Integrated solutions for bushfire adaptive homes (IBAH)

Preliminary findings from practitioners

Mittul Vahanvati

Senior Lecturer
Natural Hazards Research Australia

Acknowledgement of Country

RMIT University, CSIRO and University of Melbourne acknowledges the Wurundjeri people of the Kulin Nations as the traditional owners of the land on which our institutions stand.

We extend our acknowledgement to all traditional custodians on whose lands and waterways we conduct our research.

Our team respectfully recognises Elders both past and present.

Project Leads

Raphaele Blanchi - CSIRO
Raphaele.Blanchi@csiro.au

Mittul Vahantavi - RMIT
mittul.vahanvati@rmit.edu.au

Peter Kamstra -UoM
peter.kamstra@unimelb.edu.au

End users

Mark Holland – CFA
Chloe Begg – CFA
Melissa O'Halloran - RFS

Project Team

WP1: Resident focus
Brian Cook - UoM
Finn Arrowsmith - UoM

WP2: Practitioner focused
Garth Warren - CSIRO
Justin Leonard - CSIRO
Dulani Halvitigala - RMIT
Ashleigh Stokes - RMIT

Project purpose and aims

Purpose

To develop evidence-based insights into creating safer, sustainable and resilient homes as well as communities living in bush-fire prone areas.
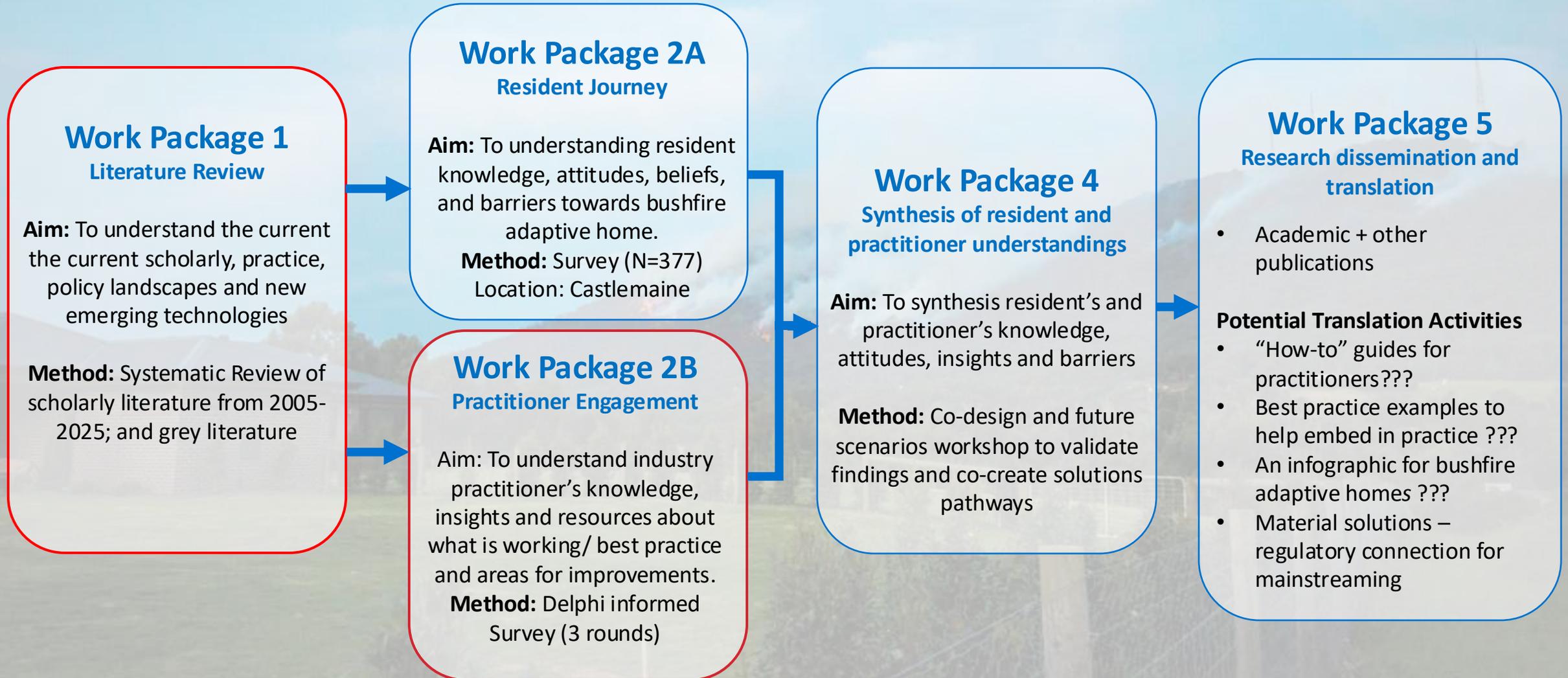
"Home" in a changing climate is understood a *complex socio technical challenge* facing residents, practitioners, and policy makers alike.
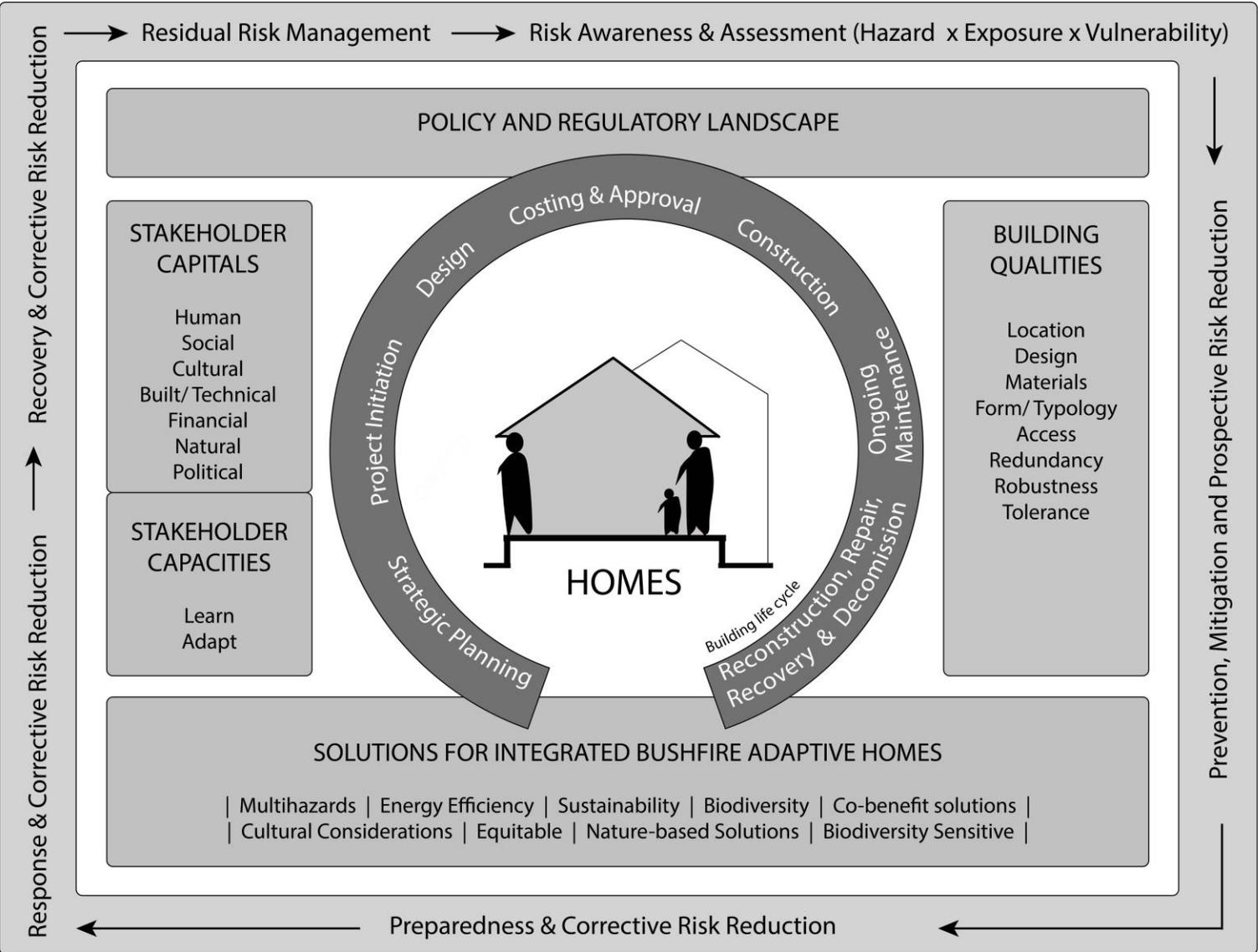
Aim

