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# Enhancing housing recovery policy and practice for improving community resilience to future disasters

**From the AHURI Inquiry:** Inquiry into housing policy and disasters: better co-ordinating actors, responses and data


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https://www.ahuri.edu.au/research-in-progress/inquiry-into-housing-policy-and-disasters-better-co-ordinating-actors-responses-and-data

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## Acronyms and abbreviations used in this report

| | |
|---|---|
| **ADF** | Australian Defence Force |
| **ADRF** | Australian Disaster Recovery Framework |
| **AGDRP** | Australian Government Disaster Recovery Payment |
| **AHURI** | Australian Housing and Urban Research Institute Limited |
| **ARPC** | Australian Reinsurance Pool Corporation |
| **BAL** | Bushfire Attack Levels |
| **COAG** | Council of Australian Governments |
| **CRC** | Community Recovery Committee |
| **DCJ** | Department of Communities and Justice (NSW) |
| **DFES** | Department of Fire and Emergency Services (Western Australia) |
| **DHS** | Department of Human Services (Victoria) |
| **DPE** | Department of Planning and Environment (NSW) |
| **DPLH** | Department of Planning, Lands and Heritage (Western Australia) |
| **DRA** | Disaster Recovery Allowance |
| **DRFA** | Disaster Recovery Funding Arrangements |
| **ERC** | Echuca Emergency Relief Centre |
| **ERV** | Emergency Recovery Victoria |
| **FEMA** | Federal Emergency Management Agency (United States) |
| **GST** | Goods and Services Tax |
| **HCC** | Housing Contact Centre (NSW DCJ) |
| **ICA** | Insurance Council of Australia |
| **JLG** | Johns Lyng Group |
| **LGA** | Local Government Area |
| **MRC** | Municipal Recovery Committee |
| **NDRRA** | Natural Disaster Relief and Recovery Arrangements |
| **NEMA** | National Emergency Management Agency |
| **NFP** | Not-For-Profit Organisation |
| **NGO** | Non-government Organisation |
| **NRRC** | Northern Rivers Reconstruction Corporation (NSW) |
| **NSW** | New South Wales |
| **NSWPW** | NSW Public Works |
| **NSWRA** | NSW Reconstruction Authority |
| **PPRR** | Prevention, Preparation, Response and Recovery |
| **QLD** | Queensland |
| **QRA** | Queensland Reconstruction Authority |
| **RCNNDA** | Royal Commission into National Natural Disaster Arrangements |
| **ROI** | Registration of Interest |
| **RV** | recreational vehicle |
| **SDRA** | State Disaster Relief Arrangements |
| **SEMC** | State Emergency Management Committees |
| **SRC** | State Recovery Committee |
| **THT** | The Housing Taskforce (NSW Reconstruction Authority) |
| **VBRRA** | Victorian Bushfire Reconstruction and Recovery Authority |
| **VIC** | Victoria |
| **VICSES** | Victorian State Emergency Service |
| **WA** | Western Australia |
| **WADC** | Western Australian Department of Communities |

## Glossary

A list of definitions for terms commonly used by AHURI is available on the AHURI website ahuri.edu.au/glossary.

# Executive summary

## Key points

- Post-disaster housing recovery is slow, frustrating and complex, with challenges set to increase. A pre-existing housing crisis and increasing climate-fuelled disaster threat means business as usual is not an option for decision makers.
- The best approach is prevention: enacting land use planning and zoning so construction avoids hazard-prone locations, such as floodplains, and providing sufficient bushfire protections.
- After a disaster a wide range of housing responses are used. Those able to will rebuild while others receive temporary accommodation. Many have limited options and move away or return to dangerous homes. There are no magic bullets.
- Local accommodation options, such as parks, motels and hotels, utilise existing infrastructure and support local economies.
- Temporary housing villages are costly, take time to build and delay problem solving, and create new problems. Temporary housing villages should be seen as a last resort and, if used, should include a transition plan at inception.
- Local Government Areas with adequate resources should play a central role in community mitigation and preparedness planning, such as identifying areas for planned relocation and implementing post-disaster temporary accommodation arrangements.

- **Buybacks and planned relocation present a positive mitigation approach but are complex, can take time, and can be divisive in communities where only some receive or take up offers.**
- **Home insurance premiums are becoming unaffordable, thereby decreasing people's ability to recover. Future arrangements need to consider alternative forms of insurance policy that involve private (insurers) and public (government) actors.**
- **Build back better approaches need to become the norm in rebuilding, with insurance and other prevention mechanisms supporting active improvement rather than simple asset replacement.**

## Key findings

Post-disaster housing provision is frustrating and complex, with challenges set to increase. A 2024 report by Domain (2024) found that almost half of all Australian properties (5.6 million) are at risk of bushfires, with an estimated value of $4.6 trillion. The larger states have the most vulnerable properties, dominated by New South Wales (1.9 million homes valued at $2 trillion), Queensland (1.6 million homes valued at $1.28 trillion) and Victoria (763,000 homes valued at $592.3 billion). A report by Climate Valuation (2024) concluded that, by 2030, over three million homes will be exposed to flooding from rivers, with half a million considered to be high risk. In addition to this, Australia is undergoing large-scale house building, with 1.2 million new homes planned for development between 2023—28 (Australian Government 2023).

After a disaster people and authorities employ a wide range of housing responses. Home owners and landlords may be able to rebuild, but smaller towns and rural areas are hampered by rising costs and tradesperson and material shortages. Some people live in uncertainty in a range of temporary accommodation measures, while others have little choice but to move away or return to dangerous homes. Post-disaster housing options such as parks, motels and hotels utilise existing infrastructure and support local economies. Other options include campsites, caravan parks, recreational vehicles (RVs), hotels and people lodging with others. There are no perfect solutions, and all approaches are comprised of elements of trade-off and frustration for affected people.

Temporary housing villages are costly, take time to build and delay problem solving, while creating new problems. They should be seen as a last resort and, if used, must include a transition plan for people, buildings and associated infrastructure at inception. The challenges of temporary housing villages experienced in Australia align with international post-disaster experiences (Sanderson, Sharma et al. 2014; Vahanvati and Mulligan 2017).

Mitigation measures such as buybacks and managed retreat present constructive approaches but are complex, can take time and can be divisive in communities where some people receive offers and others do not. Challenges in the $700 million Northern Rivers Resilient Homes Program included *'the absence of a pre-existing agreed approach and criteria for large-scale relocation based on an agreed threshold of what level of disaster risk the community is willing to accept'* (NSWRA 2023a: 80). The 2023 NSW State Disaster Mitigation Plan notes that currently *'there is no agreed approach or identification of tolerable risk for large-scale relocation in response to other natural hazards, such as coastal hazard'* (NSWRA 2023a: 80).

Build back better needs to become the norm in post-disaster housing rebuilding in Australia, with standards, frameworks and insurance all supporting active improvement rather than asset replacement. Concerning the former, the 2020 Royal Commission into National Natural Disaster Arrangements (RCNNDA) put forward recommendations to guide and assist the ways that build back better is practised before and after disasters. This includes *'amending the National Construction Code to add the resilience of buildings to natural hazards as an objective'* (RCNNDA 2020: 399) and that the *'DRFA processes should be streamlined to better incorporate the principle of build back better to strengthen resilience in communities'* (RCNNDA 2020: 455).

Current insurance premiums are unaffordable for many, massively increasing vulnerability. Future insurance arrangements need to consider alternative forms of insurance policy that involve both private (insurers) and public (government) actors. Underinsurance is likely to become increasingly problematic as floods and bushfires intensify and become more frequent in the future. The median increase in home insurance premiums in 2023 was 28 per cent, but the impacts were far more significant for the highest-risk properties, increasing by more than 50 per cent (Actuaries Institute 2023). By 2050, the average annual cost is projected to be $2,509 due to extreme weather, especially in hazard risk areas, where these figures are significantly greater.

