



AUSTRALIAN BUSINESS ROUNDTABLE  
for Disaster Resilience  
& Safer Communities

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# Special Report: update to the economic cost of natural disasters in Australia

Briefing for QFES Climate Change Working Group  
3<sup>rd</sup> November 2021

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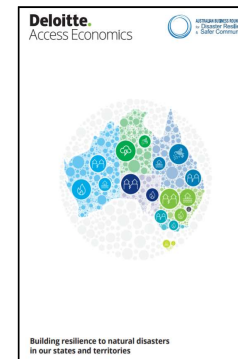
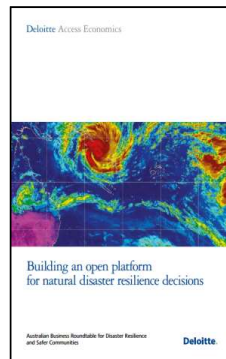
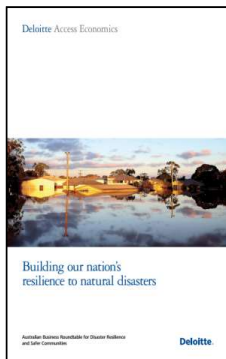


# Agenda

1. Overview of the ABR
2. Overview of the Report and its purpose
3. High Level Results
4. Economic Modelling Method
  - Additional social costs
5. Climate Modelling Method
  - IAG's Severe Weather in a Changing Climate Report
6. Results focussing on Qld

# Australian Business Roundtable for Natural Disaster Resilience and Safer Communities

- Shared vision to ensure that communities across Australia were better able to prepare for, respond to and recover from disasters triggered by natural hazards.
- We do this by expanding knowledge, collaborating and leading by example to help influence decisions made by governments, businesses and communities.



**Deloitte.**



**Special report: Update to the economic costs of natural disasters in Australia**

Australian Business Roundtable for Disaster Resilience & Safer Communities

2021

**Deloitte**  
Access **Economics**

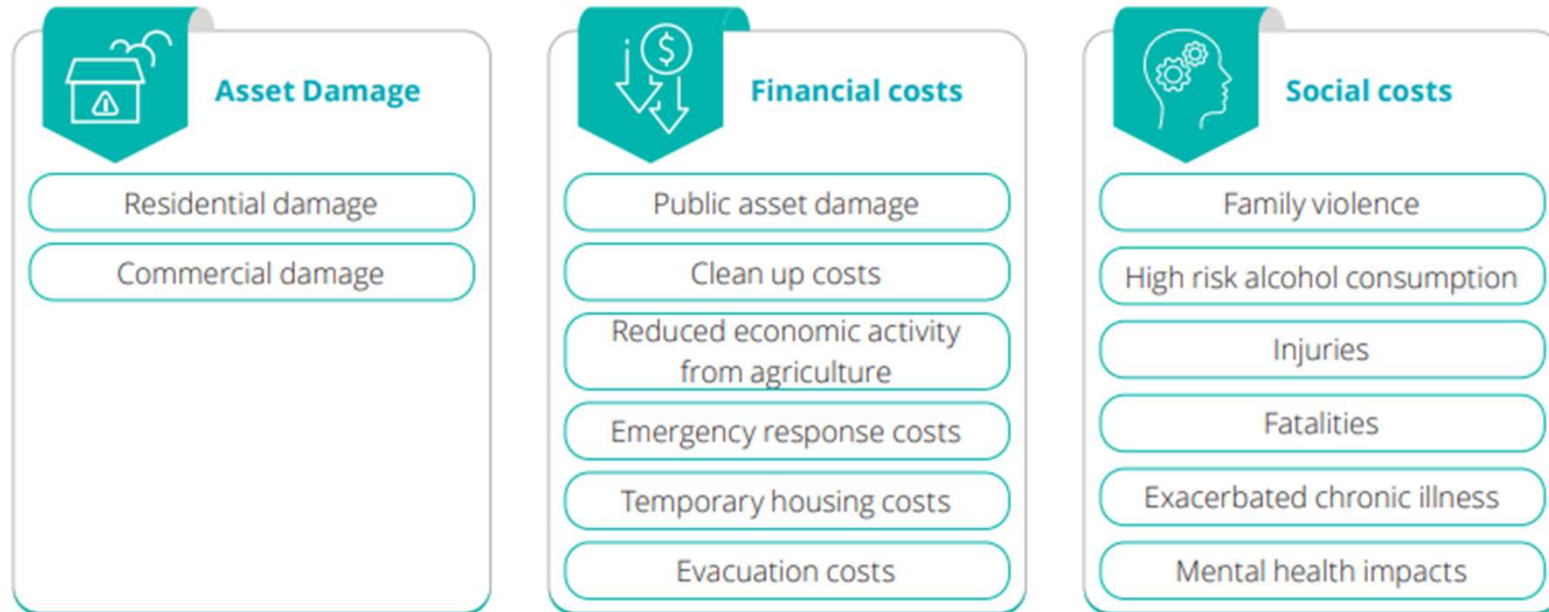
## **Special Report: Update to the Economic Costs of Natural Disasters in Australia (2021)**

