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Developing an urban search & rescue capability for New Zealand: two years of achievement

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ABSTRACT: New Zealand Reconnaissance Teams following the 1999 Turkey (NZSEE) and Taiwan (NZFS & NZSEE) earthquakes returned with the very strong message that New Zealand needed to develop a more appropriate urban search and rescue capability. Previous efforts in 1995 to establish an Urban Search and Rescue (USAR) unit had not been followed up on due to a lack of high-level support.

In July 2000, the Ministry of Civil Defence and Emergency Management and the New Zealand Fire Service initiated a project to assess the level of capability to rescue people from structural collapse, and to make recommendations regarding the appropriate level of national capability. This investigation led to the assessment that New Zealand had only a limited ability to undertake structural collapse with no systematic training arrangements and response procedures being in place. Moreover, the report highlighted that there was no management structure in place to organise international rescue teams in the days following a major structural collapse or earthquake.

In the two years following this initial investigation, significant progress has been made towards establishing a sustainable national capability for undertaking structural collapse rescue. The key feature of the structures developed is the adoption of a multi-agency approach at both governance and operational levels. This approach is in contrast to the single agency large-scale task force model used in many other countries, and is the subject of considerable international interest.

This paper summarises the key elements of the New Zealand USAR structures, and outlines the achievements during the first two years of its development.

1 INTRODUCTION

Urban Search and Rescue (USAR) is a vital part of New Zealand's multi-agency response capability for dealing with urban emergencies. USAR involves the location and rescue of people trapped following a structural collapse arising from a single building collapse, or as a result of a major landslide or earthquake. USAR combines the capabilities of New Zealand's emergency services and combines specialist technical Task Forces with local community volunteer rescue teams.

A variety of emergencies or disasters in New Zealand may give rise to structural collapses requiring USAR response. These include:

- Earthquakes, landslips and subsidence
- Hurricanes, typhoons, storms and tornadoes
- Floods
- Technological accidents and hazardous material releases
- Terrorist activities
- Construction accidents.

For planning purposes, the USAR Steering Committee has established three broad scales of disaster:

- Single site collapse
- Local emergency with a few collapses
- Multiple structural collapse resulting, for example, from a major urban earthquake.

2 CIVIL DEFENCE & EMERGENCY MANAGEMENT IN NEW ZEALAND

New Zealand has decided that it must improve the ability of its emergency management sector to adapt to changing circumstances, to learn from overseas experience and to better co-ordinate our limited resources (Angus & Dance, 2002). A shared vision has been developed, one of a:

'***Resilient New Zealand***'

- *a capable society, understanding and managing hazards*

The strategy to achieve resilience is through a comprehensive, integrated, all-hazards approach to risk management. Comprehensive means addressing the "4Rs" of risk **reduction, readiness, response** and **recovery**, and integrated means through the co-operation and co-ordination of affected sectors and agencies.

Major steps towards improving New Zealand's resilience include:

- Strengthening *relationships* between the professions and agencies involved in emergency management;
- Promoting *behaviour* that embraces risk, asset and emergency management planning and activity; and
- Raising awareness of *legislation* underlying relationships and behaviour; in particular the Civil Defence Emergency Management (CDEM) Act 2002.

The purpose of the Act is to:

- Ensure New Zealand has the appropriate structures and expertise to manage disasters at the local and national level
- Ensure NZ implements a risk management approach to hazards across the board
- Ensure NZ communities actively seek to reduce the risks they are exposed to as well as being prepared to respond effectively to events when they happen
- Provide the framework for greater co-operation and co-ordination on emergency management amongst local government, national government, and emergency services
- Reduce the risk of adverse economic and social impacts from emergencies.

3 ORIGINS OF URBAN SEARCH AND RESCUE IN NEW ZEALAND

Internationally, the Mexico City earthquake of 1985 was the event which gave rise to a structured approach towards rescuing trapped people from major structural collapses. Although many people were rescued alive, mostly by spontaneous volunteer activity, many rescuers and victims were lost due to inappropriate rescue techniques.

The initial attempt at developing a USAR capability for New Zealand resulted from the observations of the NZSEE reconnaissance team to the 1994 Northridge earthquake in Los Angeles (NZSEE, 1994). Major collapse sites visited by the team saw rescue operations carried out by the Los Angeles Fire Department and USAR Task Forces that were beyond the capability of anything other than a professionally organised unit. Observations made by the NZSEE reconnaissance team, which for the first time included a Fire Service representative, inspired the establishment of a specialist unit at Palmerston North. This team was however not given the necessary support, and the capability languished.