- Identify the key factors in survivability or failure of new or existing homes to bushfires
- Define integrated bushfire adaptive homes that blends design, regulations, community engagement and co-benefit solutions (such as sustainability, liability, and multi-hazard vulnerability reduction)
- Understand how policy frameworks, building and zoning regulations, support or hinder bushfire-adaptive housing and household preparedness

Research Approach

Work Package 1
Literature Review

Aim: To understand the current the current scholarly, practice, policy landscapes and new emerging technologies

Method: Systematic Review of scholarly literature from 2005-2025; and grey literature

Work Package 2A
Resident Journey

Aim: To understanding resident knowledge, attitudes, beliefs, and barriers towards bushfire adaptive home.
Method: Survey (N=377)
Location: Castlemaine

Work Package 2B
Practitioner Engagement

Aim: To understand industry practitioner's knowledge, insights and resources about what is working/ best practice and areas for improvements.
Method: Delphi informed Survey (3 rounds)

Work Package 4
Synthesis of resident and practitioner understandings

Aim: To synthesis resident's and practitioner's knowledge, attitudes, insights and barriers

Method: Co-design and future scenarios workshop to validate findings and co-create solutions pathways

Work Package 5
Research dissemination and translation

- Academic + other publications

Potential Translation Activities
- "How-to" guides for practitioners???
- Best practice examples to help embed in practice ???
- An infographic for bushfire adaptive homes ???
- Material solutions – regulatory connection for mainstreaming

WP1: State of the knowledge on IBAH

Conceptual Framework for Integrated Bushfire Adaptive Homes
Credit: Mittul Vahanvati and Ashleigh Stokes

WP2B: Methodology, Practitioner Engagement

Research Questions:

- What are practitioners' attitudes and knowledge of risk, technical factors (regulatory systems) and co-benefit solutions for bushfire adaptative homes?
- What barriers, enablers and future solutions to build or retrofit houses for bushfire adaptive homes?

Multi-round survey

- Drawing on Delphi methodologies to illicit consensus building

Round 1 – Early Feb (n=57)

- Targeted at their understanding of risks, solutions and professional practices

Round 2 – Early March (n=42)

- Reflecting on prior results and expanding questions

Round 3 – Mid April (n=36)

- Reflecting on the process of consensus building identifying takeaways from process

WP2B: Who are the 'practitioners'?

We targeted:

- Building compliance (i.e., surveyors)
- Builders, Construction sector
- Urban Designers and Architects
- Fire Services (CFA, RFS)
- Fire consultants (including Engineers)
- Urban and Regional Planners

