Australian Broadcasting Corporation Amendment (Restoring Shortwave Radio) Bill 2017 Inquiry Submission
Mathew McKernan

Individual Submission

Attention: Senate Standing Committees on Environment & Communications

Regarding: Australian Broadcasting Corporation Amendment (Restoring Shortwave Radio) Bill 2017 Inquiry

Contact Details:

Introduction

I am Mathew McKernan, resident of Victoria making a submission in regards to the restoration of Shortwave Radio by the Australian Broadcasting Corporation (ABC). I am a qualified Computer Scientist and have significant experience in the area of Radio Communications through my employment & personal development. I am also an avid traveller of remote areas of Australia and have a strong understanding of the technical limitations and practicalities when travelling in a remote area.

My concerns

I have a number of concerns with the shutdown of Shortwave Services by the ABC as this has a significant and profound risk to the Australian public regardless of their location. I understand the committee is primarily considering the risks to the residents of Northern Territory & the Pacific, however I believe the risk stretches far beyond the community of those locations.

Shortwave broadcasts are critical to provide real-time news, emergency information & up to date information to the community – be it travellers, remote workers or residents. FM radio covers areas of no more than a radius of 80-100km with AM providing at best a radius 200-300km service area. Shortwave has the incredible capability to cover an entire country or hemisphere from a single transmission site in the right conditions. Realistically, it typically can cover areas the size of the land mass of Australia plus outlying islands and ocean areas.

Shortwave can be received on a cost-effective receiver that can run from standard batteries. An example unit that is easily accessible for the average listener has been provided in Appendix 1. There are also other more advanced radios often used by 4WD or Truck Drivers known as “HF Transceivers” which are a combined transmitter and receiver – the same radio used to call for assistance in an emergency to Royal Flying Doctor Service or Police in remote parts of Australia, specifically in NT, WA and QLD.

The receiver equipment is easy to use and very quick to setup, it quite literally can be turned on and a broadcast received in real time without needing for any significant skills or knowledge being required. Additionally receiver equipment can run on batteries for many days at a time, these batteries are no different to what is used in commonly available consumer products and are available anywhere from corner shops to large supermarket chains or service stations.

A key benefit of shortwave is that due to the coverage capability, meaning transmitters can be sited thousands of kilometres from the listener base. This has the unique capability that in times of major incident or disaster during which shortwave services can provide emergency information & up-to-date warnings.

It is important to note that during major incidents such as Cyclone Yasi, which was considered to be one of the most significant and serious cyclones in recent years. The ABC ceased broadcasting Radio National content from shortwave transmitters and reconfigured their systems to broadcast ABC Local Radio content for the impacted areas. This enabled timely, up to date and relevant information for the impacted areas. Refer Appendix 2, it is important to note that in the ABC’s own information from their website they articulated that Local Radio & TV Services were experiencing outages. This

would have most likely been from the cyclone itself causing power outages & infrastructure damage in the areas impacted by Yasi.

Considering the alternatives suggested by the ABC, the ABC have articulated that Viewer Access Satellite Television (VAST) is an alternative to obtain radio content. I disagree with this conclusion by the ABC for the following reasons:

- VAST is designed to be for television viewing and not for radio-like services. While it is possible to use, it requires your TV to be turned on.
- VAST requires a Satellite Dish of which is around 80cm in size. This is a substantial piece of infrastructure.
- VAST is not portable, as it requires alignment to satellites. Typically this task is not easily done by individuals with limited technical skill. The alignment is a precise process and usually cannot be done without specialist training and equipment. The concept of being able to be mobile travelling by horseback, car or truck and receive VAST is virtually impossible. You must be stationary for VAST to operate.
- VAST requires significant power to operate for the set-top-box & television. This may be from 240V mains or alternative energy sources – it is impossible to power from a basic set of batteries available with shortwave radio.
- Due to the alignment requirements, VAST consumer infrastructure is vulnerable in weather, high winds can easily cause the dash to become dismounted or go out of alignment.

For the above reasons, VAST is not a fit-for-purpose replacement for shortwave radio.

