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AdaptNSW 2023 Forum: Adaptation Planning 101

Edge Impact

DECEMBER 2023

Acknowledgement of Country

Contents

At Edge Impact, we're working towards a world where **unsustainable is unthinkable**.

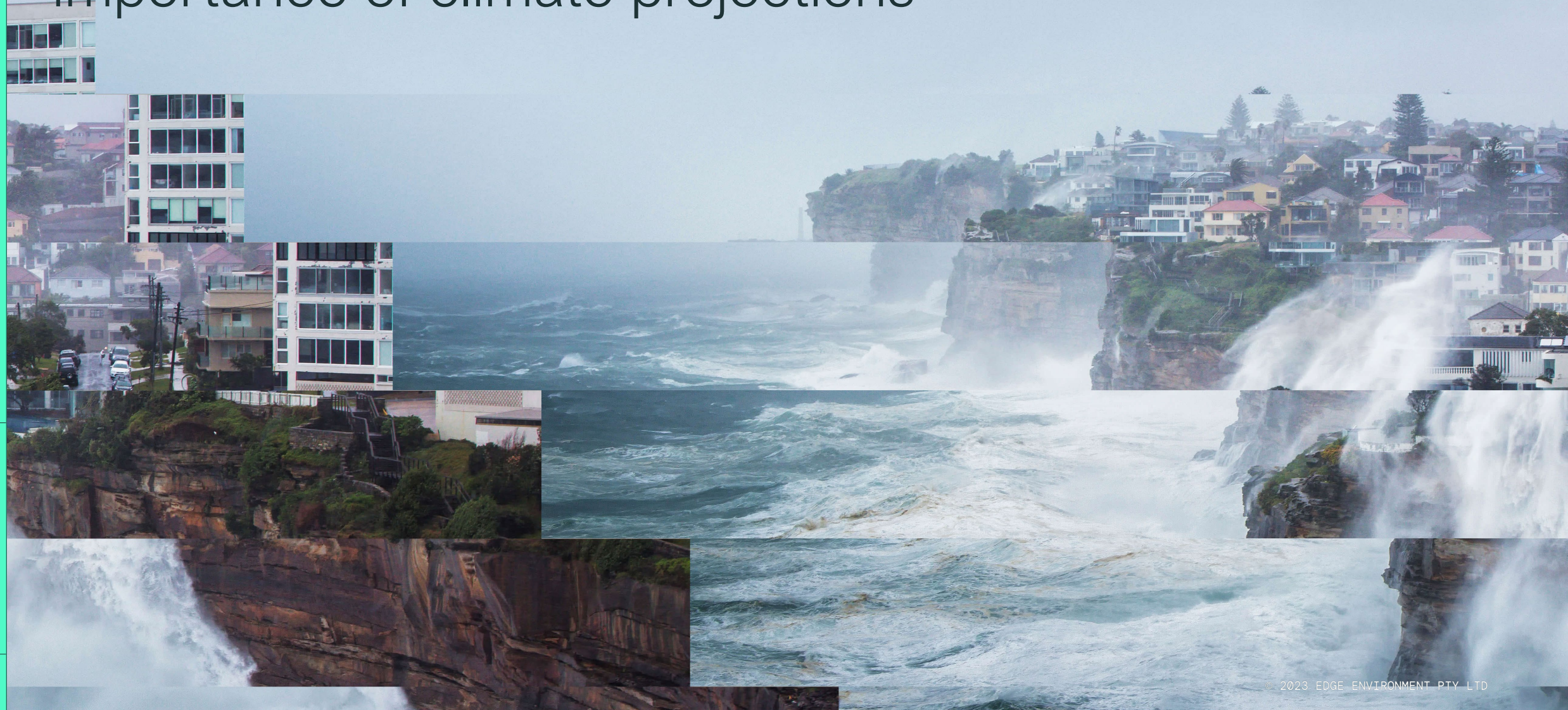
Mark Siebentritt
Global operations Director
Head of Decarbonisation & Climate Resilience

Mark Siebentritt's career spans 25 years in the sustainability services sector. He leads Edge Impact's development of tools and products and also works in the business on Climate Change Risk and Advisory. His focus is on bringing together rigorous technical information and engagement processes to support improved decision making. Mark has over 14 years' experience in environmental consultancy, firstly in his own businesses (Mark Siebentritt & Associates, Seed Consulting) and now with Edge Environment. He has delivered over 80 climate change projects in the past 5 years.

Lucy Wedge
Managing Consultant
Climate Resilience

With over 5 years' expertise in supporting clients across various corporate and financial sectors to understand the physical and financial risks that climate change presents to their operations, supply and value chains, and to identify both practical and strategic ways to respond to them. She has extensive experience conducting physical climate risk, resilience and adaptation assessments. She has played key roles in developing physical climate risk frameworks for clients to roll out across their business, requiring knowledge of leading physical climate modelling datasets, how to align with the TCFD framework, and integration of physical climate change within existing risk management processes.

