Urban Search and Rescue—developing Australia's capability

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Summary

Throughout the world full-time urban fire services are usually tasked with managing the equipment, organisation, personnel, training and deployment of Urban Search and Rescue (USAR) Task Forces. While fire services tend to form the core of Task Forces, by necessity they have a multi-agency, multi-disciplined structure. A typical USAR Task Force comprises fire service rescue technicians, ambulance paramedics, trauma doctors, structural engineers, search dogs and handlers, fire service hazardous materials specialists, logistics specialists, and fire service commanders.

Before terrorism came to prominence with the bombings of the World Trade Center in 1993 and the Alfred P Murrah building in Oklahoma City in 1995, USAR was perceived by many as a capability required solely for events such as earthquakes.

Development of USAR capabilities in Australia received renewed impetus following the events of September 11 2001 in the USA, and October 2002 in Bali. Current deployable USAR capabilities are restricted to NSW, Melbourne and Brisbane. Smaller states and territories may be experiencing difficulty financing and supporting development of USAR capabilities. The Australian Government has provided welcome assistance to the states and territories to develop Chemical, Biological and Radiological (CBR) capabilities, but decided not to provide any financial assistance for the development of USAR. It is timely that this decision be reviewed, as history suggests that the likelihood of a major structural collapse is higher than a CBR incident.

What is Urban Search and Rescue?

The term Urban Search & Rescue was first used in the USA by the Metro-Dade Fire & Rescue Department in Florida which developed a specialised rescue squad for deployment nationally and internationally to earthquakes and other major disasters where people had been trapped in collapsed buildings. Since its humble beginnings, USAR has developed into a discipline of its own, with international guidelines provided by the United Nations on the organisation and equipment required.[1]

A USAR Task Force uses a range of specialist equipment such as fibre-optic cameras, acoustic listening devices, concrete cutting and core drilling equipment, tunneling and shoring techniques to locate, stabilise and release trapped persons. Task Force members are specially trained for their specialist tasks. A typical USAR Task Force of up to 70 people includes rescue technicians, hazardous materials specialists, engineers, paramedics, doctors, search dogs and handlers, command personnel, and logistics specialists. Internationally deployable Task Forces must be self-sufficient, and carry their own food, water, shelter, and medical supplies.

USAR training is divided into three categories:

- *Category 1:* first responders, such as fire, police, ambulance and SES personnel. Light surface rescue using hand tools and limited hydraulic lifting and cutting equipment.
- *Category 2:* USAR rescue technicians trained in the use of advanced rescue and search equipment, tunneling, shoring, etc. Specialist qualifications for engineers, doctors, paramedics, and search dog handlers.
- *Category 3:* Task Force management, command and control.

1. International Search and Rescue Advisory Group (2000) *INSARAG Guidelines.* United Nations Office for the Coordination of Humanitarian Affairs. Geneva.

Is there a need for USAR capabilities in Australia?

There has been a perception in some quarters that major incidents requiring the skills and resources of a USAR team are infrequent.

Following is a list of instances where USAR resources were either deployed, or could have been deployed had they been readily available:

Australia

- 2003 – Structural stability assessments following the Canberra bushfires (ACT)
- 2003 – Waterfall train derailment (NSW)
- 2001 – Childers backpackers' fire (Qld)
- 2000 – Glenbrook train crash (NSW)
- 1999 – Sydney hailstorm (NSW)
- 1997 – Thredbo landslide (NSW)
- 1989 – Newcastle earthquake (NSW)
- 1978 – Sydney Hilton Hotel bombing (NSW)
- 1977 – Granville train disaster (NSW)
- 1974 – Cyclone Tracy (NT)

International

- 2002 – Bali bombing
- 2001 – New York City terrorist attack *
- 2001 – Washington DC terrorist attack *
- 2000 – Nairobi (US Embassy) terrorist attack
- 2000 – Taiwan earthquake**
- 2000 – New Guinea tsunami
- 1999 – Athens earthquake
- 1999 – Turkey earthquake**
- 1995 – Kobe earthquake
- 1995 – Oklahoma City terrorist attack
- 1993 – World Trade Center terrorist attack

* Australian USAR Task Force offered by Australian Government

** Australian USAR specialists deployed at UN request

In addition to the above major incidents, fire services in NSW, Victoria, the ACT and Queensland deploy USAR experts and equipment to complicated rescue incidents on a routine basis to back up regular rescue crews. Incidents involving heavy transport, building collapse or instability, aircraft crashes or similar, regularly see deployment of elements of a USAR Task Force.