Credit: Mittul Vahanvati
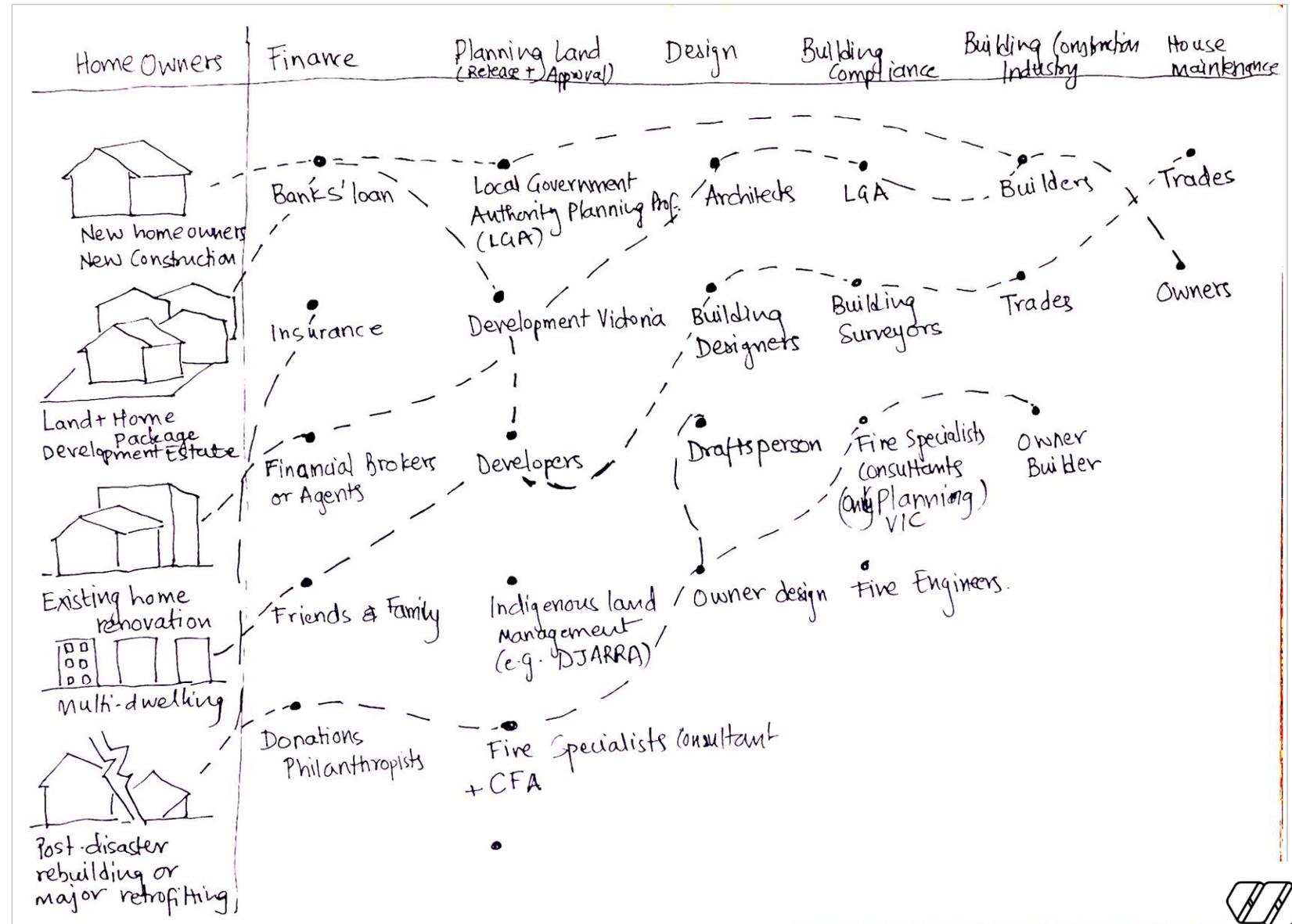
Findings: Practitioner's understanding of BAH

Understanding of BAH

- Design decision making, specifically **material and design** choices (n=17)
- Regulatory decision making, primarily **code compliance** (n=13)
  - But we did see Design practitioner highlight **beyond compliance** (n=4)
- Maintenance such as **ongoing maintenance** (n=11) and **landscapes** (n=8)