Introduction to climate risk, adaptation and importance of climate projections



Global Risks 2023

Global risks ranked by severity over the short and long term:

2 years

1. Cost of living crisis
2. Natural disasters and extreme weather events
3. Geoeconomic confrontation
4. Failure to mitigate climate change
5. Erosion of social cohesion and societal polarisation
6. Large-scale environmental damage incidents
7. Failure of climate change adaptation
8. Widespread cybercrime and cyber insecurity
9. Natural resource crises
10. Large-scale involuntary migration

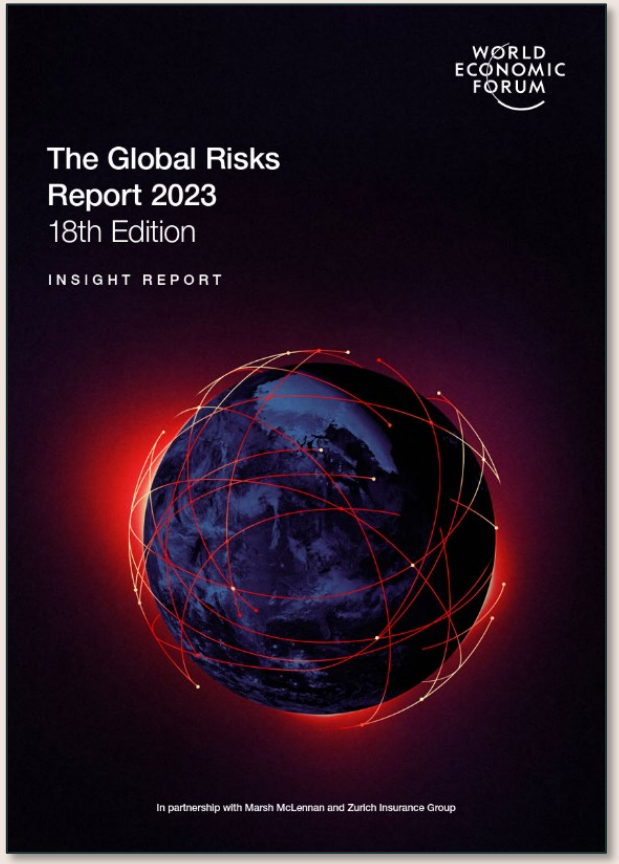
10 years

1. Failure to mitigate climate change
2. Failure of climate-change adaptation
3. Natural disasters and extreme weather events
4. Biodiversity loss and ecosystem collapse
5. Large-scale involuntary migration
6. Natural resource crises
7. Erosion of social cohesion and societal polarization
8. Widespread cybercrime and cyber insecurity
9. Geo-economic confrontation
10. Large-scale environmental damage incidents

RISK CATEGORIES:

ECONOMIC ENVIRONMENTAL GEO-POLITICAL SOCIETAL TECHNOLOGICAL

WEF The Global Risks Report 2023 Insight Report



State of Australia's **future climate**

National and global temperature rise to continue

Sea level rise to continue

Marine heatwaves to be more frequent and intense

Warmer with **more heatwaves, fewer cool days**

Fewer **tropical cyclones** but a greater proportion of **high intensity storms** with increased rainfall

Cool season rainfall decline in southern and eastern Australia to continue

Heavy rainfall to become more intense

Longer **fire season** and more dangerous **fire weather**

BOM State of the Climate 2022

NSW Climate **projected changes**

2020 – 2039 (Short Term)	2060 – 2079 (Long Term)
Projected Temperature Changes	
Maximum temperatures are projected to **increase** by 0.4-1.0°C	**Maximum** temperatures are projected to **increase** in the by 1.8-2.6°C
Minimum temperatures are projected to **increase** in the near future by 0.0 – 0.5°C	**Minimum** temperatures are projected to **increase** by 1.4 – 2.6°C
The number of hot days will **increase**	The number of hot days will **decrease**
Projected Rainfall Changes	
Rainfall is projected to **decrease** in spring and winter	Rainfall is projected to **increase** in summer and autumn
Projected Forest Fire Danger Index (FFDI) Changes	
Average fire weather is projected to **increase** in summer and sprint	Number of days with severe fire danger is projected to **increase** in summer and spring

NSW Climate Change Snapshot

Climate change **scenarios**

High intensity & severity
of extreme events
(e.g. heatwaves, storms)

Late and un-coordinated transition

Limited global efforts to reduce emissions

High emissions

Present day ..... **Potential world in 2100**

Low emissions

Significant global efforts to reduce emissions

Early and collaborative implementation of climate polices

Climate impacts generally constrained but not avoided

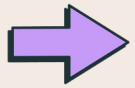
Leading data providers include:

IPCC INTERGOVERNMENTAL PANEL ON climate change

NARCliM NSW | ACT Regional Climate Modelling project

WCRP CMIP6 World Climate Research Programme

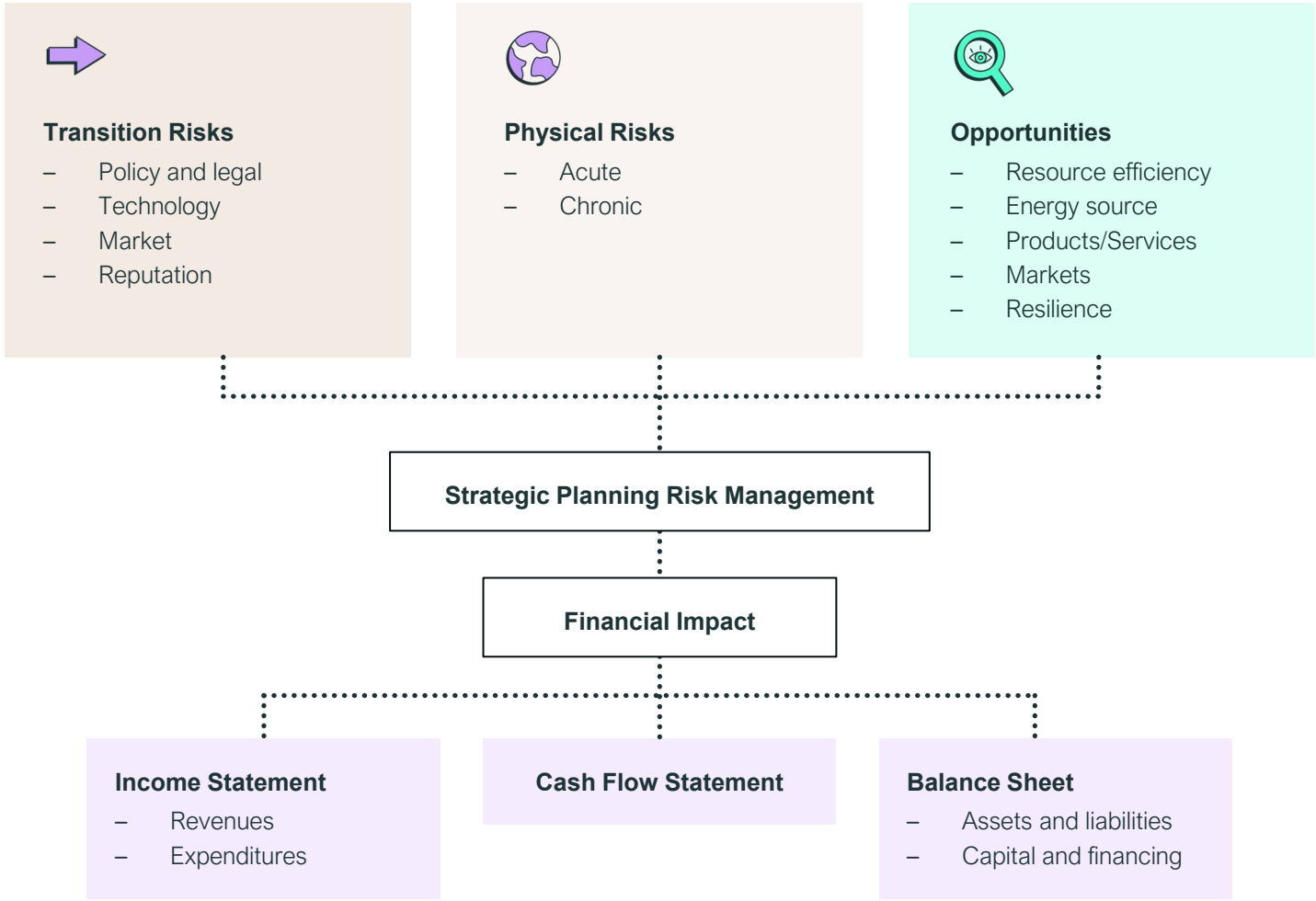
What are **climate risks?**



Transition Risks

Physical Risks

What are **climate risks?**



Recommendations of the Task Force on Climate-related Financial Disclosures Final Report, 2017

