Tasmanian Government's Submission

Senate Standing Committee on Environment and Communications

Inquiry into the Capacity of Communication Networks and Emergency Warnings Systems to deal with Emergencies and other Natural Disasters

June 2011

Tasmanian Government

Department of Premier and Cabinet

The capacity of communication networks and emergency warning systems to deal with emergencies and natural disasters, with particular reference to:

a. *the effectiveness of communication networks including radio, telephone, internet and other alert systems:*

(i) in warning of the imminent threat of an impending emergency;
(ii) to function in a coordinated manner during an emergency; and
(iii) to assist in the recovery after an emergency.

The Tasmanian Government supports the use of communication technologies to assist in the planning for, prevention of, response to and recovery from emergencies and natural disasters. The Government also recognises the reasonable community expectation that information relating to emergencies will be available in a comprehensive, timely and accurate way using available technologies such as radio, telephone and the internet.

While emergency services must always strive to better inform communities and individuals at risk, it is important that the communities also understand that acting well in advance of any emergency is safer than relying on time-critical emergency warnings.

Key issues associated with the effectiveness of communication networks include how:

- emergency services keeps pace with community expectations with regards to the issuing of emergency warnings through multiple channels without compromising or impacting on other functional areas of emergency services; and

- to ensure that community expectations recognise natural barriers in collecting the information regardless of the availability of technology to disseminate the information.

(i) *In warning of the imminent threat of an impending emergency*

The Tasmanian Government considers that the use of technology and communication networks to issue warnings to the public is one of many options that exists and should be undertaken in conjunction with a range of activities that assists the community to plan, prevent, respond and recover from natural disasters.

When issuing warnings, emergency services must consider the nature of the threat, the characteristics of the communities under the threat and the timeframes within which action is required. Emergency services must also survey the range of warning options available and balance the often competing objectives of timeliness and reliability.

For example, door-knocking is a highly effective tool for distributing a warning to the community as it is reliable, allows emergency services to receive advice on the level of penetration of the message and the level to which the community is responding appropriately to the message. It is, however, time consuming and resource dependant and may not be possible for very rapid onset events.

Warnings issued over the radio are very effective as they capture a wide audience. There is, however, no natural feedback to emergency services on the penetration of the message within at-risk communities or whether individuals are responding to the warning.

The recent introduction of *Emergency Alert* improves the capacity of emergency services to distribute time critical information broadly and receive limited information regarding penetration. The system will report on residents that received the warning on land-lines or mobile phones registered within the area but does not provide any feedback on whether the message was understood or whether the individual intends to act on the warning.

Social networks increase the capacity to disseminate time critical information but provide very limited feedback to emergency services.

Given the different benefits and limitations of emergency warning systems, the Tasmanian Government considers that the use of communication technology to issue warnings to the community:

- will depend on the type of emergency occurring;
- should be considered as part of an organisation's overall response to an emergency and not the response;
- does not guarantee that the receipt of an emergency warning will result in the recipient taking the required action and/or acting on the advice received; and
- should be undertaken together with other activities that support the community to plan, prevent, respond and recover from natural disasters.

The Tasmanian Government's experience in using various communication methods is outlined below.

Emergency Alert

The Tasmanian Government considers the telephone based emergency warning system, *Emergency Alert*, an important tool to provide timely information to the community during a life-threatening emergency. However, the Government has emphasised to the public that it is important that communities do not rely on receiving a message at the time of an emergency.

During an emergency a high percentage of *Emergency Alert* messages should be successfully received by households. However, there are a number of factors that may mean this does not occur including:

- mobile phone black spots;
- mobile phone handsets being turned off;
- power outages;
- telecommunications infrastructure damaged during emergency;
- incorrect details recorded for telephone customers; and
- details for telephone services, mobile and landline, recorded at an address outside the designated emergency area.

Tests of the *Emergency Alert* system in Tasmania have found that the delivery throughput of local telephone exchanges away from the Central Business District severely limits the speed or rate that alerts are delivered to the public. For example, during one such exercise of *Emergency Alert*, while there were only 255 households within the exercise scenario, it took up to 20 minutes for all *Emergency Alert* landline messages to be delivered. This is in contrast to the predicted system of capacity of 1 000 voice messages delivered per minute.

Feedback from the service provider revealed that the speed of transmission of landline voice messages is limited by the existing local exchange infrastructure capacity, which will determine the number of concurrent calls the exchange can handle. The issue for the Tasmanian Government is that we do not have information on the capacity of exchanges in various areas, so we are unable to take into account the likely impacts on the timeliness of the landline voice message delivery in a particular area.

A limitation of *Emergency Alert* is that it is restricted to 160 characters and relies on the community acting upon the advice contained with the alert. If not carefully prepared, the issuing of an *Emergency Alert* may have flow on effects to communication infrastructure as the community seeks alternative sources of information from, for example, the internet or by calling emergency service radio dispatch services.