Professional responsibility for BAH…
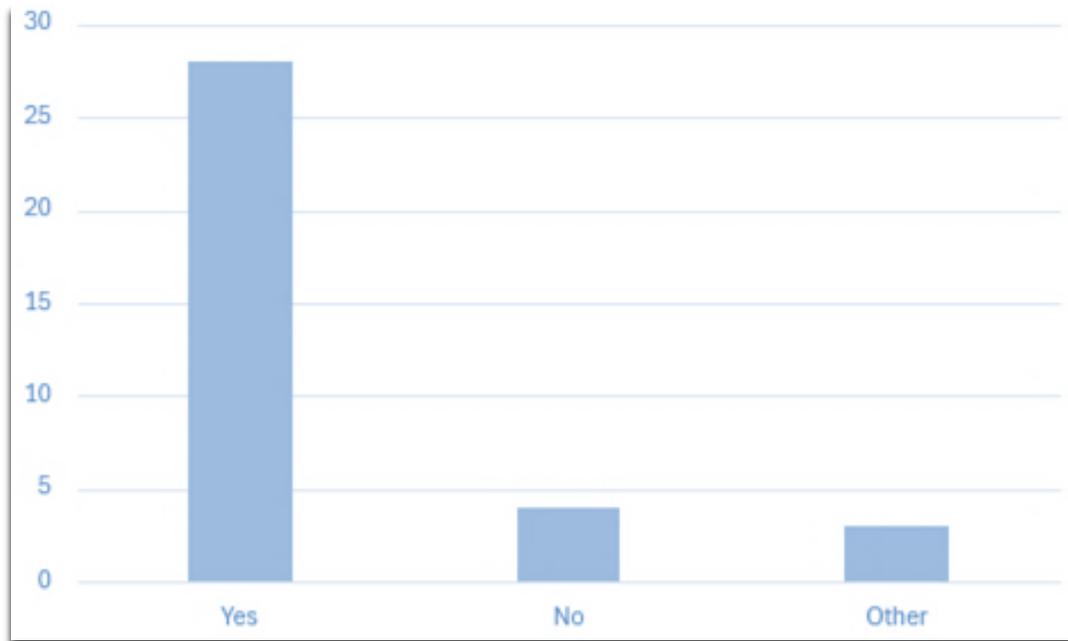
Findings: Practitioner's understanding of Risk

Practices of Residual Risk Communication

- The majority (61%) indicated that they **regularly communicate residual risks**.
- The majority (86%) indicated that they believed **communicating residual risks to be important for best practice**.

However, key challenges for Residual Risk Communication

- Practitioners felt there was **limited knowledge or metrics** for communicating residual risks
- Residual risk communication fell **outside of their formal role**
- Communicating residual risk **faced resistance** as residents often resist additional tasks or ongoing maintenance
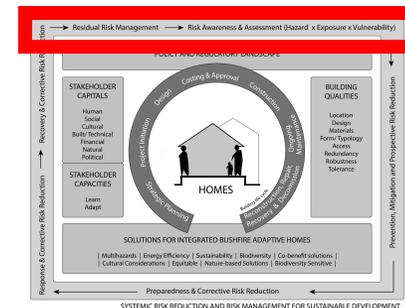
Barriers (highest to lowest)	Enablers
Cost • Financial costs associated with construction • Financial costs associated with compliance • Negative perception of actions that were seen to add additional costs	**Acceptance of risks, benefits and knowledge** • **Greater acceptance enables technical mitigation actions** • Technical information by practitioners helps build a general acceptance of the risks from homeowners living in bushfire prone areas
Resident Preference • Personal preference and values driving actions • Personal preference and values being a barrier to adopting technical information and actions	**Regulation** • Compliance with codes or regulatory frameworks as enabler (or enforcer of action)
Lack of awareness • Residents demonstrating lack of understanding of risk potential	**Affordability** • Discussions of cost-benefit analysis for action can be an enabler
Lock In • Revision in regulatory requirements contributing to bushfire risk lock in for homes built prior to changes • Resident practice without considerations for bushfire risk and creating bushfire risk lock in	

Past Experience

• Past experience with natural hazards can have greater uptake of technical solutions
• *HOWEVER*, many practitioners caveated that timing and prior experiences/ impact can influence how this information is mobilized