Climate risk assessment **drivers**

GOVERNMENT EXPECTATIONS

NSW GOVERNMENT

REGULATORY

Australian Government
The Treasury

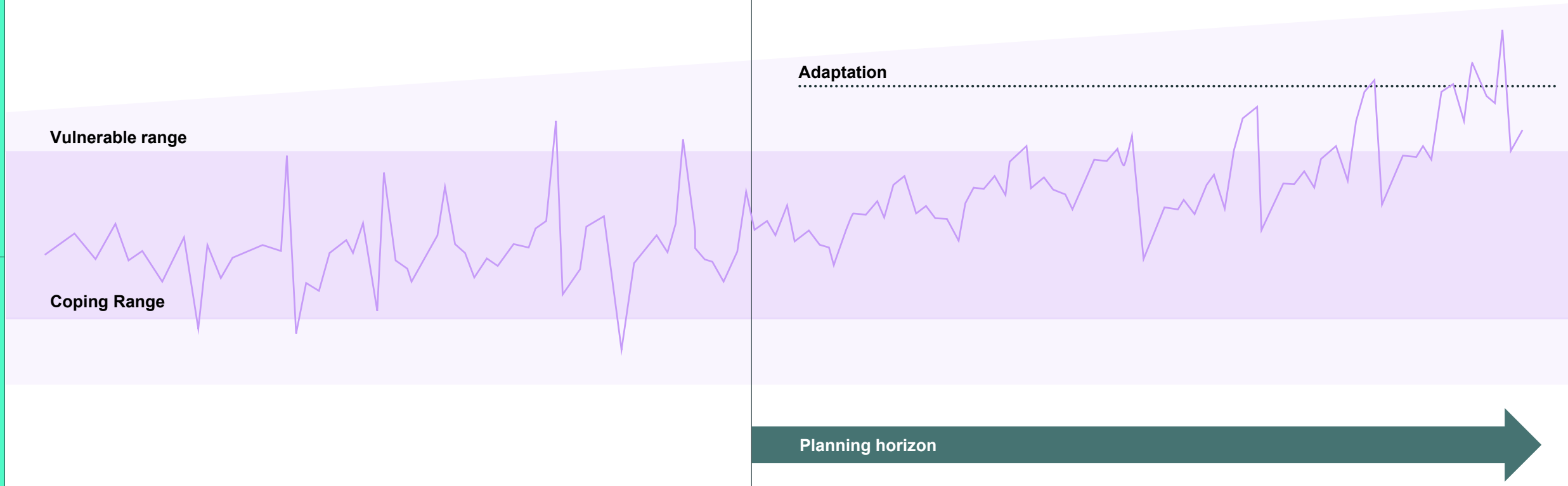
EXTERNAL STAKEHOLDERS

– Investors
– Customers

Why is it important to undertake **a climate risk assessment?**

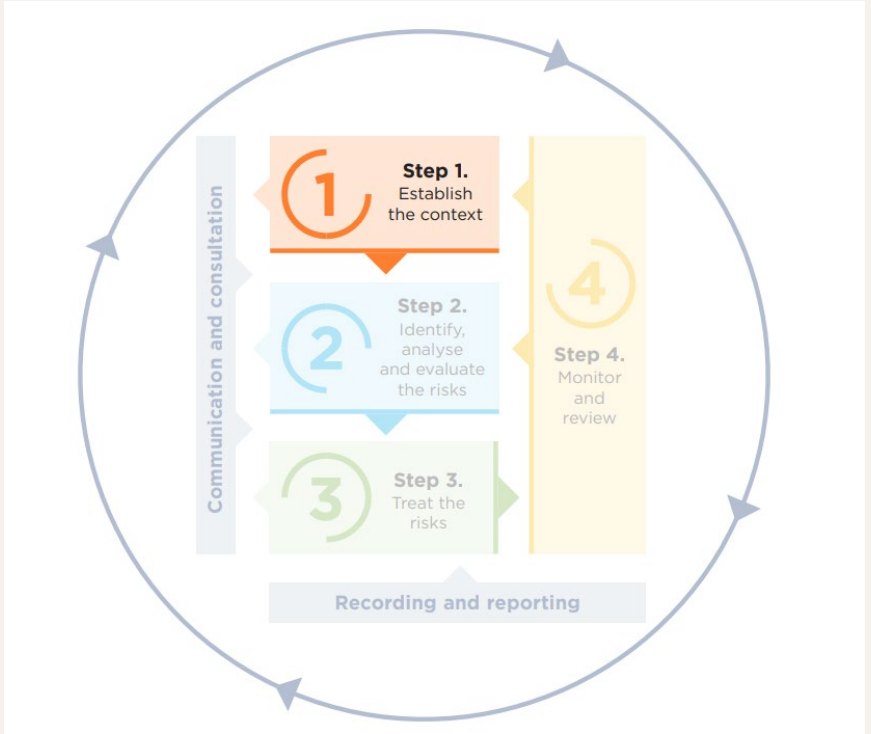
Current climate

Changing climate



NSW Climate Risk Ready **process**

Climate Risk Ready NSW Guide



Case Study 1
Orange City Council

- Development of a **Change Climate Policy** to identify how the Council will manage, mitigate and adapt to the impacts of climate change.
- Policy includes **detailed risk assessments of climate change hazards** consistent with Federal and State Government guidelines, considering a variety of climate hazard.
- **Embedding climate change-related risks** within Council's Integrated Planning and Reporting Framework.
- **Collaboration** with community, key stakeholder and other local councils and other tiers of government that **strengthen the Council's adaptive capacity** in response to climate change.