The best approach is prevention, for which longstanding approaches are in place. These include building codes, building regulations in bushfire zones, and land use planning. Greater attention to enforcing these existing regulations, particularly building on floodplains and in riverine areas, should be a priority. It is important to go beyond discussions about risk awareness. The land use planning system can be made more effective at steering development through better coordination with infrastructure decisions and through stronger enforcement powers to prevent non-compliance.

Building the capacity of Local Government Authorities (LGAs) to better plan and enact pre- and post-disaster housing is a step towards improved community-centred actions. Globally, LGAs are 'the missing link' for improved community-centred recovery (Vallance 2015), given that governance arrangements for disasters are usually centralised at the upper levels of government. In Australia, as shown herein, some post-disaster funding for LGAs is provided, but this is insufficient and does not reflect the central role they should be playing.

## Policy development options

There are several opportunities for policy development and practice change:

- Develop a stronger and more powerful role for LGAs across all stages of disaster management – preparedness, prevention, relief and recovery.

  This would be a step towards localisation and is in line with the *Australian Disaster Recovery Framework's* (2022) principle to use community-led approaches and to prioritise local ownership: '*Recovery doctrine in Australia commits to recovery efforts being designed for and maintaining focus on a community-led and locally managed model, even when coordination efforts are escalated to an inter-jurisdictional or national level'* (ADRF 2022: 5). Current actions are largely reactive, top-down and short-term.

  In preparedness planning, LGAs could identify sites for post-disaster temporary accommodation and put in place arrangements for using existing housing and infrastructure in the event of a disaster. This would include caravan parks, use of RVs, hotels, temporary housing and holiday homes. Temporary housing villages should be a last resort and, if enacted, have a clear transition plan for people, buildings and infrastructure that are identified and thought through at the design stage.

- Ensure especially vulnerable people do not 'fall through the cracks'. People experiencing homelessness, those living with a disability and older people (especially those living alone) are particularly at risk. In most communities, local support agencies provide support but are challenged by limited funding. More stable funding options as part of localised preparedness planning, such as keeping older people in their homes, could be strengthened.

- Options to develop affordable insurance or other safety nets for those in dangerous areas whose home are at risk requires policy exploration and development. Initiatives such as the Hazards Insurance Partnership (HIP), managed by the National Emergency Management Agency (NEMA), are welcomed.

- Developing policies that promote approaches to build back better with incentives (rather than simply replacement) should be a priority.

- LGAs could play a pivotal role in identifying areas for planned relocation and leading community-centred agreed-to criteria for potential buybacks, ensuring transparency and equity in decision-making (such as who is made an offer and who is not).

  For buybacks, a guiding principle should be 'do no harm'. As part of preparedness planning, all locations subject to possible buybacks should develop preparedness plans with clearly understandable and agreed-to criteria by communities beforehand (this is another area where LGAs could be pivotal).

  Managed retreat may become an increasingly important approach in future years, particularly in riverine areas. How to approach this is a challenge, especially in locations where communities do not want to leave.

## The study

Intended for government, policymakers and practitioners, this research is part of the AHURI Inquiry, *Housing policy and disasters: better co-ordinating actors, responses and data.* It aims to improve housing policy concerning disaster preparedness, prevention, mitigation, response and recovery by enhancing co-ordination. We report on short-term recovery and longer-term mitigation actions.

The policy issues this research informs is how housing recovery policy and practice can improve community resilience to future disasters. The context is of escalating climate-fuelled rapid onset disasters such as bushfires, floods and windstorms affecting increasing numbers of people having their homes damaged or destroyed, within a setting for many of a housing crisis of unavailability and unaffordability. The research looked at seven case studies across Western Australia, New South Wales, Victoria and Queensland, dating from 2009 to 2022. Hazard types comprised bushfire, flood and cyclonic windstorm.

Original research was carried out between May 2023 and June 2024 in four case study locations in Victoria and New South Wales (key informant interviews (n=35), workshops (n=3) and focus group discussions (n=1) with housing providers, service providers, local and state government, and one-on-one interviews with disaster affected community members (n=17)). For the case studies in Western Australia and Queensland, published academic and grey literature was used, along with a limited number of key informant interviews.[1]

Supporting the case studies, other research methods comprised a literature review and an online survey. The literature review examined academic literature on housing reconstruction and recovery policy and practice, including measures for emergency, temporary and permanent housing, as well as measures to relocate, retrofit, raise or buyback existing housing. A review of news and grey literature was also conducted (including royal commission, independent, parliamentary, not-for-profit and community reports). The online survey was conducted between January and May 2024 to supplement insights. It was advertised in each case study location and online using social media. Respondents (n=30) reported on their experience of housing and service delivery, insurance, government funding and support, and the degree to which they felt their community was included in making decisions.

1 The Queensland case study comprised of desk base research only. Key Informant Interviews were prioritised in Western Australia due to communities still undergoing housing recovery and reconstruction from recent disaster events.

# 1. Introduction: post-disaster housing opportunities and challenges

- **Recent events in Australia continue to highlight a range of challenges—and opportunities—concerning housing relief, recovery and reconstruction following a disaster.**
- **Challenges include chronic underinvestment in housing stock—increasing vulnerability, reducing available options, and resulting in temporary fixes becoming long-term.**
- **Involving local government, community members and other local actors in decision-making is one opportunity to shift the current predicament of state of post-disaster housing.**
- **Indeed, there is a need to understand the recovery approaches that meet immediate needs and contribute to communities' preparedness, mitigation and prevention of future disasters.**

The threat to housing in Australia from natural hazards is increasing, with replacement costs and logistical issues regarding rebuilding continuing to escalate. A report by the Climate Council of Australia (2022) found that one in 25 Australian homes (around 500,000 homes) is at high risk of becoming effectively uninsurable by 2030. These warnings are evident in the cost of rebuilding after the 2022 floods in Lismore, New South Wales: estimated at $1 billion (Lismore City Council 2022). The need for financing housing and community preparedness and rebuilding efforts for the improved safety of housing and its residents is urgent.

The specific focus of this Research Project is to address the research question:

- What are the best housing recovery approaches that meet both immediate needs and contribute to the preparedness, mitigation and prevention of future disasters?

This question is addressed through three sub-questions:

- What are the current community-level policies and programs that support housing recovery to build back better, as well as acting to reduce the consequences of future disasters?
- What forms of housing recovery assistance (including a mix of public and private interventions) have been previously implemented that have enabled local communities to successfully transition towards housing recovery, as well as increase their resilience to future disasters? Conversely, what has been unsuccessful?
- What are the opportunities for improved coordination of housing policy and practice at the community level to enable more effective and inclusive recovery, as well as increasing community resilience across all stages of the disaster cycle?

Insights are intended to support decisionmakers, including governments at all levels (federal, state and local), policymakers and practitioners.

Recent disasters demonstrate the great need for research on this topic area, particularly the 2019—20 bushfires, with more than 3,000 homes destroyed (DPS 2020), and the 2022 east coast floods that damaged more than 5,000 homes in New South Wales and 20,000 in Queensland. In response to the 2019—20 NSW bushfires, governments at all levels have enacted policies and dedicated practice-based recovery agencies, including the National Emergency Management Agency (NEMA).

In Australia, as elsewhere, most attention, effort and resources are directed toward the immediate post-disaster phase. Typically, external agencies are called on to spend large amounts of money quickly, focusing on immediate needs. Concerning housing, this means the organisation or building of temporary housing, sometimes at a high cost, intended to last for a short while. While this sometimes works, the lesson from international practice is that temporary housing is seldom temporary (Sanderson, Sharma et al. 2014) and that budgets intended for recovery are expended, leaving communities in a state of permanent recovery. As time passes, political, financial and media interest shift from those affected, becoming largely forgotten. It is much harder to gain political and financial interest in pre-disaster preparedness and prevention planning – the outcome of successful prevention is, as the saying goes, a series of non-events, for which there is little credit for decision makers (Global Shelter Cluster 2018).

