

Are We Doing Enough to Improve Australia's Disaster Resilience?

Presented by Erwin Jackson and Kate Cotter

Monday 16 September 2024



Important notice for all participants

This meeting is being conducted in accordance with Institute's Code of Conduct and attended by members in their professional capacity.

It is acknowledged that professional members in their employed capacity, may be active market participants in their respective industries who may compete with each other as defined by competition law.

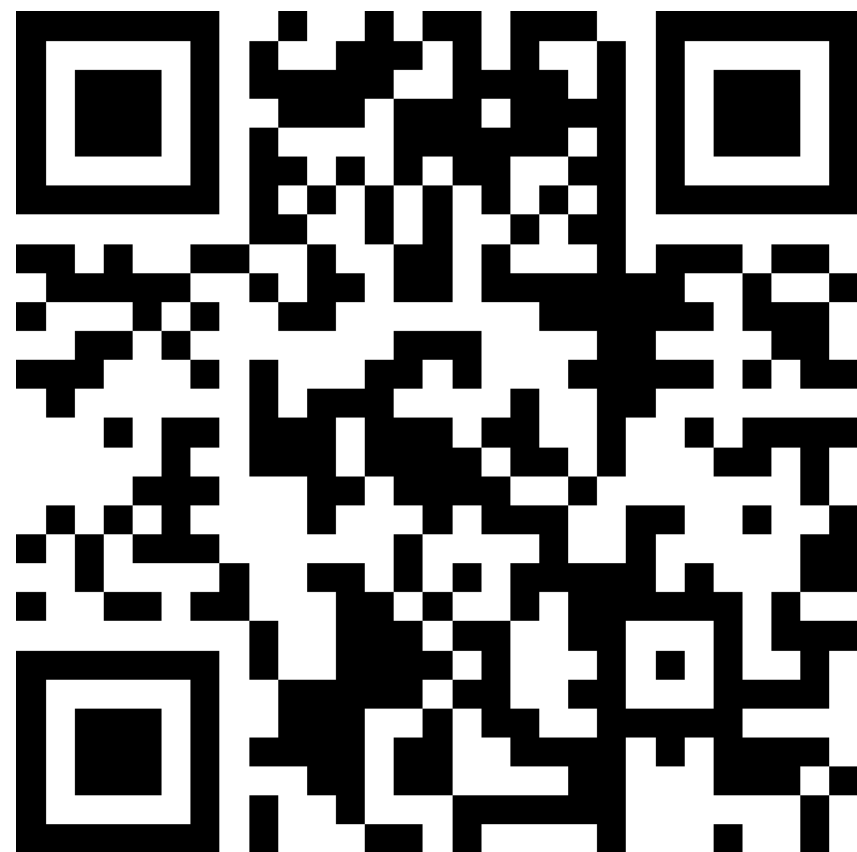
Participants are, therefore, reminded that in accordance with their competition law compliance obligations they should not:

- discuss any matter that may be perceived as being cooperation by competitors in a market to influence that market;
- discuss any matters that could be regarded as fixing, maintaining or controlling prices, allocation of customers or territories, coordinating bids and/or restricting output or acquisitions in any circumstances;
- share commercially sensitive information relating to their employer; or
- share information for an anti-competitive purpose.



Q&A

**Submit your
questions via
the QR code**





Investor
Group on
Climate
Change

Funding for resilience

Erwin Jackson
Managing Director,
Policy

Actuaries Institute September,
2024

Investor Group on Climate Change

About us

IGCC is the leading network of institutional investors in Australia and New Zealand.

Together we're mitigating the risks and seizing the opportunities of the global transition to net zero.

We are a not-for-profit organisation that connects, collaborates and advocates on behalf of our members.

104

members

\$35t

members' global
AUM

14.8m

members'
beneficiaries
across Australia &
New Zealand



How?

- Investor Practice
- Corporate Engagement
- Policy and Advocacy

 **IGCC SUMMIT 2024**

MISSION 1.5°

The Premier Climate Finance and Investment Event
7-8 November | Sofitel, Melbourne

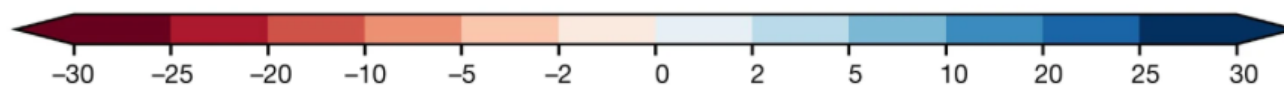
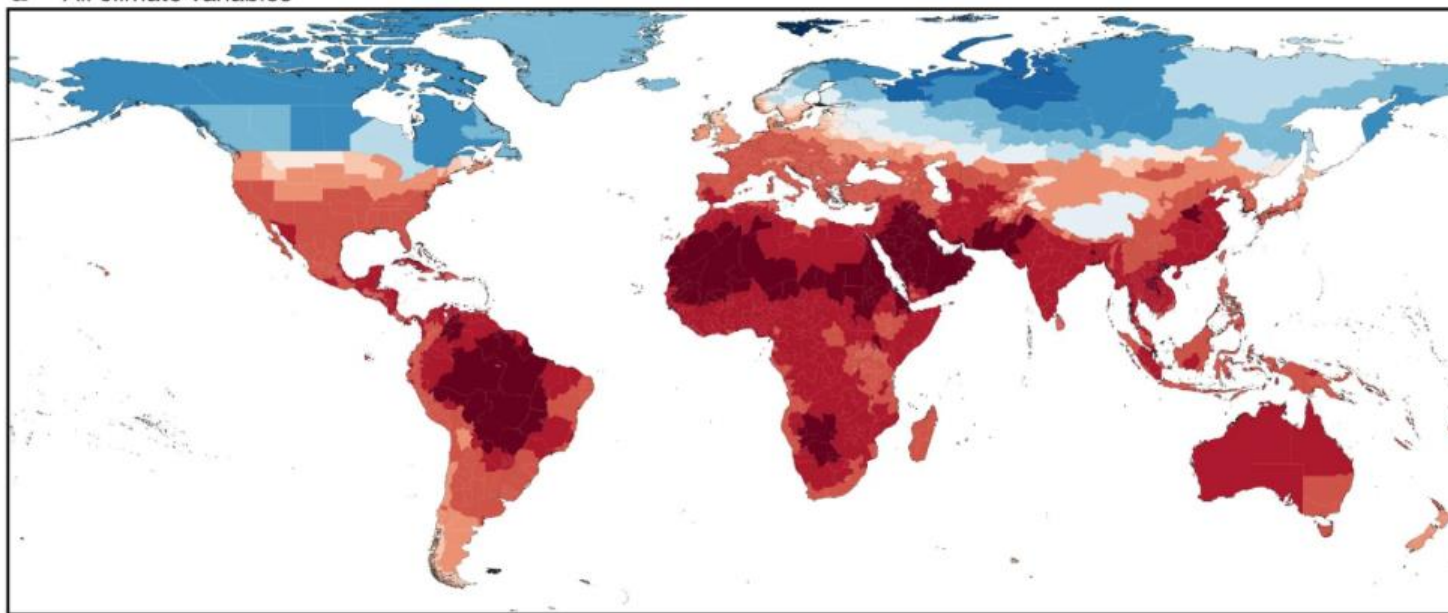
[More information](#)