The BBC have ceased their world service some years ago, however it is important to note that BBC World Service listeners were really designed for British colonies and not for remote reception domestically. Considering the population density in the United Kingdom, their services are much more accessible and transmitters for AM and FM are spread throughout their broadcast space and are accessible by many. This is also backed by extensive alternative communications systems such as 3G and 4G internet which is not the case in Australia. The comparisons drawn between the two services, BBC Shortwave and the ABC Shortwave Service is short-sighted due to numerous issues including listener locations & geographical considerations such as population density.

The claims made by the ABC Leadership on 28/02/2017 indicate that only 14 complaints have been received by the ABC for the discontinuation of Shortwave Services. I question this claim, as anecdotally I know of several people who have lodged complaints via the Radio National “Contact Us” website form. Interestingly, this form indicates that due to a high volume of enquiries being lodged that the ABC may not get back to every enquiry. I also question the timeframe provided by the ABC between the announcement of the shutdown and the shutdown itself, this timeframe was under 8 weeks. Considering the remote traveller aspect and those users of the service will be out of communication that allows the ability to lodge complaints. Considering such limitations, the timeframe was not sufficient enough to receive feedback.

The ABC claimed that Podcasts are used extensively by some users to “work around” the service removal. This claim while factual, does not consider the requirements for real time information & news to be provided to the community.

The ABC has extensive Memorandums of Understanding with Emergency Service Organisations, that it provides content to consumers of their broadcasts. I am aware of one such MOU with the State Government of Victoria for the provision of Emergency Broadcasting. The ABC has agreed to a service level agreement with such agencies to provide this content. While I have been unable to gain access to such documents, I would suggest that some of these Memorandums of Understanding may be in breach of agreed communications strategy.

The ABC leadership on 28/02/2017 claimed that the ABC is not an Emergency Services Broadcaster. I found this statement surprising given that they have often played messages on their broadcasts that claim that they are an Emergency Services Broadcaster and the source of Emergency Information. Please see Appendix 3 for a news article (17/01/2012) from their website claiming as such. Additionally in May 2011, the ABC submitted to the Senate Environment & Communication References Committee a submission with regards to "The capacity of communication networks and emergency warning systems to deal with emergencies and natural disasters" (Appendix 5) where the ABC specifically indicated:

"As Australia's primary national broadcaster, with 60 local radio services around the country, the Corporation functions as Australia's emergency broadcaster. " (Page 1, Introduction)

The claim made by the ABC on 28/02/2017 appears to be completely incorrect or the ABC has changed their position since January 2012 and has not communicated this with their listeners. Lastly, the Northern Territory Government have indicated the ABC is the Emergency Service Broadcaster on their own website and still has them listed as of 1st March 2017.

The ABC claimed on 28/02/2017 that in August 2016 that the Shortwave Service was offline for more than a week and that "no one had complained". It would appear one person may have based on the blog post available at http://swling.com/blog/2016/08/radio-australia-outage-response-from-abc-reception-advice/. The author has provided an email reply from the ABC from a complaint they had lodged over the loss of service. Additionally, considering the remoteness of some listeners, it is likely that they did not have access to any services to submit a complaint with the ABC with regards to the outage.

In conclusion, I believe the ABC has not considered all available facts and information pertaining to the provision of shortwave services to the Australian Public, let alone listeners in remote areas of Australia.

I urge the committee to support this legislation to restore shortwave services provided by the ABC.

I thank the committee for its work thus far to appropriately investigate and ascertain the impact on Australians who rely heavily on this service.