Orange City Council Climate Change Policy

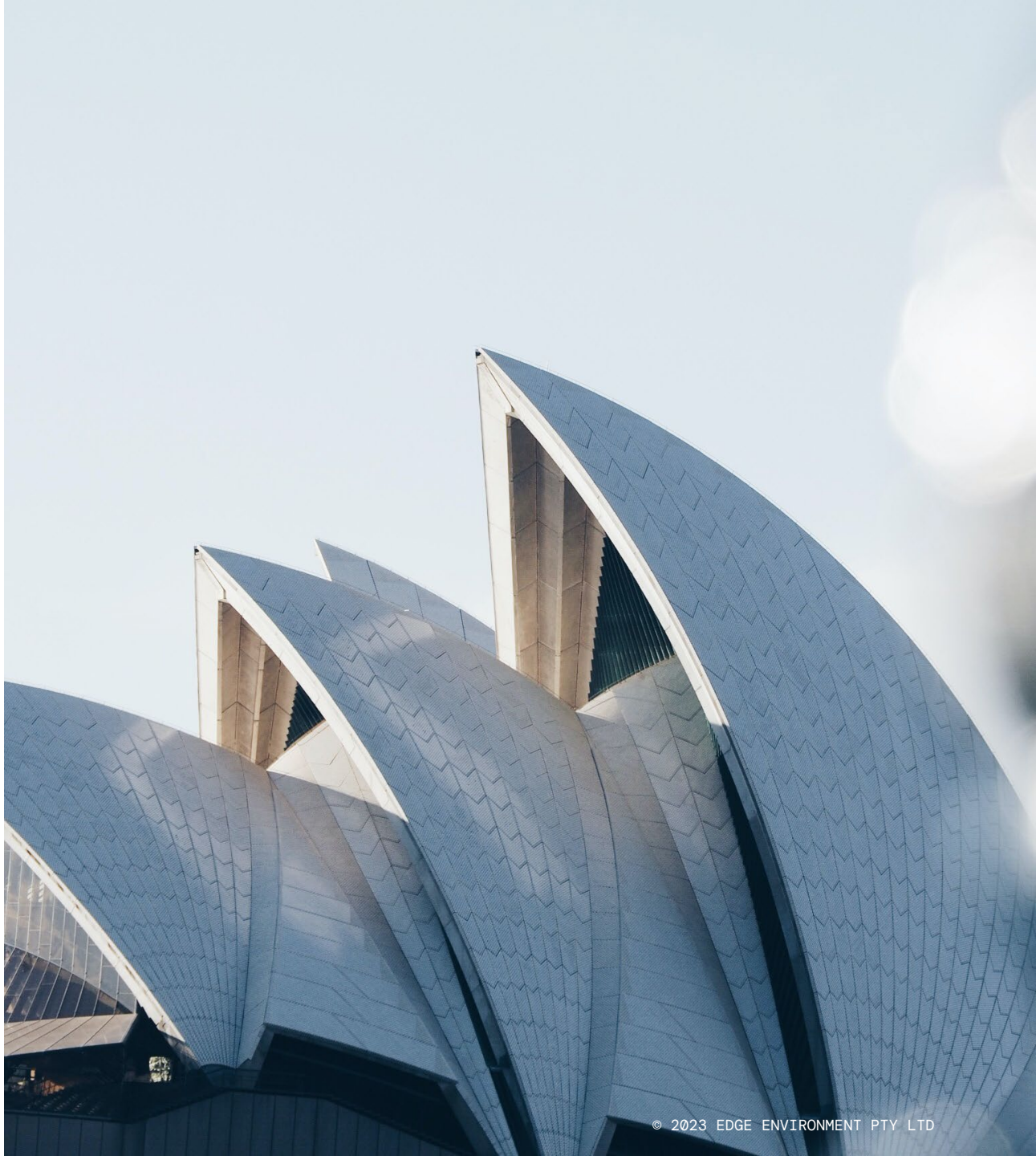
Case Study 2
Inghams

- Impact of **climate-related risks and opportunities** on organisations were assessed to an extreme climate stress test scenario set in 2035, using a **variety of physical climate parameters.**
- Key identifying physical risks included:
  - **international extreme climate events** (particularly drought in South America where feedstock is sourced)
  - **drought and rainfall decline** in Australia and New Zealand
  - direct and indirect impacts of **fire**, **extreme heat** inducing **heat stress** on people and animals
- Climate-related risks are incorporated into the **enterprise risk management framework** as core risks to the business.

Sustainability Report - web.pdf (inghams.com.au)

Case Study 3
Sydney Opera House

- Undertook **climate change risk assessment** to pilot the Climate Risk Ready process. First step was **review** of existing risk assessment and climate projections for the metropolitan Sydney region
- **Multi-stage process**, with multiple workshops engaged key functions across the organisation.
- Process highlighted the **sustainability maturity** of the Opera House, with many risks being managed, but identified need for **improved collaboration** between staff to support assessment of future risks.



Climate Risk Ready NSW Guide

A **regional council** located in the **Central West and Orana region** which includes large **agricultural** communities. The area has previously experienced **bushfires and floods** in the past.

20 MINUTES

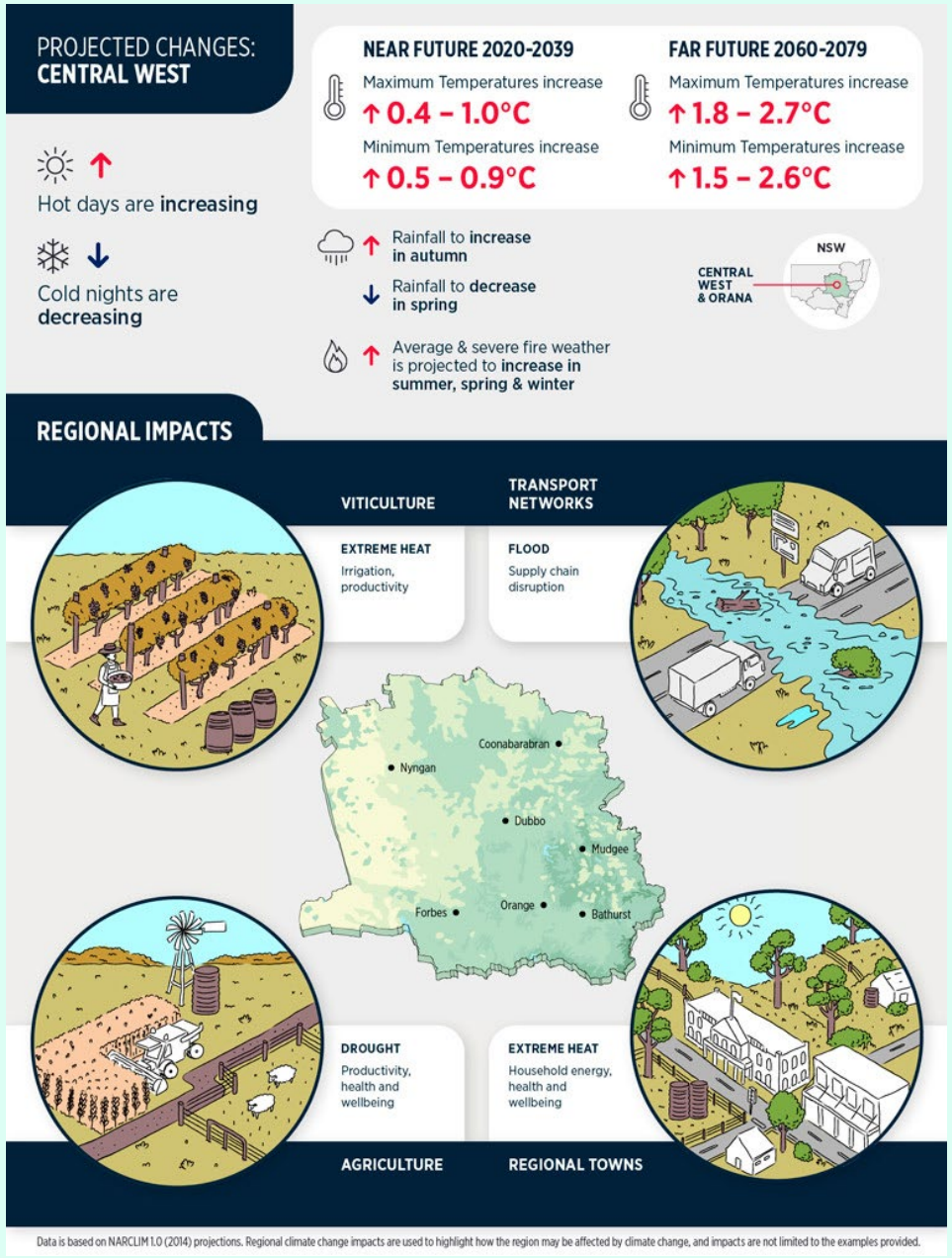
- 15 minutes in break-out groups
- 5 minutes to share key takeaways