Climate damages and investors

Investors can't divest from climate risk

Committed climate damages: US\$38 trillion a year by 2050

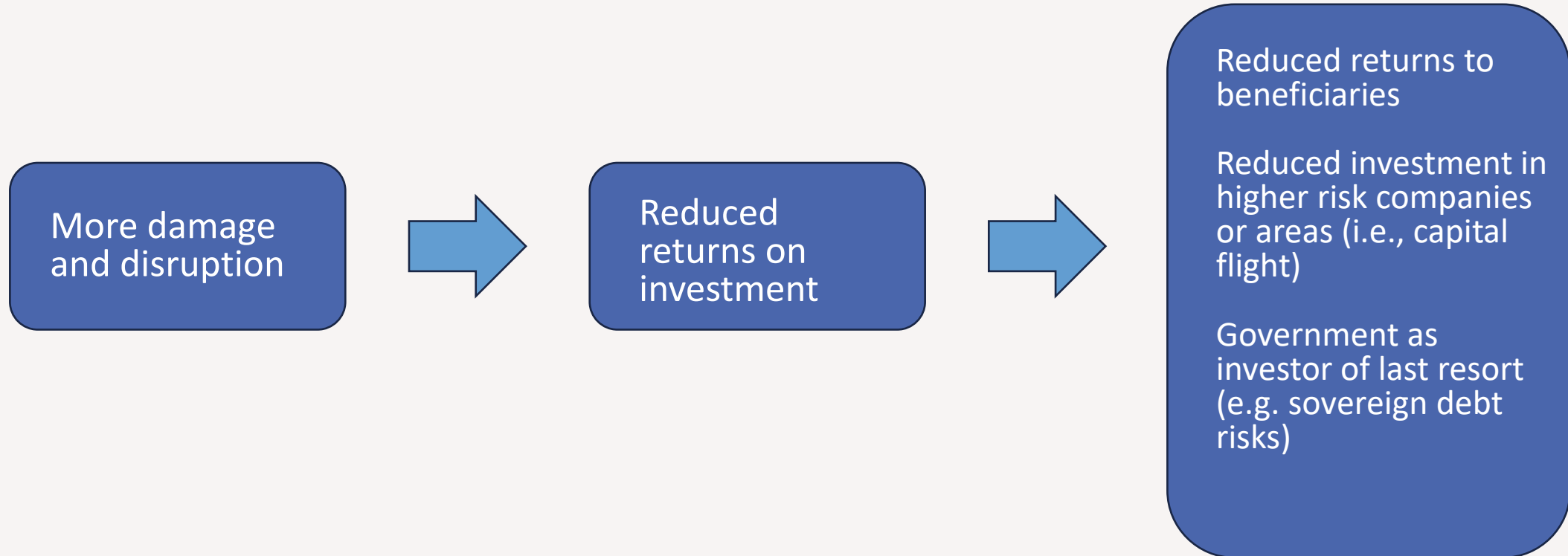
a All climate variables



Percentage change in income per capita
relative to a baseline without climate impacts

Kotz, M., Levermann, A. & Wenz, L.
The economic commitment of climate
change. *Nature* **628**, 551–557 (2024).
<https://doi.org/10.1038/s41586-024-07219-0>

Adaptation as a risk for investors



Minsky moment: are pension assets at risk due to flawed climate analysis?

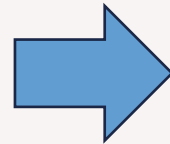
Adaptation as a risk for investors

Climate change puts sovereigns at downgrade risk, study finds

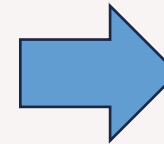
Investors grapple with physical climate risks, long-term impacts

Insurers becoming too risky for UniSuper

More damage and disruption



Reduced returns on investment



Reduced returns to beneficiaries

Reduced investment in higher risk companies or areas (i.e., capital flight)

Government as investor of last resort



"Lower sales volumes due to the bushfire crisis and floods resulted in a \$26 million decline in earnings, including a \$4 million in direct costs." *FY2020*



"\$45 million EBIT impact due to the combined impact of rain-days and floods on our sale volumes and additional operating and repair costs." *FY2022*

Snapshot

Investor analysis

- Significant declines in the value of Australian equities
- Other asset classes at earlier stage, but results similar
- Sudden repricing events are possible with very large impacts on returns and economy

BUT, investors acknowledge:

- Still at early stage of understanding the investment risk
- Only a few risks are captured and damages very understated
- Every new iteration of analysis shows larger damages
- Overall, physical risk is significantly underpriced in the market

Adaptation as an opportunity for investors

- Fund adaptation e.g., provide large amounts of capital up-front
- Spread risk (and costs) across time and space
- Competition can promote innovation and efficiency (and profit)

World's first dedicated climate resilience bond, for US\$ 700m, is issued by EBRD

AIIB Issues First Climate Adaptation Bond Targeting Resilient Infrastructure

CA Senate Approves Climate Resiliency Bond For 2024 Ballot, Measure Moves On To CA Assembly

Planning for Brisbane Airport's new runway: accounting for climate change

Runway height 1.5m above minimum regulatory requirements, channels to reduce tidal flooding, construction of a sea wall.