Findings: Practitioner's understanding of co-benefits
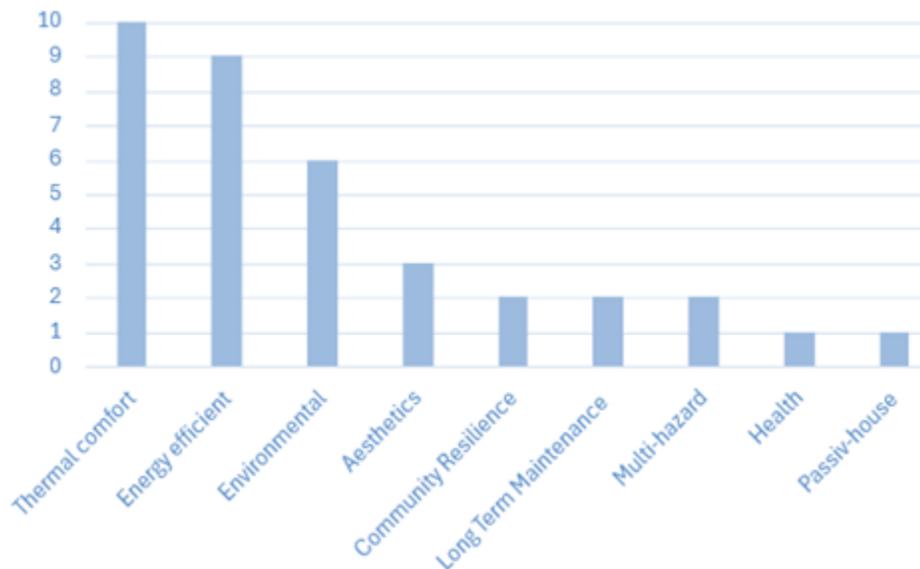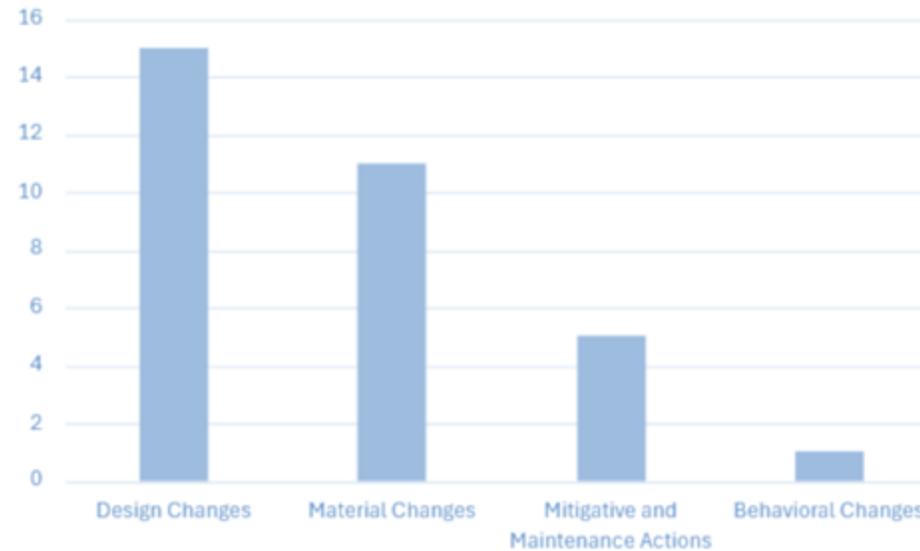
Barriers

(*for Co-benefit and Best Practice*)

- Costs (59%)
- Attitude and risk perception of residents (34%)
- Lack of clarification for mass application of **materials and regulations** (21%)
- Information and education (12.5%)

Enablers

(*for Co-benefit and Best Practice*)

- Insurance or financial mechanisms (21%)
- Enforcement (21%)
- **Materials solutions-regulation connection** (18%)
- Best Practice/ Model Home Examples (15%)

