief. Within the lessons learnt section to this document was identified:

> "The military should be mindful it is not perceived as a dominating presence or over stepping its 'support role' – such friction points can slow interagency communication."
>
> (NZDF, 2012a, p. 39)

A senior military leader interviewed considered that along with the challenge of not appearing to be dominant or over-bearing, there is also the need to sustain operations outside of New Zealand while contributing to the WoG approach to domestic responses to disaster events (Interview 3). He also accepted that an additional challenge within the NZDF culture is that domestic matters are often approached with less enthusiasm compared to the primary efforts that the NZDF is involved with internationally.

The NZDF has a series of Joint Service Plans (JSPs)[16] that include contingency responses to acts of terrorism, pandemic influenza, relocation of government functions out of Wellington, and assistance to local or national emergency management. NZJSP 102 AWHINA addresses this last contingency by detailing the NZDF assistance to local or national emergency within New Zealand. This plan was activated during recent disaster events and provided a sound foundation with which to respond with personnel and equipment.

C2 is an area that has the potential to heighten tensions if the lead agency is not appointed quickly, particularly in a major event where a national declaration has been declared. The Defence Act and NZDF doctrine are clear that NZDF assets, including personnel, remain under military command. There is also a clear intent that during a national declaration all available assets will be brought to bear as requested by the National Controller. In effect, there would have to be a very good reason why their 'direction' would not be followed, and should this occur then a direct conversation between the National Controller and the Commander of Joint Forces New Zealand should occur to resolve any problems (Figure 2.10). At the operational level, procedures have been written that aim to clarify C2 arrangements early in planning stages. As a precedent the NZDF will aim to undertake a number of checks that should be carried out as the C2 facets of an event are considered. These include:

[16] Strategic level plans that direct various parts of the NZDF to respond in support of a lead agency i.e. MCDEM, NZP, NZ Customs & MNZ.

1. Have command and control arrangements been made that would permit/facilitate coordination with OGAs and NGOs?
2. Has an atmosphere of cooperation and trust been established at the highest levels and is that reflected down through successive levels? Is there any point where this has not been well established?
3. Do all levels of the chain of military command understand the military-civilian relationship?
4. Do all levels of the supported agency understand the military-civilian relationship?

(NZDF, 2012a, p. 75)

This approach is supported by comments from a senior military leader who considered that "there should be no ambiguity when communications and relationships are strong" (Interview 3). The view of a senior MCDEM leader was more critical when stating, "Militaries know who their reporting lines are in a military sense, but C2 doesn't seem to apply that well when a situation is civilian led situation which seems at odds for a disciplined organisation." He further commented that the "national declaration is only an escalation of the control and coordination because it's a big thing, but if it's a national problem then it must be centrally coordinated" (Interview 2).

Analysis of these statements suggests that there is work to be done in ensuring communications at the senior levels of NZDF and MCDEM improves to the point where C2 practicalities achieve consensus. This was reinforced by the MCDEM senior leader who considered that "There's a timely need to have a conversation with NZDF about the C2 relationships and assist with staff professional development, particularly in planning. The fear (within CDEM) that the NZDF will dominate will only occur when CDEM planning and coordination is weak" (Interview 2).

Respondents were then asked to comment on the NZDF's collaborative response to actual disaster events. Survey question 16 (n = 53) asked, "**From a more specific perspective, how well do you rate the NZDF's 'whole-of-government' collaboration in response to an actual major CDEM event such as the Christchurch earthquake or the MV RENA maritime disaster?"** Respondents primarily related their knowledge to the Christchurch earthquakes as a number of them were involved first-hand. Consistent with previous results, NZDF again scored relatively highly in its actual performance of generic collaboration in CDEM events.

Seventy-nine percent of respondents considered the NZDF's planning to be ether good or very good, as opposed to 10% who thought it was below satisfactory. Of the more critical comments, a number focused on the need for NZDF to share more in its planning with other organisations such as CDEM, NZP, MoH and NZRC. Overall comments were mostly positive and centred on the methodical and disciplined approach to planning that the NZDF conducts. Central to NZDF operational planning is the Joint Military Appreciation Process (JMAP) that involves four stages (NZDF, 2008, p. 63):

1. Mission analysis.
2. Course of action development.
3. Course of action analysis.
4. Decision and concept of operation development.

Military planning specialists were brought to Christchurch after the 22 February 2011 earthquake specifically to play a supporting role to the NZP. They were able to assist by employing the JMAP, which in turn provided the NZP with the ability to plan a long-term strategy across a myriad of issues and lines of operation. NZDF planning specialists were also used for the response to the MV RENA disaster; MNZ was the lead agency on this but needed OGA assistance to manage the disaster event (Interviews 2 & 4). Comments from respondents

indicate a valuable contribution was made by the NZDF during the MV RENA disaster, particularly after the experiences and lessons learnt from the Christchurch earthquakes.

NZDF planning efforts did come in for some criticism in the McLean Review that considered that it "could have been more utilised by the CRC"[17] (McLean et al, 2012. p .95). This focus on central planning was also commented on by a senior CDEM leader who stated: "The planning should be done by the Headquarters (CDEM) which may have military staff involved, and then tasked to whichever agency is appropriate to perform that task e.g. NZDF, NZP, Ministry of Social Development or Air New Zealand" (Interview 2).

Teamwork (89%) and operations (92%) both scored highly in actual disaster events as might be expected of a disciplined military. The main theme of comments from respondents was that the military provided reassurance to a population under severe stress through responding quickly with an operational focus to the needs of affected regions. The McLean Review commended the NZDF for its responsiveness and self-sufficiency, particularly in the provision of personnel and logistics support from the Burnham Military Camp (McLean et al, 2012. p. 94).

Survey question 17 (n = 60), related to NZDF collaboration and asked respondents and interviewees "**What changes or enhancements would you recommend the NZDF make in terms of how it collaborates from a WoG perspective for CDEM?"** This prompted a wide range of comments and suggestions, some of which have been highlighted previously. Clarity around C2 and improving the higher-level relationships featured again, as did training in disciplined planning methods that would assist CDEM staff with professional development.

[17] NZDF's planning was focused heavily on supporting the NZP in contrast to the CRC.

A theme that came through strongly in respondent and interview comments related to the need for NZDF's increased involvement with policy development, as well as increased participation with exercises and planning workshops. Annex D is an extract from the NZDF aide memoir for HADR that shows a table detailing the key military actions in response to a significant domestic disaster event. Under the reduction phase, the NZDF identifies its key military actions as "assisting with scenario and response development to identify potential limitations in Government infrastructure and resources that can be rectified thereby reducing risk" (NZDF, 2012a, p. 17).

During the readiness phase the NZDF considers its main effort is to "participate in contingency planning and exercises with other Government agencies, and formulate a military HADR response plan" (NZDF, 2012a, p. 17). There is an argument that the NZDF could be more proactive in the readiness phase. A number of CDEM officials spoken to during the course of this study voiced a desire to see the NZDF more involved in exercises, planning and policy development.

McEntire (2007) believes that emergency management professionals should give 'readiness' the highest priority. As one of New Zealand's key emergency management supporting agencies, the NZDF should prioritise 'readiness' accordingly. There is evidence to show that some positive advancements have been made in this area since the Christchurch earthquake. The NZDF's JSP AWHINA,[18] which was previously a restricted document, has now been declassified which means that CDEM staff are now privy to the NZDF's intended response and actions. One respondent recommended that JSP AWHINA be regularly briefed to the wider CDEM community to allow a greater appreciation of what the NZDF can do and, importantly, what constraints it is under. It was considered that this would assist in managing the associated expectations of the NZDF.

[18] The NZDF's standing plan to provide domestic support.

Other initiatives put forward by respondents and those interviewed included dedicated attachments for short periods by military staff to CDEM Groups with the aim of cross-pollination and education both ways, to show what each organisation has to offer. The McLean Review recommended that closer links be established between the NZDF and MCDEM with the appointment of an officer as liaison within MCDEM. It went on to further recommend that the NZDF could develop staff to fill Chief of Staff roles within an EOC (McLean et al, 2012, p. 203). A permanent secondment by an NZDF officer to MCDEM was also seen as a big step forward and one that MCDEM officials support. A factor complicating this collaboration is the responsibility of MCDEM to fund a salary for a seconded staff member during a time of severe financial constraints and budget cutbacks.

Budget constraints have been an equally challenging issue for the NZDF, but so too has a high rate of staff attrition and turnover in recent years. A constant posting cycle of two to three years' duration in most positions results in NZDF staff moving in and out of roles that support CDEM. As one respondent stated "every time we would attend an exercise there would be a different army representative come along that needed to be briefed up on how our CDEM Group functioned." CDEM is not immune to this level of staff turnover either, as their staff members regularly move on from roles either internally within CDEM or by exiting the organisation. Part of the solution here may lie in technology, with a number of respondents suggesting virtual training could ensure that a consistent up-to-date training platform exists for delivering policy, procedures, planning methods, communication channels, and other important CDEM information. This would require investment, but there are examples (particularly in the NZDF) where this type of online learning has been delivered successfully and affordably.[19]

[19] In 2010/11 a significant number of NZDF personnel were required to undertake legal policy training that negated the need for teams to tour the country and conduct face-to-face training.

Collaboration in the availability and use of NZDF equipment and personnel is essential to the outcome of a disaster event as well as the reputation of the NZDF as an organisation. A much larger and complex question outside of the scope of this thesis is “How much military capacity can the country can afford?” The answer to this then correlates to the level of collaboration it can commit to. The NZDF is a relatively small military in comparison to the Australian Defence Force (ADF) or other militaries in the Asian region. Trying to manage under the tight fiscal constraints that has meant that all departments and agencies in the public sector, the NZDF operates with a significant risk that it may not be able to meet the CDEM needs in a major disaster.

4.4 Emergency Management and Leadership

> "Effective disaster management involves all sectors, including every level of government and all of a country's citizens. Collaboration is the most effective means not only to effectively mitigate the disaster cycle and increase budgeting, but also to provide better services while reducing duplication of effort."
>
> (James, 2008, p. 202)

4.4.1 Introduction

A major CDEM disaster event requires effective management and leadership to ensure that every possible effort is made to reduce the loss of life. The GR question (GR2) addresses the research field of Emergency Management and Leadership and asks, **"Does New Zealand have effective Emergency Management and Leadership capabilities for responding to CDEM events in New Zealand?"**

To answer this GR question it is important to place into context how Emergency Management and Leadership capabilities are currently measured with respect to extant policies and strategies. The questions were crafted in the context of the current CIMS and against the MCDEM's 4Rs strategy. The questions asked in the survey and to interviewees were primarily situated in the 'readiness' and 'response' phases of the strategy previously discussed in Chapter 2 (Figure 2.8). These two phases relate primarily to preparing for a CDEM event, and to the immediate response period after a disaster has occurred.

4.4.2 CDEM Management Capabilities

There are three SR questions and related data collection that primarily seek to identify what areas are done well in the wider CDEM sector, what areas may need addressing, and identification of opportunities for improvement. The first SR question (SR2a) asks, "**Does CDEM have effective management capabilities to deal with the various levels of disaster events?"** To address this question respondents and interviewees were asked to rate **"the critical incident management capabilities across the three management levels of CDEM (national, group and local)"**, and to rate **"the effectiveness of the management relationships across the CDEM community."**

In survey question 18 (n = 68) the management capabilities were first examined across the three levels. Overall the feedback and results were encouragingly positive. People often tend to be self-critical in a survey opportunity such as this (Bryman, 2008), which makes this result even more promising when noting the fact that a large proportion of respondents were emergency management professionals from within CDEM or supporting agencies. At the national level, survey results showed that 53% considered the management capabilities to be either good or very good, while a further 19% considered the capability to be satisfactory. Twenty-seven percent felt the management capabilities to be less than satisfactory, which flags plenty of room for improvement, but overall an encouraging outcome considering the participants. On the one hand, this result is not surprising when considering that CDEM staff recruited at the national level would typically be required to have a high proven competency level. On the other hand, MCDEM have sustained consistent budget cuts over recent years where personnel budgets and staff churn have suffered as a consequence (Interview 1).[20]

[20] Most government departments, including MCDEM, have been required to sustain up to 5% budget savings, mainly as a consequence of the GFC and the financial impact of the Christchurch rebuild.

At the group level, CDEM also scored well with comparable results to the national level. Fifty-five percent of respondents considered critical incident management capabilities were good or very good, while 17% considered them satisfactory, and 28% less than satisfactory. Once again it could reasonably be expected that the competencies of staff recruited in these group roles would have appropriate prerequisites for the position. How personnel perform once in a role can be a different matter altogether. However, based on these results it can be assessed that in terms of capabilities, both the national and group levels' critical incident management capabilities are in reasonable shape. One caveat that does need to be emphasised when considering these results is the wide spread of respondents across the country which may distort regional performance. The overall results are positive and may not be reflected in all groups and local authorities where underperforming areas are hidden by other high performers. This fact is highlighted in the 2012 CDEM Capability Assessment report that shows some significant variances between the performances of the 16 CDEM Groups. These are discussed later in this chapter.

Somewhat surprising has been the result at the local level where the most positive results have occurred. Fifty-nine percent of respondents considered the critical incident management capabilities at the local level to be either good or very good, 19% satisfactory, and 22% considered capabilities to be less than satisfactory. What is interesting with this result is that it suggests that the capabilities at the local level are as strong or slightly stronger than at the higher two levels. There are a number of possible reasons for this. First, that at the local level there is often 'greater ownership' of an event so the dedication and commitment are clearly seen at a time of crisis. This can be contrasted with the group or national levels where people may be working equally as hard but in less visible areas. Another reason is that at the local level, people understand

the environment and how best to make things happen through local connections and understanding.

One of its main recommendations of the McLean Review is that “while territorial local authorities should continue to be able to declare a state of emergency the responsibility for leading and controlling the response should rest solely with CDEM Groups” (McLean et al, 2012, p. 16). Survey respondents were asked in a separate data collection question 35 (n = 63) whether they agreed or disagreed with this recommendation. More than half of the respondents (59%) did not agree with the recommendation and additional comments brought out strong viewpoints, both for and against the logic of elevating all event management to the group or national level. Those who strongly disagreed stated views such as:

> “This totally undermines local responsibility. If the national level charges in and takes over why should local communities get prepared?”

> “You need local input, nobody responds well to people moving in and taking over our own responsibilities.”

Of those who supported the recommendation to move the management responsibility to a higher level, some justified their reasoning through recognising that the national level may have better coordination and skilled people to manage the disaster event. Of the senior leaders interviewed there was recognition that the lower you can delegate responsibility, the higher the level of ownership for the event. The senior leader from DPMC acknowledged that this is a complex issue that past and present governments have been vexed with for the past decade. His view was that:

> "This is the big question that has been around a while. The lower it (ownership) is the better it is in terms of response and certainty. Bringing in outsiders doesn't work for the immediate response. Things can go backwards when tons of external people arrive and things can slow down. The principle of subsidiarity accepted two years ago by the government, means that you delegate to the lowest, most appropriate area, because those people have got the knowledge and the most interest to get it right."[21]
>
> (Interview 1)

From this analysis it is apparent that views are divided over responsibilities and the level of management authority. Despite the recommendation in the McLean Review to raise management responsibility above the local level, it is one of the few recommendations the Minister has chosen not to adopt. In fact the opposite has occurred, with the Minister proposing to Cabinet that MCDEM continue to work with regional CDEM Groups to strengthen, rather than diminish, the role of local authorities.[22] The Minister also recognised scalability as a key issue, stating a goal to achieving the seamless integrations of local and national level responses as a key concept to be advanced (MCDEM, 2012d). This stance aligns with the views of the senior official of MCDEM who stated:

> "The structures and approach are pretty well right, but the reality is that it's very hard to get the resources you need in the right time to respond to an event."
>
> (Interview 2)

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[21] Subsidiarity means that the information necessary to anticipate risks must be shared, and the capacity to respond effectively to risks must be built, across the security system (NZ Govt, 2011, p. 6).

[22] At that time the Hon Chris Tremain and currently the Hon Nikki Kaye.

The Minister's proposal to Cabinet in 2012 was to focus more on strengthening the local level through to group and national level mentoring and monitoring. In light of this survey question 19 (n = 63) asked respondents, "**How would you rate the effectiveness of the management relationships across the CDEM community: between the national to group level, and the group to local level?**" The majority of respondents thought the relationships at both intersecting levels to be in fairly good order, which is encouraging. Sixty-eight percent of respondents considered the relationship between the national and group levels to be satisfactory or better, while 63% felt that the group to local levels was in a similar state. These results indicate there is still plenty of room for improvement. However, they also support the views of the MCDEM senior official, who believed that the structures and philosophy are pretty well right, and that the Minister's approach of further strengthening the group to local level relationships is correct (Interview 2). Taking into account that there are 16 Groups throughout New Zealand, and multiple local authorities sitting underneath them, it is not surprising that comments to this question varied considerably.

One interviewee from the wider CDEM community stated, "The need is to maintain and enhance relationships that will be enduring" (Interview 3). He considered that a continuous improvement process, focused on the professional development of CDEM staff at all three levels, should be a key priority for managers and leaders. A focus on quality professional development, as well as the recruiting of effective leaders and managers, means relationships at all levels should be sustained over time. An important factor in this approach is the concept that the job is never finished concerning building the relationship management between the three levels. A continuous improvement process must be enduring and sustainable to ensure that relationship and communication are a constant focus of leaders across the CDEM sector.

4.4.3 CDEM Functions, Processes and Tools

The second SR question (SR2b) relates to the field of research into Emergency Management and Leadership. This asks, "**Does CDEM operate effective processes and tools to manage disaster events?**" Central to this question is the ability to gain an understanding of how the two primary operating systems perform within CDEM, and secondly how this performance is viewed by the CDEM community. The first of these systems is the overarching CIMS that is used by the emergency services and other agencies as a basis for operational response (MCDEM, 2009b). CIMS aims to provide the model for command, control and coordination of an emergency response and is used primarily by the NZP, the NZFS, St John's Ambulance, and CDEM as well as a number of other government agencies. MCDEM (2005) states the four main components of CIMS to be:

1. *Control*, for the overall management of the disaster event.
2. *Planning & intelligence,* where the planning of response options are developed from incident information collected.
3. *Operations,* whereby resources are directed towards responding to the needs of the actual incident.
4. *Logistics,* where services, materials and facilities are provided to ensure operations can be conducted effectively.

To assess how well CIMS is being used by the CDEM sector, survey question 21 (n = 65) asked respondents, "**CIMS is the primary tool for managing a CDEM event. How well do you consider CIMS is understood and applied across CDEM?"** Encouragingly, 68% of respondents considered that there was a satisfactory or better understanding of the system. Less positive is how well this system is applied across CDEM, with only 56% of respondents viewing it as satisfactory or better. Themes emerging from the respondents' comments generally related to the systems application during major events. Respondents viewed CIMS as sufficient to use in an immediate response to an isolated

emergency event, such as a fire or car crash, but they thought a more robust and comprehensive system is required, especially for major events. McLean et al (2012) was critical of the management and application of CIMS, particularly during the immediate response phase of the 22 February 2012 Christchurch earthquake. Senior staff from MCDEM decided to implement a modified response structure that combined the ECC and EOC to become one CRC. This initially caused a good deal of confusion and frustration amongst staff trained in the application of CIMS.