Mobile Telephone Network

The Tasmanian Government considers that further opportunities for prioritising emergency services messages should be considered. Adopting such an approach would go some way to addressing possible issues associated with network congestion. The importance of this will become more critical as Tasmanian emergency services increasingly rely on the public mobile phone network for operational purposes. Congestion or failure not only affects the ability to get information to the public, it will also considerably reduce the operational effectiveness of the emergency service organisations themselves.

Internet

The Tasmanian Government recognises that the community is obtaining more and more information from the internet and that this has increased community expectations that emergency information will be available from the internet in a way that is easy to understand and, more importantly, reliable.

For this reason, the Government is currently considering the merits of developing a single Tasmanian Government 'emergency' website that builds on, but does not replace, the existing website presence of emergency services organisations.

A single site presents many benefits both to emergency services and the community in that it:

- presents a commonly branded 'Tasmanian Government' site that becomes known as the primary source for emergency related information; and

- reduces potential impacts from website failure on radio dispatch services as the community seeks alternative sources of emergency information.

While the internet is a useful communications tool, the Tasmanian Government also recognises the limitations that exist for reaching certain sections of the population. This includes:

- usage of the internet by the elderly in Tasmania is typically lower than other age groups;
- access to the internet for members of lower socio economic sections of the community is limited;
- access to the internet in regional areas is either higher cost or lower quality leading to lower usage; and
- networking paring between Telstra and other providers only occurs on the mainland. Should the network links between Tasmania and the mainland fail then a large group of internet users would lose access to the internet-based alerts such as emergency service websites and social media.

The Tasmanian Government had planned to utilise social media as an emergency warning tool during the 2010/11 bushfire season. Fortunately, the use of social media to issue emergency warnings was not required.

Radio

The Tasmanian Government has a strong relationship with the National Emergency Broadcaster, the Australian Broadcasting Corporation (ABC). This relationship is formalised through a Memorandum of Understanding that outlines the roles of responsibilities of Tasmania's Emergency Services and ABC local radio.

However, due to advances in technology, less members of the community are listening to public radio or have a portable battery powered radio. Many portable radios now available, including those found in mobile phones, only have the FM band which is an issue in Southern Tasmania where the local ABC radio station is on the AM band.

The Tasmanian Government also has Memoranda of Understanding with commercial radio. It is noted, however, that the relationship that the State has with the ABC is not one that is characterised by a traditional customer/business relationship and this relationship is difficult, but not impossible, to replicate with commercial broadcasters.

(ii) To function in a coordinated manner during an emergency

The Council of Australian Governments (COAG) has, through the Inter-Operability Framework, agreed on the need for harmonisation and greater inter-operability between Australia's emergency services.

Tasmania currently has a Government Trunk Mobile Radio Network (TMRN), which utilises proprietary Enhanced Digital Access Communications Systems (EDACS) technology and operates in the 800 MHz band. The key users of the TMRN are Tasmania Police and the Tasmanian Electricity Supply Industry.

Tasmania also has a number of contrasting analogue radio networks that operate in the 700 MHz bandwidth. Government organisations that use these networks are the Tasmania Fire Service (TFS), Ambulance Tasmania, Forestry Tasmania (FT), the Parks and Wildlife Service (PWS) and the State Emergency Service (SES).

A formal Inter-Agency Fire Management Protocol exists between TFS, FT and PWS within the meaning of the *Fire Service Act 1979*. As well as providing a reference to fire related responsibilities, this protocol sets down the principles of fire able responder, mutual aid and a framework for cost recovery.

For the Inter-Agency Fire Management Protocol to work it is essential that participants use compatible radios. Of necessity therefore, the three agencies radios carry a full set of common channels. This extends to Forestry Tasmania's "firefighting" contractors who are supplied by FT in lieu of normal employees.

Currently there is some interoperability between the various Government radio networks during emergency events. However, the Tasmanian Government has a long-term strategic objective of developing a single government mobile radio communications network, which will be based on the P25 standard and will operate in the 400 MHz bandwidth. To date, work has commenced on capturing key stakeholder business requirements with a view to building and commissioning a single government radio network prior to 2020.

(iii) To assist in the recovery after an emergency

The use of communication networks to assist in the recovery from an emergency is a valuable option but it should be recognised that the needs of the community during *recovery* from a natural disaster are distinctly different from the needs of the community *during* a natural disaster. The information needs of the community in the recovery stage of a natural disaster traditionally focus on how a community can recover and includes information on the types of recovery assistance that are available to the community.

What is important for the use of communication networks during the recovery stage is that any telecommunications infrastructure damaged or destroyed as a result of a natural disaster is restored as a matter of priority by the owner.

Internet

The Tasmanian Government provides recovery assistance through a government website, as well as through service centre and/or a recovery centre.

This provides broad community recovery outcomes as some members of the community may feel more comfortable accessing information on available government assistance through a website, rather than presenting at a service delivery centre.