Discuss the type of climate risks relevant to:

1. Council
2. Businesses
3. Community

Discussion points:

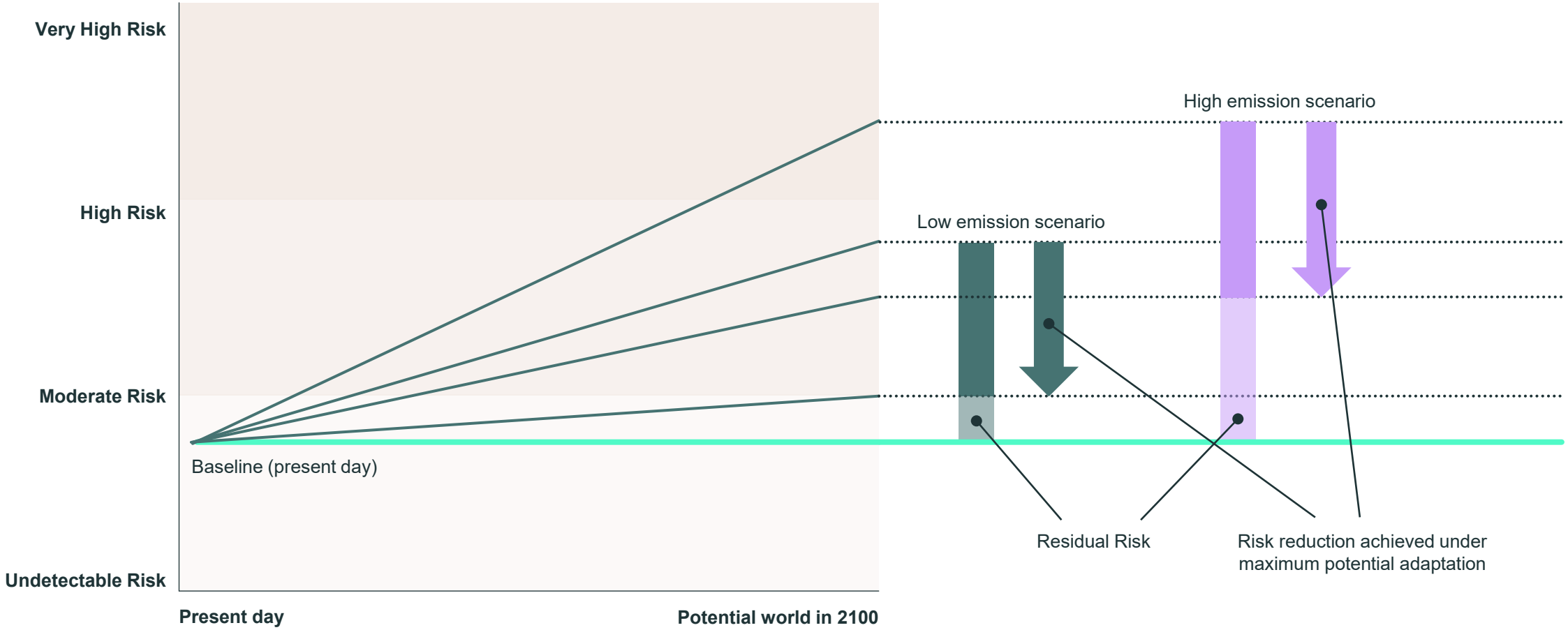
- What are the **key risks** across the different groups?
- What **data** would you need to understand the risks?
- What are the **biggest challenges** for completing this assessment?



NSW Climate change in the Central West and Orana

How to approach adaptation planning

What is the **importance** of adaptation?