At the time of this study CIMS was undergoing a major review and rewrite. The lessons from events such as the Christchurch earthquakes, the Pike River mining accident and the MV RENA maritime disaster would certainly have influenced the updated system so it can cope better with major emergency incidents. As a consequence of the CIMS rewrite, and potential changes to the concept of a CIMS, there will be a need to conduct nationwide training of CDEM staff and staff from supporting agencies. This will place a significant call on resources and time required for staff training and professional development. This is already a current concern with a number of survey respondents identifying insufficient training resources being provided to staff, particularly at the local level, as an impediment to the current CIMS. The issue of training and professional development is discussed further in Section 4.4.4.

One survey comment from a highly experienced CDEM manager raises concerns that the current CIMS is poorly applied, even to small emergencies. He considered it is certainly not up to the complexity of major events and is not actually applied by emergency response organisations. On a more positive note, he considers that the CIMS rewrite should result in an improvement, but this will not address the underlying issue that is the professional development of the staff applying the tool (Survey Respondent 84). These views, and the CDEM Capability Assessment report (2012), echo concerns regarding the conduct of exercises and the associated application of CIMS. In the CDEM assessment, a

concerning 55% of groups “monitor progress on corrective actions following exercises and events” (MCDEM, 2012b). This indicates a likely risk that the other groups may not follow through on corrective action plans, which may result in the same errors occurring again in further exercises. The report goes on to state:

> “Exercises are generally still seen as a ‘major’ undertaking, requiring a lot of thought, pre-planning, writing, and development – to say nothing of time and money. Region-wide exercises are especially so, and many Groups put off exercising because of this.”
>
> (MCDEM, 2012b, p. 32)

To explore in more detail where improvements to CIMS, and the associated management functions need to be made, survey question 7 (n = 71) asked respondents, “**In the context of CIMS, how well do you rate performance in the areas of planning, organising, communication, controlling, delegating, purchasing, distribution and financial management?”** These functional areas relate to core management functions, as well as focusing on logistics. This question combines the three management levels and asks the respondents to consider the functions globally, rather than in relation to a specific level.

Overall, both planning and organising scored mid-range on the scale of 1 to 10, with some positive comments featuring about the competency levels displayed when organising in a high stress environment. Planning has already been discussed earlier in this chapter and aligns with the comments made by respondents indicating that with some increased training and concerted utilisation of private sector and military planning tools and techniques, the state of planning across the CDEM sector could quickly improve.

The important function of communication is also considered in the context of the survey. In the generic question related to the effectiveness of communication functions, overall respondents rated performance slightly less that satisfactory (60% below the mid-point). However, when asked specifically about communications during the 22 February Christchurch earthquake the result was better than satisfactory at 55% above the mid-point. Themes that came through in comments primarily focused on the introduction of the EMIS[23] and the hope that communication flows will further improve once it is fully introduced to CDEM. The following comments from respondents reflect the mixed views around communication:

> "Good upwards communications, but downwards needs work, especially in EMIS as that downwards channel seems non-existent."

> "Having a standard system (EMIS) will make a huge difference."

> "Communications are very passive, with few people picking up the phone and trying to get information. Contact lists are not normally up to date, nor are phones always monitored. There is a reliance on email which is inherently passive."

The strengths and weaknesses analysis detailed at Annex C highlights respondents' comments regarding EMIS being under-utilised and having problems. Anecdotal evidence from exercise observations and interview discussions indicates that EMIS still has some way to go before effectively meeting the need for which it is designed.

[23] CDEM's second operating system that aims to link the CDEM community with an electronic based EMIS. This system was instigated after the 2004 Manawatu floods.

In a world with ever-increasing technology, information management will continue to present a challenge, particularly in the often confused and chaotic response phase to a disaster event. Tomasini (2009) considers “the role of information management to be the foundation upon which the humanitarian supply chain is designed, formed and managed.” Effective communication and the associated visibility of information provide the ability to assimilate, analyse and disseminate information. This is critical to overall control of an event and the leader’s ability to quickly delegate tasks and attend to issues that are considered a priority.

Controlling and delegating were two functions that respondents considered either to be satisfactory, or slightly better than satisfactory, in the case of controlling. C2 aspects of CDEM are discussed in a subsequent section to this chapter, but it should be noted that a generally positive trend emanated from respondents when considering controlling and delegating. Both functions rely heavily on communication, which with the further development of EMIS should help to provide better control and delegating ability across CDEM.

Of the two important logistics functions that respondents were asked to consider, purchasing was rated satisfactory, while distribution was considered less than satisfactory. These ratings reflect the doctrinal and procedural gaps that have already been discussed earlier in this chapter (Section 4.2). Effective and efficient processes are critical to ensuring that bottlenecks are not created in the supply chain or that logistics staff, some of who are part-time appointments during a disaster event, can operate confidently within well-developed practices. The Christchurch earthquakes response provides a valuable example of where distribution was inadequately managed which resulted in a loss of visibility of equipment and important material. A CDEM logistics official involved with the Christchurch response considered that planning tools and L&SCM expertise need to be improved. He also felt that distribution was inadequate due to the lack of a central hub and the management of the supply chain in and out of

Christchurch. He also identified a lack of trained staff resulting in ad hoc methods and procedures being developed. On a positive note, the CDEM official considered the eventual use of commercial transport companies and other established vendors was generally good.

A common theme reported by respondents and those interviewed was the need for continuity and ownership responsibility. The McLean Review was critical of the shift-relief system that was commonplace following the Christchurch earthquake and often saw personnel rotating every eight hours, frequently without a handover. The report recommended that **"specific individuals be allocated functional roles and have them supported by others in shift relief."** This is a similar system to the way most militaries function when deployed on operations.[24] In essence, a Staff Officer will hold the appointment and have deputies and support staff that will have delegated authority to make decisions up to a certain level. At all times, however, the Staff Officer retains overall authority and should be consulted on major decisions. A consequence of this system can be the risk that the appointment holder's fatigue levels and ability to remain focused. This risk needs to be carefully monitored by those in leadership levels above.

Respondents were asked at survey question 29 (n = 61) whether they agreed with the above recommendation made in the McLean Review being applied at each of the CDEM levels. Of all the questions asked in the survey, this promoted one of the more conclusive results. Respondents to the national level were in overwhelming agreement, with 92% of responses above the mid-point, and 20% scoring the highest rating of 'absolutely agree' (10 out of 10). Likewise at the group level, there were 91% rating the importance above the mid-point and 25% giving the highest rating. At the local level, 89% of respondents rated importance above the mid-point and 23% scored 10. Clearly there is a resounding need for the allocation of functional roles to specific individuals and to be supported by

[24] Known as the Continental Staff System where functions are allocated with supporting staff.

staff on a shift relief basis. This will still require contingency planning for replacements should the appointment holder be unable to continue for any reason. However, it will provide much greater continuity and ownership of functions at a time when difficult decisions need to be made.

Functional role appointments will enhance communications and result in more thorough and knowledgeable situation reports and analysis being provided up the command chain to higher-level decision-makers. Professional development and focused training for these key appointments will be required to ensure the maximum benefit is realised from those appointed to these important leadership positions. Along with effective management skills, leadership is one of most important qualities that will define the success of preparing for and responding to a disaster event. The following section deals with important aspects of leadership and management in CDEM, and provides an analysis of the associated SR and data collection questions asked of respondents and interviewees in these areas.

4.4.4 CDEM Leadership and Management

The ability for an organisation to function effectively and ensure that its staff are professional, well trained and competent to perform will be largely dependent on a robust and well-constructed competency framework. The Chartered Institute of Personnel and Development (CIPD) defines a competency framework, as "a structure that sets out and defines each individual competency (such as problem-solving or people management) required by individuals working in an organisation or part of an organisation."[25] It follows that recruiting people with the right competencies, and ensuring that those competencies are further developed through ongoing professional development, will be an important ingredient to the success of an organisation. Both MCDEM and the NZDF have formal competency frameworks that have been in place for a number of years. In the case of MCDEM a formal CDEM competency framework was established

[25] See: www.cipd.co.uk/hr-resources/factsheets/competence-competency-frameworks.aspx

in 2009 that sets out eight key areas of CDEM competency.[26] The competencies contain indicators within each area, and the proficiency levels expected across various roles within CDEM organisations (MCDEM, 2009a). The eight areas of the competency framework can be broadly categorised under two general headings: leadership and management. These are two important functions that, when tested, indicate the performance and depth of an organisation's ability to meet its primary outputs.

This section analyses CDEM leadership and management, first by asking an SR question (SR2c) **"How well is CDEM led and managed at the various levels of CDEM?"** Eight data collection questions were developed as the primary basis for data collection. Each of these was used in the survey questionnaire and posed to senior leaders interviewed as part of this study. Two of the data collection questions 22 (n = 62) and 33 (n = 46) were also used to develop a strengths and weaknesses analysis that is detailed as Annex C. The 2012 CDEM Capability Assessment report provided useful metrics data on the 16 CDEM Groups, part of which relates to leadership and management. McLean et al (2012) also provided a valuable critical assessment of leadership and management performance specifically related to the 22 February 2011 Christchurch earthquake.

Data collection question 37 (n = 67) asked respondents and interviewees, "**How well do you regard the general state of leadership performance at the various CDEM levels to lead during the response to a CDEM event?"** Overall results were positive, with 75% considering leadership at the national levels was satisfactory or above (22% in the upper quartile). This result is not unexpected when considering the competencies and calibre of CDEM professionals recruited into leadership roles at the national level. McLean et al (2012) was complimentary about the leadership shown by MCDEM's Director

[26] Leadership, Relationship Management, Information Management, Risk Management, Planning, Implementation, Communication, and Capability Development.

who also performed the role of National Controller in the aftermath of the 22 February 2011 Christchurch earthquake:

> "The quiet, strong leadership shown by John Hamilton as National Controller, together with the political leadership of Hon Gerry Brownlee and Mayor Bob Parker, held the organisation and indeed the city together."
>
> (McLean et al, 2012, p. 10)

What became apparent from respondents and interviewees was that one of the biggest challenges for leadership at the higher levels is to harness support and 'buy-in' from the group and local senior staff once a disaster event has been elevated because of its severity. CDEM operates a distributed model of leadership whereby leadership and ownership escalate, or de-escalate, subject to the nature of the event. Transitioning between and through these levels takes a good deal of skill and doctrinal understanding to ensure that staff members understand their roles and who is in charge. The senior MCDEM official interviewed stated, "The initial friction in Christchurch once a national declaration had been made and the national level took control, was 'who the hell are you?' So it became a matter of mentoring/coaching as opposed to being the 'big hammer', which incidentally, had to be used occasionally" (Interview 2). This was followed with an interesting statement relating to the application of doctrine: "Doctrine in the military isn't questioned, but the challenge within CDEM is that following doctrine does not come easy" (Interview 2). It is concluded that doctrine development and application is one of the fundamental challenges needing to be addressed by leadership at the national level.

Leadership performance at the group and local levels also returned positive results with respondents generally considering leadership to be satisfactory or above (74% and 73%, respectively). Of all three levels, the group level scored highest in terms of ratings in the upper quartile. However, a danger when

analysing the group and local levels is the potential range of difference between the 16 Groups and multiple local authorities throughout the country. Some of the comments made by respondents and interviewees that represent common themes were:

> "Some very good leaders but we need to develop a wider base of leadership through better professional development."

> "Some people in leadership positions at the local level do not have the required competencies."

> "Leadership is good, but resources are low, so that in an event the organisation may be spread too thin."

Annex C provides some strengths and weaknesses of leadership and management within CDEM gathered from the study. Positive aspects are the areas of professionalism, relationship management and operational experience at the various CDEM levels. Less encouraging is the criticism of planning methodology, poorly coordinated exercise plans, lack of professional development and the reduction of resources across the CDEM sector.

The lack of resources and professional development are considered to be at the heart of leadership problems associated with CDEM. The third goal of the National CDEM Strategy (Figure 2.8 and 4.8) is to focus on enhancing New Zealand's capability to manage civil defence emergencies (MCDEM, 2007). Underneath this goal are two objectives: professional development (3a) and the ability to prepare and manage emergencies (3b). These objectives were reviewed and measured across CDEM Groups as part of the CDEM Capability Assessment report in April 2012. The results for objective 3a, professional development, makes for sobering reading and clearly indicates that professional development strategies and programmes across CDEM Groups were

unacceptably low (MCDEM, 2012b). Key Performance Indicator (KPI) No. 1 in this area relates to professional development strategies and shows an unacceptable national average performance rating of 43%. Of serious concern was that the lowest 16 CDEM Groups rated only 10% in effectiveness.

Goal One	Goal Two	Goal Three	Goal Four	Enabler One
Increasing community awareness, understanding, preparedness and participation in civil defence emergency management	Reducing the risks from hazards to New Zealand	Enhancing New Zealand's capability to manage civil defence emergencies	Enhancing New Zealand's capability to recover from civil defence emergencies	Ensuring all agencies have the structures and authorities to be able to reduce risks, be ready for, respond to and recover from civil defence emergencies
1A: Increasing the level of community awareness and understanding of the risks from hazards	**2A:** Improving the coordination, promotion and accessibility of CDEM research	**3A:** Promoting continuing and coordinated professional development in CDEM	**4A:** Implementing effective recovery planning and activities in communities and across the social, economic, natural and built envts	**5A:** Ensuring compliance with relevant legislative frameworks
1B: Improving individual and community preparedness	**2B:** Developing a comprehensive understanding of New Zealand's hazardscape	**3B:** Enhancing the ability of CDEM Groups to prepare for and manage emergencies	**4B:** Enhancing the ability of agencies to manage the recovery process	**5B:** Implementing effective organisational structures for CDEM
1C: Improving community participation in CDEM	**2C:** Encouraging all CDEM stakeholders to reduce the risks from hazards to acceptable levels			**5C:** Ensuring agencies have funding for CDEM
1D: Encouraging and enabling wider community participation in hazard risk management decisions				**5D:** Ensuring agencies are able to function to the fullest possible extent during and after an emergency

Figure 4.8: Goals and Objectives of the National CDEM Strategy

The lowest overall result across the 16 Groups was recorded in the category investigating whether "a development needs analysis has been carried out to inform professional development programme requirements." Only 31.3% had met this requirement. This was reinforced in the commentary of the report that stated:

> "Only half of CDEM Groups had a formal professional development strategy at the time of their assessment. A professional development strategy is crucial for a considered approach to analysing development needs, and developing

> programmes that are designed to meet those needs are based on organisational goals and objectives, and aimed at improving CDEM knowledge and practice."
>
> (MCDEM, 2012b. p. 29)

Other KPIs under this objective had more encouraging results, notably 'Effectiveness of Exercising' which scored a national average of 69.2%, and 'Integration of Exercises' at 83.3%. These results demonstrate a concerted effort in most CDEM Groups to develop competencies through exercising. However, these efforts can only go so far. If professional development, particularly in the areas of leadership and management skills, does not receive an increase in focus and resources then CDEM will not achieve the level of improvement needed in these areas.

"A champion leader will surround himself with champions." This is a quote from Geoff Lorigan, Director of the Institute for Strategic Leadership (ISL). It implies that for a person to be an effective leader, they need to be supported by highly competent staff who will turn the leader's decisions into actions. The appointment of an effective Chief of Staff can be the critical difference between the success and failure of an organisation. Often traditionally seen as a term given to a military appointment, there are now many examples across the public and private sector of agencies appointing a Chief of Staff to perform the buffer role between the Chief Executive and the Executive's direct reporting team. In the aftermath of the Christchurch earthquake the McLean Review stated that:

> "What was needed was a strong character with experience at a senior level as a Chief of Staff in a coordinating staff function, ensuring the Controller's intent is actioned and handling the politics of an EOC or HQ."
>
> (McLean et al, 2012, p. 49)

To explore the above statement's relevance further, survey question 23 (n = 65) asked respondents and interviewees, **"Do you agree with this recommendation?"** The response was quite resounding with a clear majority of 92% agreeing that the appointment of a Chief of Staff was essential. Thirty percent of respondents felt strongly enough to rate the level of importance at the highest grade of 10 out of 10 (Figure 4.9).

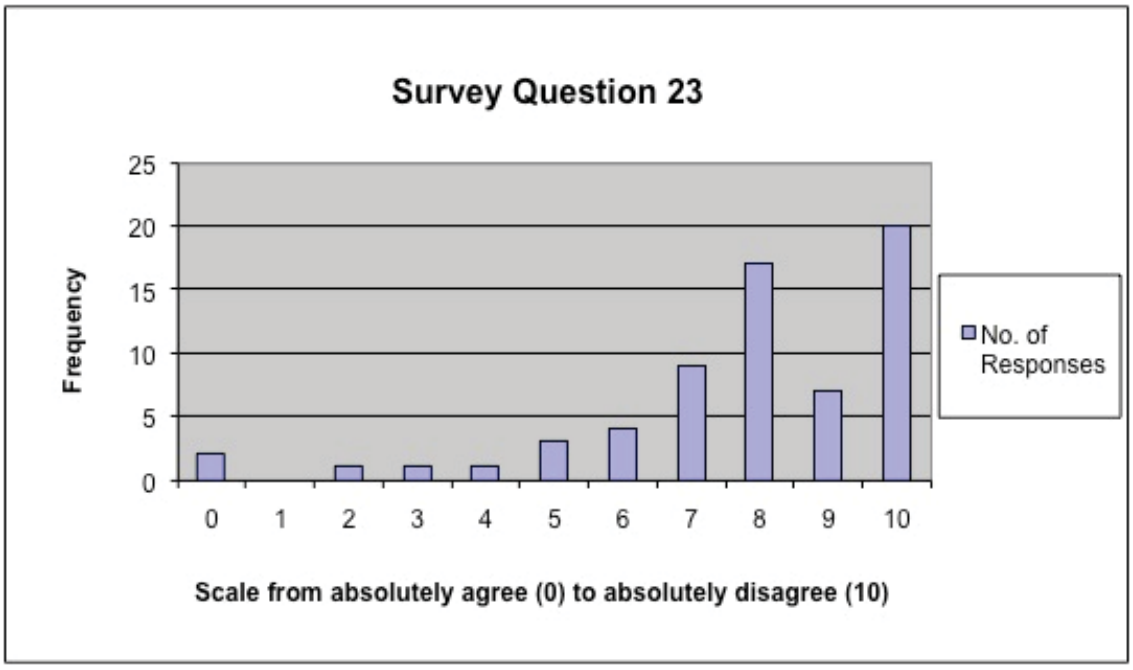

Figure 4.9: Chief of Staff Appointment in EOCs (n = 65)

Comments provided by respondents highlighted a number of the real challenges surrounding the appointment issue. A consistent theme was the concern around the training and retention of such people, particularly at the local level where resources are scarcer and staff numbers fewer. Having these sorts of people available across CDEM makes logical sense, but the practicalities and cost of doing so provide some significant challenges. Others in the survey considered that the Chief of Staff could be included in a trained cadre of national experts that assist in the event of a major disaster. This relates directly to one of the main findings and recommendations of the McLean Review to develop, **"a collective of highly trained Emergency Managers from organisations**

across the country to be established to lead and control a CDEM response."

