

Australia's sovereign capacities and resilience in crisis and disaster: a defence and industry partnership



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Resilience embraces preparation for crises, disasters, calamities and their management to mitigate losses and costs. National resilience is benefited by constructive federalism between our federal entities, states, and territories, supported and enabled by a strong defence and industry capability suite. A co-ordinated and structured response, with appropriate and ideally common command-and-control structures and mechanisms, can assist to mitigate crises and enhance the trust and faith the community has in our emergency-response capabilities at their time of need.

Key words: bushfires; co-ordination; crises; defence; disasters; federalism; floods; industry; pandemics; resilience; sovereign capability.

The Many Lenses of Resilience

The security and resilience environment is constantly changing. This has always been the case. Resilience has many aspects. The safety of every Australian is the key aspect, this is especially relevant today as we, and the world, navigate the ongoing COVID-19 pandemic. Australia's economic resilience, environmental resilience, security and military resilience, diplomatic resilience and cyber resilience all build to contribute to the fabric of our nation's resilience. Through each of these lenses we find challenges today. Examples include our ability to trade, our geopolitical relationships and appreciation of our wider search-and-rescue responsibilities.

Our ability to trade relies upon our sea-lines of communication. Figure 1 depicts the economic tracks and the maritime routes of communication around Australia. It highlights our economic lifeline where the economic and resources 'blood' of the country flows. What is not depicted on that map are the data cables under the sea that keep us connected – the majority of our information flows along the sea floor. Security of our maritime trajectories and sea-lines of communication are the lifeblood of our nation.

Geopolitics is another key lens through which we should look constantly as we develop our strategies to face the challenges ahead. We face challenges in the Western Pacific, the South China Sea has become a zone of great strategic relevance, the Indian Ocean, and in the Middle East, all of which are of crucial significance to Australia and its prosperity. As we try to manage our diverse challenges worldwide, other nations are projecting their influence and pursuing their interests.

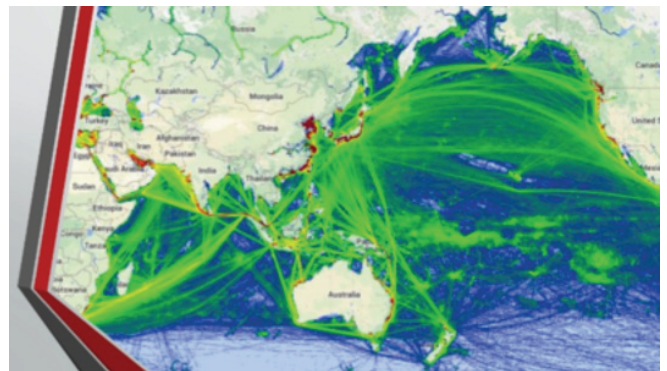


Figure 1: Major maritime lines of communication around the Indo-Pacific, including Australasia
[Source: Australian Maritime Safety Authority]

Australia's maritime search-and-rescue zone of responsibility is extensive. It is the large box at the bottom of Figure 2 covering 10 per cent of the globe, an area of 53 million square kilometres. It is extraordinary that a country of about 25 million people is responsible for the search-and-rescue response over 10 per cent of the globe. It speaks volumes of what Australia as a nation is capable of, what we do and what the world asks of us. We are seen as a nation that can do these things and is yet another expression of resilient infrastructures and capabilities. The capabilities we bring to bear to ensure we are resilient through these and many other lenses all contribute to our sovereignty as a nation.

Sovereign Capability, Integration, Resilience

This raises the issues of what is 'sovereignty' and what is 'sovereign capability', topics we often think about in a military context. The Department of Defence has defined sovereign capability as the ability to design, maintain, sustain, enhance and develop capabilities in Australia. It is also the ability to employ, co-ordinate and

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Figure 2: Australia's search-and-rescue region [Source: Australian Maritime Safety Authority]

integrate our sovereign capabilities in the interests of Australia, its states, territories and its allies. Of relevance is having the fundamental capability required to respond to a suite of objectives; and the end-game is the ability to effectively employ that capability in a sustainable manner to achieve those objectives.