The impact of disasters on housing currently intersects with chronic shortages of available housing, a highly competitive rental market nationally, and issues around timely housing development following resource shortages after the COVID-19 pandemic.

Enhanced community resilience to future disasters, particularly by focusing on forward-looking strategies to boost housing security and durability, is understood in this report with reference to literature and policy frameworks shaped by systems thinking. Resilience is taken to be continuous capacity building and enhanced decision-making for response and coordination. Cutter (2016: 111) describes it as a 'dynamic process that includes feedback, adaptive learning and change.' This encapsulates various actors, approaches and knowledges that enable enhanced capacity to pre-empt, protect against, respond to and learn from disasters.

## 1.1 Housing and disaster policy context

Post-disaster housing reconstruction and recovery is part of a broader suite of policies and programs at all levels of government (federal, state and territory and local) for hazard management, organised around prevention, preparation, response and recovery (PPRR). This reflects a longstanding international approach that is structured around discrete disaster management phases corresponding to periods before, during, and after. In this highly structured environment, roles and responsibilities for managing disasters, including effects on housing and people, are divided across all levels of government.

This notwithstanding, a shared ethos has become mainstream, as seen through the Council of Australian Governments' (COAG) *National Strategy for Disaster Resilience* (COAG 2011: iv). This stresses that disasters and their impacts, including on housing, should not be seen as the domain of one sector or institution, but as a **shared responsibility** between governments, communities, businesses and local people.

Such a framework assists in identifying the actors involved and their actual or potential roles and responsibilities, thereby shedding more light on how each is understood across the disaster management landscape.

### Australian Government

The Disaster Recovery Funding Arrangements (DRFA) outlines how disaster management, including post-disaster housing recovery costs, are to be shared between the state and territory governments and the Australian Government, and the types of expenditure that are eligible under the program (Categories A to D). For example, the Australian Government may cover up to 75 per cent of the costs of recovery assistance provided to individuals and communities, through means such as personal hardship (Category A), the restoration of public assets and counter-disaster operations (Category B), community clean-up and recovery grants (Category C), and assistance required over and above these categories (Category D), such as temporary and modular housing, as explored in the case studies of this report.

### State and territory governments

State and territory governments have developed disaster mitigation and emergency management plans that set out key roles and responsibilities, timeframes, funding and assistance measures. In the context of recent disasters, these plans have been developed in direct response to the severity and extent of particularly devastating bushfires, floods and storms on the environment, housing, human life and critical infrastructure. For example, following the 2019—20 Australian Bushfires, State Recovery Committees (SRCs) were established, predominantly as sub-committees of State Emergency Management Committees (SEMCs). SRCs are usually charged with overseeing the development of recovery advice, policymaking and program implementation.

### Local governments

Typically, local governments play a central role in local hazard mitigation, prevention and, increasingly over the past decade, in preparedness activities (Ryan, Johnston et al. 2020). In this way, local governments are most active prior to and after a disaster, with immediate relief activities being led by state, territory and federal organisations and agencies.

A review identified several challenges at the local government level that affect their power and influence (Forino, Von Meding et al. 2018). This included political sensitiveness around climate change, policy and program uncertainty at higher government levels, and competing interests and funding between local government departments. These represent opportunities for improved focus and coordination.

### Build back better

Bodies such as the United Nations Office for Disaster Risk Reduction further influence housing recovery and reconstruction through frameworks aimed at lessening future devastation on human settlements. This includes the build back better framework via recovery, rehabilitation and reconstruction phases being strategically used to increase the resilience of governance systems, infrastructure and communities to future threats.

Overall, reviews and inquiries into housing recovery and reconstruction in Australia continue to highlight issues concerning the interoperability of departments and agencies at each tier of governments. In addition to this, there is little clarity about the role of local communities in the Australian Government's shared responsibility framework.

## 1.2 The current research

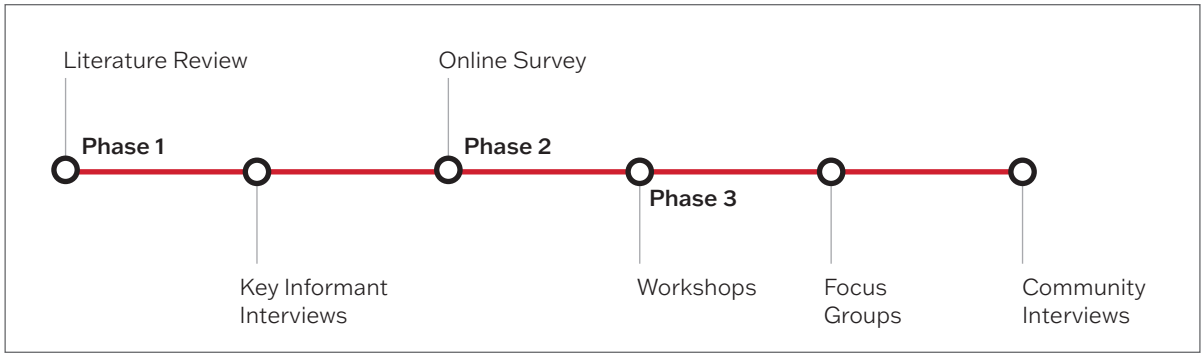
This report seeks to understand what the effective housing recovery and resilience-building policies and programs are, from the local level, all the way through to the national level, including both private and public supports. To this end, housing recovery to disaster resilience transition requires an intersectional perspective, that addresses issues at the intersection of technical resilience (such as land use planning, building design and construction), social resilience (citizen inclusion), cross-sector collaboration, substantial financial resources and political support (policies and strategies, multi-level governance; Global Shelter Cluster 2018) (Gupta, Vahanvati et al. 2020).

The research received approval from the UNSW Human Research Ethics Advisory Panel B: Arts, Architecture, Design and Law, approval numbers HC230218 and iRECS4333.

## 1.3 Research methods

Six data collection methods were used across three phases (Figure 1) to answer the research questions: a literature review, key informant interviews, and workshops; findings were supplemented with a survey, focus groups and community interviews. The combination of methods used across the seven case studies (i.e. desk based or field research) differed based on the time since disaster impact, as elaborated on below.

**Figure 1: Phased research methods employed for this research**




### Literature review

A bibliometric review of academic literature on housing reconstruction and recovery policy and practice forms the basis of our research. This includes measures for emergency, temporary and permanent housing, as well as measures to relocate, retrofit, raises or buyback existing housing. Within out review, there is an emphasis on measures to build back better and address community vulnerability and that builds resilience capacity. Appendix I provides details of the bibliometric review. A narrative review (Booth, Sutton et al. 2016) of news and grey literature was also conducted (including royal commissions, independent, parliamentary, not-for-profit and community reports).

**Table 1: Research methods, sector focus and participant numbers**

| Method | Sector | National | NSW | VIC | WA | Total |
|---|---|---|---|---|---|---|
| Key informant interviews | Government | - | 9 | 8 | 7 | 24 |
| | NGO or service provider | - | 5 | 1 | - | 6 |
| | Private sector | 2* | - | 3 | - | 5 |
| Workshops | Government, NGO and/or service providers | - | 2 | 1 | - | 3 |
| Focus group discussions | Government, NGO and/or service providers | - | - | - | - | - |
| | Community | - | - | 1 | - | 1 |
| Community interviews | Community | - | 6 | 11 | - | 17 |
| Field visits | | - | 4 | 2 | - | 6 |

** Comprising people working in the insurance or similar industries.*

## Key informant interviews

Semi-structured interviews (n=35) were conducted with people working in government and non-government organisations and the private sector who had subject expertise in post-disaster housing planning, policy, reconstruction and recovery (Table 1). Interviews focussed on knowledge about emergency, temporary and long-term housing policies and programs after disaster, including the strengths and challenges of current approaches and future opportunities for optimising post-disaster housing outcomes.