Respondents were asked in survey question 28 (n = 66) whether "**they agreed with this recommendation**", and once again a clear majority of 93% agreed that the development of this cadre of experts was required, particularly to cope with a major disaster event (Figure 4.10). Twenty-five percent of respondents 'absolutely agreed with this recommendation'. In finding this, however, a number of comments were made that raised reasonable concerns and observations. A theme that emerged was the need for any cadre to mentor and coach, rather than take over control, which can have the negative effect of leaving the group or local level leadership feeling disenfranchised from the ownership of the issue. This is important, particularly as the local knowledge and relationships already established across the wider CDEM sector will be critical to the response. Others felt that by incorporating this capability less senior-level corporate knowledge would be lost over time.

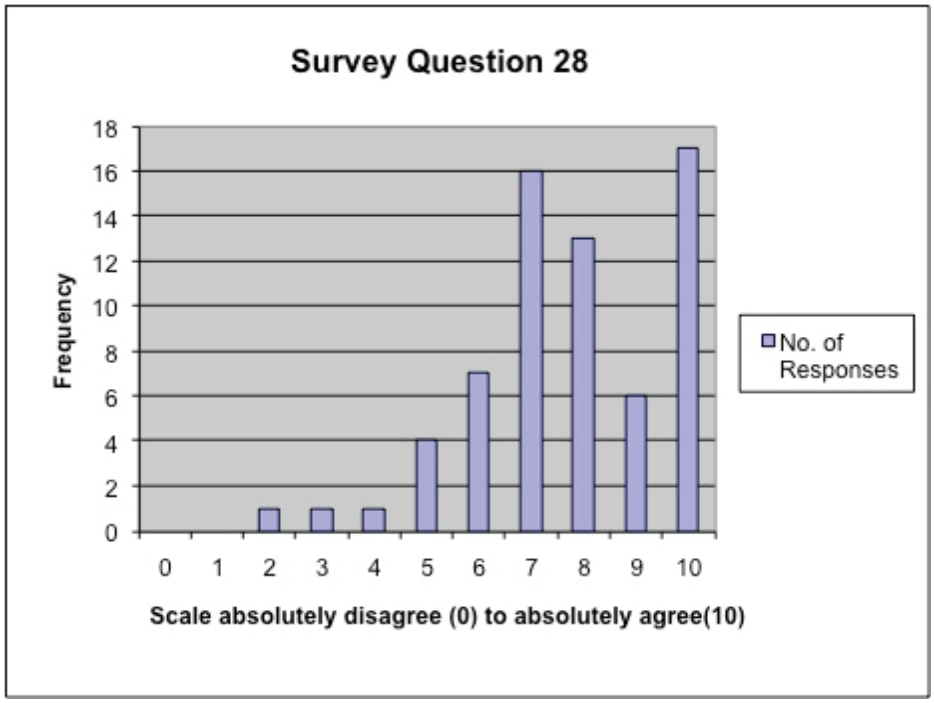

Figure 4.10: Developing a Collective of Highly Trained

Emergency Managers (n = 66)

The senior DPMC official emphasised the risk of leadership expertise and corporate knowledge being lost (Interview 1). He recalled that back in the late 1980s a similar concept existed whereby six Civil Defence experts were available at short notice to respond and assist local leadership during an emergency event. For whatever reason this was discontinued, which as he stated "may not have been for any good reason other than a change of leadership and the discontinuation of an idea which upon reflection had worked well." He further highlighted how "corporate memory loss" occurs once information is generally more than 10 years old. He cited a report written in 1987 for the Christchurch LG by the University of Canterbury Centre for Advanced Engineering, titled *Risks and Realities*. This report identified the problems and infrastructure failings that would occur in a significant earthquake. It offered substantial details concerning the key risk areas related to bridges, electricity, water and transport. He cited how two of the major utility companies in Christchurch used the report to develop contingencies plans, which 16 years later placed them in a good space to respond to a real event. What is less encouraging is that it appears that few other organisations, including the local councils or CDEM, were familiar with the report or the valuable information it contained. The effects of liquefaction, for example, were well documented with a chapter dedicated to its effects and potential to disrupt major lifeline utilities:

> "With so much of the eastern side of Christchurch being potentially subject to liquefaction, an understanding of the potential effects of liquefaction on the various engineering services is particularly important for Christchurch."
>
> (Centre for Advanced Engineering, 1987, p. 47)

Losing corporate knowledge is a real problem across most organisations and highlights the emphasis that needs to be placed on retaining good experienced staff. The staff churn witnessed in recent years within the public sector, including

CDEM, demonstrates the risk that organisations run in losing corporate knowledge and there are only limited systems in place to ensure that the knowledge is transferred.

The senior MCDEM official interviewed reflected on the 1987 Christchurch report stating “there have been heaps of reports about where liquefaction would hit, however the challenge is where you get that corporate knowledge and information transferred across to a procedural thing” (Interview 2). The same can be said for the 108 recommendations made in the McLean Review, most of which that have been accepted by the government. “It’s very hard to implement all these recommendations and some haven’t yet, so if an earthquake happened tomorrow, some of the same mistakes would crop up again” (Interview 2).

The development of strong capabilities in CDEM leadership and management, and the ability to perform time-pressured decision-making, must be sustained and continually developed. Each of these attributes will contribute to the success of the disaster response (Tomasini, 2009: Kapuca, 2013). These competencies require appropriate training and professional development programmes to ensure they are sustained at an acceptable level. To assess the current competencies of CDEM, and gather views from CDEM professionals regarding the standard of professional development, a number of data collection questions were put to survey respondents and interviewees.

Survey question 30 (n = 68) asked, “**Have you received any formal leadership and/or management training or education that has equipped you better for a CDEM event?”** Eighty percent of respondents reported that they had received various forms of training leading up into employment with the CDEM sector, or were receiving professional development training since having been appointed. A large number of respondents had received training at various CIMS levels,[27] while a wide range of respondents had completed tertiary diplomas or degrees

[27] CIMS operates Level 2 and 4 courses on the National Qualifications Framework.

highlighting a good variety of training available. A number of CDEM staff possess previous military training, highlighting a tendency for ex-military personnel to transition to a career in CDEM. A senior CDEM Group Manager who was interviewed saw one of the real strengths being the diverse range of skills that his staff brought to the organisation:

> "We operate a professional development matrix that is a systematic approach to up-skilling. It's interesting to note than the vast majority of people don't have actual CDEM degrees but a diverse range of academic and practical experience. The old way of training volunteers was to sit unit standards, but we have just won an international award for 'partners of preparedness', not unit standards aligned." [28]
>
> (Interview 4)

Of concern, however, were the 20% of respondents who reported no training or education that would have equipped them better for a CDEM event. A consistent theme from this grouping was the lack of leadership or management-focused courses that would build on the competencies stated in the CDEM competency framework. A concerning statement in the CDEM Capability Assessment report (2012) related to professional development programmes:

> "Training is nearly always problematic for Emergency Management officers, due to the time involved, the effort of providing new and engaging training programmes, the struggle with senior management and staff to get staff released for training, and the unwillingness of many staff to be involved."
>
> (MCDEM, 2012b, p. 29)

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[28] See: http://www.scoop.co.nz/stories/AK1307/S00432/community-driven-volunteer-programme-wins-award.htm

The report goes on to recommend that capability development be aligned to the CDEM competency framework and that all CDEM Groups should have their Group Plans updated to ensure they comply with the intent of that framework. A related survey question 31 (n = 59) was put to respondents asking, "**What leadership or management training/education do you believe is required for those leading a CDEM event?"** Common in responses was the call for CIMS Level 4 training that entails a multi-agency approach and has the benefit of exposing people to the intricacies of other agencies involved in the wider CDEM sector. Undertaking a tertiary qualification in Emergency Management was also seen as a useful qualification to have in a professional development strategy. The most common observation was the need for people coming into CDEM, particularly senior positions, to have proven their leadership ability especially in planning and crisis management. CDEM staff members need to be able to function in an operations centre in the heat of an emergency, where decision-making may be required without full clarity of facts. Decision-making skills and associated tools need to be taught and exercised if they are to be effective in a real event (Interview 2). The McLean Review was more explicit about the need to only employ trained, competent staff in key roles:

> "During the response phase, only those with CIMS training and acknowledged as effective operational leaders be appointed to senior positions in a CIMS structure."
>
> (McLean et al, 2012, p. 44)

In recent years leadership training and education has steadily gained momentum across some parts of the public sector. The State Services Commission sponsored Leadership Development Centre (LDC)[29] plays an important role in the development of senior leaders of the public sector. However, there is still a capability gap in the middle management levels, where

[29] See: http://www.ldc.govt.nz/Site/About/Default.aspx

some government departments have needed to outsource their leadership development training, which can be costly. The NZDF and NZP have invested in establishing in-house leadership programmes to develop their staff. The NZDF, for example, has established its own Institute for Leader Development (ILD), a unit within the New Zealand Defence College vested with training and educating leadership competencies across the levels of rank within the organisation. The NZDF intends to extend ILD courses to other government agencies, with CDEM being one of those that will be invited to attend. The senior MCDEM official interviewed stated:

> "MCDEM is keen to develop a relationship with NZDF leadership to create networks and skill sets amongst CDEM professionals."
>
> (Interview 2)

While the extension to CDEM staff is a positive move from a WoG perspective, the numbers able to be trained by the NZDF will be small in comparison to the number of CDEM staff that would benefit from this professional development. The lack of resources is a significant constraint on a number of other government agencies, including CDEM, who do not have the ability to invest in this kind of professional development. Annex C further demonstrates the weaknesses seen in leadership professional development, particularly around the issue of resources that is discussed further in Chapter 5 with associated recommendations.

4.5 Governance and Policy

> "The National Civil Defence Emergency Management strategy sets the direction for CDEM in New Zealand for the next ten years, based on reduction of, readiness for, response to, and recovery from the risks New Zealanders face."
>
> (MCDEM, 2007, p. 3)

4.5.1 Introduction

This section addresses the third research field of this thesis, Governance and Policy, and aims to answer GR3: **"Do the current legislative framework, policy and plans provide an optimal basis for CDEM to be managed in New Zealand?"** Analysis of the success and performance of the MCDEM strategy is conducted, and an assessment of the progress of CDEM governance and policy, in relation to the CDEM 10-year strategy, is provided. The premise is that robust governance, in addition to national policies and strategies, are essential to provide a foundation for organisations to develop and implement CDEM plans and response options. Three SR questions have been developed to assist in testing this premise.

4.5.2 CDEM Policy Framework

The first SR question asks, **"How robust is New Zealand's framework of CDEM legislation and powers to command and control a disaster event?**" Survey question 34 (n = 61) asked respondents, **"From an overarching and broad perspective, do you consider New Zealand's CDEM governance, policies and strategies to be sufficiently robust?"** Figure 4.11 shows that almost three-quarters of survey respondents (74%) believed New Zealand's governance, strategies and policies are sufficiently robust, registering scores above the mid-point. Some considered New Zealand to be an international leader due to its legislative framework and phased approach to its 4Rs strategy. These underpin the CDEM strategy and ensure plans are sufficiently robust,

although comments were made that the strategy and plans need to be stronger in the 'recovery' phase.

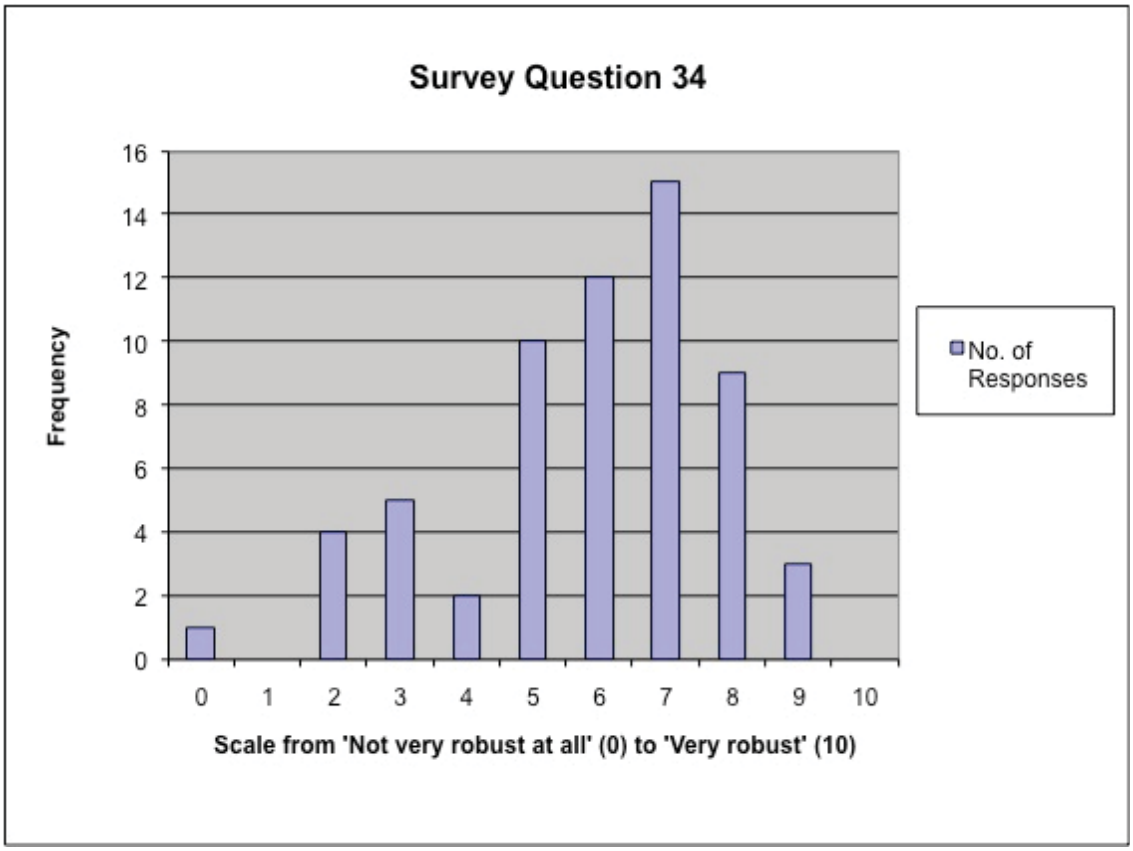

Figure 4.11: CDEM Governance, Policies and Strategies (n = 61)

Although this study is predominantly focused on the phases of readiness and response, a consistent theme from respondents and interviewees was the criticism of policies and strategies in place for the recovery phase. Comments highlighted the lack of a contemporary national CDEM guideline or processes for recovery. Likewise, at the group and local levels the long-term recovery strategies may be viewed as requiring a lot of effort for something that may never eventuate. The recent Christchurch earthquakes provided an example where a rushed set-up of the Canterbury Earthquake Recovery Authority (CERA), and the associated legislation was urgently passed through parliament. Recovery can be a very long phase lasting for years and involving many

agencies and organisations. The 1995 Kobe earthquake in Japan is very good example of how some people's lives, particularly from a well-being perspective, have yet to return to normal even after more than 18 years since the event.[30]

The integration of the various plans and guidelines is also an issue where a number of respondents commented. They considered there was a disjoint between nationally-led policy and what policies were enacted in some of the 16 groups and local authorities. Respondents considered more focus should be directed to the integration of national, group and local plans. Some felt that much of the planning was done in isolation, without regard to the CDEM hierarchy, lifeline utilities or the supply chain.

These concerns are also reflected in the 2012 CDEM Capability Assessment Report that provides an assessment of integrated planning at the Group level:

> "Feedback suggests there are varying degrees of integration of planning across the country. Smaller councils and unitary authorities find it easier to ensure good coordination between different aspects of council, although this is by no means uniform. Some larger councils have made a concerted effort to align CDEM-related functions, but in others there is sparse evidence of collaboration, and further, not even any recognition that some other aspects of council business are 'CDEM-related'. This is missing a significant opportunity."
>
> (MCDEM, 2012b, p. 19)

The results from this study demonstrate the varying levels of national compliance across the 16 CDEM Groups. One group scored 82.5% for integrated CDEM planning, and the lowest only 20%. The national average of

[30] Statement by Professor Shigeo Tatsuki, Department of Sociology, Doshisha University at the 12th Annual Emergency Management Conference 2013, Wellington, New Zealand.

57.2% across the 16 Groups indicates significant room for improvement in the development and implementation of plans and strategies.

The senior leader interviewed from DPMC reflected on the introduction of the risk management policy adopted by Prime Minister Bolger's National government in the mid-late 1990s. He considered that for a time New Zealand was a world leader in its approach to managing risk from a macro-country perspective (Interview 1). He referenced the NSS (Figure 2.7) where the approach to risk management is driven by the following five tenets:

1. Minimise the occurrence and scale of any significant harm or disruption.
2. Integrate preventive and protective measures.
3. Build contingent capacity and improve national resilience.
4. Respond quickly to adverse events and stabilize disruption.
5. Return society to normal functioning quickly and efficiently.

(NZ Govt, 2011, p. 5)

With reference to CDEM's current range of legislation, strategy, plans and guidelines, the interviewee from DPMC considered that as a country we may have over-complicated things. He compared CDEM to biosecurity in New Zealand. He considered that biosecurity was a good example of keeping to one document that is full of principles and provides enough basis for people to operate off. He felt that having too many documents created the risk that they "don't get taken off the shelf" (Interview 1). The senior MCDEM official interviewed had a contrary opinion and countered by saying that in terms of governance some jurisdictions overseas consider New Zealand has the level of regulation exactly right. He stated:

> "The Act provides the Director the authority to go and check the capacity and progress of local authorities as well as other departments in terms of responding to the requirements in the

> Plan. Having a strategy is absolutely right as it provides the vision and approach to resilience and the 4R where the 16 (strategic) goals are relatively enduring and open-ended."
>
> (Interview 2)

In relation to the authority for C2 and associated legislative powers vested in the National Controller, Group and Local Controllers, the majority of respondents (72%) considered these policies to be robust and sufficiently well established. A consistent theme from respondents and interviewees was that difficulties arise when there is a transfer of authority between CDEM levels as an event escalates in its severity. It is at these transition periods that robust processes and understanding from key staff needs to be well versed and in line with doctrine and policy. The authority vested in a controller after a national state of emergency has been declared under the CDEM Act, particularly the National Controller, needs to be significant and thorough. Survey question 36 (n = 62) asked respondents, **"In a crisis where a national declaration has been made, do you consider the National Controller has effective control and call on assets and resources that need to be made available?"** Seventy-three percent of respondents responded with ratings above the mid-point indicating they consider the National Controller to have effective control, and 45% rating the level of control as being very effective, scoring 8-10 out of 10 (Figure 4.12).