WP2B: Professional Knowledge, Attitudes, Up-keep and Boundaries
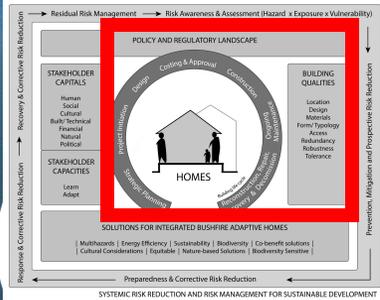

Barriers

- In the first round, a dominant theme in barriers was whereby practitioners understood there to be a challenge arising from:
  - a lack of skills, knowledge and experience attributed to **a lack of resourcing,**
  - **over-emphasis on technical information,** and **checkbox approaches to bushfire resilience**
- However, in the follow up survey, the majority responded that other elements than gaps in knowledge or effective capacity building were key causes. These included:
  - Imbalances in knowledge between practitioners and authorizing agencies
  - External factors pushing beyond existing knowledge (i.e., climate change)
  - Need for experience to build capacity and knowledge of bushfire adaptive practices (i.e. not knowing what it means, how to know whether it is achieved?)

Enablers

- Training and education (31%)
  - Public campaigns targeted at residents and professional development targeted at practitioners
- Opportunities for connection across professional boundaries for knowledge sharing (25%)
- Examples of best practice, compliant homes and settlements (21%)
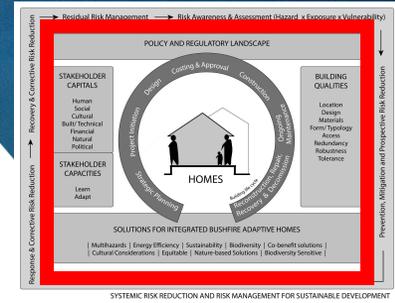
WP2B: Regulatory issues

Barriers

Conflict between bushfire regulations and other regulations (30%)

Interpretation of regulation (28%)

Disconnects between practice, practitioner and policy (15%)

Implementation (13%)

Enablers

Regular updates (19%)

Simplification or clarifications (19%)

Materials solutions-regulation connection (18%)

Networking and knowledge sharing (11%)

Desired Changes

Policy development and support from specialists (33%)

Ongoing compliance – clearer conditions and ongoing checks (28%)

Improved knowledge and skills development for navigating policy (22%)

- In the first round, we found a dominant theme whereby practitioners understood:
  - *Compliance to regulations was often driven by a need to meet formal requirements. However, this compliance **did not translate into an understanding of the protective intent of the regulation**.*
- This was seemingly reconfirmed in the follow up, with **28 practitioners (82%) agreeing compliance was driven by formal requirements.**
  - However, this was not perceived as a negative outcome for many practitioners, rather a consequence of 'good' regulation.

WP2B: Summary
What are levers for creating meaningful change in the building sector?

- Best-practice examples to help embed in practice
  - We are compiling a list

- Material – regulatory connection for mainstreaming adaptation

- Decision-making tools:
  - "How-to" guides for practitioners
  - An infographic for bushfire adaptive homes for all stakeholders

- Costs / insurance

- Definition of IBAH

  'Bushfire-adaptive home' refers to any fixed dwelling, whether retrofitting existing or newly built, that uses best practice to holistically consider bushfire risks relative to the dwelling and the parcel, with multi-hazard risks and climate-risks (i.e. adaptive) now and in future. Best practice actions include (but are not limited to) materials use and design options, construction, regulatory compliance, ongoing maintenance to property, vegetation management and resident capacity and knowledge. to improve probability of surviving a bushfire without presenting a life risk to its residents or their neighbours. The holistic nature of bushfire adaptive homes also includes multi-scalar considerations.
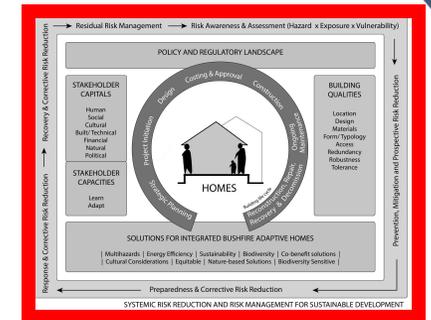
Thank you

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