**– Update with climate change projections**

<http://australianbusinessroundtable.com.au/>

<https://www2.deloitte.com/au/en/services/economics.html>

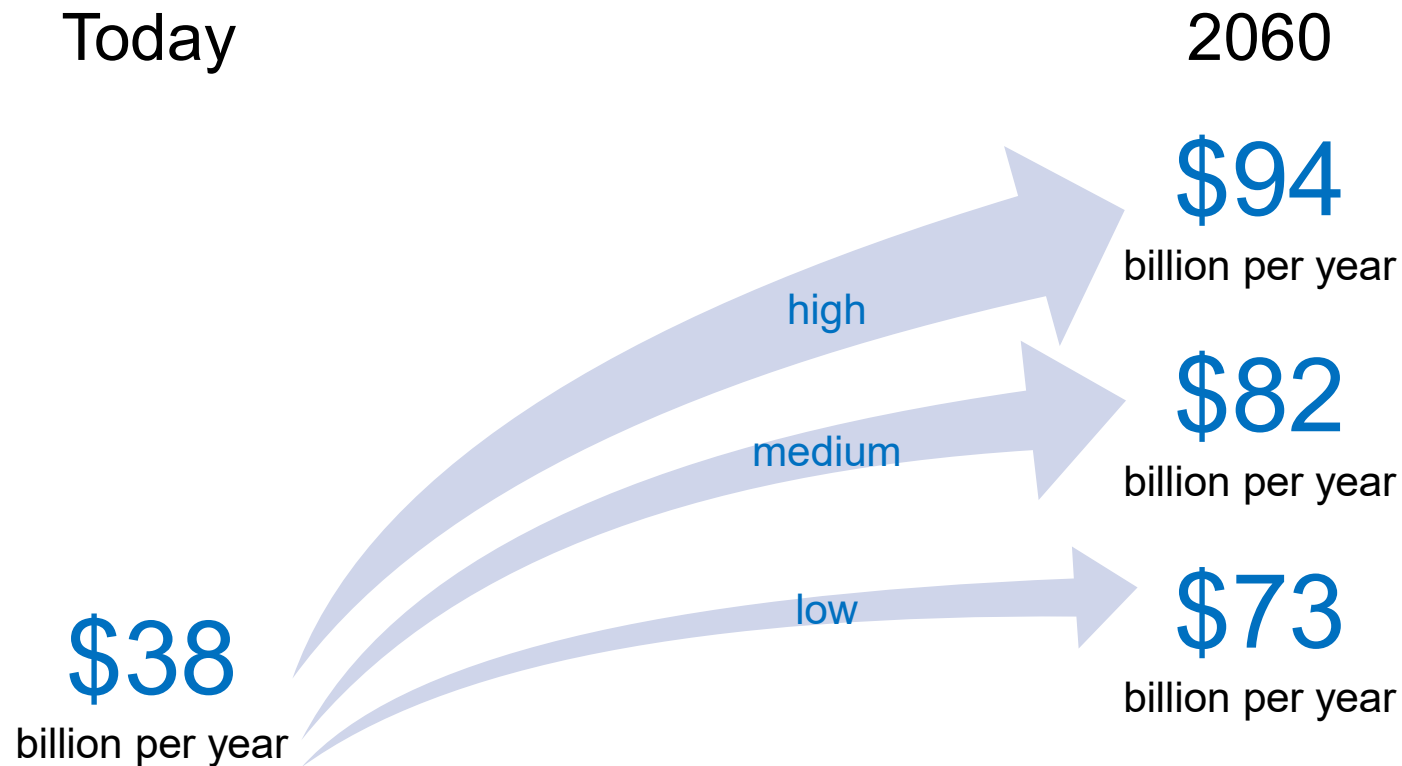
# Economic Modelling Approach



Source: Deloitte Access Economics 2021



# Annual Costs of Natural Disasters are high and getting higher



# The Opportunity to Mitigate against Climate Change is Clear

Today

\$1.2 Trillion

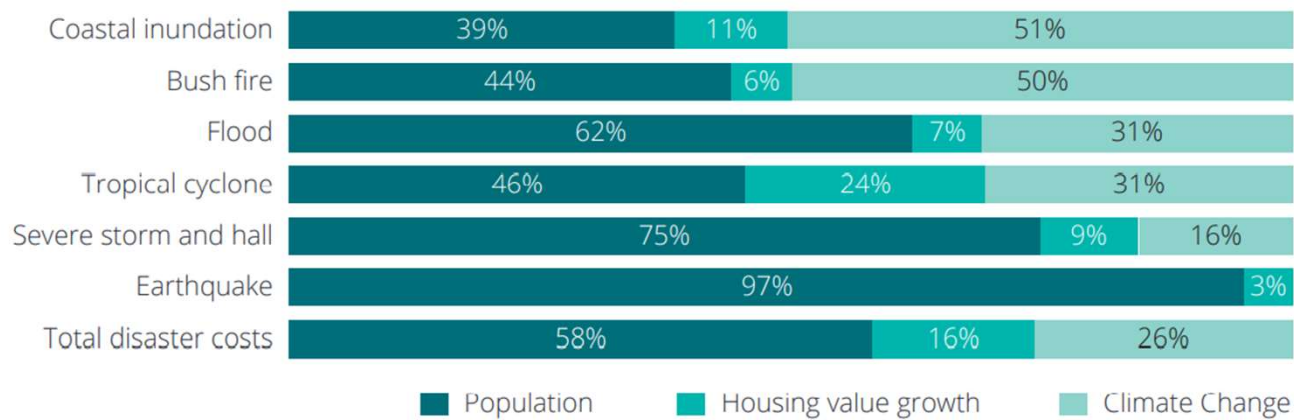
2060

+ \$125 Billion

Low  
Emissions  
Scenario

High  
Emissions  
Scenario

# Climate not the only Driver of Growing Costs



The impact of climate change will vary by different disaster types.