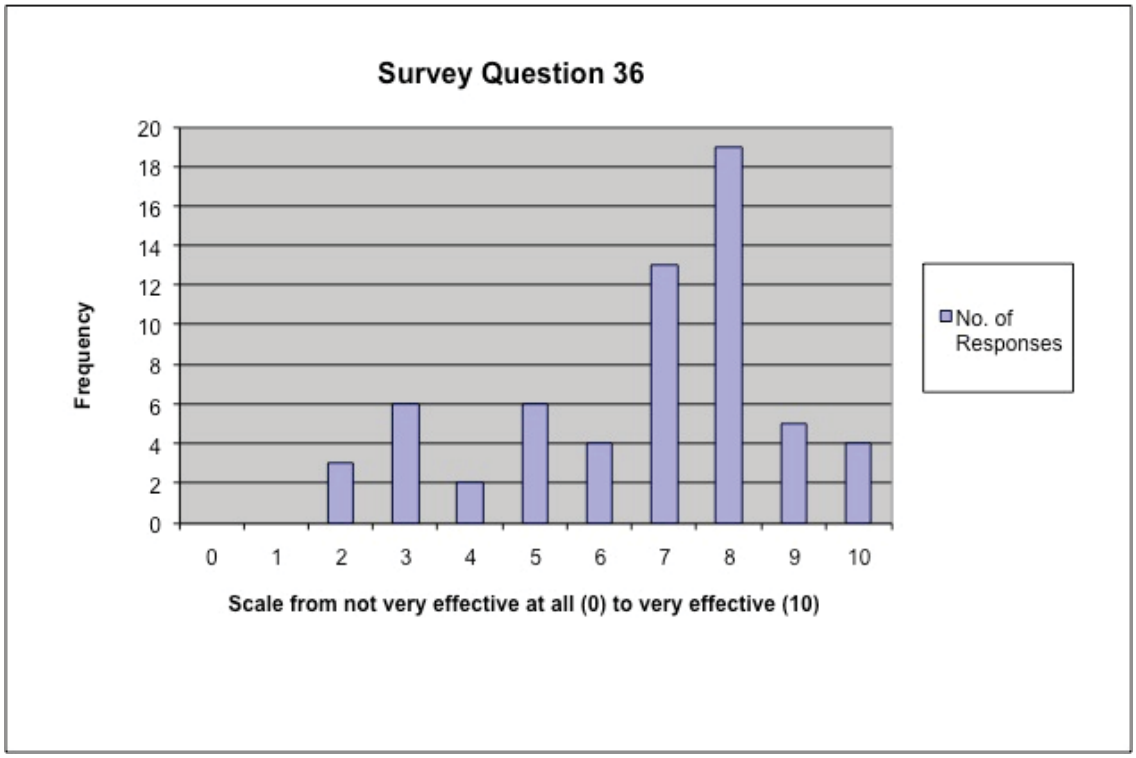

Figure 4.12: National Controller Effectiveness (n = 62)

Challenges exist with staff organic to CDEM, and staff within supporting OGA's, to appreciate the authority that is vested through government legislation in a National Controller. This lack of understanding can seriously affect the rate of compliance with a Controller's direction and intent during the disaster event. One method used to achieve this understanding is through conducting well-planned exercises where this C2 can be role-played and simulated. In a resource-constrained environment, CDEM exercises and the associated commitment to them can suffer, resulting in staff having less of an understanding of the Controller's authority when a real event occurs. Some of comments demonstrating this were:

> "Some agencies are still reluctant to act under the National Controller at all levels."

> "Knowledge of the Controller needs to be sufficient to call upon available assets resources."

> "Lines of control need to be understood and properly adhered to i.e. NZDF retain command of resources but should follow the Controller's requests unless they compromise safety or compete with overseas mission priorities."

The nature of the Controller's C2 approach has needed to adapt over recent decades to the increasing privatisation and decentralised nature of New Zealand society (Interview 2). No longer is there a Ministry of Works holding a huge amount of logistical assets that a Controller could command. While the Act provides a Controller with the ability to requisition equipment and materials, in reality they will be relying on lifelines utility companies to respond to his or her requests without having to enforce such draconian powers. The senior manager from a regional LG stated:

> "In the 1980s there was a perception that the Controller was controlling everything, not so in the current environment with private utilities getting on with response and recovery from the event. The private sector have the expertise, so where CDEM can influence is by defining and setting the priorities."
>
> (Interview 5)

The reality is that New Zealand operates an open, market-driven economy where large government departments are a thing of the past, which requires a reliance on lifeline utility companies to be prepared with contingency response plans. As discussed in Section 4.2, this is one area that is not adequately addressed in the legislation, and often where companies are not as prepared as they should be. This risk requires the National Controller to have very good situational awareness of how these companies are responding to a major event.

4.5.3 Cross-Sector Collaboration

The importance of collaboration, relationships and networks across the government and non-government sector is emphasised in the literature and has been identified in previous sections. The robustness of relationships across various organisations will be a defining factor in successfully being ready, responding and recovering from a disaster event (Tomasini & Van Wassenhove, 2009; James, 2008). The second SR question (SR3b) related to governance and policy and asks, "**How robust are CDEM strategies and policies, and cross-sector relationships?"**

Two data collection questions were designed to assess the state of plans and relationships across the CDEM sector. The first, survey question 37 (n = 67) asked respondents, "**Does your agency/organisation have effective strategies, plans and processes in order to respond to a major CDEM event?"** Seventy-five percent of respondents assessed their organisation's strategies for responding to a major CDEM event as being better than satisfactory. Even more positive was that 92% regarded their CDEM plans satisfactory or better, with 57% of respondents grading a 7 out of 10 or better. These results are consistent with the performance reported in the 2012 CDEM Capability Assessment report, where an average of 90% of Group plans and procedures demonstrated alignment with the National CDEM planning framework. This represents a positive trend within CDEM Group plans as was reflected in the comments made:

> "Most CDEM Groups are now involved in the process of embedding their new Group Plan, and devising work programmes designed to implement the intent of the Plan. This is the really crucial stage, as the assessments showed that this was not necessarily done that rigorously with the first generation of plans."
>
> (MCDEM, 2012b, p. 34)

Conducting regular and realistic exercises is widely regarded as a critical professional development tool and a way in which strategies, plans, and processes can be tested through the application of corporate systems such as CIMS (Interviews 2 & 4). The survey results relating to meaningful exercises and CIMS training were positive, but not as positive as the results for strategies and plans. Seventy-one percent considered that meaningful exercising was being conduced at a satisfactory level or higher. CIMS training rated slightly higher at 74%, but comments by some respondents indicated that there is still ample work to be done on the education surrounding the application of CIMS. This has been previously discussed in Section 4.2 where respondents commonly saw the current CIMS as not being suitable for complex emergencies or events on a large scale.

This survey question also explored the relationship between CDEM and other government departments and organisations in the CDEM sector. Most respondents indicated they considered these relationships to be in a healthy position. Most notable was the CDEM relationship with the NZFS and NZP. Both scored highly with almost 40% of respondents valuing the quality of both relationships at 8-9 out of 10. The MoH and NZDF also scored well, but not as highly as the NZFS or NZP. Those critical of the NZDF relationship cited the staff turnover factor previously discussed in Section 4.3.4. Another limiting factor with the NZDF relationship is the C2 arrangement that requires a call for NZDF staff and equipment support to be approved from the Wellington headquarters. This differs from the distributed model that the NZFS and NZP operate. In comparison is the health sector, which operates a highly distributed model and relationships between CDEM Groups and individual district health boards defining the relationship.

The C2 relationship of MCDEM came into question during the McLean Review. At present MCDEM operates as a semi-autonomous entity under the

Department of Internal Affairs (DIA). The McLean Review recommended that MCDEM be moved under DPMC as it saw MCDEM being hampered in its relationships with major departments by virtue of it being a small element in the broad portfolio of DIA. The review also considered that the traditional lack of seniority of the CDEM Minister places MCDEM at a disadvantage. This recommendation is one of the few that was not accepted by Cabinet and it appears MCDEM will remain under DIA for the time being. A senior official interviewed from DPMC also disagreed with the McLean Review and felt the move from DIA to DPMC should not be made. He considered the recommendation to bring the Prime Minister closer to the problem is not necessarily a good thing when he is busy with many issues as chair of Cabinet, party leader and other parliamentary duties. Having a junior minister who can dedicate time and effort to a portfolio and advise Cabinet and the Prime Minister is more beneficial in his opinion (Interview 1).

The second survey data question 26 (n = 58), related to SR3b, asked respondents and interviewees, "**What would you recommend to improve the collaborative relationship across partner agencies and non-government organisations?"** This qualitative question resulted in some strong themes emerging, which aligned with the views and results previously documented. Of significance is the consensus that greater overall collaboration is required, and the increased need for a proactive engagement with NGOs. A greater level of engagement will assist in breaking down any false perceptions, unrealistic expectations, and communication barriers that may exist. A number of respondents considered that a greater understanding of the capabilities that each organisation can offer, particularly in the readiness and response phases of the 4Rs strategy, would go a long way in reducing the uncertainty that can occur when a real-time disaster occurs. Common themes that emerged from survey comments were:

> "Planning and making sure that activities take an 'all agency' approach."

> "Continuing and increased multi-agency national training and exercises."
>
> "More use of Liaison Officers."

MCDEM's own capability assessment was critical of the state of inter-agency relationships stating:

> "Some Groups and districts still lack fundamental multi-agency response principles, and it was noted frequently that agencies did not always have a good understanding of each other's response capabilities and capacities."
>
> (MCDEM, 2012b, p. 34)

A relationship that is historically hard to manage and sustain has been that between militaries and NGOs (James, 2008). Interaction with the military can often be a controversial issue amongst NGOs. While some disaster relief agencies have little problem with this, others feel strongly opposed to coordination with the military. At times there can be a great deal of mistrust or misunderstanding that can arise between NGOs and the military, particularly when the entities do not understand each other's mission or the rules of engagement and national objectives that the military operate under. Conversely if the military does not appreciate the ideology and operating principles that a NGO has been founded upon and mandated to, the relationship can break down quickly. These are all reasons why good communication and a willingness to understand the other party are critical to the success or failure of a disaster response effort.

The largest and most significant NGO involved with the Christchurch earthquakes response was the NZRC. The relationship between the NZDF and

the NZRC was very cordial and cooperative according to senior officials interviewed from both organisations. Due to the domestic nature of the response efforts, the tensions that can sometimes arise with an NGO in a heightened security environment overseas did not occur (Interview 3). Each organisation can actually complement each other if their strengths are utilised appropriately. “Militaries can provide a response with a quick hit. They go in with the big toys and then the Red Cross carries on for the longer term. This is what happened with the Samoa tsunami and is still happening in Christchurch” (Interview 6). The challenge that NGOs face when a disaster occurs is the speed with which it can respond, particularly in relation to its supply chain. As James (2008) points out, “At every point along an NGO’s supply chain, there are unique constraints that make logistics in emergency contexts especially challenging. These include urgency, insecurity, remote locations, scarce resources and overwhelming needs” (James, 2008, p. 227).

The Indonesian earthquake of 2004 demonstrated the need for greater coordination and control of SCM to prevent a region from being swamped with INGOs dealing with a huge military aiming to help in this major calamity. A key outcome from the disaster was the formation of clusters to group like-minded INGOs together in an attempt to mitigate the chaos that can occur. For example, in Indonesia the World Food Programme (WFP) took the lead role in relation to food distribution and management (Blansjaar & van der Merwe, 2011).

When coordination breaks down and does not operate effectively, there can be significant consequences. This was demonstrated in the New Orleans flooding of 2005 where the military and law enforcement agencies were slow to respond with security, resulting in major instances of looting and other crimes. On the flipside, however, the response by the NZDF to set up cordon perimeters around the Christchurch red zone was swift and authoritative (Interview 3). The NZDF and NZP assisted by the Singaporean Army and Australian Federal Police

(AFP) ensured that the security of the city, particularly around the red zone, was under firm control in terms of law and order.

4.5.4 Resources

> "Funding systems limit the scope of humanitarian response and they directly and indirectly affect the speed, effectiveness and efficiency of disaster response."
>
> (Toyasaki & Wakolbinger, 2011, p. 34)

The final SR question related to Governance and Policy (SR3c) asked, **"Is CDEM sufficiently resourced across the various levels within New Zealand?"** This complex and multi-layered topic strikes at the heart of many of the issues raised previously in the chapter, and has consequential second and third order effects that can occur when gaps or cutbacks have occurred in a funding model.

Funding and resourcing of CDEM, including the funding that supporting agencies and organisations allocate, has and will continue to be a hot topic of debate (Interview 1). The funding model within CDEM is complicated through its funding sources occurring at three levels. MCDEM, at the national level of CDEM, is funded centrally by the government through the appropriation of taxpayer funds. CDEM Groups are funded by regional council rates, and local level CDEM is through local rates that are allocated by local city and district councils. There are 67 local city or district councils and 16 CDEM Groups which, when combined with the Ministry, equates to 84 funding streams within CDEM alone.

As a consequence of the GFC, every dollar of tax or ratepayer funding has been under the spotlight for retention and justification (Interview 1). Compounding the effects of the GFC is the cost of the Christchurch rebuild, a good portion of which is being fund centrally by the government. As a result, most government

departments, including MCDEM, have been required to find 5% yearly savings from their operating budget to offset the financial predicament that New Zealand finds itself in. For MCDEM, the consequence of these budget cuts on a relatively small operating budget has been to reduce television campaigns promoting readiness for disaster events (Interview 2). At group and local CDEM levels funding is also under pressure. This typically results in cuts to readiness initiatives and programme areas. It is in 'readiness', the second phase of the 4Rs strategy, where the damage to budgets is primarily sustained. Greater risk is accepted in stripping out funds that would typically be allocated to staff recruitment, staff professional development, and readiness initiatives. As one CDEM Group official in Canterbury recounted, "Most council mayors go to bed each night with their fingers crossed praying 'please, not on my watch'." This is not only a New Zealand issue, but also one encountered globally:

> "The root of this problem is that preparedness (readiness) expenditure has traditionally been very low, totalling less than 5 percent of all humanitarian funding in 2009. From 2005 to 2009, out of every US$100 spent on humanitarian assistance in the top 20 countries that received humanitarian assistance, only US$0.62 went to disaster preparedness"
>
> (Kellett & Sweeny, 2011, p. 1).

To consider how respondents and interviewees regarded the state of CDEM funding domestically, survey question 38 (n = 62) asked, **"How well resourced (staffing/funding) do you consider the various levels of CDEM are across New Zealand?"** Of the three CDEM levels, the national level rated the worst. Sixty-eight percent of respondents considered that the national resourcing level was either satisfactory or less than satisfactory. Of this 68% nearly half of these respondents considered it to be in such a poor state to rate 0-3 out of 10. Group funding faired better with almost a 50-50% even split on satisfaction of resourcing across the 16 CDEM Groups. The local level, which often comes in

for criticism for funding pressures and cutbacks, rated similar to the national level with 63% considering resourcing to be satisfactory or below satisfactory.
The main criticism for the national level resourcing relates to the area of staffing. A number of positions need to be filled, but reductions in funding have seen personnel budgets affected which in turn has impacted on staff numbers at the Ministry level. National advertising campaigns have also been reduced due to the fiscal constraints. While the McLean Review recommended that NZDF and NZP second staff to work within MCDEM, the reality is that the hosting department must then fund this position, which in MCDEM's current state is not a fiscal priority. A common theme emerging from respondents was the priority of fiscal allocations towards CDEM. These included:

> "Most council CDEM budgets are less than that spent on cemeteries."

> "The problem is CDEM isn't important until its important."

> "CDEM is slowly becoming recognised as a vital response organisation, however, still too many local authorities park CDEM in a corner with little or no resourcing."

Of the 108 recommendations made as a result of the McLean Review, many have a financial implication. It appears from the Review's terms of reference that there was limited focus on the funding levels of CDEM as a whole. This approach is due to the initial focus being solely on the Christchurch response, which was later widened to considerations of CDEM funding generally across the country. The McLean Review did include as one of its six major recommendations, "That MCDEM continue to promote a culture of preparedness for major disasters amongst all sectors and be resourced appropriately to do so" (McLean et al, 2012, p. 201).

Chapter 5 Discussion and Recommendations

5.1 Introduction

The aim of this chapter is to address the three GR questions that underlie the research topic; “Exploring New Zealand’s capability to strategically manage logistical responses to major CDEM events.” The three GR questions were developed in order to successfully achieve the research objectives (Section 1.3). Each objective aligns to a corresponding field of research, and together these areas form the research framework (Section 1.5). The data collection questions and methods used in Chapter 4 provide a thorough basis from which deductions can be drawn, common themes can be identified, and recommendations made. The deductions in this chapter are based on the questionnaire survey and the seven semi-structured senior leadership interviews.

Following the Hierarchy of Concepts methodology (Sections 1.4 and 3.3) the key findings of the SR questions have been elevated for further discussion to address each GR question (Sections 5.2 – 5.4). Included within the research field of Humanitarian Logistics at Section 5.2 is an underlying focus of CIVMIL relations that aim to achieve objective 2. Section 5.5 identifies common themes that overlap across the research fields and form the centre of the research framework represented in Figure 1.1. Each of these themes is explained and assists in the culminating development of thesis recommendations that are detailed in Section 5.6. The final section to this chapter identifies areas for further research that are outside the scope of this study.

5.2 GR Question 1 – Humanitarian Logistics

> "Does New Zealand possess effective CDEM capabilities, particularly within the MCDEM and the NZDF, to respond with Humanitarian Logistics to major disasters events?"

This study of Humanitarian Logistics is conducted primarily from a domestic perspective and relates to CDEM readiness and response within New Zealand. The majority of the literature relates to Humanitarian Logistics internationally, particularly in third world nations where internal resources are quickly overwhelmed in a major disaster event. However, it is assessed that the same principles, processes and considerations of Humanitarian Logistics apply equally to New Zealand's domestic environment. The case studies used in this thesis, specifically the 22 February 2011 Christchurch earthquake, have demonstrated that the globally accepted principles of humanity, neutrality and impartially remain at the forefront to response efforts where peoples lives and wellbeing are at stake (NZ Govt, 2012b).

This GR question contained three SR questions that concentrate on the management of Humanitarian Logistics, the utilisation of L&SCM expertise across the spectrum, and the level of integration in the WoG collaborative approach within New Zealand. A particular focus of these questions was the capabilities of MCDEM and the NZDF, and how they collaborate with each other as well as other organisations.

5.2.1 CDEM Logistics Capability

Logistics is clearly seen by those in the wider CDEM sector as the 'poor cousin' of CDEM functions (SR1a). The study shows this problem is well recognised and acknowledged within CDEM but little seems to be done to change this position (McLean et al 2012). If not addressed in the short term, logistics will

continue to suffer the same problems of under-performance and lack of coordination that occurred following the Christchurch earthquakes:

> "Management of logistics was fragmented between CRC, NCMC and other Government Departments."
>
> (McLean et al, 2012, p. 14)

Statistics from the research show that 65% of CDEM sector professionals consider logistics to be of a lower priority compared to other CDEM functions. Lack of understanding and appreciation of the importance of logistics is reflected in the lack of professional development by those holding logistics appointments (Tomasini, 2009; James, 2008). A common observation by respondents was that people without appropriate logistical skills often fill logistics roles. This is discussed later in Section 5.3 and supports the analysis that professional development is deficient in various areas, particularly logistics. This lack of understanding and appreciation of the importance of logistics creates the 'vicious circle of logistics' (Figure 4.2). Breaking this circle should be a priority for CDEM leadership across the three levels of management. As disaster relief is 80% logistics (Van Wassenhove, 2006) it seems nonsensical, almost negligent, that logistics does not receive the level of importance it warrants.