## Workshops

Workshops were held with housing providers, service providers and state government (Victoria n=1 (8 people), New South Wales n=2 (14 people)). Attendees discussed their lived and/or professional experience and actively identified strategies for increasing positive post-disaster housing outcomes.

Keywords and experiences pertaining to post-disaster housing relief and recovery were drawn from the literature, key informant interviews and workshops to then shape the design of the survey, focus group discussions, and one-to-one community interviews.

## Survey

The online survey was conducted between January and May 2024 to supplement insights about community member's post-disaster housing experience. It was advertised in each study location and on social media. Respondents (n=30) reported on their experience of housing and service delivery, insurance, funding and support, and the degree to which they felt their community was included in making decisions. A paper copy of the survey was available by request (n=0).

Respondents predominantly identified as being female (70%), were mostly 46 years or older (70%), lived on their own (35%) and owned (70%) a freestanding house (87%). Respondents' full demographic characteristics are summarised (Table 4, Appendix II).

## Focus group discussions

A focus group discussion (n=1) with community members was convened in Victoria (10 people). Discussion mirrored key informant interview questions, with researchers using the group dynamic to encourage debate and to tease out nuanced information.

### One-to-one interviews

Semi-structured interviews were conducted in New South Wales (n=6) and Victoria (n=11) with community members whose housing had been disrupted by disaster. Interviews concentrated on the journey from before the disaster through to evacuation, emergency and temporary housing and pathways toward long-term housing.

Most interviews were conducted online. At least one of the authorship teams was present at each, and transcripts were produced automatically using inbuilt software capabilities. Interview excerpts are provided throughout for illustrative purposes.

## 1.4 Case studies and locations

Seven case studies across four jurisdictions form the basis of this report. Each was selected based on its **proximity** to disasters occurring between 2009 and 2023 (detailed below and in Appendix III) and their **experience** of housing disruption. Table 2 sets out the locations, disaster types and housing impact of each case study locality.

**Table 2: Case study locations**

| Location | Event | Housing impact |
|---|---|---|
| Kinglake, VIC | 2009 Black Saturday Bushfires | 1,242 houses destroyed |
| Rochester, VIC | 2022 Victorian Floods | 900 homes damaged |
| Northern Rivers, NSW | 2022 East Coast Floods | 3,000 houses destroyed |
| Snowy Valleys, NSW | 2019-20 Australian Bushfires | 194 houses destroyed |
| Brisbane, QLD | 2010-11 Queensland Floods | 12,000 houses damaged |
| Fitzroy Crossing, WA | 2023 Kimberely Floods | 100 homes damaged |
| Mid-West Region, WA | 2021 Ex-Tropical Cyclone Seroja | 70% of houses damaged |

### 1.4.1 Disaster types and events

#### Bushfire

Australia's hot and dry climate that is prone to drought means that bushfire remains a prominent hazard affecting housing and infrastructure (Geoscience Australia 2023).

#### *2009 Victorian Black Saturday Bushfires*

In 2009, bushfires of significant size and impact raged across Victoria amid hotter than usual temperatures and strong winds. The fires tragically killed 173 people, destroyed 2,133 houses and burnt 430,000 hectares of land, costing $4.4 billion (VBRRA 2009a). The effects of the disaster have since defined bushfire disaster management. The Victorian Bushfires Royal Commission, established in February 2009, investigated the causes and responses to the bushfires and put forward necessary recommendations.

**Kinglake** (population 1,480) in Murrindindi Shire (Taungurung and Wurundjeri), was one of the worst affected LGAs with 40 per cent of its area burnt, 106 deaths and 1,397 houses destroyed (Murrindindi Shire Council 2009).

### *2019—20 Australian black summer bushfires*

Australia experienced 240 days of ongoing bushfires in the spring and summer of 2019—20, which burned across 19 million hectares, leading to the deaths of 33 people and destroying more than 3,000 houses (DPS 2020). This disaster stands out as a catalyst for policy change at all government levels, particularly in New South Wales, the state most affected. The cost to the economy was more than $20 billion (Filkov, Ngo et al. 2020).

The experience in **Batlow** (population 1,200) in the Snowy Valleys, New South Wales (Ngarigo), was defined by residents' hasty evacuation in late December 2019, after emergency services deemed the area was 'undefendable'. This led to the loss of one life, 20 homes, and countless businesses and machinery across the town and surrounds.

## Flood

With most Australians living on the coast, rising waters, changes in ocean levels and intense rainfall mean floods are a major hazard (Australian Climate Service 2023).

### *2010—11 Queensland Floods*

Between December 2010 and January 2011, 78 per cent of Queensland was declared a disaster zone after extreme rainfall. The lives of 33 people were lost and around 29,000 homes were flood affected, 12,000 alone in south-east Queensland (QFCI 2012). The disaster bill was estimated to be above $5 billion. The effects have since defined flood management.

Several suburbs across **Brisbane** (Meanjin) were evacuated. Housing recovery and reconstruction efforts were immense. The town of Grantham in the Lockyer Valley was relocated to higher ground by way of managed retreat.

### *2022 East Coast Floods, New South Wales*

Australia experienced some of the worst floods in living memory between February and May 2022, stretching from south-east Queensland to the NSW Northern Rivers and as far south as Sydney. Tens of thousands of homes were flood affected, with the Insurance Council of Australia (2022) (ICA) reporting over 233,000 insurance claims were lodged, mainly for homes. The recovery bill across Queensland and New South Wales is estimated in the tens of billions.

**The Northern Rivers** of New South Wales (Bundjalung) was severely affected by floods that displaced 1,500 people when rivers peaked at over 14 metres. Thousands of homes were damaged or destroyed, with the event becoming one of the most serious floods on housing in Australia's history, with damage of more than $2 billion.

### *2022 Victoria Floods*

In the beginning of October 2022, widespread flooding affected all major states in Australia with scores of floods forecasted across major state water catchments. Flooding was a result of relatively wet soil following a period of above-average rainfall.

In Victoria, October 2022 was recorded as the wettest month on record since 1900 (BOM 2023), flooding 63 of Victoria's 79 municipalities and one alpine resort (ERV 2022), and resulting in significant housing loss and more than 2,000 people housed in temporary accommodation following this event (maps provided in Appendix II).

**Rochester** (Dja Dja Wurrung), located approximately 180 kilometres north of Melbourne, was one of the worst affected towns. On 14 October 2022, 25 per cent of the region was inundated (NCCMA 2023). Floods caused one death, damaged 90 per cent of properties, and displaced more than 3,000 people (Campaspe Shire Council 2022).

### *2023 Western Australia Floods*

Western Australia experienced extensive rainfall and severe flooding due to Ex-Tropical Cyclone Ellie between December 2022 and January 2023. The Fitzroy River rose more than 15 metres above its banks. This event caused substantial harm to critical infrastructure, roads, bridges and houses in the state's north, isolating numerous regional communities and requiring many people to be airlifted out of harm's way.

For the **Fitzroy Crossing**, Shire of Derby–West Kimberley (Bunuba, Gooniyandi, Nyigina, Walmakarri, Nijikena, Konejani and Waladjari), more than 1,500 people were displaced by the floods, most of whom lived in state-owned community housing, and a further 40,000 people from the wider region were flood affected. Flood waters damaged a major transport network in Western Australia, leading to 700 kilometres of highway being closed, thereby isolating many communities for several weeks.