Increases in the (real) structural value of housing and population growth also impact projected costs.

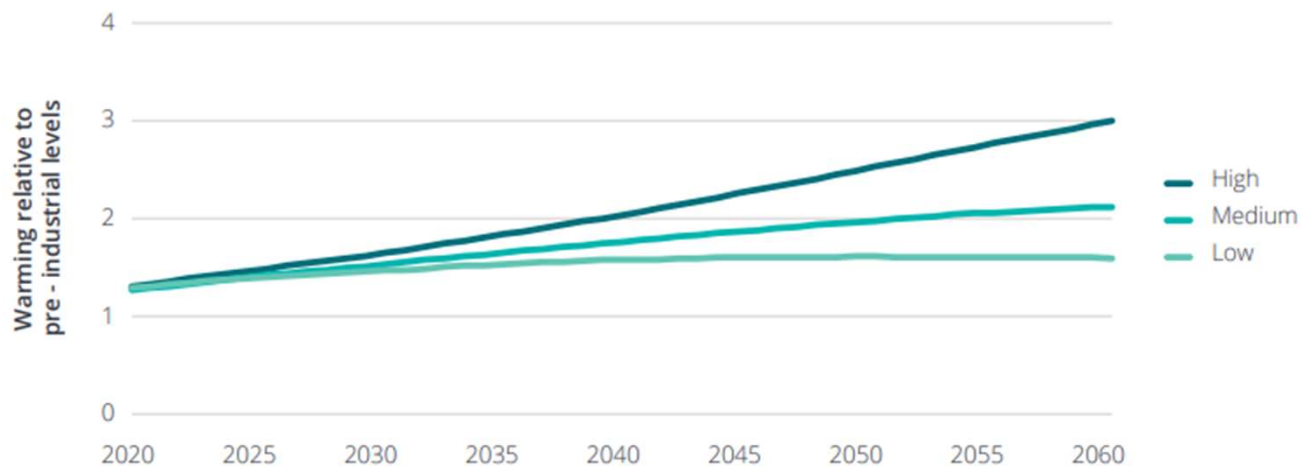
Source: Deloitte Access Economics 2021

Note: The costs associated with earthquakes are not expected to vary with climate change.

Share of increase in economic cost between 2020 and 2060 under a higher emissions scenario



# Climate Modelling Approach

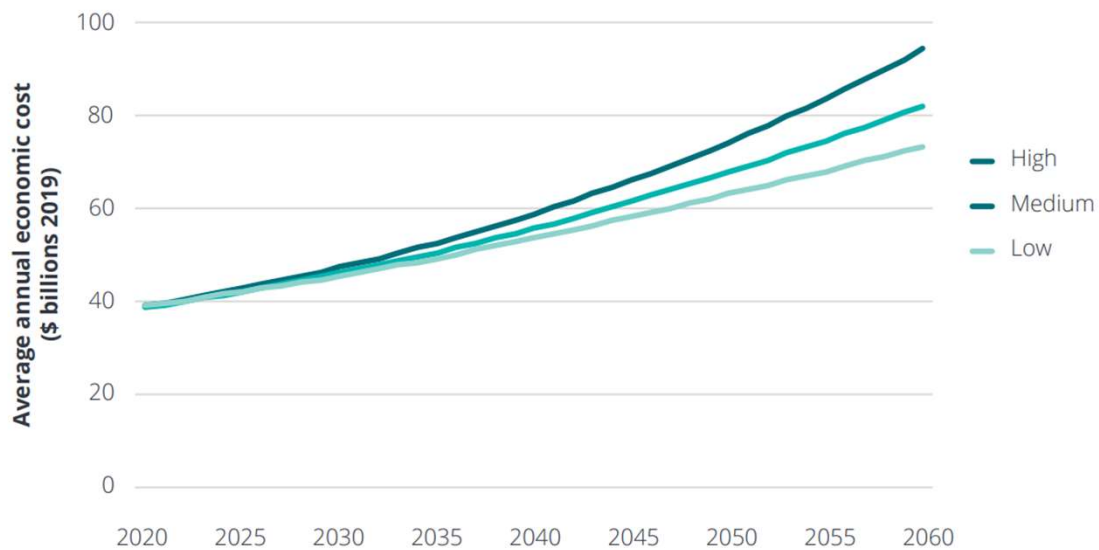


Source: IPCC RCP via KNMI Climate Change Atlas<sup>18</sup>

Forecast global warming, degrees Celsius

- Aligned AAD at specific temperature rises to IPCC (AR5) emissions scenarios.
- AR6 indicates temperature increases may occur even earlier – bringing forward costs.