Further prompting by the NZSEE reconnaissance teams who visited the major earthquakes in 1999 in Turkey and Taiwan led to a comprehensive review of New Zealand's structural collapse rescue capability in 2000. This review concluded that there were only limited and unevenly spread USAR resources which were not capable of systematically addressing anything more than a minor structural collapse (MEM & NZFS, 2000).

4 NEW ZEALAND USAR STRUCTURES: A MULTI-AGENCY FRAMEWORK

A multi-agency National USAR Steering Committee was subsequently established in 2001 and funded by the Ministry of Civil Defence and Emergency Management and the NZ Fire Service. The Steering Committee is chaired by the first author, with other organisations represented being NZ Police, Ambulance Board and Local Government New Zealand.

In August 2001, the Steering Committee recommended a minimum national capability comprising the following components (USAR Steering Committee, 2001):

- Three specialist USAR units capable of undertaking heavy structural rescue operations over extended periods of time (located in Palmerston North, Christchurch and Auckland)
- Local General Rescue teams associated with each Civil Defence Emergency Management Group that are specifically trained as first responders in a structural collapse situation
- Access to international USAR teams, and mechanisms in place for their deployment
- Inter-agency training and standards consistent with international standards
- Response mechanisms for USAR that will enable the local teams and national units to be integrated with local emergency services
- Appropriate co-ordinating structures at national and local levels to implement the necessary arrangements and monitor currency

While this level of NZ-based resource can never be expected to deal with the effects of a major earthquake, the objective is to be able to quickly and effectively respond to a single-site collapse or transportation accident, or a multi-site collapse that could result from a major landslide in an urban area. This national capability will link with and support international teams following a major earthquake in New Zealand.

The key thrust of the work of the Steering Committee to date is to establish a multi-agency approach at both governance and operational levels.

5 TRAINING

A training progression has been developed for USAR, with courses being formally listed on the NZ Qualifications Authority framework. The training system is based on international standards and training categories, but with the courses being specifically tailored to meet NZ needs. The three-category system shown in Table 1 distinguishes between the basic skills required for a first responder, technical skills for those involved in actual search and rescue operations, and specific management and USAR team leadership skills.

An important feature of the courses is that they are designed to be delivered in a multi-agency environment, thereby maximising the scope of learning. This is particularly important for non-operational people such as engineers, who typically have limited experience in emergency response situations.

The focus of the National USAR Steering Committee is to train regional rescue instructors and provide them with all the resources necessary to enable them to deliver training in each of the regions.

Table 1. USAR Category Training System for Emergency Services

Role	**Awareness**	**USAR Responder**	**USAR Technician**	**USAR Manager**
Skills	Awareness CD ROM	USAR Awareness (Assessed) First Aid CIMS General CD Rescue	Compulsory Skills & Specialist Strands	Advanced CIMS Operations Management General Management
Category		**1**	**2**	**3**
Qualification.	NZQA unit standard available, but not compulsory.	Industry Certificate in USAR (Responder) (Level 2 as option)	National Certificate in USAR (Technician) Level 4	National Diploma in USAR
Orange Card	No Card	USAR RESPONDER	USAR TECHNICIAN	USAR MANAGER

A number of USAR Responder courses have been held across the nation, with more than 100 technicians and volunteers qualifying for USAR Responder Orange Cards by October 2002. Two Category 2 Technician courses have been conducted to establish Task Forces based at Palmerston North and Christchurch. Two structural engineers have taken part in USAR Technician courses and have achieved USAR Task Force Engineer status.

A summary of the specific USAR training courses being developed for engineers is provided in an accompanying paper (Brunsdon et al, 2003).