The reputation and professional effectiveness of logistics as a CDEM function needs to be addressed quickly. Concerted measures need to be put in place, and the establishment of a CDEM *Logistics Director's Guideline* needs to be a priority (McLean et al, 2012). This important doctrine needs to be constructed with WoG consultation, as well as with input from LGs and the NGO community, particularly the NZRC. Establishing a Logistics Advisory Group within CDEM, similar to what some other CDEM functions possess, will enhance the ability to make progress. Once a logistics doctrine has been developed it needs to be implemented through Controllers and relevant CDEM staff to ensure the processes and plans are put in place. Any logistics doctrine needs to have

support and understanding from CDEM staff, OGAs and essential lifeline utilities companies, if it is to have any chance of success (Lee, 2010).

5.2.2 Utilising Commercial Sector Expertise

The importance of utilising the expertise of the commercial sector was noted in the analysis of this GR question. New Zealand is a market-driven economy that relies heavily on the commercial sector to manage the 'backbone' of the country's infrastructure. Government departments are no longer resourced with surplus assets with which to respond to a disaster event. Apart from the NZDF, which has also diminished in size over the past decade (NZDF, 2011c), commercial companies are the ones who are looked at to respond with appropriate equipment and expertise during a time of need. This was the case during the Christchurch earthquakes where commercial electricity, water, transport and FMCG grocery companies were relied upon to respond. Managing CDEM's relationship with these organisations is crucial when responding to an event, but it is also just as important during the readiness phase of CDEM's 4Rs strategy. The McLean Review was critical that the commercial sector's logistics expertise was scarcely used in the Christchurch earthquake response, and had a senior commercial logistician not volunteered his time, the commercial sector may hardly have been used at all.

When a major disaster occurs, lifelines utility companies play a critical role across the country by repairing the vital infrastructure required to restore some normality to the community. Results from SR1b show that the relationship with lifeline utility companies is essential, and maintaining a good level of communication and collaboration will be beneficial at a time of crisis management. While some in the CDEM sector are of the view that utility companies should be left to implement their own, internally developed, contingency plans, adopting this strategy involves a significant level of risk that is relative to the scale of the actual emergency. Proactive engagement during the readiness phase is necessary to grow relationships with companies and to

have an understanding their capacity and capabilities. Without a collaborative understanding, the leadership within CDEM, and that of political decision-makers, will be hindered by a lack of situational awareness. Across CDEM Groups there are some encouraging examples of an increase in LG-CDEM collaboration and an understanding of the realities of operating in a crisis are becoming apparent. WREMO is good example in which the Project Manager for the LG is also a contracted member of the CDEM staff and is actively increasing the relationships with and between lifeline utilities companies. While there may be other isolated examples across CDEM Groups where active engagement is taking place, this now needs to be progressed throughout the 16 CDEM Groups so that the country as a whole advances forward in a better state.

Commonly across New Zealand many commercial utility companies have excellent logistics and SCM expertise. They also have a detailed knowledge of what high-value logistics assets they possess and where they could be utilised (NZ Govt, 2002). It is not suggested that CDEM should own these assets, although there is legislation that allows for requisitioning under a national declaration if required. A general understanding of the assets' location, and whether they can be utilised during a major disaster event, provides a high level of situational awareness, which is essential in senior leadership decision-making. Gaining this understanding will also provide access to the expertise that now sits largely within the commercial sector or the NZDF. Arrangements need to be in place to share and collaborate, not just in response to a disaster but also in the readiness phase. It is within this readiness phase that preparations, exercises and desktop simulations occur, ensuring that every stakeholder is well prepared for a variety of potential events.

5.2.3 NZDF Collaboration

The third element related to GR1 was a focus on the NZDF's collaboration before and during a disaster event. Recent CDEM events have shown that the NZDF has generally stepped up and provided the level of assistance that has

been asked of it. Data collected from the questionnaire survey and interviews shows that the NZDF's overall performance in the aftermath of the 22 February 2011 earthquake, assisted by the fortuitous proximity of some of its ships and troops, is generally regarded as excellent (McLean et al, 2012). The survey results also demonstrate that NZDF's capabilities in aerial surveillance, transport, planning and security assistance to the NZP are all highly regarded and make a considerable contribution to a response effort. Logistics support, either through the provision of logistics staff or through camp and base infrastructure support, also contributes in a very tangible way especially in the early chaotic stages of a response.

It has been identified that the NZDF could increase its contribution during the readiness phase of the 4Rs. NZDF doctrine states that during the readiness phase the NZDF will participate in contingency planning and exercises with other government agencies and formulate a military response plan (NZDF 2012a). At a time when overseas operations have been reduced and the lessons learnt from the Christchurch earthquakes and the MV RENA disaster are still recent, an opportunity exists for the NZDF to be more actively involved with WoG CDEM involvement. However, there are some institutional constraints to overcome in achieving this. The first is the NZDF's internal culture that it should only be used in a supporting role, as playing a reactive rather than overt or proactive role. While this attitude may align with the "option of last resort" philosophy (Seipel, 2011; Cross, 2011), a more proactive and collaborative engagement would be of significant benefit to CDEM nationally. Secondly, the NZDF should address the perception that participating with CDEM is an inconvenience rather than of vital national interest. This attitude will only change with education and leadership from within the NZDF where the importance of its contribution to CDEM as a supporting agency should be emphasised. The aftermath of the Christchurch earthquake and the loss of 184 lives should be motivation to remedy this, but it may take a genuinely concerted effort by the NZDF to increase the attention given to CDEM.

Where the NZDF can make an immediate impact is in the professional development support provided to CDEM. Operational planning is a crucial output of a defence force and is a skill-set that is transferable through training and education. The development of a modified JMAP to suit the domestic nature of CDEM would assist CDEM staff with planning under crisis conditions. CIMS relies heavily on robust planning, and with a rewrite of CIMS currently underway there is an ideal window of opportunity to enhance the planning methodology in CDEM with a JMAP derivative. Leadership development is another area where the NZDF could provide assistance to CDEM. The recently established NZDF ILD could provide support to CDEM participation, albeit in a limited capacity as the ILD does not meet the full requirements of CDEM nationally. Staff secondments and/or part-time contributions of NZDF staff to CDEM would also be hugely beneficial in areas such as developing policy, plans and logistics doctrines. This occurs regularly between the NZDF and other militaries and yet it appears to occur infrequently on the domestic front with OGAs such as MCDEM.

5.3 GR Question 2 – Emergency Management and Leadership

"Does New Zealand have effective Emergency Management and Leadership capabilities for responding to CDEM events in New Zealand?"

The above GR question aims to achieve objective 3 of this study, to "analyse the broad aspects of Emergency Management and Leadership across the CDEM sector to determine shortcomings and opportunities for development." The focus of the related SR questions has been on: the relationships that exist across the different levels of CDEM; the effectiveness of strategies, processes and tools used for the management of CDEM; and assessing the competencies and professional development that relate to management and leadership across CDEM.

5.3.1 Relationship Management

It should be acknowledged that from an overall perspective, the data indicated that the state of the relationships across the CDEM levels of management and within the wider CDEM sector is generally good. In a fiscally constrained environment managing these relationships can present some significant challenges. Trimming budgets increases the level of staff movement, and corporate knowledge is often diluted as a result. This is specifically stated in MCDEM's Capability Assessments in 2012 where the local level of CDEM is criticised because "CDEM is often still an afterthought, or falls into obscurity amongst the more immediate and tangible requirements councils have, such as roads, water, public facilities etc" (MCDEM, 2012a, p. 21).

The focus needs to shift to developing and maintaining good relationship management across CDEM and promoting the highly important role that CDEM can play, both nationally and in the regions. Collaboration is the key that requires innovation and a continuous improvement approach as has recently

been observed in the Wellington region. At the same time as the McLean Review was recommending an integrated EOC approach for Canterbury, the Wellington CDEM Group has been active in combining regional and local council resources and forming a new integrated organisation, WREMO. This has resulted in greater community focus within a flexible structure built on functions, rather than geography (WREMO, 2013). By concentrating on operational response and community resilience, as well as risk identification and management, WREMO has been able to focus efforts to benefit the entire region while also eliminating replication across smaller councils. WREMO has been careful to maintain embedded staff at the local council level to ensure that authorities receive local attention, advice and support. This aligns with the analysis regarding the elevation of responsibility from local to group level (Section 4.2.2) and, as a consequence, councils are less inclined to use CDEM for political reasons and will concentrate on their core business of local government. The region's geography and the political environment play an important role, and for this reason the benefits seen in the Wellington model of CDEM for the group and local level may not necessarily transfer to other regions. Despite these factors, the success of the WREMO model presents a compelling case that this approach should be considered for adoption in more regions throughout New Zealand.

5.3.2 CDEM Management Processes and Tools

Corporate processes and tools are critical to any organisation's management. Central to CDEM management is the CIMS methodology and EMIS. Sections 4.2 and 5.2 have shown that CIMS and EMIS have deficiencies in the application of L&SCM and wider emergency management across the CDEM sector. The performance of CIMS and EMIS were questions put to survey respondents and interviewees as part of the data collection set. In relation to EMIS, the data showed that while there is some optimism surrounding the introduction and intent of an EMIS tool, there is also some concern throughout the comments and interviews that EMIS is not delivering its full potential and

doubt as to whether it will reach the required level of effectiveness. A thorough analysis of EMIS is outside the scope of this study and remains a potential future research topic. Electronic systems developed for the public sector are often very sensitive issues, particularly when taxpayer funds are spent on systems that do not fully deliver. Recent examples include the Novopay system at the Ministry of Education and the failed Integrated National Crime Information System (INCIS) developed for the NZP in the 1990s. Only time will tell whether the EMIS ends up becoming another example of a failed system, or whether it delivers to its full potential in the future. What will continue to gain momentum should it not deliver will be growing dissatisfaction from the user and the sub-optimal level of management as a consequence.

The McLean Review has criticised the response in Christchurch for not being compliant with CIMS. This resulted in some duplication of effort and non-integrated functions, creating fragmentation within the EOC, and a lack of hierarchy with the regime set-up for staff appointments and shift rotation. Some survey respondents were also critical of CIMS in its current form. However it should be acknowledged that a WoG rewrite of CIMS is currently underway which will hopefully address some of the concerns raised and develop a much more operationally focused and tangible CIMS doctrine.

Once a new CIMS has been implemented it will be important to test and evaluate the new methodology. As discussed in Chapter 4, a major challenge faced by CDEM is the constraint of not being able to practice using real events. Unlike an organisation such as the NZRC, where many of its staff have been overseas in support of major humanitarian disasters, CDEM staff are restricted to practising via field exercises or table-top scenarios. While these are valuable, they do not bring the same level of reality or raise competency development levels as much as actual involvement in a real-life disaster event. This is just a fact of life for the CDEM professional and means that exercise development must be as real as possible and should ideally include participation from the

wider CDEM sector. There is a risk that if not acted on soon, the corporate knowledge gained from the Christchurch earthquakes, the MV RENA grounding and the Pike River mining accident may gradually be forgotten. These past experiences provide an excellent benchmark to determine effective practice and learn from any mistakes. This is where the use of technology, either though EMIS or in the development of online training tools and simulators, can ensure that valuable lessons in emergency management methods are retained. This use of technology could also be utilised for the advanced planning tools discussed in Section 5.2.

5.3.3 Leadership and Management

Professional development of staff has changed and there is now a large focus on leadership and management capabilities to ensure staff have the ability to perform to a competent level. Survey data indicated that generally CDEM leadership is considered satisfactory. It was acknowledged that there are some highly experienced and capable people currently in leadership roles, and that if corporate tools and processes were at an optimal level, then the levels of leadership and management may rise even further. The risk is that without the development of a robust CIMS and a fully functioning EMIS, these good leaders and managers may seek alternative employment as a result of frustration.

Professional development remains a contentious issue within CDEM. This issue is clearly demonstrated within MCDEM (2012b) where only half of the 16 CDEM Groups had a formal professional development strategy. Without strategies and associated implementation plans for professional development, staff are less likely to perform in the heat of crisis management, or alternatively they may become demoralised due to a lack of development input to their careers. Leadership is an area for professional development where tangible benefits can be realised, but providing this is also an additional expense. Within the public and private sector there are a number of courses and programmes that CDEM staff could undertake to enhance their leadership competencies. Potential

courses in the public sector include leadership programmes at the State Services Commission led by LDC, the NZDF's ILD, and leadership programmes within the NZP. With some negotiation, all of these could be opened up to CDEM staff but resources would need to be allocated from within current CDEM funding, meaning other funding priorities may suffer.

Training systems and the use of technology to retain corporate information are considered to be areas that need greater attention from within CDEM. The concept of a virtual staff college to educate and train CDEM sector professionals in policy, plans and practices has merit, but will involve substantial financial investment. Analysing other government departments that have ventured into this e-learning environment could provide MCDEM with the opportunity to learn best practice and avoid pitfalls other departments have previously encountered. Collecting, storing and imparting knowledge that has been generated over decades is critical to ensuring that mistakes are not repeated. This is highlighted in Chapter 4.4.3 where it refers to a 1987 Christchurch engineering report which was in effect forgotten, with many areas of concern identified in the report becoming a reality in the September 2010 and February 2011 Christchurch earthquakes. Utilising electronic platforms, whether through EMIS or other online training systems, can fulfil a critical need in harnessing the lessons from the past and preparing the CDEM professional for the future.

C2 protocols are occasionally raised as an issue, but with some enhanced discussion amongst organisational heads this matter will possibly dissipate. At times criticism is directed at the NZDF for being slow to react to the demand requirements of the CDEM controller, but research indicates that often this may be more a communication issue than any sort of avoidance. Leaders interviewed from MCDEM and the NZDF were fully cognisant of the legislative arrangements and requirements of each organisation. What is needed is an education process beneath senior leadership to ensure that middle management are aware of the C2 arrangements as set out in the Act and in the National CDEM Plan.

Staff support to senior leadership, particularly in the operational setting of a major disaster event, was a major focus of the analysis and the results confirmed some of the recommendations in the McLean Review and MCDEM (2012a & b). McLean et al (2012) recommended the appointment of a Chief of Staff in a coordinating staff function to ensure that the Controller's intent and decisions are acted upon. When put to survey respondents this recommendation received a high level of support (92%). Likewise the recommendation to develop a cadre of senior CDEM experts to act in a coaching and mentoring role in an EOC also received high levels of support. A secondary benefit of increasing the collective number of CDEM senior experts will be the increased likelihood of retaining greater levels of corporate knowledge over the long term.

The McLean Review also raised the issue of functional staff appointments supported by staff that rotate on a shift basis. Survey respondents were asked whether individuals should be given functional appointments and provided with support staff. The proposed change in approach to staff appointments within the EOC received a great deal of support from respondents and interviewees. It is also interesting to note that this system of staff appointments, known as the Continental Staff System, is employed by many militaries worldwide and any improvements in this area would have a wide application (NZDF, 2011c).

It is assessed that all three of the initiatives above should be progressed as soon as possible. Although implementing these initiatives will require an increased level of resources, in the long term the benefits will significantly outweigh the upfront resource costs and these initiatives will prove to be a valuable investment for CDEM.

5.4 GR Question 3 – Governance and Policy

> "Do the current legislative framework, policy and plans provide an optimal basis for CDEM to be managed in New Zealand?"

This third GR question seeks to explore the current state of legislation, policy and plans, and to assess their robustness against the backdrop of a major disaster event.

5.4.1 Robustness of CDEM Framework

From an overarching perspective New Zealand's CDEM legislative framework (Figure 2.8) and associated governance policies are in relatively good order. The CDEM strategy was recently reviewed and approved largely in its current form. The 4Rs approach remains in place at the core of the strategy, which is due for a full review in 2017. The National CDEM Plan is overdue for an update and requires immediate attention. The delay of the review can be justified by the significant magnitude of the Christchurch earthquake response. However, the plan's update now needs be expedited in order to lay a solid foundation for future planning and procedures to be developed. Some major revisions to the document, including a logistics section, are necessary to ensure it is contemporary and equipped to deal with the next large-scale disaster event.

CDEM Group plans continue to evolve and have attracted mixed comments over the 16 Groups in relation to how robust respondents consider these plans are. This theme is also reflected in the MCDEM (2012a & b) that reported a significant range of performance across the 16 CDEM Groups. These Capability Assessment reports are an excellent auditing gauge on the performance of CDEM Groups. In addition to these reports it is critical that remediation plans are put in place to remedy areas that CDEM Groups are deficient. This follow-up reporting is a vital means to ensure that CDEM Groups continue to improve in their effectiveness.

Previously discussed in Sections 4.2 and 5.2 there is an urgent need for a logistics guide to the National CDEM Plan. Alongside this is a need to review and update the Recovery Management Plan, which has not been reissued since 2005. The recovery phase is the most complex phase of the 4Rs, and the longest in terms of planning timelines. There is currently an opportunity, in the wake of the Christchurch earthquakes and the establishment and experience of CERA, which should be taken to update the Recovery Management Plan.

One area where the CDEM Act can be strengthened is in the area of lifeline utilities. The Act requires every lifeline utility to be able to function to the "fullest possible extent" in the aftermath of a disaster (NZ Govt, 2002, s. 60). This phrase is ambiguous and as a result lacks impact. Greater clarity is required around this and other legislative wording, particularly in putting greater onus on major lifeline utilities to be involved in the readiness phase of the 4Rs strategy, whether in exercise participation or the development of joint contingency plans with CDEM. Requiring private companies to participate in this phase will increase their overheads. However an increase in overhead needs to be balanced against the bigger question of "whether this participation will put New Zealand in a better position to cope with a disaster?" If the answer is yes, then it may be justified to impose the additional overhead cost on companies, or alternatively the government could look into subsidising any increase in costs to ensure participation. Another improvement that could be made to the Act is for FMCG companies, particularly the major grocery chains, to be included in the definition of a lifeline utility.[31] Noting the risk to the population of food shortages in the event of a major disaster, it would be prudent to include these FMCG companies under the lifeline utilities provisions. In reality these companies will have developed contingencies on various CDEM scenarios, and a legislative development along these lines will only strengthen CDEM ability to engage a wider range of resources and mitigate potential risks.

[31] See: http://www.legislation.govt.nz/act/public/2002/0033/latest/DLM151443.html

5.4.2 CDEM Resources

Resources for CDEM and associated financial funding will continue to be a significant challenge as the country recovers from the GFC and the cost of rebuilding Christchurch. The funding model for CDEM is multi-layered and issues around funding are often compounded by having to provide it to a number of regional or territorial authorities, which in turn face pressure by residents to keep rates down. Ultimately the level applied to regional or local authorities should not materially matter, as long as the arrangements between parties are clear and budget reporting takes place. Another funding issue is that 'public safety' is seen as a 'soft' rather than 'hard' services expense. Generally, the CDEM functions and services are inherently invisible to taxpayers and ratepayers unlike other expenses such as the provision of physical amenities. As a result, the public demand for CDEM expenditure is low and some indications suggest that CDEM expenditure per household is dropping disproportionately to other services within some councils. This is despite the fact that the risk of hazards are rising and councils are often held accountable when these type of events occur. This approach has created the current paradox where councils prefer to spend money in the more expensive response phase, rather than invest earlier as part of the readiness phase. The aftermath of the Christchurch earthquake demonstrated how little New Zealand CDEM organisations have in the way of contingency stocks, and the need for reliance on organisations such as the NZRC.