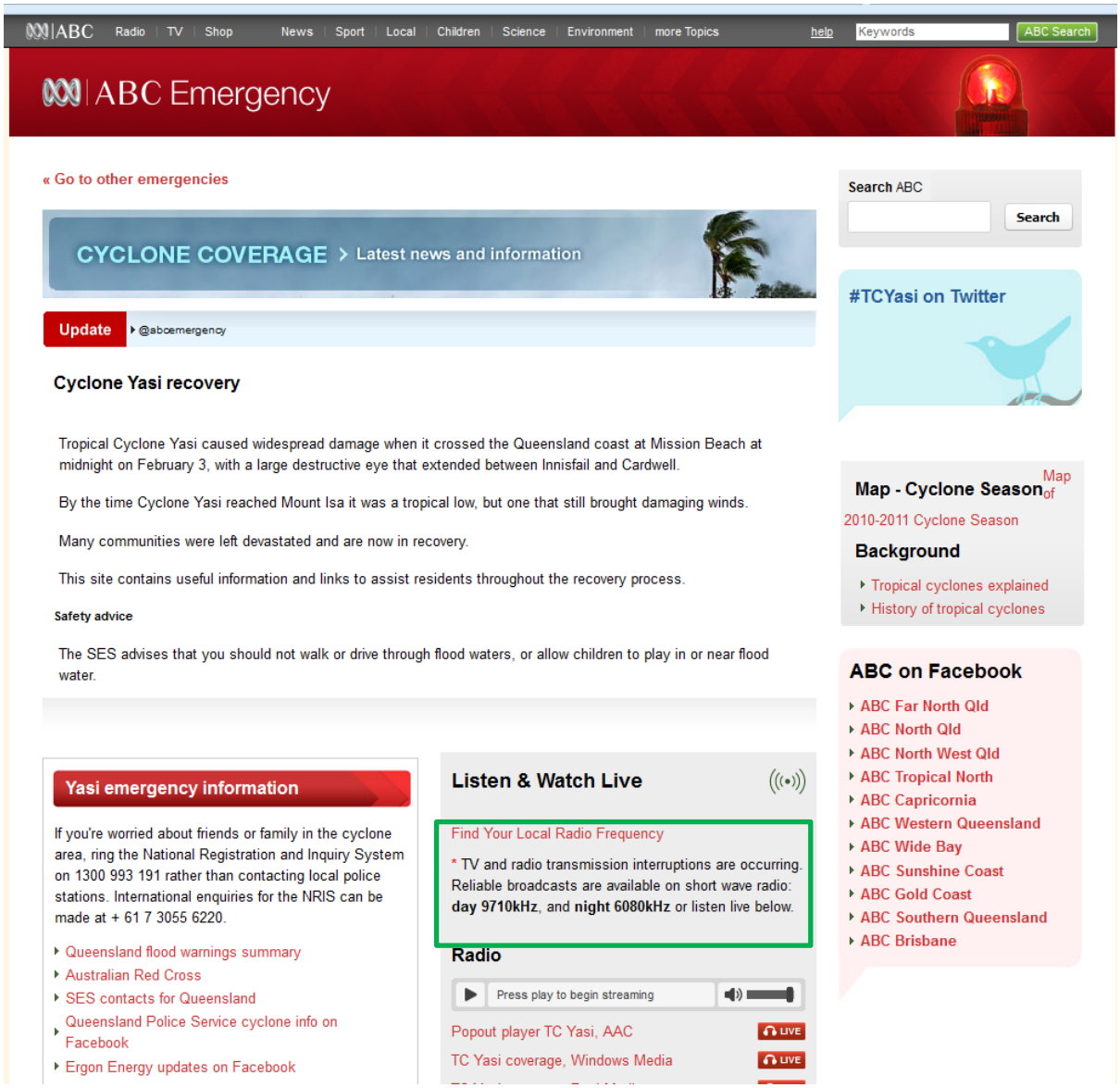
Mathew McKernan

Appendix 1: Shortwave Receiver Example

https://www.jaycar.com.au/world-band-am-fm-sw-pll-radio/p/AR1748

Accessed: 1st March 2017

Appendix 2



http://www.abc.net.au/emergency/cyclone/yasi/

Accessed: 1st March 2017

Appendix 3

ABC launches improved emergency website

Access ABC
Posted 17th January 2012

Share 0

As the official emergency broadcaster, the ABC plays an important role during emergencies. Local radio stations remain on air during natural disasters broadcasting emergency warnings and alerts relevant to the area.

Northern Territory local radio Manager, Andrew Phillips, says the 105.7 ABC Darwin team has a responsibility to help prepare the large transient population for the storms that hit the region.

"We live in an area where cyclones are really common, but it's up to us to continually educate the audience because they can become complacent," he says.