IGCC physical risk strategy

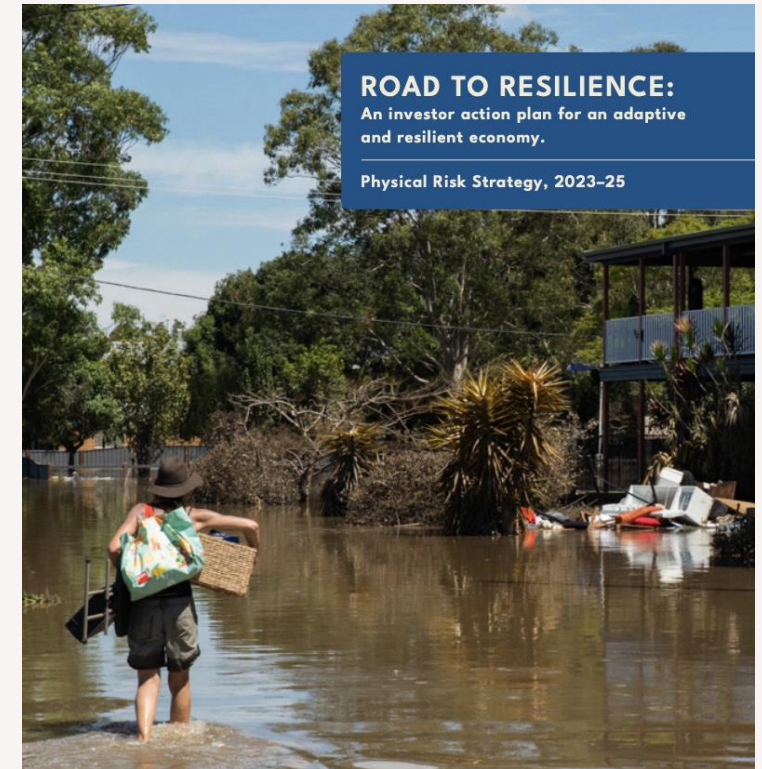
IGCC Physical Risk Strategy: Road to Resilience

Vision: Investors are managing climate change's physical risk by driving urgent, economy-wide adaptation and resilience.

Objectives:

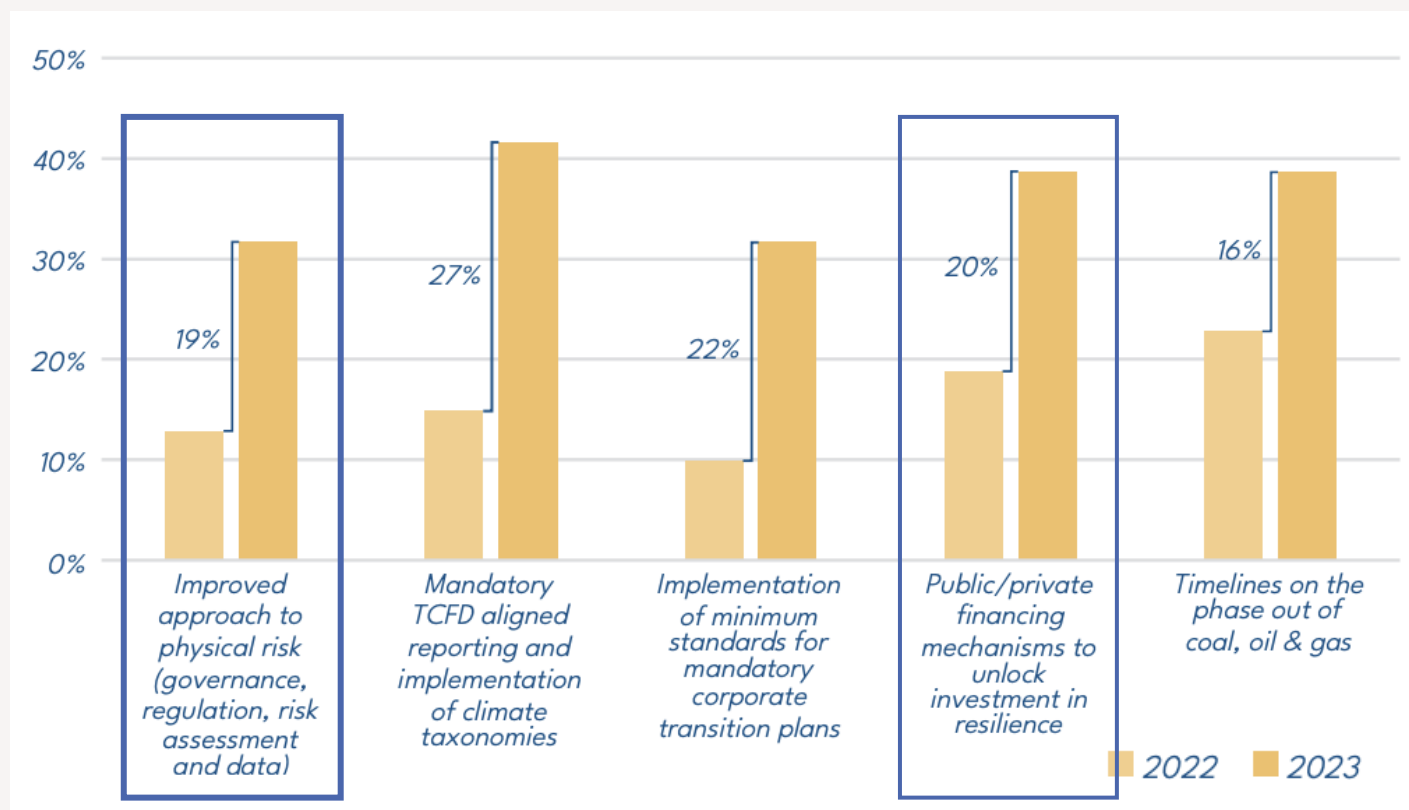
1. Integrate physical risk and resilience
2. Develop shared understanding
3. Advocate for investable policy
4. Deliver necessary private capital

Progress: four ongoing projects focused on listed equities, infrastructure, adaptation financing policy, and just adaptation.



[Report](#), released August 2023.

