



Managing critical infrastructure in a changing climate: risk, roles, responsibilities and politics

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Three things I hope to convey in this presentation...



1. The definition of critical infrastructure limits our understanding of climate-related risks
2. The varied ownership arrangements of critical infrastructure assets complicates the allocation of risk
3. The role of the Commonwealth in managing or communicating risk is messy but critical

What do we mean when we
say....



1. CRITICAL INFRASTRUCTURE

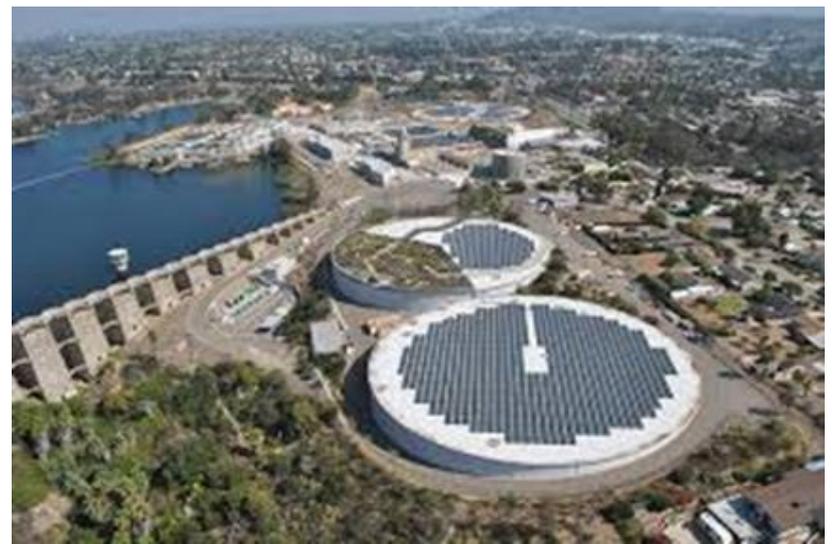
Definition of critical infrastructure



“those physical facilities, supply chains, information technologies and communication networks which, if destroyed, degraded or rendered unavailable for an **extended** period, would significantly impact on the social or economic wellbeing of the nation or affect Australia’s ability to conduct national defence and ensure national security”

Australian Government (2010) *Critical Infrastructure Resilience Strategy*





Definition of critical infrastructure



- “Extended” period not defined
- Focus on CI post 9/11
- Overlooks the importance of **natural** assets in Australia’s long term economic and social welfare
 1. Cotter catchment post-2003 Canberra fires
 2. Great Barrier Reef, cumulative impacts of cyclones



1 in 400 year storms moved large sediment loads into the Corin, Bendora and Cotter dams.

Raised concerns over short and long term yield & water quality impacts.

Unprecedented increases in turbidity, iron and manganese >30 times previous events in the upper catchment storages.

Increases caused disruptions to water supply → the construction of a **major water filtration plant** to address turbidity.



Cotter catchment, Canberra

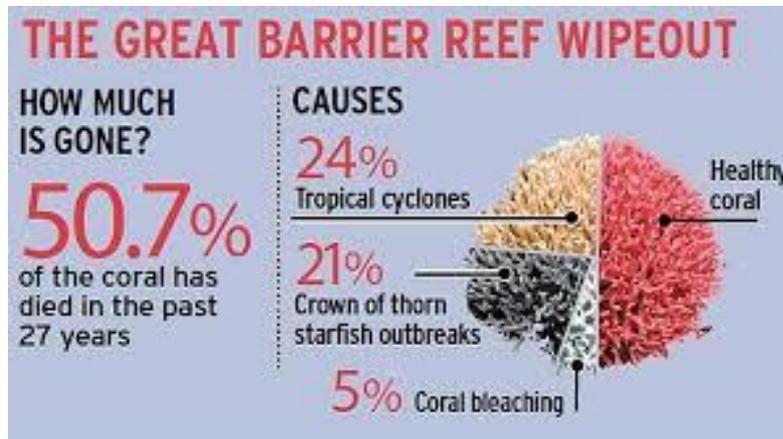


Floodwaters running off the land can form reduced-salinity plumes laden with nutrients, sediments and agricultural chemicals such as fertilizers and pesticides.