# The difference in costs increases over time



- Climate change impact changes over time
- More than 30% difference by 2060.

Source: Deloitte Access Economics 2021

Time path of total economic costs, by emissions scenario

# Flood remains the largest risk

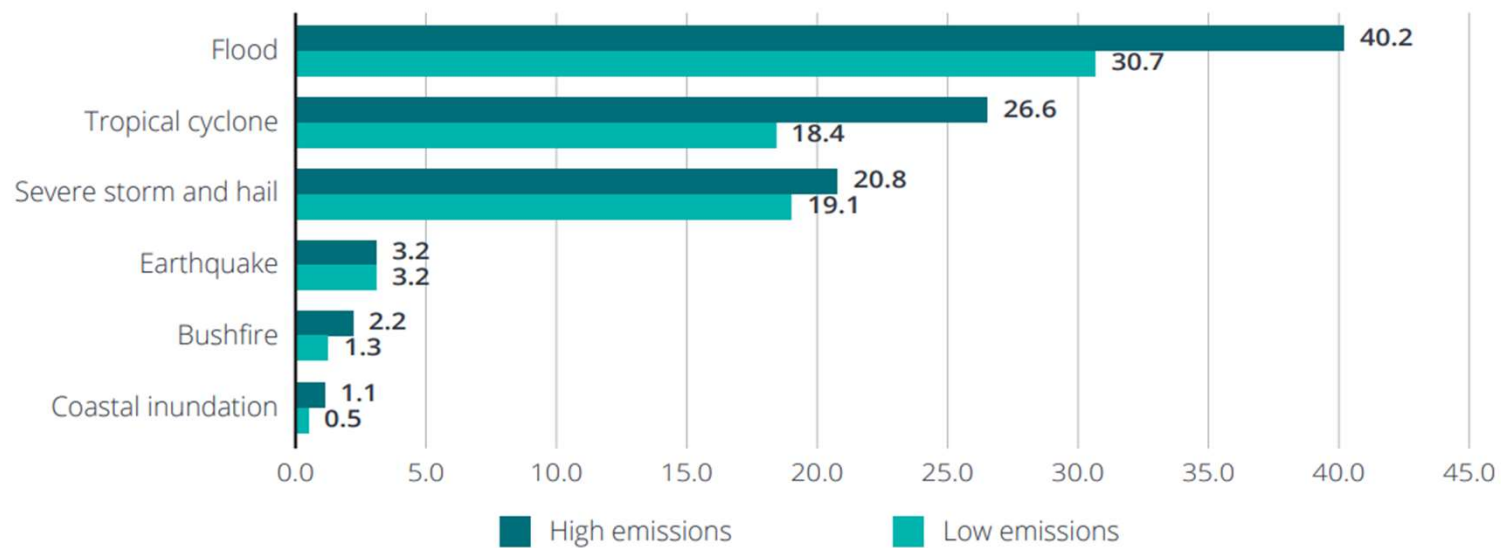


Source: Deloitte Access Economics 2021

Flood will have the largest total cost, with social costs a significant cost driver.

Present value of economic costs and the components of costs under low emissions scenario by type of natural disaster, \$billion

# Big differences between low and high scenarios



Flood costs 31% higher / \$9.5 billion annually

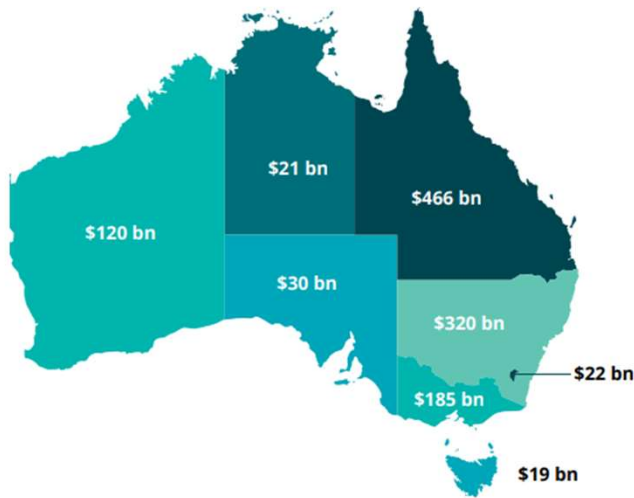
Bushfire 70% higher / \$900 million annually