Increasing investor engagement on physical risk



Policy options

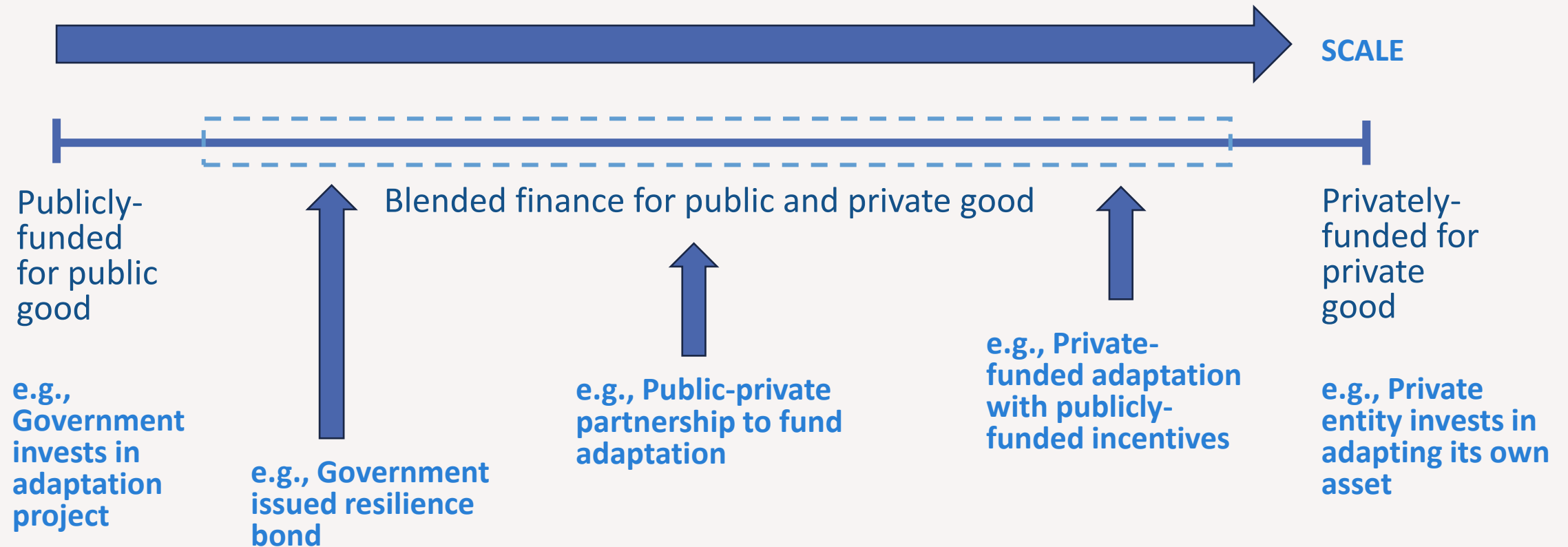
What “counts” as adaptation

- What “counts” as adaptation and is therefore eligible for green or resilience-focused financing
- IGCC is advocating for adaptation to be included in Australian Sustainable Finance Taxonomy

Taxonomy users	Economic activities	Types of adaptation
• Products & services	→ SME develops early warning systems for flood risk	→ Adaptation by an economic activity
• Corporate	→ Water utility deploys early warning system to reduce risk of flood	→ Adaptation of an economic activity
Examples of financial flows		
→ Investors hold shares in SME developing products for adaptation		
→ Banks loan money to utility to finance the deployment of early warning system		
→ Investors holds shares in utility with more climate resilient operations		

Figure 6 – Example of different types of adaptation activities and Taxonomy users

Adaptation benefits are spread across actors



Key takeaways

Funding for resilience

1. Adaptation is both a risk and an opportunity for investors.
2. There is significant appetite from investors to fund adaptation.
3. There are many different types of adaptation, and work is underway to identify these.
4. Different types of adaptation will require different types of funding.
5. More research is needed on the most effective ways to fund adaptation.



Investor
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Climate
Change

Contact

+61 2 8974 1160

Email

Website

Linkedin

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Actuaries Institute Insights Session



2009

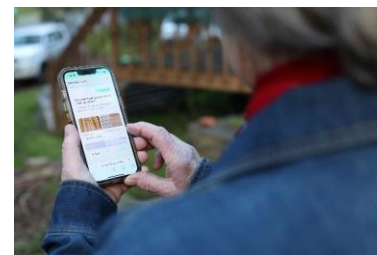
2014

2019

2022

2024

- Black Saturday Bushfires
- Launched RBC
- Bushfire Rating Model
- FORTIS Multi-Hazard
- Bushfire App
- Multi-Hazard Ratings



- MEASURE EFFECTIVENESS OF RISK MITIGATION ACTIONS - ASSET LEVEL & COMMUNITY/SYSTEM
- ADAPT THE BUILT ENVIRONMENT TO PROTECT PEOPLE, THE ENVIRONMENT & ECONOMY
- STIMULATE PRIVATE INVESTMENT IN EFFECTIVE RISK REDUCTION
- GENERATE RESILIENCE VALUE & NEW OPPORTUNITIES
- ACCESS TO AFFORDABLE INSURANCE & FINANCE IN A CHANGING CLIMATE

Dr Ian Bennetts

Civil, structural & fire engineering, RBC

Stephen Kip

Building policy, RBC, ABCB Board

Craig Lapsley

Community resilience, RBC

Loretta Durango

Community engagement, RBC

Vince Dowling

Building damage research scientist, RBC

Sharanjit Paddam

Actuary, Finity

Dr David Henderson

JCU Cyclone Testing Station

Pat O'Driscoll

JCU Cyclone Testing Station

Jeff Emmerton

Geospatial science, RBC

Kylie Steel

Climate resilience, RBC

Nicole Oliver

Director, Flood Risk Management, QRA

Dr Alan Green

UOW Sustainable Buildings Research Centre

Prof. Paul Cooper

UOW Sustainable Buildings Research Centre

April Muirden

Vic Dept. Energy, Environment & Climate Action

Prof. Tuan Ngo

Infrastructure Engineering, University of Melbourne

GOVERNMENTS

NEMA
PM&C
NSW RA
QRA
QLD EPW
DEECA VIC
ERV
NSW RFS
FEDERAL TREASURY
DSS
NSW TREASURY
ALGA

SCIENCE & INDUSTRY

ICA
ABA
IGCC
ASFI
JCU CTS
NASH
UOM
PREFAB AUS
GFI (UK)
NAB
SUNCORP
QBE
SWISS RE

INSURETECH
IBHS (USA)
MECLA
CSIRO
UOW SBRC
ABCB
STANDARDS AUST.
IAG
ICC (USA)
CBA
HOLLARD
ALLIANZ
HONEY

COMMUNITIES & NGO'S

ACOSS
RESILIENCE & RECOVERY GROUPS
PILOT HOUSEHOLDS
MILGROVE RESIDENTS ACTION GROUP
CASTLEMAINE INSTITUTE
ANGLICARE
BUSHFIRE RESILIENCE INC
MEN'S SHED
COMMUNITY PLUS
BRISBANE SUSTAINABILITY AGENCY
BUNDEENA PROGRESS ASSOCIATION
FRRR

RESEARCHERS

BANKING

SUPPLY
CHAINS

INSURANCE

LOCAL
GOVT

PRACITIONERS

FEDERAL
GOVT

COMMUNITY
ORG'S

STATE
GOVT

HOUSEHOLDS

INVESTORS

CONSTRUCTION

"Global insurers say Australia is running out of time to reduce its vulnerability to the climate crisis, and faces higher premiums for households and businesses.