Reef ecosystems can be stressed or killed through reduced salinity, increased turbidity and elevated concentrations of nutrients and agricultural chemicals.

Cyclones cause extensive damage to individual corals and to the structure of the Reef.

Between 1995 and 2009, approximately 34 % of all coral mortality recorded in the Great Barrier Reef Long Term Monitoring Program has been caused by storm damage.



Great Barrier Reef, QLD

Definition of critical infrastructure



An alternative to consider:

“those assets which, if destroyed, degraded or rendered unavailable for an extended period, would significantly impact on the social or economic wellbeing of the nation or affect Australia’s ability to conduct national defence and ensure national security”

...but such a definition has consequences for our understanding of risks, responsibilities and politics..

If a critical infrastructure asset is at risk of a climate-related impact, the following is true:



- A. THE STATE GOVERNMENT IS RESPONSIBLE FOR MANAGING THAT RISK**
- B. THE COMMONWEALTH GOVERNMENT IS RESPONSIBLE...**
- C. THE LOCAL GOVERNMENT...**
- D. THE CORPORATION THAT OWNS IT (WHOLLY OR PARTIALLY)...**
- E. ALL OF THE ABOVE**
- F. SOME OF THE ABOVE**
- G. IT DEPENDS ON THE ASSET**
- H. IT DEPENDS ON THE IMPACT**

Typology of critical infrastructure assets

	Economic infrastructure	Social infrastructure	Natural infrastructure (with social or economic significance)
Commonwealth	Aviation services Telecommunications Postal services National roads (shared) Local roads (shared) Railways (shared)	Tertiary education Public housing (shared) Health facilities (shared)	Great Barrier Reef Kakadu National Park
State	Roads (urban, rural, local) (shared) Railways (shared) Ports and sea navigation Aviation (some regional airports) Electricity supply Dams, water and sewerage systems Public transport (train, bus) Major goods distribution hubs.	Educational institutions (shared) Childcare facilities Community health services (base hospitals, small district hospitals, and nursing homes) (shared) Public housing (shared) Sport, recreation and cultural facilities Libraries Public order and safety Prisons	Major water catchments (shared) Rivers, wetlands with major filtration or supply functions
Local	Roads (local) (shared) Sewerage treatment, water and drainage supply Aviation (local airports) Electricity supply Public transport (bus)	Childcare centres Libraries Community centres and nursing homes Recreation facilities, parks and open spaces	Local/regional wetlands/swales Bioretention assets Protective dune systems

Allocation of risk and responsibility



The ownership profile varies:

- Solely government-owned, such as some highways, dams and some catchments
- Privately owned, such as some airports and ports, some electricity generation facilities
- Owned and operated through public-private partnership arrangements, such as a toll roads and trains, electricity distribution networks, and prisons
- Community owned, such as irrigation systems and distributed energy systems

Allocation of risk and responsibility



- Variation in ownership arrangements make the allocation of risk difficult to discern, especially for events that have yet to unfold.
- Confusion exists with respect to the *ownership* versus *service* provision arrangements for some infrastructure assets
- And does it make a difference if the impact is a drought, flood, cyclone or bushfire?

Critical infrastructure is... critical, so the Commonwealth is... critical?



- 1. OF COURSE (BUT I'M FROM CANBERRA)**
- 2. NEVER, THEY'LL MAKE THINGS WORSE**
- 3. JUST MONEY, PLEASE**



- Numerous national strategies or policies suggest that Commonwealth plays a role (see PC report)
- But the degree of responsibility for the Commonwealth may be contested and vary between sectors
- Three discernible instances....

Role of the Commonwealth



1. Because the Commonwealth has a **legal** responsibility to act
2. Because of the **significance** of the impact
3. Because of a **political or moral** obligation to act

Options for Commonwealth involvement



- Information gaps
- Short-term regulatory focus
- Disclosing risks and managing uncertainties
- Balancing priorities
- Interdependencies between infrastructure assets

Conclusion



- The working definition of critical infrastructure fails to account for very real impacts on natural assets
- The allocation of risks and responsibilities is not always straightforward, particularly for events that have yet to happen
- The role of the Commonwealth is manifold



Questions? Concerns?
Gratuitous praise?

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