Intelligent measures are being developed to drive resource efficiency while still maintaining an appropriate level of CDEM output. WREMO's recent initiatives centred around integration, reduction in duplication, and promoting cost-effective disaster preparedness equipment, provide good examples of how funding can be made to go further in the promotion of CDEM. This needs to be replicated throughout the country where practicable.

5.5 Common Themes to the Research Topic

The aim of this section is to summarise these common themes in order to support the recommendations made in Section 5.6. The section builds on data which has been considered and analysed in Chapter 4, and further discussed the main findings in the previous sections to this chapter in order to determine the common themes of this study's research topic. In Chapter 1 the research framework defined the three fields of research and identified the overlapping nature of a number of themes (Figure 1.1). The literature review conducted in Chapter 2 also concluded with the development of a conceptual model was developed form the themes adjudged to have been prominent form the literature review analysis. This model has now been revisited based Chapter 4 and 5, and the subsequent analysis, finding, deductions and recommendations.

5.5.1 Theme 1 – Logistics Development

The analysis has shown the need for significant effort to be prioritised towards the development of Humanitarian Logistics in the CDEM sector. The shortcomings in L&SCM are clearly identifiable across the three research fields where data analysis has highlighted opportunities for improvement in the following areas:

1. Doctrine development and implementation.
2. Reputation management and education of the logistics function.
3. Utilisation of commercial expertise and best business practices.
4. Professional development of logistics staff.

Unless logistics doctrine and operating policies are developed and formally introduced, logistics will continue to be the 'poor cousin' within CDEM and the current CIMS framework. There is significant logistics expertise in other government departments and the commercial sector that, if harnessed, could quickly assist in addressing these doctrinal and operational shortcomings.

Addressing these issues would provide a solid basis for professional development of logistics staff. Providing an increased level of education and awareness of the importance of L&SCM in the wider CDEM community would result in a much more robust system of CDEM across New Zealand. Tools such as logistics desktop exercises and e-learning platforms should be utilised to advance this education process.

5.5.2 Theme 2 – Enhancing Collaboration

Just as building 'resilience' is a catch-cry in CDEM for communities to be prepared for major disaster events, so too is the term 'collaboration' from a WoG perspective. Successive New Zealand governments, like many western and first world nations globally, have embraced a WoG model for national security systems and emergency management events. The need for effective and sustainable collaboration across government departments and other connected organisations is necessary to make the model a reality. It is considered that New Zealand is in a strong position, with its robust NSS, to manage major disasters (Section 2.4). Analysis in this study, however, has highlighted areas where the key framework ingredient of 'collaboration' is weak and some potential areas for improvement include:

1. Enhanced relationship management with major lifeline utilities companies to ensure that they and CDEM are leveraging off each other to the greatest possible extent in a time of crisis.
2. Increased NZDF involvement with CDEM in the readiness phase, particularly in policy development, operational planning and increased exercise participation.
3. Secondments to CDEM from key partner agencies that can assist CDEM with policy and plans development.

Consistent with the idea of using commercial logistics expertise identified in the first theme, research has highlighted the need for enhanced relationship

management between LGs and CDEM. The relationship between the NZDF and CDEM is another area that could be improved. The NZDF has its own pressures with sustaining commitments overseas and preparedness for its core roles. The current situation as missions in Afghanistan, Timor Leste and the Solomon Islands have reduced or ended, and provides an opportunity to commit more effort and resources to improving CDEM. This commitment could include the provision of secondment support to CDEM along with OGAs doing the same.

5.5.3 Theme 3 – Smart Integration

CDEM operates a relatively complex but necessary management framework across the three levels of New Zealand society. These levels – national, group and local authorities – align with government, regional and local councils to ensure that ownership of a CDEM event is controlled and resourced at the right management level. Analysis has determined some areas of risk that could be addressed though applying smart integration are:

1. Smarter utilisation of staff and resources at the CDEM Group level for delivering better-integrated effect at the local levels across that region.
2. Integrating OGAs into a combined EOC construct to achieve greater synergies during crisis management.
3. Utilising technology for training platforms and corporate data retention and dissemination.
4. Achieving full operating capability of EMIS to ensure that CDEM organisations are connected and operate effectively.

Integrating regional CDEM models, such as seen in WREMO and the Auckland City Council, present opportunities to reduce duplication of effect while maintaining services to the local level of CDEM. This drive for integration needs to be carefully managed to ensure that ownership of an event is retained at the appropriate level. An integrated EOC that includes the main CDEM support agencies is another smart initiative that would ensure maximum cooperation and

situational awareness during a time of crisis. A similarly concerted drive is required to fully integrate CDEM's EMIS. Analysis has raised questions about the utility and long-term success of EMIS and these results correlate with the demand for smart integration across CDEM.

5.5.4 Theme 4 – Strengthening Governance and Policy

It is clear from the analysis that the governance framework across New Zealand's CDEM sector is regarded as robust. However it is in the application of this framework, through legislation and MCDEM policies that questions have been raised and improvements can be made. The National CDEM Plan is now overdue and was consistently identified as being in need of an upgrade. Critical to this update is the logistics development identified in theme 1. Other themes to emerge that relate to the strengthening of governance and policy include:

1. Greater definition in the Act regarding the responsibilities of lifeline utilities companies and the inclusion of FMCG grocery chains.
2. The need for an updated Recovery Management Plan.
3. Senior level discussions to ensure consensus related to C2, particularly during a major disaster event.

A strong and contemporary approach to governance and policy is essential to the success of CDEM. To achieve this the framework needs to be resourced and staffed with professionally developed people who possess the right competencies to deliver on CDEM policies and plans.

5.5.5 Theme 5 – Smarter Resource Management

New Zealand, like most other countries, is facing significant financial management challenges as it recovers from the 2008 GFC. The 2011 Christchurch earthquake will require upwards of $40 billion to rebuild the city. As a consequence, funding streams for readiness and response across CDEM will face consistent reductions with fiscal pressures on government departments and council budgets. Analysis has shown that the majority of CDEM professionals

consider CDEM to be under-funded, and this is particularly the case in the readiness phase where the uncertainties of risk management are most prevalent. There are tangible similarities with theme 3 that also apply to smarter and more efficient resource management, these include:

1. Smarter utilisation of staff and resources at the CDEM Group level resulting in better-integrated effect being delivered at the local levels across that region.
2. Reducing duplication that can occur across Group and local levels of CDEM by integrating staff and concentrating efforts at a functional level.
3. Introducing combined EOCs' overtime that would reduce the need to maintain multiple facilities.

WREMO provides some innovative examples where concentration of staff resources and a focus on community resilience will serve the purpose of smarter preparation in the readiness phase. WREMO has also undertaken initiative such as selling water collection tanks and earthquake preparedness kits. Similar to the bulk-buying power that the NZRC can access due to the ICRC supply chain, WREMO have negotiated very competitive prices for these initiatives, making them more affordable to the general population who would normally prioritise their discretionary spending elsewhere.

5.5.6 Theme 6 – Enhancing Professional Development

One of the strongest themes to emerge from the analysis has been the requirement to enhance professional development within the CDEM profession and the wider CDEM sector. The most recent CDEM Capability Assessments show a concerning lack of professional development in various CDEM Groups and highlights the lack of competency development required for the day-to-day functions of CDEM staff. Of particular note is the need for professional development in the following areas:

1. Planning methods and a systematic approach to decision-making in a crisis management environment.
2. Leadership development.
3. Logistics expertise and the education of senior CDEM leadership.

Professional development will ultimately be a defining factor in the success or failure of an organisation. For CDEM this success may be the difference required to saving lives. Professional development requires financial investment as well as an investment of time, as staff are required to be released from their core work to undertake courses or programmes to up-skill. Strong leadership is required to ensure professional development is taken seriously, and is focused in the right direction.

5.5.7 Conceptual Model - Analysis

A conceptual model developed to examine the management of logistics was previously shown and discussed in relation to the themes assessed from the literature reviewed (Figure 2.11). Having now conducted a thorough analysis of the research data, developed deductions, findings and recommendations, it is timely to consider the original model and determine how the themes described above now relate to this model. Figure 5.1 below has therefore been reviewed and updated to account for the research undertaken in this study, and to demonstrate where breakages in the model may occur and the relationship between various functions can be hindered.

The relationship between budget constraints and logistics assets was primarily out of the scope of this study, however the research has demonstrated this relationship clearly impacts on management capability when under-resourcing of assets occur. This is also the case when under-resourcing occurs in the area of staff skills and professional development. Any reduction in competency development and the ability for staff to perform their roles has a corresponding effect on interagency collaboration and a reduction in management capability.

Likewise, where policies, plans and strategies are found to be lacking or deficient, this will also cause a degrading of interagency collaboration and the ability to manage logistical resources in a crisis environment. Most critically, the overall degradation in interagency collaboration will have the greatest impact in management capabilities. As a consequence there is a real risk that agencies revert to insular management styles and operate in isolation with much less overall effectiveness.

Changes to the conceptual model, first shown in figure 2.11, include the insertion of breakages and blockages used to demonstrates the obstructive nature that poorly developed HR skills and professional development programmes have on the effective management of logistics resources. Likewise, weak policies and plans also have a degrading effect, and when combined with sub-optimal HR and professional development will have a critical impact with interagency collaboration.

Whilst the effects of budgets constraints on the physical logistics assets held nationally and regionally was primarily out of scope for this thesis, a breakage arrow as been included in the revised model to reflect the direct impact the insufficient funding has on the assets holding and subsequent ability to respond to an emergency.

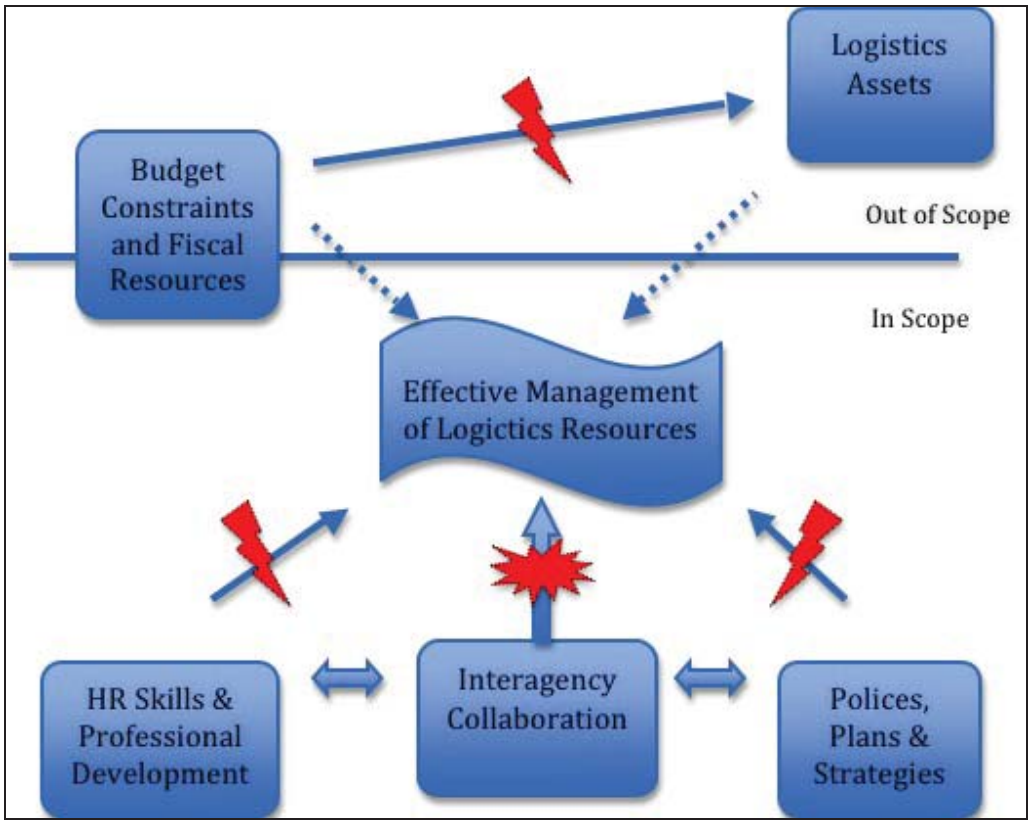

Figure 5.1 Conceptual Model – Analysis

5.6 Comparison of Academic Literature

This section details a summary of the more significant academic literature that has been referenced in this thesis and whether the author validates their scholarly theories and texts. It concludes with the contribution to the current study to scholarly literature in the field of Humanitarian Logistics.

New Zealand Government policy and associated departmental strategies and plans have contributed a significant amount of literature to support the research of this thesis. Of importance have been the CDEM Act and CDEM Plan and Strategy, particularly in relation to the 2010 and 2011 Christchurch earthquakes that were used as the primary case study for this thesis. Whilst not regarded as scholarly, these documents have been an essential element to the scholarly work of the 2012 McLean Review undertaken in the aftermath of these disaster events. Importantly McLean demonstrates the need for collaboration and a greater focus on readiness and response in Humanitarian Logistics. This lends to validating the scholarly work of Cozzolino (2012) and Van Wassenhove (2006) who strongly emphasise the need for collaboration and effective communication between the major agencies and organisation that largely respond to major disaster events. Tomasini and Van Wassenhove (2009) disaster management cycle has been widely adopted globally and in the case of New Zealand rebranded to the 4Rs. Importantly their model has been robust to sustain itself for more than a decade, testament to its validity. Despite this, many countries, particularly third world nations, pay poor regard to mitigation and preparedness. This can usually be attributed to a lack of investment required against other competing priorities.

Cozzolino (2012) and Cross (2011) are both strong advocates of better relationships between the military and civilian agencies, an issue that the McLean Review validated after the Christchurch earthquakes. Seipel (2011) has also written regarding the need for effective communications system and

understanding of the CIVMIL relationship. Both Seipel (2011) and Cross (2011) go further to promote cross pollination of knowledge and expertise in the CIVMIL relationship whilst acknowledging the principle of 'option of last resort'. The UN, ICRC and most developed governments including New Zealand have universally adopted this principle.

Thomas and Kopczak's (2005) work concerning L&SCM and Humanitarian Logistics have been validated, along with the need for effective management and organisation. James ((2008) and Tomasini's (2009) commentary regarding the need for performance indicators and lead-time reduction are also substantiated and endorsed. Much has also been written regarding the need to utilise the L&SCM expertise of the commercial sector. Seipel (2011) correctly highlights this need and emphasises the requirement for proactive engagement between agencies, NGOs and the commercial organisations.

The author considers that this thesis has added to scholarly literature in the field of Humanitarian Logistics, particularly in the area of common and overlapping themes. Whilst New Zealand is a developed nation with robust legislation, plans and strategies, the research has demonstrated that there has and still exists a lack of development in logistics. Professional development of staff and procedures continues to be an area where improvement is required in the CDEM environment. The research has also shown that smart integration between agencies and the use of technology for planning and training is another area for enhancement. Smarter resource management is a common theme that this research and literature demonstrates as a recurring problem on which countries need to focus. The conceptual model developed in this thesis aims to succinctly summarise the relationship and challenges that occur where effective HR skills, professional development, interagency collaboration and fiscal resources are sub optimal. When this occurs, the effective management of logistics resources suffers as a consequence.

5.7 Recommendations

This section lists the recommendations that are considered necessary to advance CDEM interests and address shortcomings that have been identified in this study. A number of the recommendations correspond with those made in the McLean Review. This is to be expected as the 22 February 2011 Christchurch earthquake has significantly informed this study. In addition, this study has not been constrained by the Canterbury earthquakes and has provided an opportunity to look more broadly at wider issues. As a result of the analysis 17 recommendations are made:

1. A CDEM Logistics Advisory Group is established to provide expert advice and advance the CDEM logistics function.
2. A logistics section for the National CDEM Plan be expedited that should include consultation with supporting agencies, NGOs and lifeline utilities (including FMCG companies).
3. Upon implementation of the revised National CDEM Plan, an external and internal communication/education strategy is implemented to ensure that professional development in logistics doctrine and practices is achieved.
4. That any revised CIMS methodology accounts fully for the function and importance of the CDEM logistics function.
5. A study is conducted of CDEM's cross-sector engagement strategy. A key focus of the strategy should be on leveraging off commercial sector and lifeline utilities expertise.
6. Collaborative relationships and communication with OGAs and NGOs are strengthened, particularly in the readiness phase of the 4Rs strategy.
7. An independent assessment is undertaken regarding the utility, effectiveness and sustainability of EMIS.
8. A study is undertaken with LGs and NZDF involvement to establish a sustainable system to provide a macro understanding of major disaster response assets across New Zealand and in the region.

9. The NZDF undertakes a review of its role as a supporting agency to CDEM with the intent of raising its profile and contribution to CDEM, particularly in exercise planning and participation.
10. The NZDF actively support CDEM in professional development with subject matter expertise support in doctrine and policy development, logistics practices, operational planning and leadership development. This support should include increased secondee arrangements to CDEM and the inclusion of CDEM staff in the NZDF's leadership programmes.
11. NZDF and MCDEM leadership conduct meetings and workshops to ensure that C2 protocols and practices are well understood in preparation for major CDEM events, particularly those that involve national declarations.
12. MCDEM review and strengthen professional development strategies with particular emphasis on leadership and operational planning.
13. MCDEM establish an e-learning platform to promote consistent nationwide learning of doctrine, plans and processes. Ideally this e-platform should be a receptacle for policy documents, reviews and important CDEM information that can be accessed as a teaching and education resource.
14. MCDEM undertake a study into smarter integration across CDEM Groups and the local levels to deliver better integration and reduce costs that could be prioritised elsewhere within that group.
15. MCDEM seek to have the CDEM Act amended to include FMCG grocery chains as lifeline utilities companies. The Act should also be strengthened to require greater involvement from lifeline utilities during the CDEM readiness phase.
16. MCDEM expedite the recommendation of the McLean Review to develop trained Chiefs of Staff to ensure that Controllers are supported effective during a disaster event.
17. MCDEM expedite the development of a cadre of trained CDEM experts to mentor, coach and advise EOC staff during a disaster event.

5.8 Further Research

The following areas fall outside of the scope of this study but have been identified as potential areas that require greater attention and should be considered possible future research topics:

1. Research into the current state and future development of New Zealand's National Recovery Strategies and Plans.
2. Research regarding integrated models and strategies of CDEM across the current levels of CDEM. The current CDEM management model and the newly developed WREMO model could be used as baseline comparisons.
3. Research into the concept of developing a sustainable cadre of senior CDEM leaders to mentor and coach EOC staff. This study would investigate the recruitment, roles, responsibilities and operating concepts of such a grouping.
4. Research regarding the concept of a CDEM virtual staff college. This study would consider the benefits of adopting online learning, disaster event simulation and maintaining a central repository for corporate documents and CDEM knowledge.
5. Research into the development of a NZDF unit specifically focused on CDEM support.