We have received a strong message from global reinsurers to prioritise mitigation in the next 5 years or face them pulling out of the market.

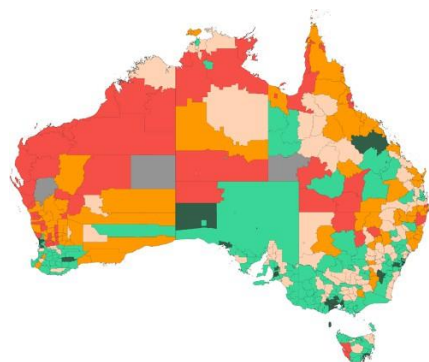
They like what we're saying but they want to see that backed up by action."

Assistant Treasurer Stephen Jones



A lack of adaptation action & investment increases risk of market failure:

- Increasing risk, increasing re/insurance costs
- Insurers need enough people to afford insurance premiums to pool the risk
- Insurance is required to access finance, including mortgages on homes & businesses
- Insurers & banks exit markets
- Capital flight - investors exit markets
- Stranded communities, stranded assets
- Increased climate inequality & poverty
- Increased (preventable) shocks to social systems, economy, markets, environment, financial system
- Increased reliance on Governments to fund insurance protection gap and escalating recovery costs



15% Australian households facing extreme home insurance affordability stress

[Actuaries Institute, Home Insurance Affordability Update](#), Aug 2024

“Given that banks require insurance for most things, like home mortgages and collateral on corporate loans, then banks’ collateral starts to become less valuable, and in turn institutional investments in banks and insurance companies start to themselves become less valuable.

*The reason for laboring this point, is that it was just **8%** of the US mortgage market that led to the Global Financial Crisis. Which cost the world nearly \$40 trillion to recapitalize banks and bail out the global system.”*

Steve Waygood, Chief Responsible Investment Officer, Aviva Investors. [ASFI Conference 6th Nov 2023.](#)



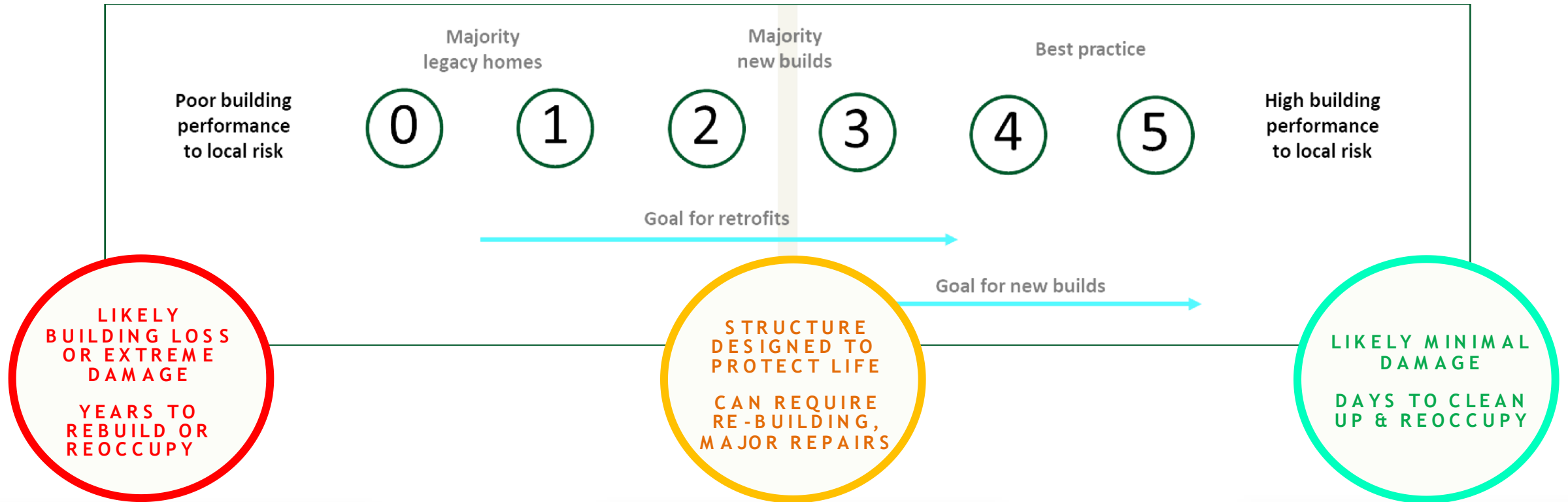


PHOTO: JOSEPH FEIL



PHOTO: JCU CTS



PHOTO: RBC



ASSESS

Self-assessment + remote certify, or on-site inspection. Provides as-built property data. Local risks.



VERIFY

Certifiers validate assessment & certify Ratings. Required for pricing & grants.