Building on this role, the ABC has launched an improved Emergency website abc.net.au/emergency

The new website features warnings, alerts and preparatory information relating to bushfires, floods and cyclones, and delivers emergency-related news coverage sourced from across the ABC as well as updates via Twitter and Facebook.

"People are relying more and more on using mobile and online to learn about emergencies and disasters, seek help, and share information. Social media is becoming an integral part of emergency communications," says Gabby Shaw from ABC Innovation.

"These digital services can help improve people's access to information such as warnings and alerts, and enable them to quickly view coverage relevant to their location."

Find out more

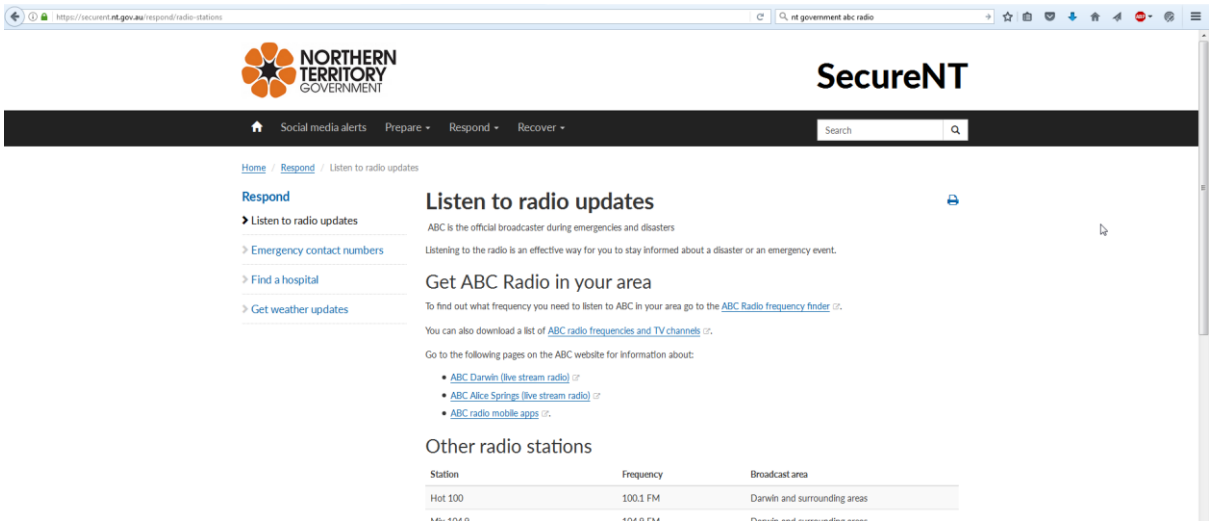
- ABC Emergency: the latest advisory information and news for emergencies in Australia. abc.net.au/emergency

Tags: emergency broadcasting

http://about.abc.net.au/2012/01/abc-launches-improved-emergency-website/

Accessed: 1st March 2017

Appendix 4: NT Government Website – ABC Emergency Broadcaster



https://securent.nt.gov.au/respond/radio-stations

Accessed: 1st March 2017

Appendix 5: ABC Submission to Senate Inquiry 2011

See overleaf

Australian Broadcasting Corporation

submission to

Senate Environment and Communications References Committee

The capacity of communication networks and emergency warning systems to deal with emergencies and natural disasters

May 2011

ABC

ABC submission to the Senate Environment and Communications References Committee inquiry into the capacity of communication networks and emergency warning systems to deal with emergencies and natural disasters

Introduction

The Australian Broadcasting Corporation (ABC) welcomes the opportunity to provide input into the Senate Environment and Communications References Committee's inquiry into the capacity of Australia's communication networks and emergency warning systems during times of emergency and natural disasters. As Australia's primary national broadcaster, with 60 local radio services around the country, the Corporation functions as Australia's emergency broadcaster.

The ABC uses its radio, television and online services to deliver timely, accurate and relevant information to affected communities during fires, floods and other natural disasters and emergencies. This is supported by agreements with all State and Territory emergency services.