Call Centres

The Tasmanian Government has developed systems to integrate existing State call centres into a single priority queue during an emergency. Once activated, all operators across Government can access common questions and answers that can be updated in real time. This arrangement, entitled the Tasmanian Emergency Information Service, significantly increases the capacity of Tasmania to provide general information to the community during an emergency.

During the Swine Flu outbreak that affected Australia during 2009, the Tasmanian Government provided a single emergency contact telephone number that consolidated all existing government services in a single call centre structure. By adopting this approach, the State was able to:

- avoid confusion amongst the community regarding the appropriate Tasmanian Government contacts;

- screen members of the community who may have been exposed to Swine Flu and prevent the spread of Swine Flu; and

- provide individualised support to those members of the community who had Swine Flu and reduce the overall impact on the State's health system.

b. ***the impact of extended power blackouts on warning systems for state emergency services, including country fire brigades and landholders or home owners;***

Each of the Tasmanian Government's Emergency Services is required to build into their operational systems and networks the resilience and redundancy to allow for the continuity of operation through extended blackouts. The Tasmanian Government notes that major telecommunications carriers also have redundancy built-in to allow for such outages (noting that extended outages may challenge back-up power supplies).

The main problem concerning the issuing of warnings during a period of power blackout is that the public is, by and large, reliant on mains power. This reliance, as a consequence, makes mains power dependent communications, such as, the internet, 'hands free' telephones and some, but not all, radios, problematic.

c. ***the impact of emergencies and natural disasters on, and implications for, future communication technologies such as the National Broadband Network;***

At the community level, the NBN presents the opportunity to potentially increase community safety and reduce the cost of emergencies to the Australian economy by:

- delivering data-rich contextual and situational awareness information to communities within the footprint of the NBN;

- enhancing emergency response through near-real time data sharing between emergency services, all levels of government and the media; and

- delivery of data-rich hazard and risk information to all levels of government and the community for prevention and preparedness planning and decision-making.

Emergencies can impact on regional or remote communities that rely on linear infrastructure that traverse long distances and are inherently vulnerable to interruptions caused by natural hazards such as bushfires. In the Tasmanian context, the network has experienced several outages in recent years where an isolated community (such as Flinders Island) loses all telephone services both fixed and mobile because of a system fault in a central exchange a hundred kilometres away.

The secondary impact during emergencies is that of communication network capacity to handle the volume of calls or connections; which affects the ability to use the communications network to issue warnings or to coordinate the response to the emergency. This was clearly demonstrated by the network issues that occurred during the 2009 Victorian Bushfires and the 2007 London Bombings.

Like governments, telecommunications carriers and their networks should have reasonable resilience and redundancy to withstand emergencies so that they are able to provide reasonable capacity to emergency services to ensure the delivery of services during emergencies. The State would also like to see continued development of systems that can provide priority access to communications networks for emergency warnings and communications between emergency services.

(d) ***the scope for better educating people in high-risk regions about the use of communications equipment to prepare for and respond to a potential emergency or natural disaster;***

The Tasmanian Government considers that there is scope to better educate people in high risk regions about the use of communications equipment to prepare for and respond to a potential emergency or natural disaster. Key issues to consider in the development of strategies in this area include:

- not all members of the community who may be impacted by an emergency or disaster will have access to communications networks;

- even people connected with one or more communications networks should not, not be encouraged to rely solely on warnings delivered via these mechanisms.

- during emergencies, network congestion and outages, and power blackouts, will affect system performance and public access. Rather, people should be encouraged to prepare to respond to emergencies, pay attention to environmental cues, and take appropriate action in the event of these cues and in the absence of official warnings;

- a range of mechanisms to educate people about the use of communications equipment before and during emergencies and natural disasters should be utilised. Relying solely on traditional media to educate people may not reach those who increasingly rely on the internet and social media sites for information.

- educational approaches supported by community development are likely to be more effective in changing people's behaviour to adopt one or more communication networks as a means of being informed about emergencies and natural disasters.

The preparation of Bushfire Community Protection Plans is an excellent example of the community development approach taken in Tasmania. These Plans were introduced following the Victorian Bushfires and are developed in partnership between the Tasmanian Government, Local Government, local fire brigades and community representatives. They are a preventative, multi-aspect educational tool that seeks to increase the capacity of communities to understand and respond to local risks. The Plans:

- identify where vulnerable people will gather during bushfires, including fire refuges, and identify measures to protect them;
- identify assets the community values that will be prioritised for protection during bushfires; and
- identify egress routes during fires in the event evacuations are recommended.

By engaging the community in the development of the Plans an opportunity is provided to include educational activities and materials that focus on the use of communication networks to provide warnings. That is, to reinforce the message that the community should not rely on receiving any one type of emergency warning for an impending emergency but instead, should proactively prepare themselves for an emergency and be aware of all possible information sources.