In Defence, we strive to achieve high levels of integration of our internal resources and capabilities. This became a leverage-point for Defence to be successful in various complex theatres of operations. Effective co-ordination and communication are crucial for integration which the nation should strive to achieve across our public and private sector industries.

Sovereignty is generally considered at a federal level, but there is a need to consider and review sovereignty and its national contribution to national resilience across both federal and state levels of government. Sovereignty and resilience are built upon the sum of our nation's capabilities across our states, territories and industries. Just as it is in the Defence sector, so too is this patently true in our nation's ability to respond to crises and natural disasters.

As suggested by Commissioner Shane Fitzsimmons when he addressed the Institute in April 2021 (Fitzsimmons 2021), resilience is our ability to withstand shock, especially during calamitous occurrences, and bounce back better and stronger. Resilience is not just the ability to survive and therefore to move on with what you are doing, it is more than that. If we are to continuously improve and become better as a federation of states and as a nation, we must be stronger post shock. At a whole-of-nation level, we should see every one of our crises and the challenges thereof as an opportunity to be better, an opportunity to improve upon all that we do to co-ordinate, communicate and integrate our disaster management responses.

Resilience during Calamities and Crises in Australia

A number of crises have occurred in Australia in the last two decades. Bushfires (in 2003, 2008/2009, 2015/2016 and 2019/2020), floods, and the current COVID-19 pandemic have impacted on thousands of Australian families. These crises demanded the best

responses from national and state agencies and drew on our national resilience capabilities.

But are we resilient? Recently, the Reserve Bank of Australia projected a 3.5 per cent increase in Australia's gross domestic product (GDP) and a reduction in unemployment back to a pre-pandemic rate of 5.25 per cent (RBA 2021). These are impressive statistics by any measure reflecting strong resilience within our nation.

As we look into the potential for natural disasters to occur in the future and focus on the disasters we have managed in the past, we realise the relevance and importance of having resilience in our planning and co-ordination. Without it, we cannot bounce back better and stronger from disasters.

The 2020 Royal Commission into National Natural Disaster Arrangements reported that in the fire seasons of 2008/09, 2015/16 and 2019/20, 24 to 35 million hectares of our bushland suffered environmental damage (Binskin *et al.* 2020). Insurance-related losses totalled \$4.5 billion, which exceeds the cost of running our defence force on an annual basis. An estimated 3 million animals died in 2019/20 alone. Such losses on average are costing us \$18.2 billion a year and this is projected to rise to \$39 billion per year by 2050, not accounting for what climatic change may add over that period. These are extraordinary figures providing perspective for what resilience in disasters means.

Figure 3 gives you a sense of our disaster season in Australia. It runs from July through to May because we face geographic, climatic and weather patterns from subtropical to arid. Hence, disasters challenge our response capabilities through almost the entire year.

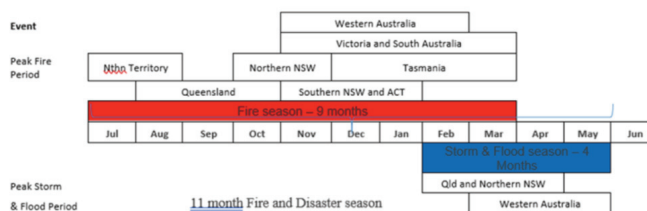


Figure 3: Australia's disaster season [Source: Chris Smallhorn]

Just as the Australian Defence Force has to be responsive throughout the year, so too do industry, the states, the territories and their respective departments need to be able to work collectively to bring together a sovereign capability to respond to calamities and crises.

With regard to aerial firefighting, we rely heavily on overseas air tankers for the singular reason that the industry does not exist in Australia yet. Currently, acquiring aerial firefighting tankers tends to be reactive to a crisis – not the proactive response for which we should strive. I applaud the decision made by the New South Wales Government to invest in acquiring aerial tankers to build the state's own fleet capability – that contributes to the national response options.