The Corporation provides emergency broadcast training for ABC Local Radio staff to ensure that they are adequately prepared for emergency situations. The ABC also plays an important role in building community resilience and the ability to prevent, prepare, respond and recover during times of adversity.

There is no legislative requirement for the ABC to broadcast warnings, nor is the Corporation provided with any funding to assist with disaster coverage. However, there are strong audience expectations that the ABC will provide such services. It is well-recognised that listening to ABC radio services leaps during emergency periods, as there is very high community recognition of the ABC's role in providing timely and accurate information. Research into emergency broadcasting has shown that listeners are inclined to seek out trusted local personalities and stay with them for the duration of the event.

ABC Emergency Broadcasting

Radio and television broadcasting are very effective methods of communicating important information to large groups of people before, during and after emergency situations. Local radio services are particularly effective, as broadcasters have established relationships with local communities and detailed local knowledge that may assist listeners.

Accordingly, the ABC's primary platform for emergency broadcasting is the 60 local radio stations throughout regional and metropolitan Australia that comprise the ABC Local Radio network. Local Radio has an estimated national penetration rate of 99.4% and is often the

only source of vital weather and emergency service information for regional and rural Australians.

Preparation

The Local Radio Manager of Emergency Broadcasting assists with editorial direction, training, strategic policy and resource allocation, and liaises with emergency agencies and other specialist bodies.

ABC Radio's emergency broadcasting is governed by Local Radio's Emergency Broadcasting Plan, which is reviewed annually. Among other procedures, the Plan involves:

- a commitment to being local;
- broadcasting all emergency warnings provided to the ABC by emergency agencies repeatedly and for as long as necessary;
- being pro-active—i.e. not waiting until a disaster unfolds to provide information;
- identifying whatever resources are needed to maintain emergency broadcasting; and
- building strong relations with external emergency agencies.

Local Radio has also placed a premium on training its staff in emergency broadcasting procedures and responsibilities, and in ensuring that this training is kept up to date. The Corporation believes that this investment in responsible, broadly-based training of staff on whom the public may depend for correct information and sensible advice is critical to its ability to perform its emergency broadcasting function, especially over a long-running emergency.

ABC Radio staff are also trained in the responsible use of talkback radio to enhance emergency coverage, as this often provides crucial information from the emergency site more quickly than via official means. Talkback is also invaluable during recovery phases, but again, broadcasters do require expertise in its effective use.

Key to the ABC's ability to deliver accurate and timely emergency information to audiences is the set of relationships it has developed with State and Territory emergency services agencies. During the Brisbane flood crisis in January 2011, for example, an ABC Local Radio staff member was able to sit in on all State Emergency Management Committee Meetings and hear first-hand information about the weather threats, serious problems and likely emergency agency response. This dictated the daily editorial and planning response, and enabled Local Radio to readily liaise with the Government of Queensland regarding required resources.

The ABC has memoranda of understanding or partnerships with the emergency bodies in all States and Territories that commit the Corporation to use its best endeavours to provide emergency warnings and working to help emergency service agencies. These MOUs are reviewed regularly. This is consistent with the recommendation of the Council of Australian

Governments (COAG) 2005 National Inquiry on Bushfire Mitigation and Management was that "each state and territory formalise non-exclusive agreements with the ABC as the official emergency broadcaster, providing an assured standing arrangement" (Recommendation 7.1).

In addition, Local Radio Regional Program Managers and Metropolitan Program Managers are active members of most State and local emergency management committees, with the exception of Western Australia and Tasmania. The ABC has formal and informal arrangements allowing emergency agencies and recovery specialists to use the Local Radio network to deliver emergency warnings.

The Corporation also participates in the Trusted Information Sharing Network (TISN), which is operated by the Attorney-General's Department and is the primary mechanism for delivering the Australian Government's Critical Infrastructure Resilience Strategy. TISN seeks to build resilience within the health, energy, water, transport, food supply, banking and finance and communications sectors by working with both public and private entities. As a result of its emergency broadcasting role, the ABC is recognised and represented as a key broadcaster within the Communications Sector Group (CSG). During 2010, the ABC participated in three strategic desktop exercises conducted by the CSG at the request of the Western Australian, South Australian and Northern Territory Governments, which examined communications between the sector and state government.