Chapter 6 Conclusion

6.1 Introduction

This final chapter summarises the approach and methods adopted to undertake this study in the research area of **Humanitarian Logistics**. It explains how the aims and objectives of the thesis have been achieved, and highlights how the effective research design provided the foundation to successfully explore three broad research areas. The chapter then discusses the answers to the research questions, the common themes these revealed, and a range of recommendations to be considered.

6.2 Background

Major disasters over the past decade have resulted in a heightened focus of the importance of readiness and response by the CDEM sector in New Zealand. Humanitarian Logistics plays a crucial role in a country's responsibility to respond to the needs of its people and the national security interests that may be compromised by a large-scale major disaster event. This responsibility is clearly identified in the charter of the UN where the core principles of humanity, neutrality and impartiality are central to world order. The need for nations to respond quickly is paramount in a time of crisis. The field of Humanitarian Logistics is a growth area, particularly in developing nations where domestic resources are quickly overwhelmed in a major disaster. A large emphasis is often placed on this area in developing countries and this emphasis often results in the state of Humanitarian Logistics in the New Zealand environment being overlooked. It is vitally important to also examine this field within New Zealand, its focus, how well resourced it is, and the level of understanding and recognition within the sector. This thesis addresses these issues through **"Exploring New Zealand's capability to strategically manage logistical responses to major civil defence and emergency management events."**

During the past 10 years New Zealand has witnessed the performance of lead and supporting agencies involved in emergency management. These agencies have either prepared and responded adequately, or been found wanting. Independent reviews, internal performance audits and academic commentators have all played a part in the fabric of identifying gaps and promoting improvements to the provision of Humanitarian Logistics and the wider field of emergency management.

To explore a topic of this size and scope required the development of a research framework that focuses on three overlapping fields of research, which all have an important contribution to CDEM and Humanitarian Logistics in a disaster event (Figure 1.1). This focus on (1) Humanitarian Logistics, (2) Emergency Management and Leadership, and (3) Governance and Policy has helped produce key common themes that have assisted in identifying improvements and recommendations for greater effectiveness and efficiencies in CDEM. It has been necessary to restrict the scope of the thesis within the readiness and response phases of the 4Rs strategy of CDEM (Figure 1.2). This restriction was considered necessary due to the size constraint of this study, however, it should also be noted that the transition between the reduction and recovery phases is often blurred in an environment of crisis. Due to this, the observations and recommendations made do cross over these boundaries, particularly in the final recovery phase that has a complex and protracted transition from the response phase. A final outcome of the analysis identified shortcomings in CDEM and areas of future research that could be explored.

6.3 Research Aim and Objectives

The thesis has been structured to analyse the main aim and the four underlying objectives. The aim has been to conduct research into the area of Humanitarian Logistics with a particular focus on readiness and response to disaster events in New Zealand. This aim has been successfully achieved by a thorough study of domestic and international CDEM events, reviews, reports and professional

commentary. These resources provided a diverse and robust set of data collection material that has allowed detailed analysis, comparisons, deductions and recommendations to be made related to Humanitarian Logistics and the wider CDEM sector environment. An outcome associated within this aim has been to contribute original research to the academic literature in the area of Humanitarian Logistics.

The first of the four main objectives was to analyse New Zealand's policies and strategies to logistically respond to humanitarian assistance and disaster relief. This has been achieved through an extensive study into MCDEM's policies and strategies as well as information provided by those in key supporting agencies and organisations related to emergency management. The primary data collection set came from a questionnaire survey that had a significant focus on the CDEM sector's ability to respond with Humanitarian Logistics in a time of disaster. This commentary was further developed and explored through senior leadership interviews. A comparison and analysis of this data against contemporary literature allowed for robust findings and deductions to be made in support of this objective. The findings and recommendations highlight a number of deficiencies in the application of logistics for disaster relief. Substantial attention and priority of effort is required to resolve these deficiencies.

The second objective sought to examine and assess New Zealand's CIVMIL relationship in the context of CDEM and with a focus on the provision of Humanitarian Logistics. Once again the survey questionnaire and senior leadership interviews played a major role in the assessment of this objective. Research of current MCDEM and NZDF doctrinal policies and plans enabled a detailed assessment of how these two organisations are structured to interact with each other. The surveys and interviews revealed how effective the current relationship is, and how effective the relationship has been in recent years. Recommendations detailed in Chapter 5 highlight a number of areas where the

relationship could be enhanced to further strengthen what is a mostly effective one.

The third objective was to analyse the broad aspects of Emergency Management and Leadership across the CDEM sector to determine shortcomings and opportunities for development. To achieve this objective research was conducted on MCDEM's competency development framework (MCDEM, 2009a), specifically those competencies that related to management and leadership. The results were then compared against the survey and interview data collection, as well as MCDEM's own capability assessment reports (MCDEM, 2012a & b). A number of potential opportunities for improvement were identified as discussed in Chapter 5 with associated recommendations.

The final objective was to analyse New Zealand's governance within CDEM, as well as CDEM policies, strategies and relationships across inter-agency partners who are responsible for the primary provision of Humanitarian Logistics in a major disaster event. This objective was primarily achieved through an in-depth study of the grey literature in the form of government legislation and regulatory policies and plans. This included not only the CDEM Act 2002 and National CDEM Plan, but also other supporting agencies policies and plans that have been either directed or developed in support of CDEM. One of the recommendations is an urgent requirement to update the National CDEM Plan, particularly in light of the experience of recent disasters.

6.4 Research Effectiveness

The broad scope of Humanitarian Logistics created a potential risk that the research would be too general and wide-ranging in nature. To mitigate this risk a clearly defined focus and research question was adopted. A structured research design assisted in establishing the final scope (Figure 3.1) and ensured that a methodical approach was taken, keeping the analysis flowing in a logical

manner. Within the research design a research framework (Figure 1.1) and research strategy, structured on a mixed methods simplified model of research without hypothesis (Figure 3.2), was adopted. The application of this framework and model allowed an inductive approach to be taken. This provided flexibility for the analysis and findings to shape the eventual deductions and recommendations.

The qualitative and quantitative mixed methods research applied in this thesis was primarily in the form of a self-administered questionnaire, structured interviews and a strengths and weaknesses analysis. The questionnaire survey consisted of 39 questions that produced both qualitative and quantitative data to support the research questions within the Hierarchy of Concepts. The 84 professionals from the wider CDEM sector who took part in the survey provided a highly robust data set and an excellent base with which to analyse the key issues related to the strengths and weaknesses that currently exist in the provision of Humanitarian Logistics.

Seven semi-structured interviews with senior leadership further supported the data collection processes and provided confirmation or contradiction of survey findings. The interview responses were also analysed against the analysis and findings of the McLean Review. The third source of data was the strengths and weaknesses analysis that focused on leadership and management. This was conducted through the survey and interview results. Analysis showed that in many areas CDEM is in a satisfactory state, particularly in relation to governance. An adverse finding was that the area of Humanitarian Logistics is in an unsatisfactory condition and requires urgent attention to address some serious shortcomings in the critical function.

Substantial resources were available in the form of academic journals, monitoring reports and independent reviews and audits. These made up the bulk of secondary data collection material and were highly valuable in validating or

contesting the views gained through the survey or interviews. Of note was that the McLean Review into the performance of CDEM during the 22 February 2011 Christchurch earthquake. This provided an excellent basis from which to explore the broader nature of this thesis topic (McLean et al, 2012).

In terms of the weaknesses that had the potential to occur within the chosen research approach, there were a number that are worthy of consideration. The inductive research method was driven from a bottom-up approach and as a result the development of the data research questions drove the analysis as the higher-level research questions when answered. This approach carried the risk of potential bias where an over-weighting of one category of respondent might exist. This weakness also had the potential to effect the research gathered from the senior interviewees had there been an imbalance of viewpoints. In both cases, the wide-ranging views and opinions expressed by survey respondents and interviewees demonstrated that any weakness in research approach was minimal. A related weakness existed with the deliberate targeting of a significant number of CDEM professionals, however due to the expert knowledge that exists with these people, the robust research results demonstrated that the risk here was also minimal. Lastly, the weakness associated with the professional background and potential bias of the author is also recognised. It is considered that this was mitigated by the substantial data collection and quantitative survey results that have been referenced.

The strengths and weaknesses analysis (Annexes B & C) were derived from questions with the survey and those asked during the senior leader interviews. This analysis provided a rich source of data to credibly confirm or reject some of the deductions that were forming as part of the overall analysis. These findings also assisted in highlighting where to focus recommendations for CDEM improvements, whilst also helping to identify where further research could be undertaken in the future.

6.5 Research Questions

A methodical approach has been taken to developing the research questions in the thesis and a Hierarchy of Concepts was adopted as part of the research design (Punch, 2006). The questions were developed on two levels. The lower level consisted of nine specified research questions, each of which sought to contribute to one of the high-level GR questions (Figure 3.1). The SR questions provided a robust basis from which a detailed analysis of the findings was undertaken. This detailed analysis then fed up to the three main GR questions that were discussed and answered in Chapter 5. Aligning the three GR questions to the objectives of the thesis provided logical flow and correlation of the analysis under the research framework (Figure 1.1). Both levels of research question generated six common themes and 17 recommendations.

6.6 Common Themes and Recommendations

Underpinning the research approach taken throughout this thesis has been a research framework focusing on the three research fields. The challenge has been to focus the analysis of these fields to establish common themes and associated recommendations that add value to academic literature and future developments in the research area of Humanitarian Logistics. The common themes explored fully in the previous chapter are:

1. Logistics development.
2. Enhancing collaboration.
3. Smart integration.
4. Strengthening governance and policy.
5. Smarter resource management.
6. Enhancing professional development.

The analysis and deductions in Chapters 4 and 5 respectively have shown that there is a lot that can be done to enhance and develop Humanitarian Logistics. Consistent with the first common theme of **logistics development** (theme 1), a

concerted and integrated approach is required within CDEM and across supporting and external agencies and organisations. This is necessary to address some concerning shortcomings with a critical function that can prove to be up to 80% of a disaster relief effort (Van Wassenhove, 2006). The establishment of a Logistics Advisory Group within MCDEM should be expedited, along with the development of a logistics section within the National CDEM Plan. This will stem the vicious cycle of logistics that otherwise will continue to see it treated as the poor cousin through misunderstanding and passive neglect (Van Wassenhove, 2006). The development of robust logistics plans and procedures should then be addressed along with the creation of an education programme to ensure that senior leaders and controllers possess the competencies to effectively conduct logistics (James, 2008; Tomasini, 2009). A revised CIMS methodology that fully accounts for the logistics function is also urgently required. If these measures are not adopted and left in the 'too hard' basket, the wider CDEM sector will continue to languish with ineffective logistics that affect the overall response capabilities of CDEM.

Enhancing collaboration (theme 2) is a key determinant to the long-term success for Humanitarian Logistics (Cross, 2011; Kapucu & Ozerdem, 2011). The continuing WoG approach to protecting national security, and the response required to natural disasters, require a 'continual improvement' approach to enhancing collaboration across the CDEM sector. To succeed, this requires effective relationship management and this has been identified as the first key area of the CDEM Competency Framework (MCDEM, 2009a). A review of CDEM cross-sector engagement strategy needs to be expedited if relationships are to improve in future. Vital relationships between CDEM, lifeline utilities, the NZDF and OGAs need to be addressed with long-term strategies. Sustaining these relationships is the constant challenge, particularly with the amount of staff churn experienced in some government departments.[1]

[1] As a policy NZDF staff continually move every 2-3 years.

To succeed in increasing effective collaboration between the main CDEM parties **smarter integration** (theme 3) is required, especially in processes and system tools (Kovács, 2011; Cross 2011). EMIS, the central CDEM information system and management tool, needs to be validated to ensure its effectiveness and ability to sustain CDEM for the next 10 years. An independent study should be undertaken of EMIS to ensure this system does not become an escalating commitment to a failing course of action. An e-learning platform that the wider CDEM sector can access should accompany the main CDEM information system to ensure that common processes and standards are achieved. Using the major skill-sets of other agencies will also assist in this integration i.e. the NZDF have skilled operational planners and offer courses in leadership that the wider CDEM sector should aim to access. Smarter integration could also be achieved within CDEM through innovation seen in the WREMO model adopted for the greater Wellington region. This functional model has reduced the risk of local politics disrupting CDEM and resulted in a concentrated effort towards specific areas, for example community networks and resilience strategies.

New Zealand possesses a strong legislative framework governing CDEM. Parts of this framework have faltered in recent years, which is not totally surprising due to the massive priority efforts placed on the response and recovery from the Canterbury earthquakes and the MV RENA maritime disaster. **Strengthening governance and policy** (theme 4) now needs to be a key priority, particularly a revision of the 2005 National CDEM Plan that urgently requires the inclusion of a logistics section. The requirement for an updated National Recovery Plan also needs to be progressed quickly. Although outside of the primary scope of this thesis, development of more effective recovery plans and strategies were clearly a ‘hot’ topic amongst the CDEM professionals surveyed or interviewed during data collection. The inclusion of FMCG grocery chains under the lifeline utilities provisions of the CDEM Act also makes logical sense. These food providers play a critical role in New Zealand’s supply chain, and need to be engaged and prepared to respond in times of crisis.

In the financially constrained global environment every government department is under pressure to reduce costs and find more efficient ways to spend taxpayer funds. CDEM is no exception to these pressures and budget cuts over recent yeas. By necessity **smarter resource management** (theme 5) has become a mantra for departments to achieve the saving targets placed on them by the government. Eradicating the duplication of effort is an obvious way of utilising resources more efficiently. WREMO have demonstrated this by combining individual council resources and redistributing them in a functional manner which can better meet the CDEM needs of the region. This innovation demonstrated by WREMO is reflected in the recommendations where smarter integration is encouraged across CDEM Groups and the local levels to deliver better integration and reduce costs.

A major concern the country faces due to the extreme fiscal pressures is that CDEM ultimately suffers and degrades due to lack of resourcing. This is where strong leadership and management are vital to ensure that the country's current CDEM capability and infrastructure is maintained, as a minimum, and ideally improved on. Local and regional council leadership require the fortitude to ensure that adequate resources are retained for CDEM despite the pressures of other council activities or the prospect of increasing council rates. Likewise, at the MCDEM level a greater focus is required on collaboration and utilisation of resources from other agencies. The NZDF also needs to step up its efforts to support and collaborate with CDEM. While the tempo and operational commitments overseas may have reduced, the pressure to save funds has equally increased. There is the risk that the impact of this may result in resources being trimmed back from CDEM support, particularly in the readiness phase. If this occurs it will have a significantly detrimental effect and will require leadership within the NZDF and MCDEM to be actively engaged to avoid degradation occurring.

The final theme that was clearly evident through the research was the need to **enhance professional development** (theme 6). The requirement for skilled professionals has been demonstrated in the analysis of this thesis and from the recommendations made in the McLean Review. Effective leadership and management skills are critical to operate effectively in a crisis environment. The need for a highly effective Chief of Staff is essential in an EOC where the decisions relayed from the Controller need to be acted upon without delay. Likewise, the McLean Review recommendation to develop a cadre of CDEM experts is supported. These experts, however, should be used in a mentoring and advisory role to ensure that local leadership is not disenfranchised. It is disappointing to observe that little progress is being made with the development of this expert cadre. Were a major disaster to occur in the near future, there is a risk that under the current structure the hard lessons learnt during the February 2011 Christchurch earthquake effort may be repeated.

6.7 Summary

This thesis explores New Zealand's management capability to logistically respond to major CDEM events. The methods applied, a credible research design, and the application of a robust research strategy based on a mixed method simplified model of research without hypotheses, have all provided a solid foundation to achieve the aim of this thesis. The building blocks of quantitative and qualitative analysis, findings, discussion and recommendations have been aided by a robust data collection process that has seen nearly 100 professionals engaged from the wider CDEM sector.

Humanitarian Logistics will continue to be a growth field and a discipline that needs dedicated attention as the world contends with major disasters that appear to be occurring with greater ferocity. Mother Nature does not distinguish between developed and under-developed nations when natural disasters strike. While many first world countries have structured CDEM systems and modern capabilities to prepare and respond, even the most modern of countries can quickly become overwhelmed as was starkly demonstrated in the 2011 Japanese earthquake and subsequent tsunami. The logistics effort required to respond in this instance was almost unimaginable. It is the author's belief that implementing the recommendations made in this paper, along with continued review of the CDEM sector, will place New Zealand in the best possible position to effectively respond when the next disaster occurs.

Annexes

Annex A Bias Statement

The author of this thesis is a serving regular force member of the NZDF with over 25 years' experience as a Naval Logistics Officer. During this time he has been trained and educated in logistics and SCM that he has applied in the field, at sea, and in an operational planning or strategic policy environment. He has seen operational service at sea in the Persian Gulf as a Frigate Logistics Officer during Operation Enduring Freedom (2003), and in land-based missions as a UN Military Observer in the former Yugoslavia (1996/1997) and in Timor Leste (1999/2000). It was during these UN missions that saw him gain considerable practical experience in Humanitarian Logistics. In the former Yugoslavia he was integrally involved with the nation building and reconstruction efforts of the UN, particularly at the community level where impoverished and internally displaced people struggled daily in their efforts to survive. It was in this environment that he was first exposed to the size and complex bureaucracy of the UN, and the philosophy and modus operandi of many INGOs. In Timor Leste he was appointed a UN Humanitarian Logistics Coordinator responsible for the collaboration and cooperation between the UN, INGOs, international military forces and local aid organisations. This appointment was in response to the humanitarian crisis that occurred after the destructive period occurring after the independence referendum in September 1999. In the 2001 New Years honours list he was appointed a Member of the New Zealand Order of Merit for his services to peacekeeping and humanitarian assistance in Timor Leste.

In New Zealand he has held logistic planning roles with the Headquarters Joint Forces and as the Director of Strategic Commitments (Logistics) at Headquarters NZDF. In both of these roles he acted as the NZDF representative in WoG emergency management committees, most notably as the NZDF representative for pandemic planning and establishing the role of the NZDF as a

supporting agency to New Zealand Customs, MoH, MCDEM and the NZP in such an event.

The experience and training detailed above may import a conscious bias to this study. To control for this the author has conducted standard form surveys to remove any personal connection to responses. It is the author's opinion that the experience detailed above has enhanced the analysis through an inherent understanding of the complexities involved in Humanitarian Logistics. The author does not believe that any bias has prejudiced the findings of, or discussion in, this study.