Source: Deloitte Access Economics 2021

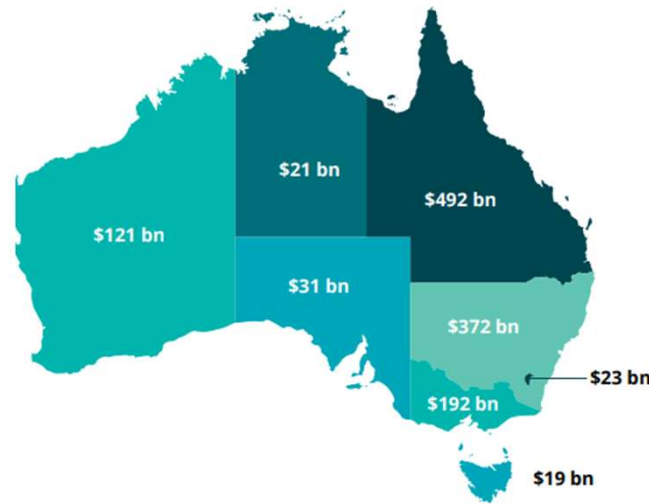
Annual economic costs in 2060 by disaster type under the high and low emissions scenarios, \$billions

# South East Queensland and North East NSW most affected

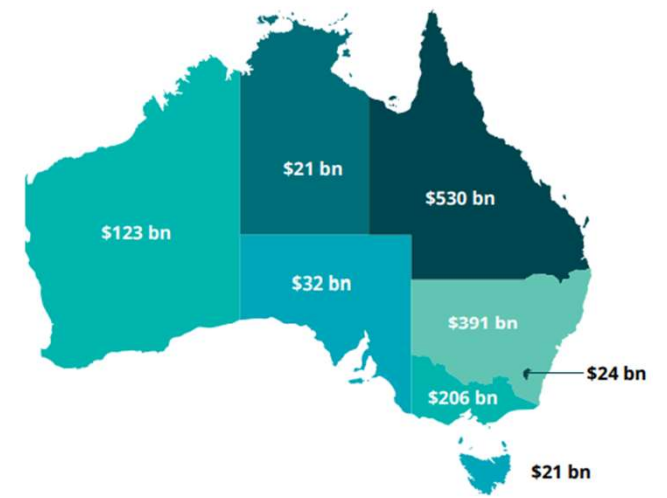
Low emissions scenario



Medium emissions scenario



High emissions scenario



Total economic costs of natural disasters in 2020, by state and territory

Queensland is expected to incur the largest increase in costs of any state, with an additional \$64 billion in estimated costs in the high scenario.

# Some regions facing very high costs



Regions with the largest increase in costs for high emissions scenario (relative to low scenario), 2060

Average Annual Cost of all natural disasters by 2060 for high emissions scenario (\$ billion)		
1	Melbourne City	6.2
2	Brisbane Inner	4.3
3	Tweed Valley	2.4
4	Mackay	2.3
5	Townsville	1.9
6	Surfers Paradise	1.7
8	Caloundra	1.3

# IAG Severe Weather in a Changing Climate

<https://www.iag.com.au/severe-weather-changing-climate>

- Partnership with National Centre for Atmospheric Research Laboratory
- Balanced interpretation of climate trends in Australia by region from full range of climate models and studies
- Applied to IAG’s catastrophe models to estimate changes in risk



## “Multiple Lines of Evidence” Approach

Qualitative assessment:



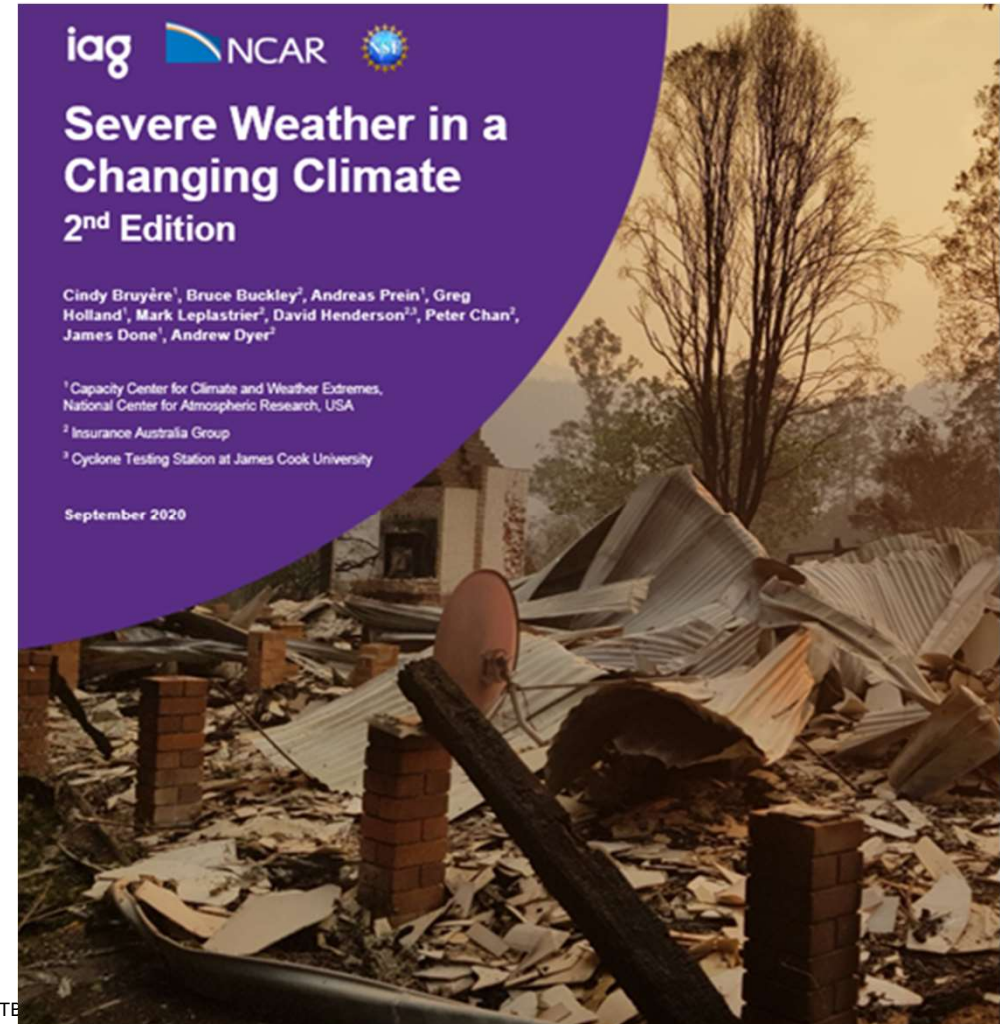
- Fundamental physics
- Trends in key parameters
- Paleo evidence

