**ATSE**

## Infrastructure

# Building Australia's Future

**The year 2020 was regarded as one of the most dramatic on record in terms of natural disasters (drought, floods and fire), the overwhelming health and economic impacts of the COVID-19 pandemic, and increasing cyber-attacks. Consecutive national disasters have highlighted the importance of infrastructure to Australia's wellbeing and economy by bringing into focus the fragility of many facets of Australia's infrastructure, particularly in the eastern states.**

**The resilience, planning, social licence, and funding of civil infrastructure present critical challenges to governments and communities, which must be better equipped (resourced, trained and informed) to deal with national disasters now and into the future.**

**POSITION No. 1**

### Resilience to natural disasters, technological changes and cyber-attacks must be considered in all infrastructure projects now and in the future

Within the Sendai Framework for Disaster Risk Reduction 2015-2030[1], the United Nations defines resilience as:

> *"The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management"*

In Australia, drought, floods, bushfires and the COVID-19 pandemic have highlighted that it is imperative that our cities, towns and communities be more resilient to natural disasters and economic disruption. Resilience to man-made disasters such as chemical and oil spills on land and at sea and to cyber-attacks are equally important. Cyber resilience has become increasingly critical during the pandemic, and is now regarded as an imperative for business governance.

Access to real time data is essential to resilience. The Minderoo Foundation initiative "We Rise Together – Lifting Australia to be the Global Leader in Fire and Flood Resilience by 2025"[2] has highlighted that early, accurate and monitored real-time knowledge in any natural disaster is critical to ensure an appropriate response. Communication infrastructure is vital, but it has a strong propensity to perform poorly. Reliability and communications reach can be improved by avoiding disparate private networks (as are currently used by many emergency service organisations) and instead sharing public networks by reaching arrangements with network providers to provide priority access. Quantitative assessment of infrastructure resilience using data acquisition and the application of artificial intelligence has the potential to achieve a rapid response based on real time knowledge.

The restoration of critical infrastructure is also an essential component of resilience. The replacement of infrastructure like-for-like with that which existed prior to the disaster occurs too frequently and lessons learnt are often not put into practice. "Building Back Better" is a practise that is gathering momentum but it remains constrained by traditional funding guidelines. There is also the issue of upgrading existing infrastructure to meet the new standards, to make it resistant to damage or interruption and then to maintain this infrastructure.

**POSITION No. 2**

## Vision, capability, trust, continuity, and consistency are the key drivers for infrastructure projects that require long-term planning and implementation strategies

ATSE continues to recognise the fundamental role of infrastructure in achieving the nation's economic, social and sustainability goals. Infrastructure should be designed to promote social cohesion across demographics, deliver equitable access and promote systemic ecological improvements. Vision, capability, trust, continuity and consistency are all key drivers for projects that apply equally to renovation, restoration and repurposing of existing infrastructure. They require long-term planning and implementation strategies. Capability relies on a well-developed education and training system that produces sufficient numbers of competent people.

**POSITION No. 3**

## Engaging the local community when initiating an infrastructure project is key to establishing a social licence

Community participation (and importantly the participation of indigenous communities) is an essential component of infrastructure planning and implementation as well as for the renovation, restoration and repurposing of existing infrastructure. Infrastructure Australia[3] has established that over the past decade around $20 billion worth of infrastructure projects have been delayed, cancelled, or mothballed due to failure to obtain community support.

The most effective model for participation is a place-based approach, which seeks to connect infrastructure decision-making with the needs of a community at a local level. Engagement occurs at the strategic planning stage with a view that the local community can contribute to developing a vision for a local area. This vision creates social licence and encompasses the necessary infrastructure and services.

In engaging the community, it is vital to provide information transparently and in forms that are easily understood and effective. This requires an understanding of the community demographics to ensure the participation is inclusive. Community participation starts with engagement and a full explanation, as well as education about the expected functionality, benefits and risks in developing the infrastructure. Opportunities for co-design with the communities involved should also be considered when appropriate.

**POSITION No. 4**

## Economic recovery should be supported by funding infrastructure projects with short to medium completion times

Identifying and funding projects, particularly in regional and rural communities, within a cost range of $50 million to $500 million with short to medium completion times is essential to post-COVID-19 economic recovery. This funding should not only be directed to new infrastructure projects but also to upgrading and maintaining existing infrastructure.

In 2019, the second *National Audit of Australian Infrastructure*[4] revealed that infrastructure quality is high in urban centres and their satellite cities, but in rural communities the households can be overcrowded, clean water and sanitation can be below standard, mobile telephone coverage limited and remote communities often have inadequate transport options. These issues generally meant poorer economic, health and quality of life outcomes for our regional communities.

Funding projects in these communities, within the cost and timeframes proposed, has two main advantages:

- Firstly, they are deliverable in a reduced timeframe and become available to the mid-tier construction companies. It is understood that the $7.5 billion infrastructure commitment in the Federal Government 2020 budget will be disaggregated into a number of projects in this range.
- Secondly, the benefit-to-cost ratio for lower cost projects is superior to multi-billion dollar projects (as identified in the outcomes of the 2016 Australian Infrastructure Plan[5]).
  It should also be noted that when large projects were broken in to a number of smaller projects the benefit-to-cost ratio improved.

**REFERENCES**

1. "Sendai Framework for Disaster Risk Reduction 2015-30", United Nations Office for Disaster Risk Reduction, March 2015
2. "We Rise Together – Lifting Australia to be the Global Leader in Fire and Flood Resilience by 2025", Mindaroo Foundation, September 2020.
3. "PRIA to Join Next Generation Engagement Project", K. Connell, Next Generation Engagement, Canberra, 2017 available via: www.nextgenengagement.org/news/pria-to-join-next-generation-engagement-project
4. "An Assessment of Australia's Future Infrastructure Needs", Infrastructure Australia, June 2019.
5. "Australian Infrastructure Plan 2016" Infrastructure Australia, February 2016.