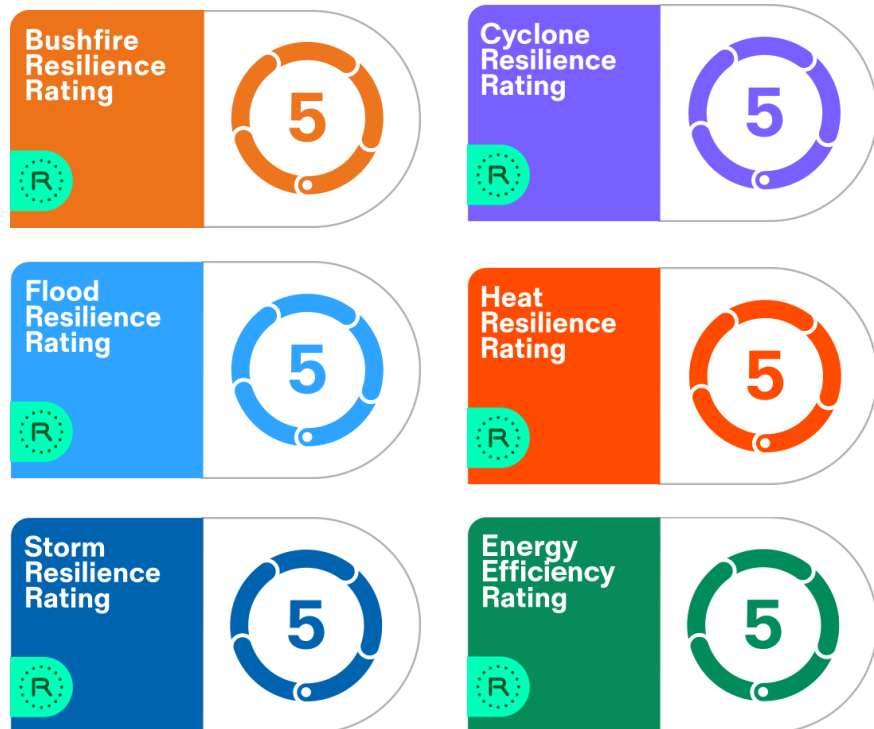
MEASURE

Building-specific component-level probabilistic models. Implementable resilience actions. Rating measures residual risk, required for pricing.

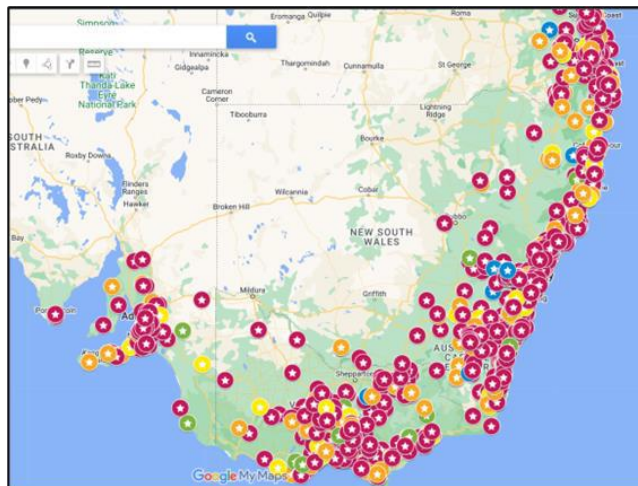


SCALE

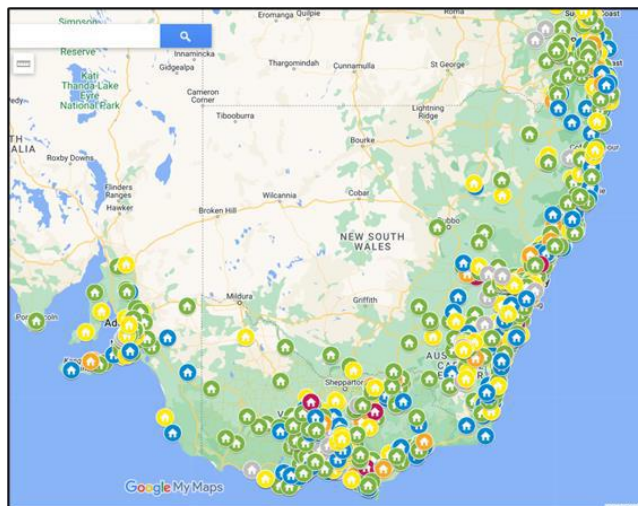
Free self-assessment, remote certification, partnerships – insurance, finance, builders, real estate, Gov'ts.



- **Measure** ability of building to defend itself (passive protection) to local risks - flood, bushfire, cyclone, storm, heatwave, and energy efficiency
- 300+ new data points, **verified** post-disaster building loss surveys, testing, research, expert consensus
- **Holistic assessment** - building construction & materials, services, landscaping, maintenance, storage, neighbouring homes & structures
- Probability of loss algorithms:
 - **measures residual risk**
 - degree damage, re-occupation rate
 - can integrate with any risk exposure model
- Project **partners** – Insurance Council of Australia, NSW & Commonwealth Gov'ts, Cyclone Testing Station, UOW Sustainable Buildings Research Centre



Resilience Ratings – prior to taking recommended actions



Resilience Rating Pilots – after taking recommended actions

Insurance Pricing Integration - Bushfire

- Reduction on bushfire component of premium, tiered discounts according to Ratings, 3, 4, 5 Stars
- Higher the risk component of the premium, higher the insurance discount
- Correct market signal - incentivises action in highest risk areas
- E.g. Winmalee, Blue Mountains, NSW, 5 Stars (single peril)
 - \$821.94 discount on \$4,182.86 annual premium
 - approx. 20% total discount
- Assessment, verification, measurement of residual risk – enables deeper insurance pricing recognition

Insurance Pricing Integration – Multi-Hazard

- Training & accreditation for assessors, 200x case study assessments in VIC, NSW, QLD
- Provides data for insurance pricing integration
- Flood & storm – higher peril component of premium compared to bushfire, larger premium reductions expected

2023

2024

2025

2026

2027

Phase 1

Free Bushfire Resilience
Home Self-Assessment App

Multi-Hazard & Energy
Efficiency On-Site Expert
Assessor Tool, Training &
Accreditation

Flood, bushfire, cyclone,
storm, heatwave, energy

COMPLETED

Phase 2

Extend Free Self-Assessment App
to flood, storm, cyclone & heatwave

Community Resilience Rating
Methodology, pilot & incentives, for
new developments

Resilience Investment Decision
Tool - data, CBA, effectiveness
mitigation options, community &
property

New Build Guides & Industry
Training

Phase 3

Multi-hazard Ratings new home
design tools, integrated with
NatHERS

Extend Resilience Ratings to
other building types including
strata, small business,
commercial, farm

International partnerships
Share Resilience Ratings
technology with other
vulnerable regions

FREE RECOMMENDATIONS REPORT

Improving your current Rating

The Bushfire Resilience Rating app helps identify the vulnerabilities of your home to bushfire attack. Every home is different, so the app provides customised recommendations based on the information you have provided.

The list of recommendations in this report provides practical retrofit actions that measurably improve the resilience of your home.