During the fires in February this year in Western Australia, the Commissioner of the New South Wales Rural Fire Service contacted the Commissioner of Emergency Services in Western Australia and this resulted in a Boeing 737 Fireliner air tanker and a Cessna Bird Dog jet observation aircraft being deployed in one day across the continent and beginning fighting fires before sunset in Western Australia. Agile deployable assets and decision-making in the broader national-resilience interest contributed to a timely response that ultimately saved infrastructure and potentially lives.

Our ability to respond as a nation with collective, co-ordinated and integrated capabilities may be measured by the time it takes to tackle the threat. Equally our ability to get back on our feet post disaster is a measure of success.

Exploring the value of some of our national infrastructure that may be threatened by natural disasters can be informative. In 2018/19, Port Hedland in Western Australia contributed 4.6 per cent of the nation's GDP. Some 130,000 full-time equivalent jobs in the country relied on the primary and secondary industries and flow-on logistic industries that were enabled by Port Hedland; as also did \$4 billion in taxes and one-in-12 jobs in Western Australia. Western Australia comprises 33 per cent of our nation by area yet only 12 per cent of our population. It has one of the lowest tax bases in the country and the biggest land mass. It relies heavily on Port Hedland for its ongoing survival and economic success. If Port Hedland gets struck by a natural disaster for a week, we could forfeit approximately 0.1 per cent of GDP (based on 2018/19 GDP). Our disaster response infrastructure, if well co-ordinated and well equipped, can move quickly to return such infrastructure to operations. To express one commissioner of an emergency service in Australia, it may be but for a commercial generator that we can return a piece of national infrastructure to at least partial operation ... but when that infrastructure is remote, we need a co-ordinated response to rapidly achieve that outcome.

Collaboration between Industry and Defence in Crisis Management

I will now address co-ordination between industry and Defence in response to different national disasters over the past couple of years, and some of the capabilities that exist to deal with crises and natural disasters.

Volunteerism in Australia is active and has strong work ethics. There are some 152,000 volunteer firefighters and 20,700 professional firefighters in Australia. The New South Wales Rural Fire Service comprises some 76,000 volunteer firefighters and is the largest such service globally. Its urban counterpart, Fire and Rescue New South Wales, comprises 6800 professional firefighters and 4800 volunteer firefighters, making it the world's third largest urban fire and rescue

service. Overall, we have about 173,500 people in the country dedicated to fire and rescue services. In addition, there are over 80,000 full-time emergency services personnel and the Department of Defence has 85,000 people. Bringing all these resources together, we then have a significant sovereign capability to respond to calamities and crises.

Industry has been defined by Defence as a fundamental input to defence capability. Likewise, it is also a fundamental input for natural disaster and crisis responses. This is true when considering any lens through which you may view our nation's resilience. Our ability to use industry well relies upon a good level of understanding of industry's capabilities, the ability to integrate the capabilities with state capabilities, and the ability to both acquire and sustain the right equipment.

In the last few years, the Defence sector has become familiar with sovereign industrial capability. That narrative has penetrated Defence which continues to work towards building the sovereign knowledge base to strengthen our own industries. Where we source knowledge and expertise from overseas, we equally should structure those commercial relationships to transfer the overseas knowledge into the Australia industry.

The Power of Federalism and Modern Communications Technology

In some industry sectors federalism and the individual nature of each state and territory is referred to negatively, a barrier to success. An alternative view can be offered. Constructive and co-operative federalism is a force multiplier within the fabric of our constitution. Our nation's response to the ongoing COVID-19 pandemic, wherein the national security council broadened its mandate and membership to include the states built initial confidence among our citizenry. A major contributor to, or perhaps a cornerstone of, success will be how we build strong connectivity and sinews among the states, our federal assets and industry. Industry, with the benefit of no borders, has an important part to play in enhancing such connectivity.

We have reached a point in time now where numerous factors are aligning through an awareness of the devastating effects of natural disasters and pandemics, alongside economic and technological factors that create a unique opportunity for informed and supported action.

Our nation's communities demand seamless response to disaster. The devastating events of recent history have heightened community awareness. The Royal Commission into the fire events of 2018/19 (Binskin *et al.* 2020) has provided two key important outcomes: the awareness of the citizenry who have a reasonable expectation there will be action; and a road map to improve our future response.