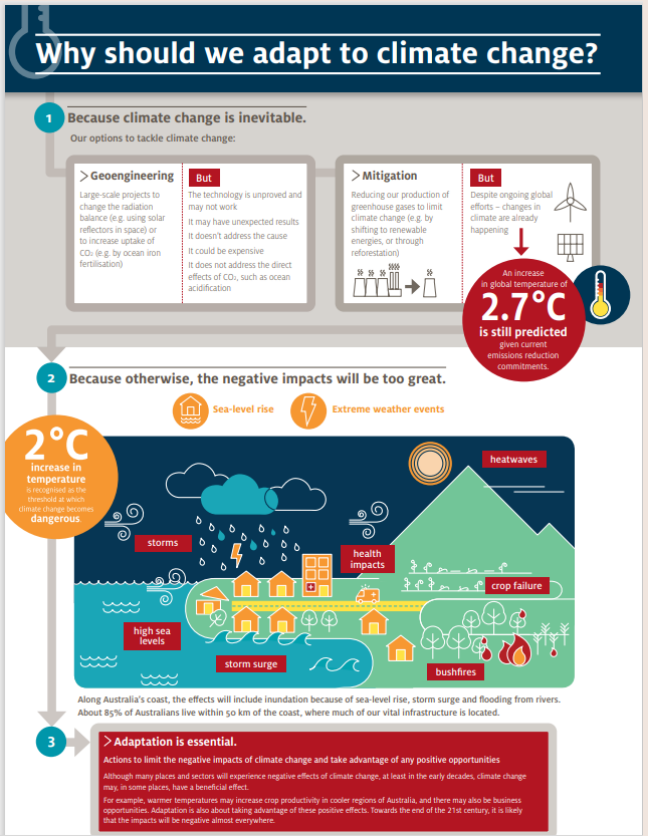


UNEP FI Adapting to a New Climate

Adaptation is an emerging space, with **a variety** of guidance and frameworks

Climate Risk Ready NSW Guide

NCCARF Climate Change Adaptation



UNEP FI Adapting to a New Climate

NSW Climate Risk Ready **process**

Climate Risk Ready NSW Guide

Adaptation planning **commonly used categories**

Defend

Co-exist/adapt

Temporary

Retreat

Technical

Strategic

Managerial

Accommodate

No/low regrets
or win/win options

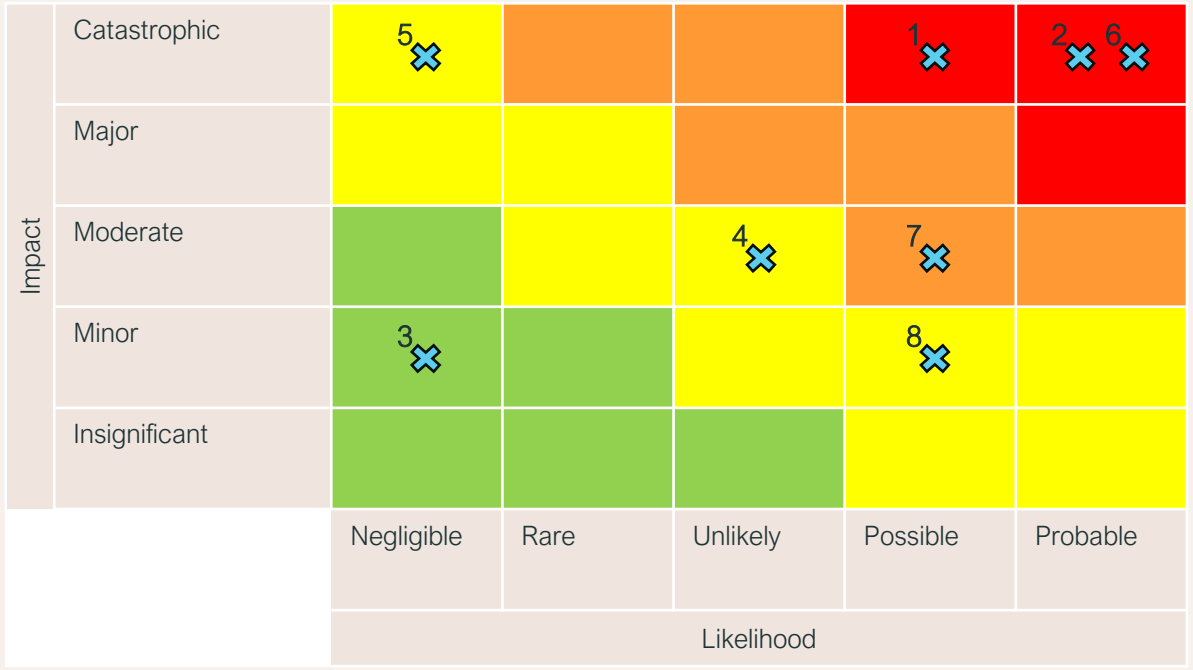
Adaptation planning **considerations**

Prioritisation of risks

Timing of adaptation options

Tools

Maladaptation



Adaptation planning **considerations**

Prioritisation of risks

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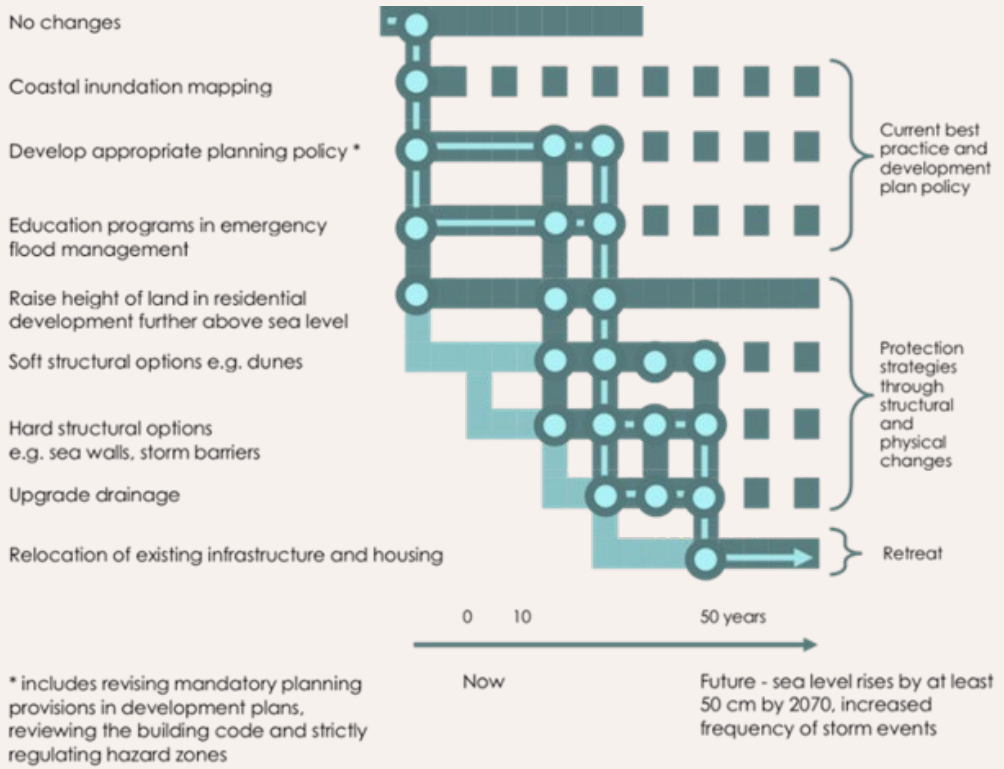