**RATING IMPROVEMENT IF
RECOMMENDED ACTIONS TAKEN**

Recommendations

Part 2/2

Category	Ref.	Recommendation	Done
Doors	DOR-01	Front door - install a metal kick-plate on the timber door, or install bushfire rated metal screens over the door, or replace door with a fire rated door.	<input type="checkbox"/>
Services	SRV-02	Building penetrations and fixtures should be made from non-combustible materials. Protect openings with ember mesh screens. Seal gaps around flashings and penetrations with fire rated silicone.	<input type="checkbox"/>
Outdoor Living	ODL-02	Pergola - replace fibreglass roof with non-combustible materials such as steel sheeting.	<input type="checkbox"/>
Storage	STR-01	Flammable items such as fuels, paints and chemicals should be stored in a safety cabinet within the garage.	<input type="checkbox"/>
Storage	STR-02	Move any plastic water tanks more than 10 metres away from the home or any other structure.	<input type="checkbox"/>
Water Supply	WAT-01	Ensure water pumps and sprinklers are well maintained and regularly tested.	<input type="checkbox"/>

Use the reference number for each recommendation to find further guidance at resiliencrating.org/take-action.

CUSTOMISED ACTIONS

FREE SELF-ASSESSMENT APP

Hi Kate.

45 Main Rd,
Bakery Hill VIC 3350

Settings

You have completed 12/12 categories

Get my Rating

Select categories below to answer questions. Complete all categories to get your Rating.

The home

General Questions

Roof

Glass

Doors

Underfloor

Services

Outdoors

Outdoor Living

Garage

Storage

Garden


Other Buildings

Water Supply


Feedback

Select all materials the external walls are made of.


If walls are rendered, select the material beneath the render, if known.




Bushfire resistant timber




All other Timber




Polystyrene (EPS)




PVC / plastic




Fibre cement



Metal



Brick / stone




Mud brick / rammed earth

Other

Feedback

Are any of these structures connected to the home?

Select all structures that apply and indicate if you have more than one of the same item.




Pergola

1

+

-




Porch/Verandah

1

+

-



Deck

2

+

-

I don't have any of the structures above.

Retrofit Handbook

Bushfire Resilience Rating

RETROFIT GUIDE
FOR HOUSEHOLDS & BUILDERS,
RBC TECHNICAL SUPPORT



PROVIDE PHOTOS &
DOCUMENTS FOR REMOTE
CERTIFICATION

Rating Summary

Address: NSW 2156

Issued: 21 June 2024, 8:32:39 am AEST

Report ID: KGR151C3H3ONC3N-03



Building performance

70%-80%

The building performance scale indicates the bushfire resistance level of your home's design and materials.

Environmental risk

High

The environmental risk scale indicates the potential level of bushfire threat at your location.

What does your Rating mean?

The higher your Rating, the higher the probability your home will survive the type of bushfire event likely at your location. The lower your Rating, the lower the probability your home will survive a bushfire event.

The higher the environmental risk, the stronger and more resistant the home will need to be to survive a bushfire event.