Current Australian capabilities

The Melbourne Metropolitan Fire Brigade (MFB) was the first agency in Australia to recognise the need for a USAR capability following the World Trade Center bombing in New York City in 1993. Similarly, the NSW Fire Brigades (NSWFB) recognised the need following the 1989 Newcastle earthquake, but due to unique NSW "rescue service politics" only commenced developing its capability following the 1995 Oklahoma City bombing. The NSWFB has worked in partnership throughout development of its capability with the ACT Fire Brigade (ACTFB), bringing overseas experts to Australia to train Australian personnel, and jointly developing an award-winning training CD for Category 1 USAR. The CD has been adopted nationally, and in a number of other countries throughout the world. In recent years the Queensland Fire & Rescue Service (QFRS) has also developed a comprehensive USAR capability.

The following table summarises the current situation.

Figure 1: Current Australian USAR developments

State/Territory	Current USAR capability
New South Wales	2 complete Task Forces (Sydney) 2 USAR response teams (Newcastle & Wollongong) 1 reconnaisance vehicle 1 medium helicopter for Reconnaisance. Team (shared with NSW Police)
Victoria	1 complete Task Force (Melbourne)
Queensland	1 complete Task Force (Brisbane)
Australian Capital Territory	12 person team with equipment
South Australia	Developing capability – some people trained
Western Australia	Developing capability – plans for complete Task Force
Tasmania	Developing capability – some people trained
Northern Territory	Developing capability – some people trained

As can be seen, current USAR resources are concentrated on the east coast of Australia, with the NSW Government investing a significant amount of money in developing a world class capability. The Western Australian Fire & Emergency Services Authority (FESA) has recently committed itself to developing a USAR Task Force capability. New Zealand is also developing a significant USAR capability, but would look to Australia for assistance in the event of a major collapse.

The Thredbo disaster resulted in the deployment of almost all of Australia's USAR capabilities

Possible scenarios

A structural collapse leading to entrapment could occur due to a variety of reasons including earthquake, cyclone, flood, tsunami, transport and aircraft accidents, structural deficiency or damage, overloading, landslide, or explosion (accidental or intended).

The 1997 Thredbo landslide demolished two ski lodges, trapping 19 people, one of whom survived. This event resulted in deployment of a NSWFB USAR Task Force, the entire ACTFB USAR capability, and elements of both the MFB and QFRS USAR capabilities.

An earthquake or detonation of an improvised explosive device (IED) in a major Australian urban centre could result in significant structural collapse that could kill, injure and/or trap hundreds or even thousands of people. Overseas experience shows that chances of survival of entrapped people diminish with time. Deployment of USAR resources in a timely manner is therefore crucial.

A worst-case scenario would be a terrorist attack on either Perth, Darwin, Hobart, or Adelaide, where presently there is no structured USAR capability. Accordingly, lead-times for response of resources from NSW, Victoria, Queensland and the ACT could significantly reduce the chances of survival of trapped people.

The September 11 2001 attacks in the USA resulted in the deployment of 12 USAR Task Forces to New York, and 6 to Washington DC. Clearly, Australia does not have this depth of resource. It would therefore be necessary to seek urgent overseas assistance.

Overseas USAR assistance

In the event of a major structural collapse and entrapment in Australia, external assistance could be sought (via the United Nations) from Singapore, Korea, Taiwan, Japan and the USA, all of which have well developed USAR capabilities. The lead-time factors are obvious. What is not so obvious however are the border control issues that would arise.

The National USAR Working Group has for a number of years been seeking to have issues such as passport control for rescuers, certification of medical personnel, customs clearance of food and drugs, and quarantine issues for search dogs resolved. Despite excellent cooperation and significant progress, these issues are still far from resolved, and there would therefore be significant delays in deploying international teams on Australian soil.

It therefore does not take a lot of imagination to realise that in the event of a catastrophic building collapse and mass entrapment in Australia, the tyranny of distance that protects us in many ways could also be an impediment to effective rescue operations.

Impediments to development of USAR capabilities

USAR development is occurring against a background of constrained financial resources in the states and territories, several of which are experimenting with new funding models for fire services. Smaller fire service jurisdictions are struggling with the demands to develop terrorist consequence management capabilities in the area of CBR response, as well as USAR. Australian Government assistance to develop CBR capabilities has

been welcomed by the states, and recognises the cross-border and possibly catastrophic consequences of a CBR attack on the Australian community.