The ABC relies on information provided by emergency agencies for timely and effective warnings. It notes that there are variations in the manner in which this information is provided around the country. The Corporation has also experienced situations in which it has proved difficult to obtain vital contextual information on a natural disaster as it unfolds. It would welcome more consistent mechanisms for ensuring emergency agencies provide broadcasters with effective and timely warning information. This will assist both emergency services agencies and broadcasters in undertaking their roles by providing certainty as to the type and timeliness of information to be provided to the community.

Responding in Emergencies

In recent years, Local Radio has provided emergency broadcasting for fires in all States; for cyclones in three States and Territories; for flooding in Queensland, Western Australia, New South Wales and Victoria; and for equine flu outbreaks, tsunamis, locust plagues, heatwaves in Western Australia and South Australia, and storms in all States and Territories.

ABC Local Radio has worked hard to develop mature and robust procedures for emergency broadcasting. During the rolling emergencies of the 2010–11 Summer, Local Radio stations in all affected regions rapidly switched into 24/7 emergency mode when required. Local Radio is able to get a warning to air within moments during prime broadcast times and with minimum delay at other times of day. It is also able to use its unparalleled network of

transmitters to maintain local broadcasts even if individual transmission towers are threatened during the emergency at hand.

In addition, the ABC delivers emergency information to analog and digital television viewers in the form of on-screen text "crawls" on its primary channel ABC1. The Corporation's dedicated digital television news channel, ABC News 24, also broadcasts emergency warnings throughout affected areas. However, as the Corporation's television services are delivered on a state- or territory-wide basis, they are less able to be localised than radio broadcasts.

The ABC also uses online and mobile platforms to deliver emergency information to its audiences. During the 2010–11 Summer, it published weather warnings, emergency services advice and coverage of events (articles, images, audio and video) to websites and social media platforms such as Facebook and Twitter. It is a general guideline at Local Radio that all warnings will appear on online sites shortly being issued. All sites are expected to carry the most up-to-date information, and headlines and by-lines are used to show the viewer that the information is relevant and accurate, and most important, timely.

The Corporation considers that attention should be paid to the issuing of warnings in foreign or Indigenous languages where appropriate, and to the issue of contacting members of the deaf community via television subtitling, online sites and mobile platforms. The ABC has conducted some limited trials with cyclone warnings in the Northern Territory within its available budget. It would be interested to extend these further, subject to funding.

Assisting with Post-Disaster Recovery

With the assistance of disaster experts, the ABC has developed a highly effective approach to providing information and reassurance after a disaster to the affected communities. This includes building partnerships with emergency and recovery agencies to ensure communities are provided with useful information. Likewise, the Corporation has developed guidelines for "recovery broadcasting" to assist communities with recovery information and support for many weeks after an event. However, just as with emergency broadcasting, recovery broadcasting requires significant resources and infrastructure. ABC Radio has proved effective in this role, although it continues to find the balance of providing these services at a desirable level without additional resources challenging.

The ABC has three portable ("flyaway") FM transmitter units with mixing desks, antennas and satellite receivers that can be deployed rapidly by road, rail or air for broadcasting Local Radio to affected communities. The transmitters are based in Townsville, Perth and Melbourne, while a fourth, less-portable unit is located in Darwin.

During the bushfires in Victoria in 2009, the ABC used a flyaway unit to establish a temporary ABC Kinglake Local Radio service to support the recovery and rebuilding of that

fire-ravaged community. The ABC simultaneously deployed a flyaway unit to the flood-affected community of Ingham in Queensland. During the 2010–11 Summer, the Corporation used flyaway transmitters in the flooded town of Emerald and to support communities in The Cassowary Coast Shire that had been affected by Cyclone Yasi.

Network Resilience

The ABC's ability to deliver emergency broadcasting is dependent on the resilience of its transmission and distribution infrastructure.