Adaptation planning **considerations**

Prioritisation of risks

Timing of adaptation options

Tools

Maladaptation

CBA (Cost Benefit Analysis)

MCA (Multi-Criteria Analysis)

TABLE 2.2. CHARACTERIZING DIFFERENT TYPES OF MCA METHODS

Simple → Complex			
Simple qualitative assessment of proposed options against a set of criteria. Often just a positive or a negative sign for each criteria.	Some quantitative work to assess options against set criteria with different weights and some sensitivity analysis.	Significant amount of quantitative analysis for each criteria as well as development of specific weights for each criterion. Mathematical functions used to rank options as well as conduct sensitivity analysis.	Complex formula and computational resources used to derive best options, combine weights and possible decision spaces, as well as to determine error bands.

Adaptation planning **considerations**

Prioritisation of risks

Timing of adaptation options

Tools

Maladaptation

weADAPT Maladaptation: An Introduction

Adaptation planning **roles**

Businesses

Government

Communities

Households

Individuals

Case Study
NSW National Parks and Wildlife Service

- Supported by **NARCliM climate change projections**, climate risks were identified for **key park functions** such as biodiversity protection, asset protection, and Aboriginal heritage management.
- **Adaptation pathways** were then used to document management responses for each function.
- The pathways **show staff what they can do** now to protect park assets and values, what they need to plan for, and what will be challenging to protect if climate.

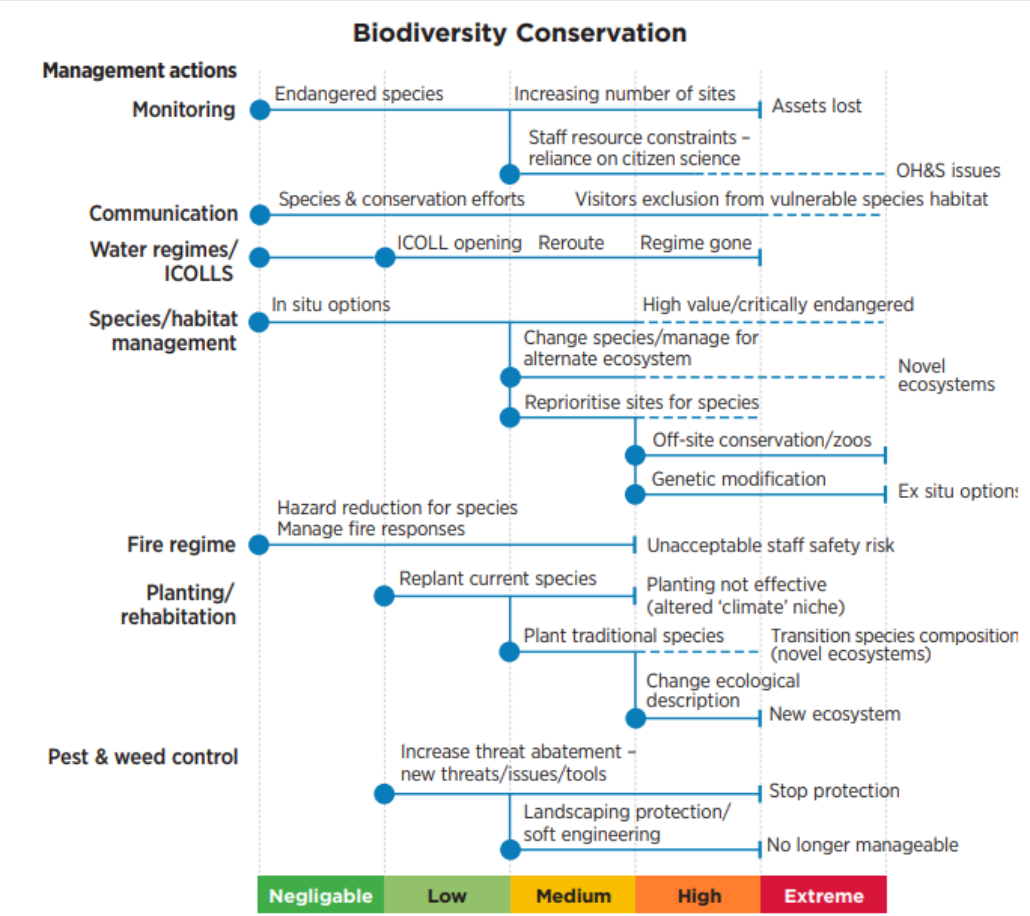

Figure 15: Biodiversity Conservation adaptation pathway developed to help manage climate risks to the NSW reserve system (Jacobs et al. 2018)

Climate Risk Ready NSW Guide

For the climate risk(s) identified for the relevant in the first scenario, discuss the following:

20 MINUTES

- 15 minutes in break-out groups
- 5 minutes to share key takeaways

Discussion points

- What are the **potential adaptation options**?
- What are the **key considerations** when prioritizing risk items and adaptation options?
- What are the **biggest challenges** when assessing adaptation options?

Stakeholder groups:

1. Council
2. Businesses
3. Community

Questions & Key Takeaways

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