Quantitative approaches



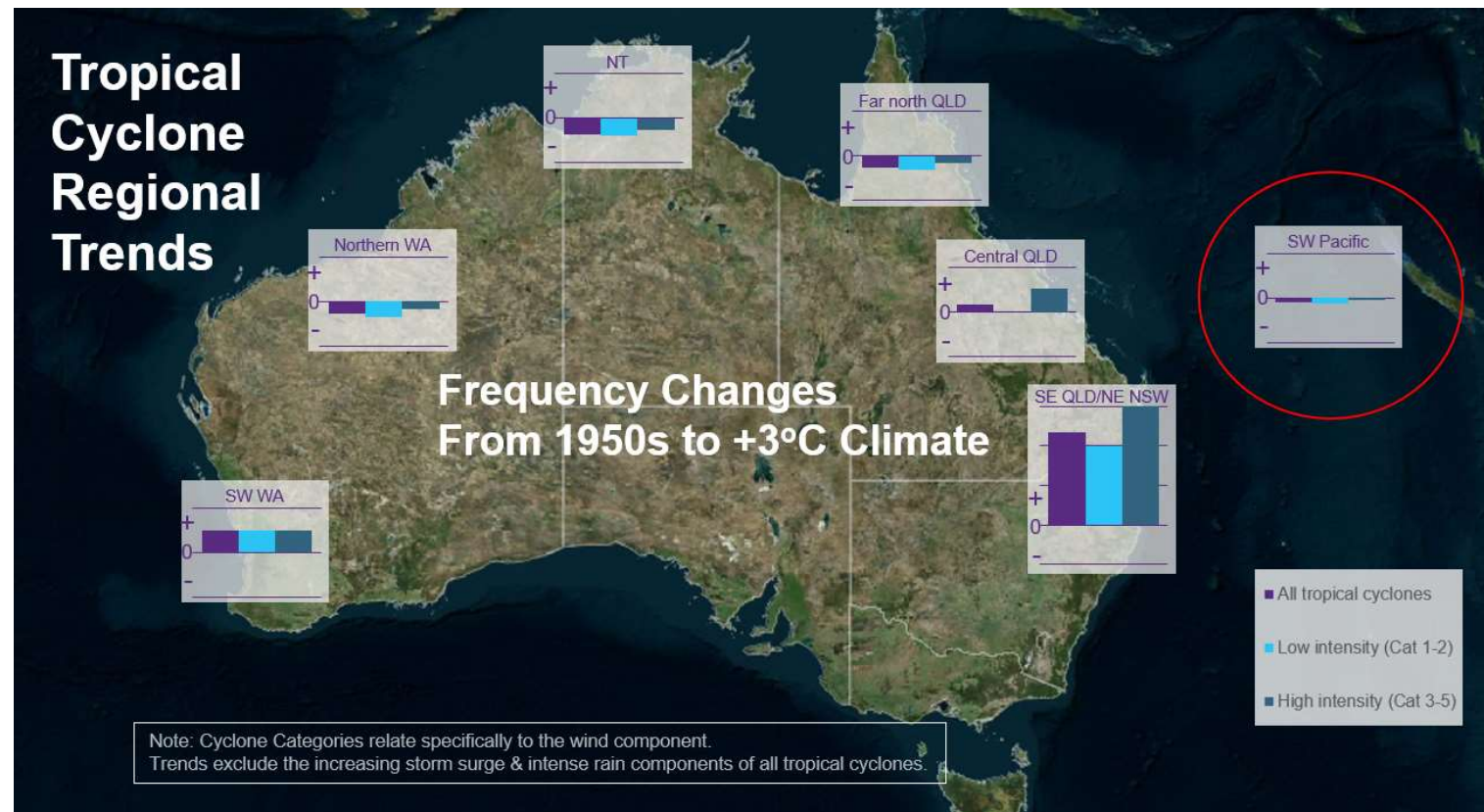
- Dynamical downscaling
- Statistical/ stochastic methods