6 INTERNATIONAL LINKAGES

As noted above, access to international USAR teams and the creation of mechanisms for their deployment is essential for an effective response to a multi-site collapse situation such as following a significant earthquake. The Steering Committee has over the past two years been able to put in place procedures and protocols to:

- *request* international USAR Teams in accordance with International Search & Rescue Advisory Group (INSARAG) procedures
- *receive and host* international teams (border controls and government agency protocols understood by all agencies, logistical support arrangements)

New Zealand was able to test the effectiveness of these arrangements recently through the major response exercise Phoenix, which was based on a major earthquake featuring a rupture of the Wellington Fault. International Advance Teams from the United States, Singapore and Australia came to NZ for a practical exercise and workshop. Their arrival enabled the testing of newly developed protocols with the many border control agencies involved, and a better understanding about the processes involved in receiving and deploying international teams. The practical exercise and workshop explored a number of operational aspects, including how the international Task Forces would be integrated with national and local teams following a major event.

7 RECENT ACHIEVEMENTS AND CURRENT STATUS

The work of the national USAR Steering Committee and a number of people in the rescue sector over the past two years has resulted the following achievements:

- Rebuilding of the North Island Task Force & development of a South Island Task Force
  - A total of more than 60 USAR Technicians from a range of rescue agencies have been trained to an international technical rescue standard and personally equipped
- The development of USAR training standards for Categories 1 and 2 based on international requirements and registered on the NZQA framework
- The delivery of technical and general rescue training nationally for regional instructors
- The development of a framework for the involvement of specialist skill groups such as engineers, paramedics and search dogs (refer also Brunsdon, 2003).

As a result of these achievements, there is confidence that a rescue operation following a major single-site structural collapse could be effectively carried out using NZ resources. For a multi-site structural collapse including earthquake, the necessary international arrangements can now be rapidly put in place, and management structures set up to provide full operational support to international teams.

Considerable emphasis has also been placed on communications between the various elements involved in USAR. A new NZ USAR website has recently been launched – www.usar.govt.nz. This website has been designed to be an important information centre for the project, and represents a key linkage between regional and national activities. The website also provides information on the USAR organisational structures and backgrounds the development of USAR in New Zealand for the benefit of newcomers.

8 FUTURE DIRECTIONS AND CHALLENGES

The Project Plan for the 2002/ 04 period aims to fully establish a sustainable basis for involving the specialist skill groups of engineers, paramedics and search dogs. Plans are also in place for the creation of the third USAR Task Force based in Auckland. A Category 2 Technician training course is intended to be held during 2003 to enable this.

The plan also focuses on the wider picture of the integration of local rescue capabilities with that of the specialist USAR Task Forces. Response and/or rescue teams are sparsely spread around NZ and are non-existent in a number of areas. Partly the decline in capability reflects the general status of volunteering in New Zealand, as much of this work is done by volunteers. It also reflects the lack of resource commitment in some regions. However, perhaps most significantly, it also reflects the lack of a unifying framework within which response and rescue work can fit and be sustained.

A new Response project is aimed at providing a unifying approach from which to tie together the various elements. It is based on the need for community self-sufficiency in the early stages of a major emergency; provides for tailoring to meet local hazards and threats; and maximises the best use of volunteers trained in multi-purpose tasks who will be recognised by professional Emergency Services as having expertise and legitimacy.

Achieving a sustainable level of funding for the project overall however remains a major challenge. The August 2001 report by the Steering Committee highlighted that a budget resource of $1.5 million was required to enable effective delivery of the minimum national capability as recommended. The project has not been able to achieve this level of funding from government agencies, with only $500,000 being available to the project for the current financial year (comprising $250,000 from each of the Department of Internal Affairs/Ministry of Civil Defence and Emergency Management and the NZ Fire Service). This level of funding is considered to be sufficient to maintain the capability put in place last year, but with only very limited further development. A case is being developed to submit to government for the 2003/04 financial year for additional funding.

9 CONCLUDING OBSERVATIONS

In November 2000, a government review concluded that there were only limited and unevenly spread USAR resources that were not capable of systematically addressing anything more than a minor structural collapse. Led by the Ministry of Civil Defence & Emergency Management and the NZ Fire Service, a basic USAR capability has been established in the two years following. This multi-agency capability includes two Category 2 trained Task Forces along with regionally-based USAR Category 1 instructors who are delivering local training based on international quality NZ training courses.

The involvement of crucial specialist skill groups including engineers are also being specifically provided for as a priority.

Even more importantly, the USAR project has established a platform from which to link community, regional and national rescue resources within a common framework, and connecting professional rescuers with volunteers and other specialist groups such as engineers in an integrated way. It is seen as a major element in moving the emergency management sector from the strength of individuals to the strength of systems.

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