## Cyclone

Cyclones, caused by low-pressure systems forming over warm tropical waters, are a major hazard for northern Australia, bringing death and destruction to coastal communities through dangerous winds, but also to inland communities through flooding.

### *2021 Cyclone Seroja, Western Australia*

Ex-Tropical Cyclone Seroja made landfall in Australia on 11 April 2021 (having originated off Indonesia). With intense rainfall and winds of 170 kilometres per hour, it was deemed a Level Three incident and affected 16 LGAs across more than 133,000km2 (DFES 2021). Reports estimate 875 buildings were damaged or destroyed during the disaster, with a damage bill in the region of over $200 million (Risk Matters 2023). **Kalbarri and Northampton**, Shire of Northampton (Nanda), are not typically cyclonic areas. However, more than 70 per cent of buildings in Kalbarri and scores of businesses and infrastructure were damaged by rain and wind across the region.

Composite research findings of housing relief and recovery are detailed in Table 3.

**Table 3: Composite findings of housing relief and recovery**

| Location | Disaster | Damage | Funding | Emergency accommodation | | | | Temporary housing | | | | Temporary village | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Individual or household assistance | Motel or hotel | Short-term rentals | Family and friends | Government infrastructure (e.g. schools) | At-home caravan | At-home modular structure | Cabin at holiday park | Social or community housing | Temporary village established | No. of sites | Funding source | Capacity | Manager | Rent payable | Transition plan |
| Kinglake, VIC | 2009 Black Saturday Bushfires | 1,242 houses destroyed | Joint State-Federal funds (NDRRA), State funding, private donations, and NFP grants | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | 4 | Private | 314 pax. | Department of Human Services | Data not available | ✓ |
| Rochester, VIC | 2022 Victorian Floods | 900 homes damaged | Federal funding, Joint State-Federal funds (DRFA), State funding, NFP grants | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | 1 | Gov | 300 pax. | Emergency Recovery Victoria | Means tested | ✓ |
| Northern Rivers, NSW | 2022 East Coast Floods | 3,000 houses destroyed | Joint State-Federal funds (DRFA), State funding, NFP grants, private donations | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | 11 | Gov | ~1,000 pax. | NSW Reconstruction Authority | Not for first two years | |
| Snowy Valleys, NSW | 2019-20 Australian Bushfires | 194 houses destroyed | Joint State-Federal funds (DRFA), State funding, NFP grants, private donations | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | | | | | | |
| Brisbane, QLD | 2010-11 QLD Floods | ~30,000 houses flood affected | Joint State-Federal funds (NDRRA), State funding, private donations, and NFP grants | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | | | | | | | |
| Fitzroy Crossing, WA | 2023 Kimberely Floods | 100 homes damaged | Joint State-Federal funds (DRFA), State funding, NFP grants | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | | | | | | | |
| Mid-West Region, WA | 2021 Ex-Tropical Cyclone Seroja | 70% of houses damaged | Joint State-Federal funds (DRFA), State funding, NFP grants | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | | | | | | | |

Source: authors

# 2. Policies and programs that support reconstruction and recovery

- **Responsibility for managing the risk and impacts of disasters is shared between the three tiers of government in Australia—Commonwealth, state/territory, and local.**
- **States and territories take lead responsibility for response and recovery, with the Natural Disaster Relief and Recovery Arrangements establishing how costs are shared.**
- **Evidence indicates that approaches to temporary housing differ between states and territories.**
- **The costs of housing reconstruction have historically been covered by the insurance sector. However, underinsurance and the escalating costs of disasters are leading to calls for new collaborative approaches that involve the public sector.**
- **Land use planning (avoiding development in high-risk areas) and increasing the resilience of housing stock to build back better are key policy mechanisms for reducing disaster risk.**

## 2.1 Introduction

Adequate access to temporary and longer-term housing arrangements after disaster is paramount. A range of policies and programs exist aimed at supporting reconstruction, recovery and resilience-building. Ideally, these initiatives not only restore housing infrastructure but also attempt to build back better, incorporating lessons learned to mitigate the consequences of future disasters. As well as multi-level government policies, the insurance industry plays a major role in Australian housing reconstruction.

This chapter maps the key actors operating in the housing and disaster space, and reviews multi-level policies and community-driven programs to demonstrate the multi-faceted approach that is being adopted to address challenges. By emphasising resilience, sustainability, timeliness and innovation, these efforts strive to create robust solutions that can withstand future shocks while minimising suffering and economic losses. It is increasingly evident that collaboration between governments, the insurance sector, NGOs, and local communities is needed to form a comprehensive framework that ensures post-disaster housing is not just a quick fix but a resilient foundation for future generations (Sanderson, Sharma et al. 2014; Vahanvati and Mulligan 2017).

However, as detailed in subsequent sections of this report, a range of significant (sometimes insurmountable) challenges and barriers exist that can mean policies and programs do not always meet the various climatic, geographic, cultural and demographic requirements of an area or the immediate needs of its residents.

## 2.2 Literature review

### Grey literature review

A narrative review method of grey literature sources was used to identify actors, policies and programs targeting housing resilience and recovery in disaster contexts. Shaped by this Research Project's three research questions, the review sought to understand past and current policies and programs in each of the case study states. The aim was to identify specific policies and their attendant programs at the federal, state and territory, and community levels; and their influence on policy development, translation and implementation. The scope of the review was deliberately restricted to two hazards: bushfires and floods. There was also an emphasis on both recent disasters (such as the 2019—20 Black Summer Bushfires) as well as more historical events (such as the 2009 Victorian Black Saturday Bushfires and 2011 Queensland floods). Searches were initially undertaken by visiting the website of each reconstruction authority, and linked agencies nationally, and in each case study state to identify relevant publications. Databases including the Analysis and Policy Observatory, Google and Google Scholar were also used. Eligibility criteria included being:

1. a policy, policy framework, review, or commission publication
2. public or funding program grey literature
3. government, non-government and not-for-profit sources, or
4. for-profit organisations (such as Air BnB or Camplify).

### Academic literature review

A systematic review of literature on post-disaster housing recovery was conducted using Scopus. Per the scope of the current research, the scholarly search only included English language sources published between 2003 and 2023, and was limited to the areas of Australia, New Zealand, Canada and the United States. International evidence, where relevant, is summarised throughout the rest of the chapter.

Articles that contained empirical evidence were prioritised. A key terms search (using Boolean operations) generated 6,345 hits in the Scopus database. Two phases of manual screening brought this down to 118 relevant articles. The screening comprised reading the titles and abstracts of each publication. In some cases, where the content of the article was not discernible from the title and abstract, a reading of the full text was carried out as well. Based on the screenings, 63 articles fully met the study criteria of being related to naturally triggered disasters such as floods, bushfires, wildfires and earthquakes; and focussed on Australia (n=15 papers), New Zealand (n=21), Canada (n=5) and the United States (n=28, mainly focusing on the state of California).

## 2.3 Findings from the literature

### 2.3.1 Housing and disaster policy frameworks

Efforts to rebuild housing post-disaster are nothing short of monumental and require cross-sector inputs from the community, government, NGO, insurance and service sectors (Carrasco and O'Brien 2023). Timely and effective reconstruction is critical to ensuring a range of post-disaster outcomes are met (Safapour, Kermanshachi et al. 2021), including the viability and sustainability of rebuilt housing as well as community health, safety and wellbeing (Rouhanizadeh, Kermanshachi et al. 2019; UN-Habitat 2023). This is relevant both in the context of Australia as well as internationally.

International research into community success factors for post-disaster reconstruction highlights several indicators, including: the involvement of government in developing adequate policy responses, including partnerships with insurance companies and other actors in the delivery of programs, community participation and decision-making, and securing building materials and tradespeople (Azmeri, Mutiawati et al. 2017; Maly, Vahanvati et al. 2022).