Information Security Classification - INTE



# Tropical Cyclones

- **AR6:** In South Pacific region: projected reduction of TC frequency but increase in intensity
  - Recent high resolution studies shows possible stable trend in TC frequency (Bhatia 2019)
- **Observed change:** decreasing frequency for non-severe TC (Dowdy 2019)





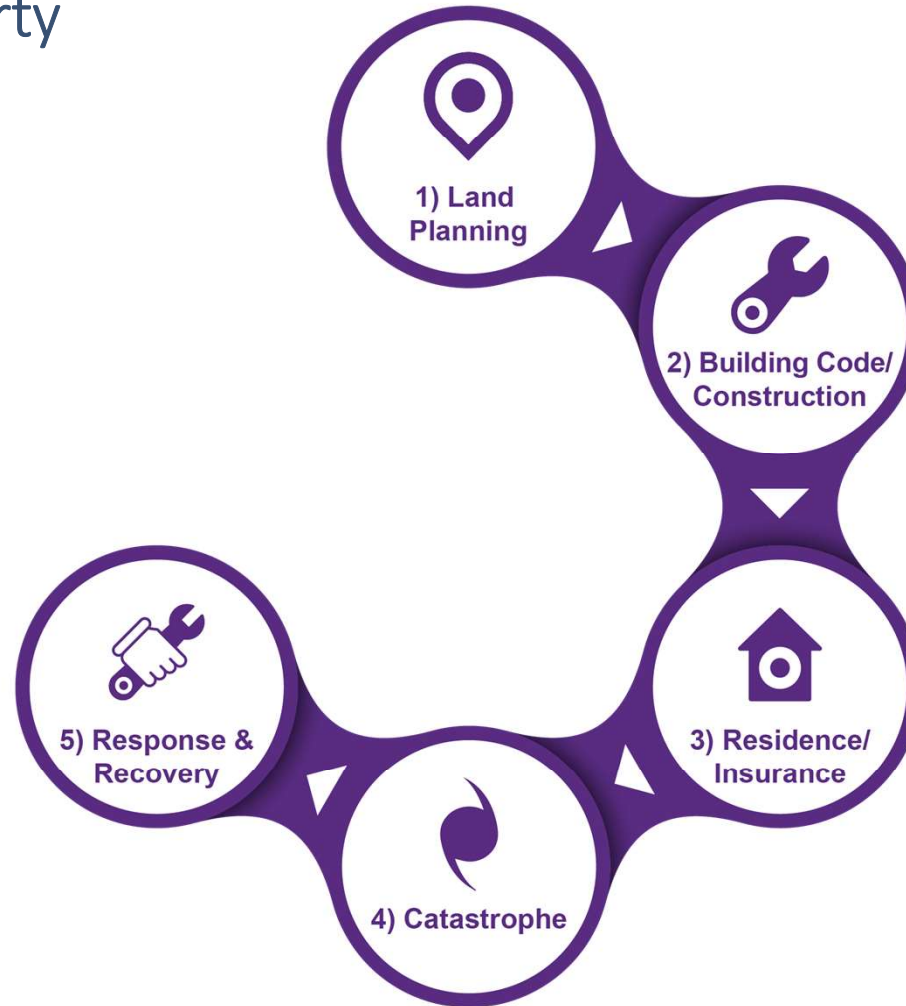
## Some regions will become exposed to emerging threats

Region	Emerging disaster type	Cost profile in 2020		Cost profile in 2060	
		Total costs (\$ million)	Contribution of emerging disaster type	Total costs (\$ million)	Contribution of emerging disaster type
Charles Sturt (SA)	Flood	\$59	6.3%	\$191	56.5%
Ipswich Inner (Qld)	Tropical cyclone	\$249	9.2%	\$1,217	19.3%
Mid-West (WA)	Coastal inundation	\$113	9.4%	\$165	18.3%
Bendigo (Vic)	Bushfire	\$66	9.9%	\$154	17.5%

Climate change will also lead to changes in the types of natural disaster threats regions face.