Local Radio is broadcast on some 240 transmitters around the country, as well as some 130 self-help installations. While all of the metropolitan services and most major regional services have a stand-by program source (such as a satellite feed) and standby power (emergency generators) available, this is not the case with many of the transmitters covering smaller communities in regional Australia. Indeed, some Local Radio transmitters covering major regional populations centres—including the Gold Coast, Toowoomba, Emerald, Albury/Wodonga, Bega, Orange, Grafton, Tamworth, Glen Innes, Kempsey, Broken Hill, Horsham and Karratha—have no stand-by program source available. Similarly, many transmitters covering populations of around 10,000 or fewer people do not have standby power available. A major capital injection would be required to address these shortcomings in the network and secure the services in times of emergencies.

The ABC's transmission services provider, Broadcast Australia (BA), works closely with the ABC and alternative program feeds can be put in place to maintain service continuity. A new operations protocol agreed between ABC and BA in August 2010 resulted in substantial improvements to the process being out in place by BA. During natural disasters, Local Radio has the highest restoration priority, followed by analog and digital television.

The ABC's distribution network, which is used to deliver programs to transmitters for broadcast, uses Telstra and Optus communications networks and subject to the same risks as those networks. Flooding, when it occurs, can interrupt program distribution as parts of the Telstra network infrastructure fill with water. By comparison, the Optus satellite network appears relatively resilient, although cyclones and strong winds can damage satellite receiver antennas. While some particular services/transmitters use the Telstra network as the primary means of distribution and an Optus satellite dish as the secondary distribution method, very few sites in Australia are configured in that way.

Limited network bandwidth can and has delayed content delivery during emergencies. Most ABC regional stations are currently limited to 1Mb/second network links, which are too narrow to handle high volumes of network traffic. Reporters using domestic internet connections in the field have also encountered local congestion during emergencies, making it more difficult to access the internet and in turn affecting information gathering and dissemination.

Similarly, unreliable mobile/wireless connections have created problems for field reporters working in regional and remote locations. Mobile phones and "air cards" used to access the internet are difficult to use in areas of poor signal strength ("black spots"), and even when some signal is available, momentary signal losses ("drop-outs") can break network connections, disrupting operations as computers and connections are reset in order for production to continue.

Public Education

The ABC contributes to educating the Australian public about the use of communications technologies before, during and after emergencies through the delivery of education campaigns to help communities understand potential and actual threats, providing information that people can use to respond to events and recovery information. This is supported by the Local Radio's Emergency Broadcast Plans.

ABC Local Radio has funded emergency road signs throughout Victoria and in a small number of locations in South Australia. The signs provide information on the local frequency used by the ABC to broadcast during emergencies. The Corporation would like to see this initiative expanded to all States and Territories, should further funding be made available for this purpose.

ABC Television, particularly ABC News 24, promotes local frequencies when there is a major event occurring. The Corporation encourages emergency agencies using "state alerts" to include the broadcast frequency on which people can hear more information about a disaster. Currently, this only occurs in Victoria.

The ABC is keen to expand its promotion of digital literacy and emergency awareness by providing comprehensive, reliable emergency preparation information online in a well-developed, accessible and attractive ABC Emergency site.

There is also scope for the Corporation to increase its communication to the public about what information it is able to make available during an emergency, online, on mobile and on air, and how best to utilise this in the lead up to, during, and in the recovery period following an emergency, should further funding be made available to the Corporation.

New and Emerging Technologies

Digital Radio

In July 2009, national and commercial broadcasters commenced DAB+ digital radio broadcasting in the five mainland state capital cities. The technology has witnessed solid growth in both audiences and receiver sales. However, over one-third of Australians live beyond the current digital radio footprint. The radio industry is currently looking to government for a timetable for the rollout of digital radio services to regional Australia.

Industry responses to a discussion paper on technologies for digital radio services in regional Australia issued by the Department of Broadband, Communications and the Digital Economy in late 2010 were unanimous in calling for a DAB+ rollout in regional centres to occur as soon as possible.

During the Queensland floods in January 2011, the ABC broadcast emergency information in Brisbane using digital radio. It also employed the capabilities of digital radio to retransmit its emergency coverage on a temporary channel in the other capital cities to allow people elsewhere in the country with an interest in the floods to follow the unfolding events. It created a similar temporary digital channel to provide a live relay of overseas disaster coverage following the Christchurch earthquake.