The access to and rates of development of technology today are arguably unparalleled and they

are not slowing down. Where once the military and government led in the technology-development space, today industry holds that mantle.

Of these technologies, and relevant to a co-ordinated crisis response across states and territories, is reliable and seamless communication, data and information-sharing networks. Figure 4 depicts a command-control-communications-computer (C4) mesh network² overlaid on a disaster-management asset suite that would allow Defence assets to ‘plug-in’ with relative ease. Such networks, enabled by integrated management systems (or in military parlance, combat management systems) allow each node to contribute to the common operating picture and, dependent on the access protocols, each user may access all information on the network. These systems are finding their way into the emergency and disaster relief landscape. A national-level strategy, however, ensuring integration and common protocols is not yet

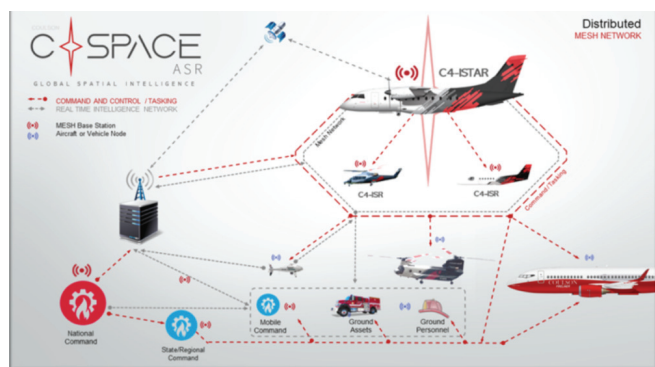


Figure 4: Australia’s C4 (command-control-communications-computer) mesh network technology for disaster management [Source: Chris Smallhorn]

Legend:

C4 = command, control, communications and computers
ISR = intelligence, surveillance and reconnaissance

ISTAR = intelligence, surveillance, target acquisition and reconnaissance

MESH = multi-media embedded security hub – see Footnote 2

evident.

By acquiring capability under common specifications that ensure such integration, underpinned by an integrated management system that can share and transmit the relevant information for our community members, first responders and joint command, we can provide the opportunity to gain a force-multiplier effect. Efficient and timely tasking, informed by good and broad situational awareness, ensures the best safety outcome for those in harm’s way, and vastly improves the value-for-money gained from each investment in capability. If as a nation we are to achieve these outcomes, it is necessary that the initial capability acquisition phases specify integration across state,

²A mesh network is a type of local communications network in which all the nodes within the infrastructure connect non-hierarchically, directly and dynamically. The nodes co-operate and share data via the most efficient path. It is designed for a collective computing capacity.

territory and federal jurisdictions.

Also of difference today, in the aviation space in particular, is the fact that the capital expenditure required to purchase many large aircraft is exceptionally low. The COVID-19 pandemic has had a devastating effect on airlines and the global aviation industry. This, however, has left aircraft suitable for conversion to multi-role disaster relief missions available at extremely low costs relative to pre-pandemic costs. Indeed, the opportunity now exists to acquire capital assets that could accelerate the development of a whole new aviation industry sector in Australia.

The question is, will we as a nation capitalise on the alignment of these unique historic factors: viz. heightened community awareness of the devastating effects of natural disasters and an expectation of action; a Royal Commission that recommended such actions; access to technology; and the ability to acquire some core assets at exceptionally low investment levels? Time will tell.

Conclusion

In Australia, the costs of managing recurring natural disasters and crises, coupled with overlapping seasons that extend to almost 11 months of the year, and the projected costs of managing future ones, are extraordinary. Our disaster management experiences thus far and the ongoing geopolitical dynamics challenge our sovereign capabilities and resilience in crises and disasters. Industry, Defence, states and territories should work in partnership within federal structures employing co-ordinated decision-making capabilities, seamless, integrated command-and-control and co-ordinated utilisation of national assets. Australians expect that we as a nation will be resilient in managing the challenges during calamities and will bounce back strongly from crises.

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