For example, in New Zealand, following the 2011 Canterbury earthquakes, the government, in partnership with private insurance companies, played a pivotal role in post-disaster housing recovery. The cost of rebuilding increased substantially due to societal expectations for low-damage seismic design in rebuilding or retrofitting. To support increased costs, the Earthquake Commission, a government entity, covered approximately 40 per cent of the total property damage and recovery costs, while private insurers covered an additional 30 per cent (He, Dominey-Howes et al. 2021). In the United States, the Federal Government-funded National Flood Insurance Program provides insurance policies directly for those who cannot afford coverage against certain risks. It also acts as a backstop when catastrophic events lead to unprecedented losses for insurers and policy changes (Feather 2021).

In addition to these, research highlights the importance of examining factors that include affected households' vulnerability, livelihood management, access to shelter and amenities, environmental factors, and infrastructure (Irajifar, Alizadeh et al. 2015) and long-term effectiveness (Vahanvati 2018). Bringing together local and international research findings to address post-disaster housing policy is valuable for improving future community disaster resilience.

#### Federal level

As noted, Australia employs the prevention, preparedness, response and recovery (PPRR) approach to the management of natural hazards, using shared responsibility between three tiers of government. The Disaster Recovery Funding Arrangements (DRFA) provide the main framework for how disaster costs (including those for housing recovery) are shared between the Australian Government and state and territory governments, and the types of expenditure that are covered by these arrangements. Other influential policy frameworks at the national level include: the National Partnership on Disaster Risk Reduction, the National Strategy for Disaster Resilience, and the Disaster Ready Fund.

While the Australian Government provides funding for housing recovery and reconstruction, detailed national policy is limited. Funding is channelled through the various frameworks and arrangements to support states and territories to assist disaster-affected communities to reconstruct housing and recover. In this way, the Australian Government plays an important but indirect role in housing reconstruction and recovery. The *National Reconstruction Fund Corporation Bill 2022* could, though currently does not, play a vital role in financing and making submissions to the government about housing reconstruction and recovery.

Limitations to existing arrangements at the national level have been noted. For instance, there is little mention of equity and diversity issues across the various policies and programs, despite reports suggesting that First Nations peoples, for example, are disproportionately affected by disasters in Australia, further compounding structural and historical disadvantage. Low-income households are also finding it increasingly difficult to afford insurance, leading to inequities. This is particularly affecting older, retired, and renting individuals with lower insurance literacy and savings. Should a disaster strike, such communities are likely to suffer further disadvantage. This could lead to longer recovery times for communities with low insurance levels and place a heavier financial burden on governments and taxpayers in the event of a disaster.

While the disaster risk reduction policy landscape demonstrates vertical as well as horizontal policy frameworks and levers to support disaster recovery, previous independent reviews have highlighted the complicated and fragmented nature of disaster policy at the federal level (McKell Institute 2022). It has also been argued that more alignment is needed between international standards (such as build back better) and federal frameworks for housing recovery, as significant gaps remain. To these ends, the Royal Commission into National Natural Disaster Arrangements (2020) (RCNNDA 2020) put forward recommendations to guide and assist in the ways that an approach to build back better is practised before and after disasters. This includes 'amending the National Construction Code to add the resilience of buildings to natural hazards as an objective' (RCNNDA 2020: 399) and that the 'DRFA processes should be streamlined to better incorporate the principle of 'build back better' to strengthen resilience in communities' (RCNNDA 2020: 455).

### State and territory level

States and territories have lead responsibility for disaster response and recovery. Concerning the role of the government in the four jurisdictions explored in this report:

In **Queensland**, four funding and policy arrangements support housing recovery. These are the State Disaster Relief Arrangements (SDRA), Disaster Recovery Funding Arrangements (DRFA), the Resilient Homes Fund, and the Queensland Resilience and Risk Reduction Fund. Specific disaster-related funding and policy arrangements have also been used, such as the National Partnership Agreement for Natural Disaster Reconstruction and Recovery after the 2010—11 floods and cyclones, the Resilient Homes Fund after the 2021—22 floods, and the Queensland Resilience and Risk Reduction Fund, implemented in 2019—20.

In **New South Wales**, the three main funding and policy arrangements for housing recovery are the NSW Disaster Assistance Arrangements, Resilient Homes Program, and Resilient Lands Program administered by the Northern Rivers Reconstruction Corporation (NRRC). Focusing on housing reconstruction and recovery, the NRRC can submit proposals to the Minister for land use and development in efforts to promote reconstruction and regional recovery after disasters. This is seen, for example, through an emphasis on works that exhibit *'community-led recovery, locally specific solutions, evidence-based programs, collaborative, scalable and capability building programs, and consideration of social, cultural, economic and environmental factors across all NRRC programs and initiatives'* (NSWRA n.d.). However, the NRRC is, at best, a corporation and is therefore reliant on funding from the Australian Government and state government. Like the Queensland Government's Resilient Homes Fund, the NRRC aims to support home owners' recovery and their resilience building through home buybacks, house-raising and home retrofitting. Each stream is underpinned by a common, region wide All Hazards Risk Assessment, ensuring all decisions consider future risks (NSWRA n.d.).

In **Victoria**, funding and policy arrangements for housing recovery fall within the remit of the Emergency Recovery Victoria — Recovery Framework, which outlines the roles, work principles, and aspirations for community recovery after a disaster. In response to the 2009 Victorian Black Saturday Bushfires , the Victorian Government also released *Rebuilding Together: A State-wide Plan for Reconstruction and Recovery* (VBRRA 2009b). However, this plan concentrated on rebuilding critical infrastructure and public assets to support a smooth recovery, detailing very little about housing reconstruction or best practices for emergency and temporary housing. However, the Victorian Government has supported various emergency and temporary housing programs following disasters, providing a mix of caravans, modular homes and 'temporary villages' (see next chapter).

In **Western Australia,** joint Australian Government and state government funding is available through Recovery and Resilience Grants to reimburse home owners for costs incurred as part of housing clean-up (not otherwise covered under insurance), including (DFES 2023b):

- independent assessments by an insurer or qualified builder of housing damage
- documentation from an insurer indicating the financial gap between the costs covered by insurance and the costs incurred by the property owner.

Grants also reimbursed home owners for retrofitting works to assist houses to withstand future flood impacts. This might include house-raising, relining walls and floors for quicker property dry-out, raising electrical outlets, replacing wooden skirting or joinery, and other government pre-approved flood-resilient building strategies (DFES 2024).

#### Local government level

While the Australian Government and state and territory governments are the main actors in disaster recovery, local governments also play a role. When called upon, with central funding support, they have been responsible for administering property buyouts for flood-impacted or high-risk areas. They are also the level of government that will typically invest in local risk mitigation actions, such as the construction of levees and dykes after a flooding event (Hino, Field et al. 2017). However, concerns have been raised that such defensive structures for mitigation lead to perverse outcomes or what is known as the 'levee effect', such as the continuation or encouragement of development and building of homes in high-risk areas (hence diverting attention away from longer-term risk reduction options, such as managed retreats).

### 2.3.2 Insurance sector

There is currently no government-backed insurance scheme for natural hazards in Australia, with the responsibility for risk and disaster recovery deferred to individuals (Booth 2018) and the private insurance sector (who are, therefore, an integral component of post-disaster housing reconstruction). However, as is evidenced by findings from the case studies (chapter four), a market-led approach can be sub-optimal with government financial assistance needed to fund immediate emergency responses, as well as addressing some of the shortfalls in longer-term reconstruction costs.