Annex B Strengths and Weaknesses Analysis – CDEM Management Structure

	National	Group (Regional)	
Strengths	• Secure communications • Experienced leadership • Dedicated staff 24/7 • Credible scientific advice • Robust C2 • Established guidelines generally • Close relationship with OGAs • Experienced and professionally developed staff • Clear mandate and focus • Access to key decision makers • Big picture situational awareness at times	• Growing awareness of hazards and mitigation strategies • Good support to TLAs (can vary) • Cross-section of knowledge amongst most groups • Valuable coordination points for TLAs • Works well for medium-sized events • Opportunity to build well-functioning relationships with other agencies • Coerces TLAs to cooperate with each other • Increasing professionalism and capable Controllers • Some excellent relationship building with TLAs	

	National	Group (Regional)	L
Weaknesses	• Lack of understanding about Commercial Logistics • Situational awareness can be lacking • EMIS – not well utilised and has problems • Big Brother takeover perception • No national training centre • Perception of disconnect with groups and TLAs • Lack of consistency in training and procedures • Under-resourced – budget cuts • Lack of planning methodology • Lack of centralised training centre • Political influence out of touch with what is happening on the ground	• Subject to political interference (mayors, local MPs) • Lack of understanding about coordination role • Caught between the theory and practice • Can be one step removed from owning the issue • Under-resourced – competing for rate payer funds • Mixed bag of capabilities • Leadership can be still developing • Lack of a coordinated exercise programme	•

Annex C Strengths and Weaknesses Analysis – CDEM Leadership and Manag

	National	Group (Regional)	
Strengths	• Leverage off other government departments • Access to decision makers • Experienced and professional staff • Clear vision at the strategic level • Big picture situational awareness	• Professionalism increasing • A mix of experienced and diverse staff • Active regional coordination in various groups • Institutional knowledge • Thorough knowledge of CDEM from an operational perspective • Knowledge of natural hazards and mitigation strategies • Good relationship management with local CDEM	

	National	Group (Regional)	
Weaknesses	• Lack of planning methodology effects leadership • Inability to secure and retain MCDEM budget (i.e. 5% cuts) • Lack of consultation at the grass-roots level • Limited public profile • Intervention by central government politicians not versed in Emergency Management	• Under-resourced and lacking professional development • Turnover of staff is too high • Lack of coordinated exercise programmes • Attracting suitable staff • Lack of Emergency Management leadership development	

Annex D NZDF Phases of Emergency Response

Disaster Phases[1]	Military Phases	Key Military Actions
Reduction	**Nil**	Assist with scenario and response development to identify potential limitations in government infrastructure and resources that can be rectified thereby reducing risk.
Readiness	**Nil**	Participate in contingency planning and exercises with other government agencies. Formulate military HADR response plan.
Response	**Phase 1 Reconnaissance/ Activation / Mobilisation**	Liaison Officers deployed. Reconnaissance and disaster needs assessment. Mobilise/constitute a force.
	Phase 2 Deployment of Military Response	Deploy immediate response team – provide immediate HADR. Deploy main body – provide more comprehensive capabilities as part of AOG HADR response CIVMIL Coordination Centre established.
	Phase 3 Sustain	Sustain military contribution to the disaster relief operation. 3rd party logistics in support of NZDF. Augment the disaster HADR supply lines of communication.
Recovery	**Phase 4 Redeployment**	Hand over/hand back HADR task – civil authorities resume responsibility. Withdraw military back to base camps – reconstitute.

1 As defined by MCDEM and the 4Rs strategy.

Annex E Low Risk Notification

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA

15 April 2013

Shaun Thomas Fogarty
191 Katherine Mansfield Drive
Upper Hutt
Wellington

Dear Shaun

Re: Master of Logistics and Supply Chain Management Thesis. Cross Sector Collaboration for Civil Defence and Emergency Management in NZ

Thank you for your Low Risk Notification which was received on 28 March 2013.

Your project has been recorded on the Low Risk Database which is reported in the Annual Report of the Massey University Human Ethics Committees.

The low risk notification for this project is valid for a maximum of three years.

Please notify me if situations subsequently occur which cause you to reconsider your initial ethical analysis that it is safe to proceed without approval by one of the University's Human Ethics Committees.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

A reminder to include the following statement on all public documents:

> *"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.*
>
> *If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor John O'Neill, Director (Research Ethics), telephone 06 350 5249, e-mail humanethics@massey.ac.nz".*

Please note that if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to provide a full application to one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

J. O'Neill

John G O'Neill (Professor)
Chair, Human Ethics Chairs' Committee and
Director (Research Ethics)

cc Prof Paul Childerhouse
School of Engineering & Advanced Technology
PN 456

Mr Walter Glass
School of Engineering & Advanced Technology
PN 456

Prof Don Cleland
School of Engineering & Advanced Technology
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Appendix 1 – Questionnaire Survey

"New Zealand's 'whole of government' collaboration and capability to

Introduction

Massey University - Shaun Fogarty

Research Questionnaire in partial fulfillment of the requirements for the degree of Master of Logistics and Supply Chain Management

Introduction:
In the wake of the 22 February 2011 Christchurch earthquake and the Rena Disaster, greater focus has been placed on New Zealand's capability to respond effectively to major Civil Defence and Emergency Management (CDEM) events. Key observations made by the recent Christchurch Earthquake Independent Review highlight that collaboration at the 'whole of government' level, and the effective management of 'logistics' at a time of crisis, are areas where improvements can be made.

Research aim:
To contribute to academic and future operational thinking in order to respond more effectively to major CDEM events.

Question Methodology:
The questions in this survey have been grouped into four themes that form the basis of the wider research being conducted for the thesis. The themes are:

1. Logistics
2. Civilian-Military Relations
3. Emergency Management & Leadership
4. Governance and Policy

The context for the questions being asked relate to the Coordinated Incident Management System (CIMS) and against the Ministry of Civil Defence and Emergency Management (MCDEM) '4Rs' strategy:

1. Reduction, 2. Readiness, 3. Response 4. Recovery

The questions are primarily situated in the Readiness and Response time frames (i.e. preparing for a CDEM event and in the immediate response period).

Time:
It is estimated that the questionnaire of 40 questions should take 30-45 minutes to complete.

Consent:
By proceeding with this questionnaire you indicate that you have read and understood this introduction and give you consent to participate and use the information supplied.

Ethics:
This research questionnaire has been evaluated by Massey University Research Ethics staff and deemed to be low risk.

"New Zealand's 'whole of government' collaboration and capability to

Respondent's information

You are requested to provide your name and occupation so that an understanding of data collected across various employment sectors can be assessed.

1. The research data gained as a result of these survey questions will not be attributed to the respondent without their permission. Please select one of the following choices.

- ◯ I wish for my answers to remain anonymous
- ◯ I give permission for my answers to be attributed to me

2. Respondent's information (in-confidence)

Respondent's Name	
Position	
Contact Phone	

3. Do you have a leadership and/or management role at any level when a CDEM event occurs?

- ◯ Yes
- ◯ No

If Yes, please specify the level - national, group, or local. Any other comments.

Theme One - Logistics

A key focus of the research being conducted relates to the application of Humanitarian Logistics and the function of delivering logistics in a major disaster event.

To assist in a common definition of 'Logistics' in the context of Civil Defence Emergency Management doctrine and policy, the following statements are provided:

"Logistics is an enabling function; it exists to support the other functions so that they may complete their tasks. It is a vital function to consider when launching an effective incident response (particularly in extended operations), as it makes it possible for the other functions to operate effectively."

"Logistics supports responses through the provision of resources which help maintain the response and the affected population. It is responsible for procuring and providing resources such as personnel, equipment, supplies, services, facilities, and finance."

If the following questions are 'not applicable' to your role or you have insufficient subject matter

knowledge in this area, please insert 'N/A' in the Comments box and continue to the next question.

4. How well do you consider logistics to be managed generally at the various CDEM levels?

	0 Very poor	1	2	3	4	5 Satisfactory	6	7	8	9	10 Excellent
a. National:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
b. Group:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
c. Territorial Local Authorities (Local):	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other comments.

5. The Review of the CDEM response to the 22 February Christchurch Earthquake noted logistics as an area that could have been coordinated more effectively. Do you agree with this statement?

	0 Absolutely disagree	1	2	3	4	5	6	7	8	9	10 Absolutely agree
Disagree/Agree	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any comments relating to areas performed well or needing improvement.

6. At the functional level, how well do you consider logistics was coordinated and managed during the response to the 22 February Christchurch Earthquake?

	0 - Very poor	1	2	3	4	5 Satisfactory	6	7	8	9	10 Excellent
a. National:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
b. Group:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
c. Local:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other comments.

7. When considering the management of logistics across the spectrum of the Civil Defence Emergency Management levels (Nation-Group-Local), and in the context of the Coordinated Incident Management System (CIMS), how well do you rate performance in the following areas?

	0 Very poor	1	2	3	4	5 Satisfactory	6	7	8	9	10 Excellent
a. Planning:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
b. Organising:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
c. Communication	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
d. Controlling:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
e. Delegating:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
f. Purchasing	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
g. Distribution	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
h. Financial Management	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other comments.

8. How good is the level of understanding of logistics assets available domestically and internationally in our region that could be planned for in readiness and requested in response to a CDEM event.

	0 Very poor	1	2	3	4	5	6	7	8	9	10 Excellent
Level of understanding	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other comments.

9. From a CDEM perspective, good use is made of the logistics expertise within the private/commercial sector. Do you agree with this statement?

	0 Absolutely disagree	1	2	3	4	5	6	7	8	9	10 Absolutely agree
Disagree/Agree	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

If not, what could be done to improve the current situation?

10. Lifelines Utilities play a significant role in a major disaster response. From a logistics perspective how well integrated is Civil Defence Emergency Management and Lifelines Utilities at the National and Group levels?

	0 Very poor	1	2	3	4	5 Satisfactory	6	7	8	9	10 Excellent
National	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Group	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

If not, what could be done to improve the current situation?

11. When comparing Logistics to the other functions within the Coordinated Incident Management System (Operations, Plans, Welfare) how would you rate the attention/resourcing it receives against what it requires?

	0 Very poor	1	2	3	4	5 Appropriate	6	7	8	9	10 Excellent
Level of Attention/Resourcing	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

If not, what could be done to improve the current situation?

Theme Two - Civilian/Military Relations

In the field of Humanitarian Logistics and Disaster Response the military is often called upon to assist with the initial response, particularly if local resources become overwhelmed. This section deals with the cooperation and collaboration aspects of the civilian/military relationship.

If the following questions are 'not applicable' to your role or you have insufficient subject matter knowledge in this area, please insert 'N/A' in the Comments box and continue to the next question.

12. Noting that the New Zealand Defence Force (NZDF) will primarily be involved in the response phase to a major CDEM event, what do you consider are the main priorities of logistics support required of the NZDF?

13. Overall, how well do you consider the NZDF performed from a logistics perspective during the response to the 22 February Christchurch earthquake?

	0 Very poor	1	2	3	4	5 Satisfactory	6	7	8	9	10 Excellent
NZDF logistics performance:	○	○	○	○	○	○	○	○	○	○	○

Any other comments.

14. Overall, how well do you consider the NZDF performed from a logistics perspective during the response to the RENA Maritime Disaster?

	0 Very poor	1	2	3	4	5 Satisfactory	6	7	8	9	10 Excellent
NZDF logistics performance	○	○	○	○	○	○	○	○	○	○	○

Any other comments.

15. How well do you rate the NZDF's 'whole of government' collaboration to planning for future CDEM events?

	0	1	2	3	4	5	6	7	8	9	10
a. Planning on a scale of 0 (very rigid) - 10 (very flexible)	○	○	○	○	○	○	○	○	○	○	○
b. Communication on a scale of 0 (very closed and stove piped) – 10 (very open and sharing)	○	○	○	○	○	○	○	○	○	○	○
c. Teamwork on a scale of 0 (very domineering) – 10 (very cooperative)	○	○	○	○	○	○	○	○	○	○	○

Any other comments.

"New Zealand's 'whole of government' collaboration and capability to

16. From a more specific perspective, how well do you rate the NZDF's 'whole of government' collaboration in response to an actual major CDEM event such as the Christchurch earthquake or the RENA disaster? Please provide comments if you have differing views between these two events.

	0	1	2	3	4	5	6	7	8	9	10
a. Planning on a scale of 0 (very rigid) - 10 (very flexible)	○	○	○	○	○	○	○	○	○	○	○
b. Communication on a scale of 0 (very closed and stove piped) – 10 (very open and sharing)	○	○	○	○	○	○	○	○	○	○	○
c. Teamwork on a scale of 0 (very domineering) – 10 (very cooperative)	○	○	○	○	○	○	○	○	○	○	○
d. Operations on a scale of 0 (not effective at all) - 10 (very effective)	○	○	○	○	○	○	○	○	○	○	○

Any other comments.

17. What changes or enhancements would you recommend the NZDF make in terms of how it collaborates from a whole of government perspective for CDEM?

Theme Three - Emergency Management & Leadership

A major Civil Defence Emergency Management event requires effective management and leadership. The following questions relate to the management and leadership aspects of CDEM, what areas are done well, and what areas may need addressing should there be opportunities for improvement.

If the following questions are 'not applicable' to your role or you have insufficient subject matter knowledge in this area, please insert 'N/A' in the Comments box and continue to the next question.

18. How would you rate the overall critical incident management capabilities at each level of CDEM in dealing a major disaster event?

	0 Poor	1	2	3	4	5 Satisfactory	6	7	8	9	10 Excellent
a. National	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
b. Group (that you are familiar with)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
c. Local (that you are familiar with)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any supporting comments. (Please advise the name of Group and Local authority)

19. How would you rate the effectiveness of the management relationships across the CDEM community?

	0 Poor	1	2	3	4	5 Satisfactory	6	7	8	9	10 Excellent
a. National to Group (that you are familiar with)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
b. Group to Local authority (that you are familiar with)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other comments. (Please also advise the name of the Group or Local authority)

20. In general terms how do you rate the communication flow effectiveness across CDEM during a major event? Please make comments, particularly for any improvement ideas.

	0 Very poor	1	2	3	4	5 Satisfactory	6	7	8	9	10 Excellent
Communication flow	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other comments.

21. The Coordinated Incident Management System (CIMS) is the primary tool for managing a CDEM event. How well do you consider CIMS is understood and applied across CDEM?

	0 Very poor	1	2	3	4	5 Satisfactory	6	7	8	9	10 Excellent
CIMS understanding	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
CIMS application	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other comments.

22. What are the key management structures strengths and weaknesses that currently exist within CDEM?

a. National:Strengths

b. National: Weakness

c. Group: Strengths

d. Group: Weakness

e. Local: Strengths

f. Local: Weakness

Any other comments.

23. The Review of the CDEM response to the 22 February Christchurch Earthquake recommended 'that the staffing of large EOCs include a senior and experienced Chief of Staff'. Do you agree with this recommendation? Please add comments as to why or why not.

	0 Absolutely disagree	1	2	3	4	5	6	7	8	9	10 Absolutely agree
Chief of Staff appointment	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other comments.

24. Would a single regional Emergency Operations Center during a CDEM event avoid duplication and assist in collaboration of various organisations? Please provide supporting comments.

	0 Absolutely No	1	2	3	4	5	6	7	8	9	10 Absolutely Yes
Yes/No	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other comments.

25. Greater employment of liaison officers (between CDEM/Police/Ambulance/NZDF) would increase the collaborative response to a CDEM event? Do you agree with this statement?

	0 Absolutely disagree	1	2	3	4	5	6	7	8	9	10 Absolutely agree
Disagree/Agree	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any supporting comments?

26. What would you recommend to improve the collaborative relationship across partner agencies & Non Government Organisations?

27. How well do you regard the general state of leadership performance at the various CDEM levels to lead during the response to a CDEM event?

	0 Very poor	1	2	3	4	5	6	7	8	9	10 Excellent
a. National:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
b. Group: (that you are familiar with)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
c. Local: (that you are familiar with)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other coments. (Please also advise the name of the Group or Local authority)

28. The Review of the CDEM response to the 22 February Christchurch Earthquake recommends developing a collective of highly trained Emergency Managers from organisations across the country to be established to lead and control a CDEM response. Do you agree with this recommendation?

	0 Absolutely disagree	1	2	3	4	5	6	7	8	9	10 Absolutely agree
Recommendation	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any supporting comments (please specify)

29. The Review of the CDEM response to the 22 February Christchurch Earthquake recommends having specific individuals allocated functional roles and have them supported by others in shift relief. Do you agree with this recommendation being applied at each of the CDEM levels?

	0 Absolutely disagree	1	2	3	4	5	6	7	8	9	10 Absolutely agree
a. National:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
b. Group:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
c. Local:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other comments.

30. Have you received any formal leadership and/or management training or education that has equipped you better for a CDEM event?

◯ Yes

◯ No

If Yes, please specify.

31. What leadership or management training/education do you believe is required for those leading a CDEM event?

32. Are there any leadership models or theories that you consider 'best fit' for a senior CDEM leader?

Leadership models or theories

33. What are the key leadership and/or management strengths and weaknesses that currently exist within CDEM?

a. National: Strength	
b. National: Weakness	
c. Group: Strength	
d. Group: Weakness	
e. Local: Strengths	
f. Local: Weakness	
Any other comments.	

Theme Four - Governance and Policy

Robust governance and national policies/strategies are essential to provide a foundation for organisations to develop and implement CDEM plans and response options. The following questions deal with New Zealand's current state of governance and policies.

If the following questions are 'not applicable' to your role or you have insufficient subject matter knowledge in this area, please insert 'N/A' in the Comments box and continue to the next question.

34. From an overarching and broad perspective, do you consider NZ's Civil Defence and Emergency Management governance, policies and strategies to be sufficiently robust? Please comment on any specific areas you consider need urgent attention.

	0 Not robust at all	1	2	3	4	5	6	7	8	9	10 Very robust
Robustness	○	○	○	○	○	○	○	○	○	○	○

Any other comments.

35. The Review of the CDEM response to the 22 February Christchurch Earthquake recommended that Territorial Local Authorities (Local level) no longer have the power to control the response to emergencies, but still retain power to declare them. This essentially escalates response control to the Group or National level. Do you agree or disagree with this recommendation and why?

	0 Absolutely disagree	1	2	3	4	5	6	7	8	9	10 Absolutely agree
Disagree/Agree	○	○	○	○	○	○	○	○	○	○	○

Any other comments.

36. In a crisis where a national declaration has been made, do you consider the National Controller has effective control and call on assets and resources that need to be made available?

	0 Not effective at all	1	2	3	4	5	6	7	8	9	10 Very effective
Effective control.	○	○	○	○	○	○	○	○	○	○	○

Any other comments.

37. Does your agency/organisation have effective strategies, plans and processes in order to respond to a major CDEM event?

	0 Not effective at all	1	2	3	4	5	6	7	8	9	10 Very effective
Strategies	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Plans	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Meaningful exercises	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
CIMS training	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Relationship with lifeline utilities	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Relationship with NZ Police	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Relationship with NZ Fire	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Relationship with Ministry of Health	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Relationship with NZDF	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other comments.

38. How well resourced (staffing / funding etc.) do you consider the various levels of CDEM are across New Zealand?

	0 Very poor	1	2	3	4	5	6	7	8	9	10 Excellent
a. National:	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
b. Group: (that you are familiar with)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
c. Local: (that you are familiar with)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Any other coments. (Please also advise the name of the Group or Local authority)

39. Last question. Are there any other comments or observations you would like to make?

Thank you

"New Zealand's 'whole of government' collaboration and capability to

Thank you for your participation in this survey. Your time and cooperation is very much appreciated.

Should you for any reason wish to contact the Massey University supervisor for this thesis, you can do so by email to Walter Glass (wmglass@corplogistics.co.nz), or by phone: (06) 3514316