It is important to note, however, that DAB+ transmissions cover roughly the same geographical area as FM radio broadcasts. By comparison, AM radio, which is currently used for the majority of the ABC's emergency broadcasts, has a considerably greater coverage area, allowing it to be received in smaller and remote communities and in the wide spaces and roads between population centres. To date, digital radio standards capable of achieving comparable wide-area coverage in rural and remote areas have yet to be a proven proposition commercially. Moreover, as manufacturers are not including AM receivers in digital radios, it is foreseeable that, as digital radio continues to be adopted without a digital wide-area radio standard, many Australians are likely to be unable to receive emergency radio broadcasts beyond the borders of regional towns.

The Corporation has advocated the further investigation of supplementary digital radio standards (e.g. DRM30 and DRM+) capable of achieving wide-area coverage in regional/remote areas. For clarity, it does not believe that the need to identify a wide-area standard should delay the rollout of DAB+ services in regional Australia, as DAB+ is an efficient and effective technology for delivering digital radio to the roughly 98% of the population currently able to receive FM radio.

The Corporation also notes that existing legislation prohibits the inclusion of animation and short-form video in digital radio broadcasts. As such, it prevents the inclusion in emergency broadcasts of such things as animated weather maps and live weather radar, which could be of considerable value during natural disasters such as cyclones or floods. The ABC proposes that the current definition of "digital program enhancement content" in the *Broadcasting Services Act 1992*, which currently restricts digital radio enhancements to text and still images, should be extended to include animation and short-form video to enable such specific purpose uses.

Online and Mobile Services

The recent emergencies in Australia also demonstrated a growing public demand for information across a range of platforms other than traditional radio and television

broadcasts, particularly mobile phones and online, including social media networks. It is expected that demand for universal access to timely and relevant information across all communication channels will increase.

The ABC delivers significant services to audiences online and is well positioned to strengthen its role as Australia's emergency broadcaster, should funding be made available. The Corporation has recently piloted mobile and crowd-sourced emergency services, although it is yet to determine the resources required to expand services on such platforms.

The Corporation sees the potential to further develop emergency services for mobile given the number of Australians with mobile phones and the likelihood that people in affected areas will have their mobile phone with them. If emergency related information is transmitted to one person via mobile it is extremely easy for that person to forward information to their immediate personal networks. The ABC believes that reliable mobile services with near-to-real-time warnings, alerts and situation updates are likely toplay an increasingly important role during emergencies.

The increase in social media networking on phones also points to a potential to use such platforms for distribution of information. Recent experience shows increasing expectation and demand for real-time updates via social media networks, such as Twitter and Facebook. The ABC has observed similarly increasing interest in near-to-real-time mapping applications that show relevant details, such as satellite weather and projected weather patterns and warnings, road closures, emergency services warnings and reports. The Corporation would be interested in further developing such applications. It notes that work will be required to build consistent frameworks that support the sharing and syndicating of data between the ABC, emergency services agencies, Bureaux of Meteorology and other government agencies.

In a similar fashion, the Corporation has observed that "crowd-sourcing" reports from the public through social media networks and dedicated tools has the potential to supplement official sources of data from emergency services, government agencies and media outlets. This form of hyperlocal reporting can be of great value both to people on the ground in affected areas and to friends and relatives viewing events from afar. GPS-enabled mobile devices greatly enhance the capacity of the public to submit these reports and updates.

The Corporation's ability to deliver mobile and online emergency information to Australians is also heavily dependent on the underlying network and server infrastructure. During a crisis it is not uncommon for emergency websites to become crippled by the increased traffic loads on their server. Similarly, as noted above, telecommunications networks may become unreliable as a result of flooding or other natural disasters affecting their infrastructure. Currently, such networks do not share information about disruptions, with the result that the ABC is unable to push and pull its content and audiences across these different communication channels according to availability and reliability. The ABC would welcome

mechanisms by which it could acquire information directly from telecommunications companies on interruptions to their services during times of emergency, along the lines of the reports it receives from Broadcast Australia about its transmission capability.