Post-disaster **insurance payouts** have greatly increased in recent years. Australian general insurers paid $5.47 billion from over 300,000 claims related to bushfires, floods and hailstorms in the 2019—20 summer (Climate Council 2022). In 2022 alone, there were more than 302,000 disaster related claims lodged in Australia, costing $7.28 billion in insured losses. This figure was $1.6 billion in 2023 (ICA 2023).

Underinsurance is a challenge facing the Australian housing sector, one that is likely to become increasingly problematic as floods and bushfires intensify and become more frequent in the future; leading to home insurance premiums that are unaffordable to many (or in the most at-risk areas, withdrawn altogether). The median increase in home insurance premiums over the past 12 months alone was 28 per cent, but the impacts were far more significant for the highest-risk properties, increasing by more than 50 per cent (Actuaries Institute 2023). The median household used 1.1 weeks of gross annual income to pay their annual premium in 2021—22, well above the 10-year rolling average of $888 per household (ICA 2022). By 2050, the average annual cost is projected to reach $2,509 due to extreme weather, especially in high hazard risk areas.

While disasters are fuelling insurance premium hikes, it is also noted that many insurers have greatly expanded their insurance profit margins in recent years. This has sparked calls for greater transparency from insurance providers regarding their approach to factoring climate risks into premium calculations. Additionally, there are demands for closer scrutiny of the insurance industry and the potential implementation of stricter regulations to prevent rapid escalation of premiums.

While the high costs of insurance are an important cause of underinsurance, there are other complicating factors such as a lack of transparent hazard information to inform an individual's risk, different insurance companies having different terms and conditions (and exclusions) that were not fully understood by policyholders (leaving some accidentally underinsured), and a lack of understanding of how much it would actually cost to rebuild their property due to rising prices and the high costs of tradespeople given competing demands post-disaster. There are also concerns that reliance solely on a market-based approach is reinforcing socio-economic polarisation, with disadvantaged households often living in the riskiest areas and, due to the high (and increasing) costs of insurance, the most likely to be underinsured. This is evidenced by several recent disasters that have impacted areas where housing availability and affordability were already a problem. As one senior manager key informant from the NSW Northern Rivers succinctly stated, 'the floods contributed to the housing disaster'.

A growing number of home owners have **no insurance or inadequate coverage**, increasing pressure on governments and the broader community to provide financial support in the wake of disasters. For example, around 13 per cent of destroyed residential properties by 2009 Black Saturday bushfires were uninsured, and 80 per cent of properties were underinsured (VBRRA 2009a; Latham, McCourt et al. 2010). More recently, approximately 60 per cent of houses affected by the October 2022 floods in Rochester, Victoria, were either underinsured or not insured at all (VCOSS 2024).

Anecdotal evidence suggests that affected peoples' experience of insurance processes can be mixed, with the type of hazard an interesting influence. Overall, those involved with bushfire claims in both New South Wales and Victoria found the process straightforward, with payment fast and efficient. In New South Wales, the success can be credited to Legal Aid NSW, which successfully negotiated with major insurance companies to remove the need to provide an itemised list of lost content. In the case of the 2009 Black Saturday bushfires, interviews with community leaders revealed that the affected communities were overall satisfied with insurance companies' response and the timeliness of payouts. Within 100 days of the disaster, 98 per cent of claims for damaged residential properties and 99 per cent of claims for damaged commercial properties had been completed (VBRRA 2009c). This was not the case for many flood victims, with the process less straightforward. It was often described as an overly long process that lacked transparency or clear communication, adding to the physical, mental, and emotional stress of already traumatised communities. The experiences of the case study communities are further elaborated on in the following chapter.

It is argued that processes can be simplified to reduce trauma. Policies can be made more consistent by legislating standard definitions for common terms and conditions, and clearly disclosing the price of natural hazard risk. Insurers can also communicate transparently with consumers, clearly informing them about what is covered, what the process would be after a disaster, how their claim will be assessed, how households can track the progress of their claim, what proactive approach they will take to process delayed claims, and how they will identify vulnerable customers for appropriate care. Furthermore, providing policyholders with the right to choose if their insurance claim is settled through a cash settlement or by a repair or rebuild could assist with streamlining, making clear what their choices are at the time of purchasing insurance.

The Productivity Commission (2014) also recommended that insurers should do more to educate home owners about the risk of natural hazards and the cost of rebuilding after a disaster. Improving education around insurance can benefit these communities by increasing insurance take-up and disaster preparedness. However, interviews with the insurance industry reveal that some residents are not interested in financial products, making it difficult to educate them. As they explained, *'information is all out there, but people from my experience don't believe that it is ever going to happen to them. And when it happens, it's like I didn't know'* (Insurance industry interviewee).

Over the past decade, the focus of recovery efforts has shifted from disaster management to disaster risk reduction; and towards a multi-sectoral, coordinated and shared responsibility approach (though not equally shared), to understand and reduce 'existing' disaster risk, as well as limit the creation of 'future' risk. For example, the 2015 National Disaster Risk Reduction Framework (NDRRF) highlights that the government and the private sector (i.e. the market) should have a far greater share of responsibility, as communities often *'do not control many of the levers needed to reduce some disaster risks'* (DHA 2018: 4). That said, the insurance industry largely tends to be disconnected from longer-term planning for disasters (such as disaster resilience strategies, state emergency plans, or regional planning). However, the ICA, the peak body, is usually a stakeholder and consultative partner in disaster recovery.

There are increasing calls, including from the insurance sector itself, for a more integrated approach to disaster risk reduction and recovery. One that better links land use planning, local mitigation efforts, the insurance industry, multi-level government, and communities more closely. This is an arrangement to be strived for moving forward. To this end, it is crucial to move beyond merely discussing risk awareness. The land use planning system itself can be improved by better aligning development with infrastructure decisions and by enhancing enforcement to prevent non-compliance as well as a multi-pronged insurance coverage not merely reliant on the private sector.

In their pre-budget submission (April 2024), the ICA urged governments to adopt a risk-based approach to new development, introduce stronger building codes and standards and resilient infrastructure and prioritise low-risk areas for development. Their submission also called for voluntary buyback and house-raising schemes.

### 2.3.3 Temporary housing

Once a disaster occurs, there is an immediate need for emergency and temporary housing. The literature identifies several post-disaster sheltering options, with Figure 2 highlighting a range of pre- and post-disaster sheltering options.

Globally, the provision of temporary post-disaster housing has long been branded as 'one of the most intractable problems' in disaster recovery, with reasons including:

- Most temporary housing is rarely temporary, but becomes permanent, given its cost and the additions of infrastructure, among other on-the-ground challenges.
- Land and housing availability and placement are critical factors: temporary housing can be far away from people's communities, causing social and work-related challenges, while land for temporary housing can be expensive and hard to procure.

- Time frames very rarely—if ever—adhere to the working models of response agencies. The life spans of temporary housing can run into many years.