resilientrating.org

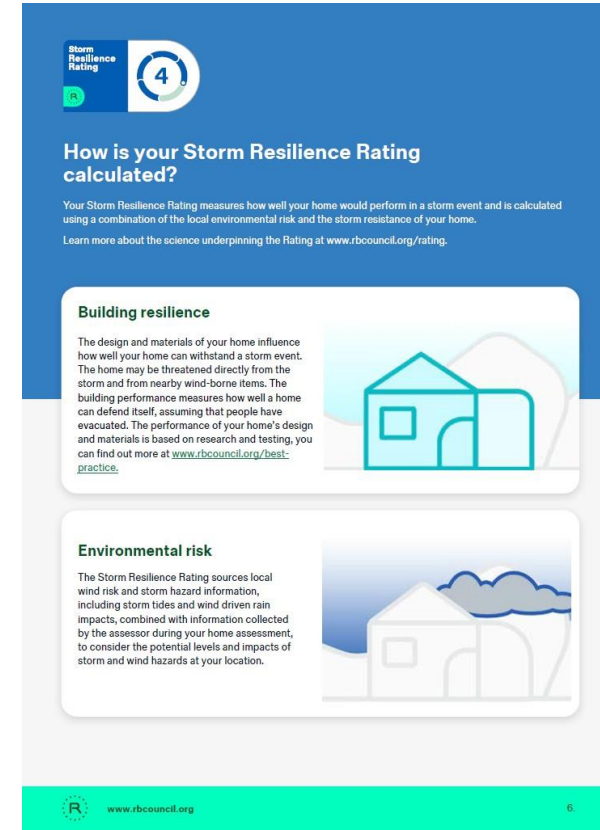
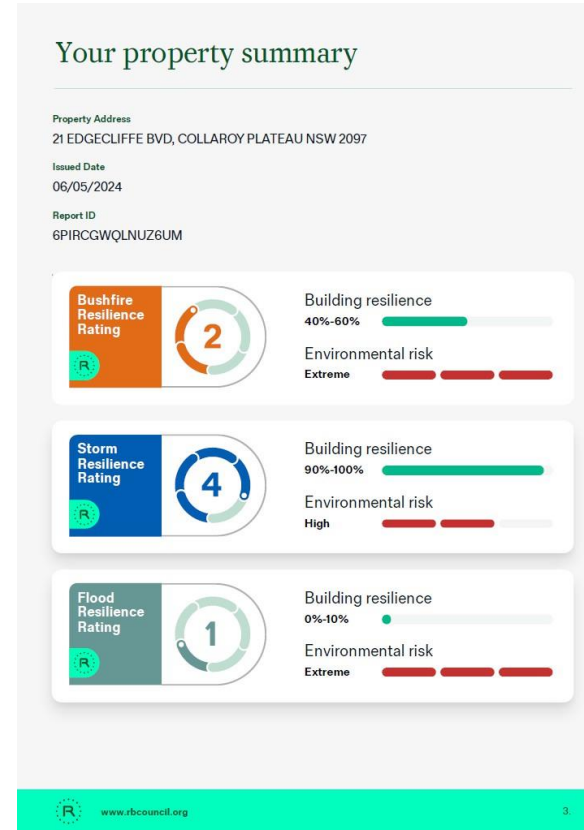
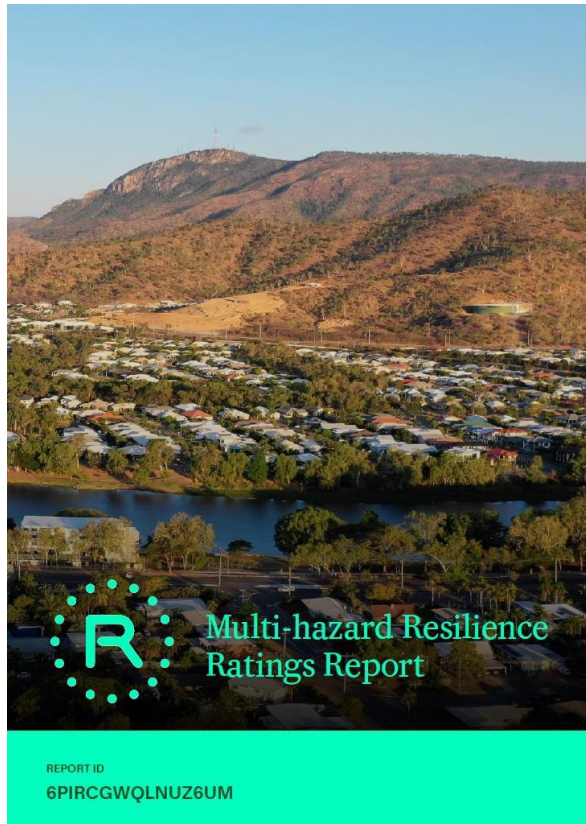
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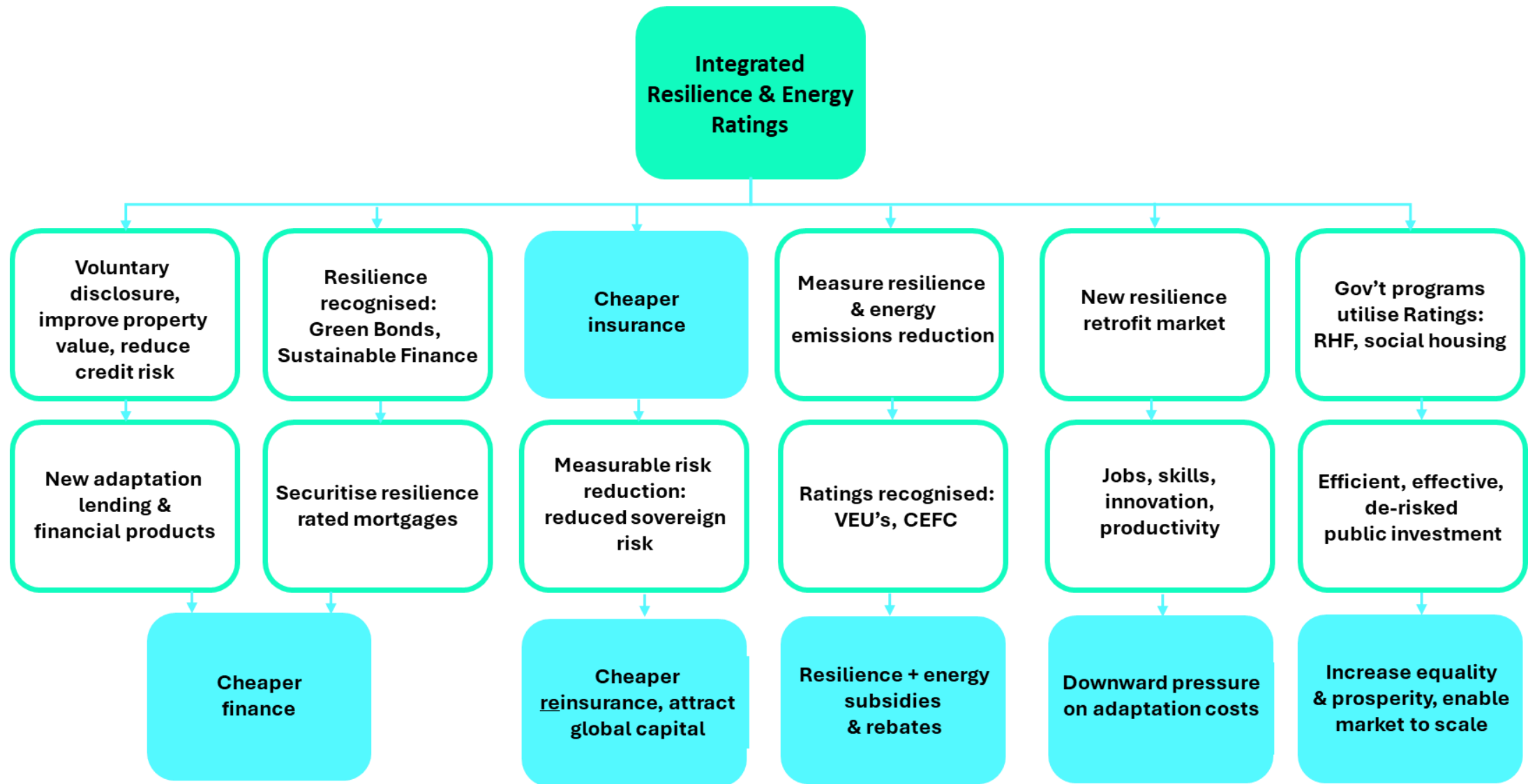
RATING CERTIFICATION

DISCOUNTS - MAR 24

- NRMA INSURANCE
- NAB
- APIA
- GIO
- SUNCORP INSURANCE
- AAMI
- SHANNONS INSURANCE
- + NEW INCENTIVES NOV-24

OPT-IN TO RELEASE
CERTIFIED RATING
TO GET INCENTIVES





5 million assessments,
new & legacy buildings

- 2M building owners take 4+ actions
- 60%+ average risk reduction
- 4M people in safer buildings
- \$22B adaptation construction value
- \$10B adaptation finance opportunity
- Reduced risk to \$1T worth of property
- Resilient social & financial systems

RBC works with the Commonwealth, State & Territory governments, agencies, LGA's, international partners, industry peak bodies, insurers, banks, reinsurers, investors, and community organisations to **embed and scale** the Ratings program

Q&A

**Submit your
questions via
the QR code**



Feedback

Please provide
your session
feedback via the
QR code





**Actuaries
Institute.**

Thank you

Actuaries Institute
actuaries.asn.au