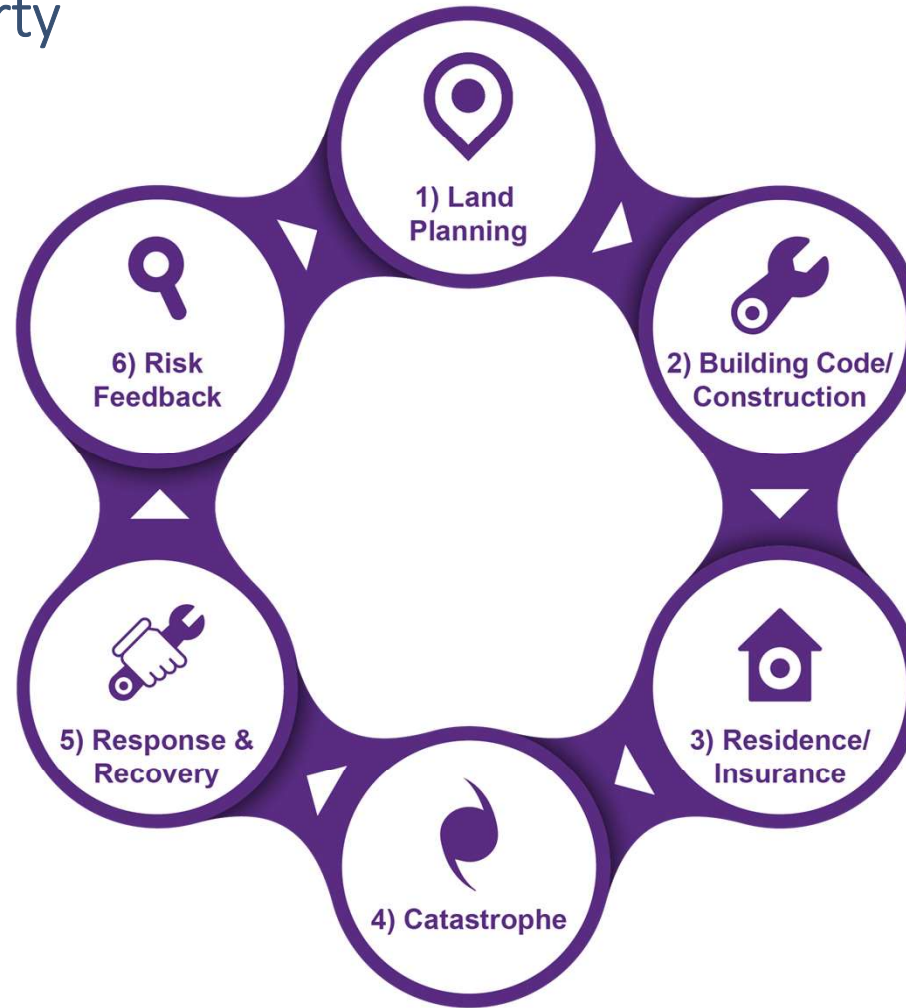
# Implications for investment in resilience

## Life cycle of a property

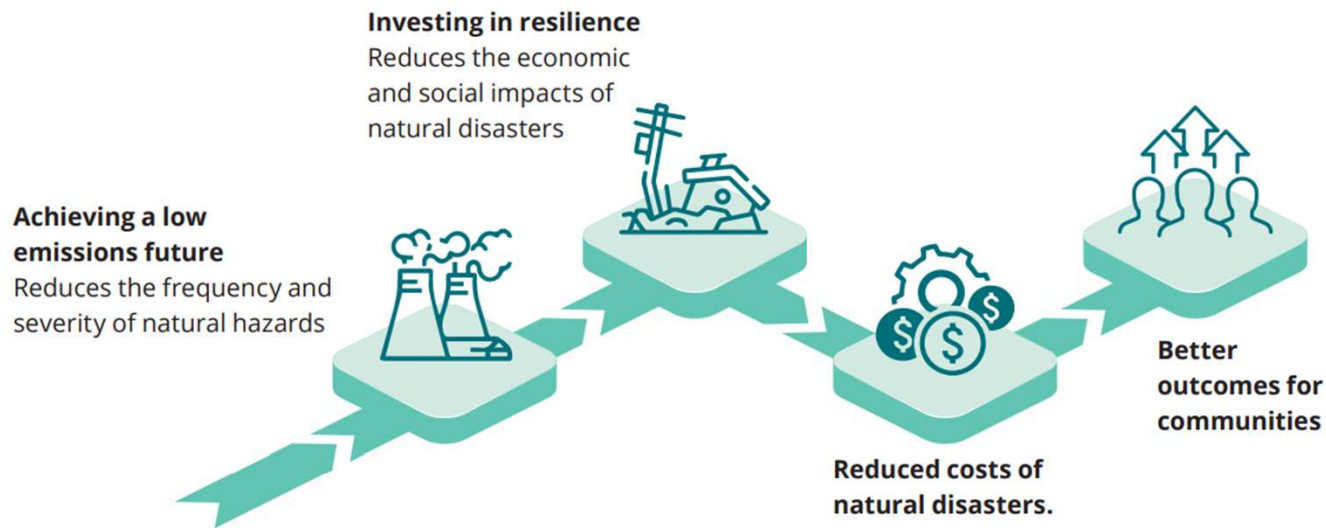


# Implications for investment in resilience

## Life cycle of a property



# Implications for investment in resilience



Achieving a low emissions future coupled with increasing investment in resilience to natural disasters will deliver better outcomes for communities.

Source: Deloitte Access Economics (2021)

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## Questions and discussion

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