Unfortunately, when considering a recommendation from Emergency Management Australia (EMA) to help fund state and territory USAR capability development, the Australian Government determined that USAR is solely a state government responsibility. The high capital cost of specialised USAR equipment, and in particular the very significant and ongoing training costs make development of deployable USAR capabilities in the smaller jurisdictions very difficult.

Australian fire services consider that the likelihood of a natural, technological or terrorist event resulting in building collapse is far higher than that of a CBR attack. The consequences of both are potentially catastrophic, and would have national implications. The only major CBR attack to have taken place to date was in Tokyo in 1995. Since that time there have been numerous instances of IED detonations, terrorist attacks, earthquakes, and other events requiring deployment of significant USAR resources, resulting in significantly higher casualty rates than the Tokyo CBR attack.

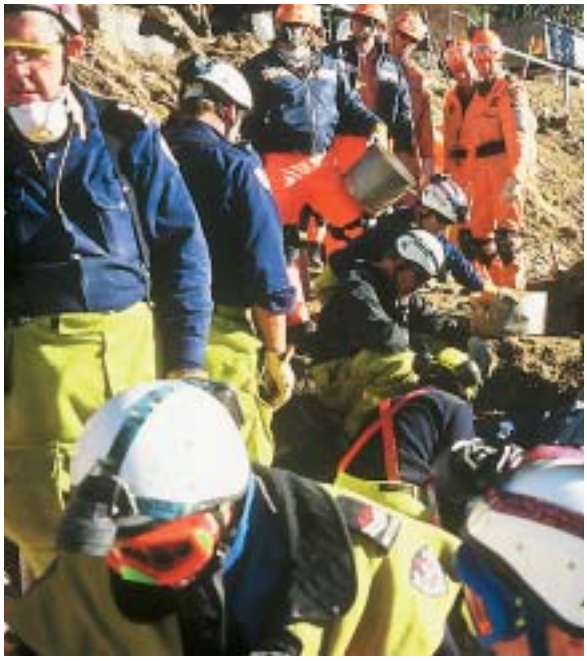
It is hoped therefore that the Australian Government will reassess its earlier determination not to provide assistance to the states and territories to develop USAR capabilities. Cities such as Darwin, Perth, Adelaide, and Hobart could be subjected to terrorist attack, or, particularly in the case of Perth and Adelaide, experience an earthquake. A modest injection of Federal funds or USAR equipment, as well as national funding for ongoing USAR training, would ensure that Australia has an appropriately dispersed USAR capability.

Consultative processes

EMA has, together with the Australasian Fire Authorities Council (AFAC), taken a leading role in helping to develop Australia's USAR capability. Each state and territory has a USAR committee that usually reports to the principal emergency management committee.

EMA chairs and facilitates the National USAR Working Group, which has representatives from each state and territory, New Zealand, peak bodies of the fire services, ambulance and health authorities, police services, and state emergency services, as well as the Australian Defence Force. It also arranges Australian representation on the International Search and Rescue Advisory Group (INSARAG) which is a part of the United Nations Office for the Coordination of Humanitarian Affairs (OCHA).

AFAC has a National USAR Steering Committee, and Working Group that coordinates development of training and procedures. The AFAC structure complements and supports the EMA efforts.



The National USAR Working Group is currently working on a range of issues including a mutual aid agreement with New Zealand, standardisation of training standards and Task Force roles, border control and quarantine issues.

Conclusion

Australia needs to continue development of its USAR capability. States with smaller populations are experiencing some difficulty in funding development of USAR capabilities, and currently there is a reliance on the three eastern states and, potentially, on international assistance. New Zealand does not have a deployable USAR capability at present and is also in development mode.

The Australian Government has recognised the possibly catastrophic effect of a CBR attack, and has helped fund development of CBR capabilities by the states and territories. The likelihood of a need for USAR resources is demonstrably higher than for CBR, and the consequences of an earthquake or detonation of an IED by terrorists in an urban area are potentially as catastrophic, or more so, than for a CBR attack. Review of the decision by the Australian Government not to assist state and territory governments with USAR development would be welcomed, and would help ensure that Australia quickly develops a coordinated capability to deal with the consequences of terrorist attacks and major natural disasters.