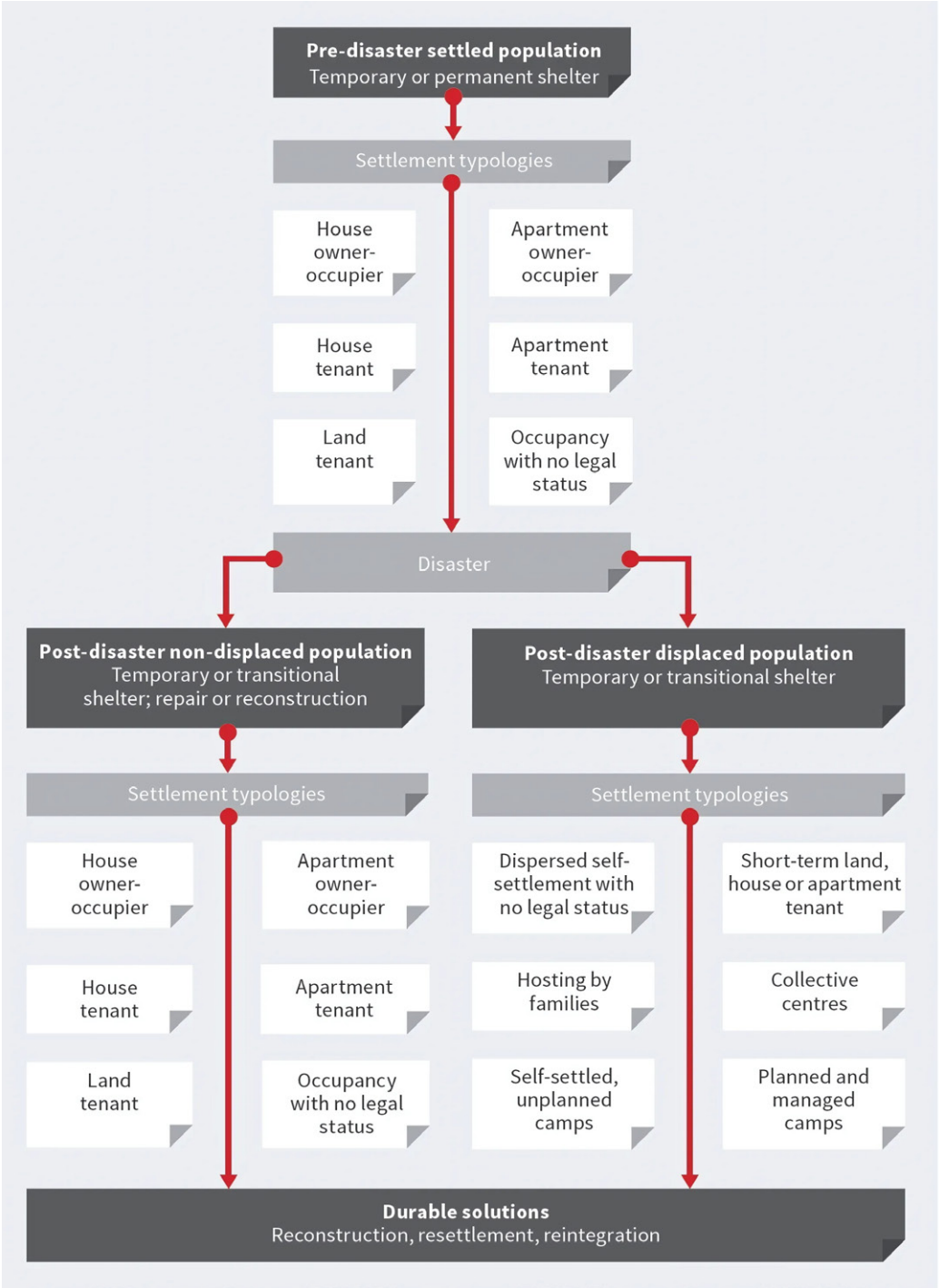
In Australia, several different temporary housing approaches have been used, including:

- modular, moveable or flatpack homes on private properties
- caravans and cabins at local holiday parks
- temporary housing villages
- reliance on family and friends
- short-stay commercial options (such as motels or hotels)
- social housing
- cash-based assistance (such as housing grants).

Accessibility and usage depend on the disaster type. For instance, holiday parks located close to rivers might be subject to flooding.

Pods have met with varying degrees of success. While some evidence indicates their usefulness and utility, there are several drawbacks, including: the very high unit cost (when infrastructure and services are included), their temporary nature and the future of tenants when leases expire (see, for example, the NSW Northern Rivers case study), their climate appropriateness, and domestic and family violence and sexual abuse.

Figure 2: Post-disaster temporary housing options




Source: IFRC and SKAT (2012)

Each state has taken different approaches to temporary housing. In **Western Australia** a range of emergency and temporary housing programs has been developed by the state government and Australian Government through the DRFA. Emergency and temporary solutions are facilitated by WA Emergency Services, the Premier's office, and others, including:

- temporary village-style accommodation blocks, modified short-stay accommodation, and works to reinvigorate hostels
- Humanihut Australia huts (similar to pods) for people affected by the 2023 Fitzroy-Valley floods
- hostels leased by government for people affected by the floods 2023 in Derby.

In **New South Wales**, following the 2022 Northern Rivers floods several types of temporary housing were made available by the reconstruction authority after the 2022 east coast floods, including: motels, hotels, short-term lets and modular housing (pods and caravans).

In **Queensland**, the Temporary Emergency Accommodation Plan (QDH 2023) highlights the need to identify emergency housing at the same time as securing local accommodation support options to ensure displacement and temporary accommodation is reduced as much as possible. During the 2011 floods, motels, hotels, short-term lets and social and modular housing were all used in relief efforts. There has been, however, a reliance on those affected by the disaster to use their personal networks and informal accommodation options. Following the 2022 floods, housing providers and support services recognised that emergency and temporary housing was limited due to a pre-existing surge in mental health issues, domestic violence and housing demand resulting from the pandemic response (Mundy 2023). This increase had, and will continue to have, a detrimental impact on community resilience to future disasters.

In **Victoria**, the state government has supported various emergency and temporary housing programs. After the October 2022 floods, the following were implemented:

- The Homes at Home program provided caravans for up to 120 properties across the Greater Shepparton, Mitchell and Campaspe shires.
- Short-term modular housing was provided in Rochester, with 20 short-term modular houses delivered to the Rochester Caravan Park.
- Furnished modular homes were provided by GIVIT, in partnership with Bushfire Recovery Victoria, to accommodate over 60 families and individuals.

Following the 2009 Black Saturday bushfires in Victoria, the Department of Human Services provided temporary accommodation for 524 households between 2009 and 2012. This comprised caravans, housing and unit blocks in what became known as four 'temporary villages' at Kinglake, Flowerdale, Marysville and Whittlesea (Regional Development Victoria 2012: 8).

Finally, it is important to note that the housing recovery needs of disadvantaged groups are often overlooked. These groups often lack the means and incentives to rebuild their homes. For instance, people who were homeless before a disaster are almost entirely overlooked in state and federal disaster policies, with assistance for such groups usually coming from NGOs and other community service organisations. Moreover, research indicates that pre-established trust in organisations is vital for the uptake of assistance by homeless people (Brookfield and Fitzgerald 2018).

### 2.3.4 Local risk reduction and housing reconstruction: the role of land use planning and building regulations

Land use planning and building regulations are important influences on local efforts to reduce disaster risk, either by reducing exposure to hazards or making houses more resilient to them. In the Australian context, the Royal Commission into National Natural Disaster Arrangement suggested that *'Land use planning decisions and exposure to risk are inextricably linked. Existing, or 'legacy', risk needs to be identified and communicated, and proportionate action taken to reduce risk'* (RCNNDA 2020: 399).

#### Land use planning

The principal policy mechanism for prohibiting new development in high-risk areas is land use planning. To be effective, the use of zoning and overlay controls to prohibit development in high-risk areas needs to be informed by detailed and up-to-date risk mapping. However, despite the government adopting a multi-hazards approach, risk mapping at the national scale is lagging, as well as not adequately accounting for future climate risks (for example, it was only recently that flood risk terminology was changed from one in 100 years to a 1 per cent probability of maximum floods). Local government areas require access to detailed flood overlays that account for climate change impacts if they are to make informed planning decisions for current and future disaster risk reduction.

For existing housing located in areas that are subject to floods and / or bushfires (or will become exposed to these hazards in the future), one key policy option, little-used to date, is managed retreat from the most high-risk areas.

#### Buybacks and managed retreat

The emergence of a relocation policy is recognition of escalating disaster risk that the market alone cannot reduce (with some high-risk areas becoming uninsurable or losing appeal among buyers).

In Australia, **managed retreat** has been discussed as something to be considered in the future and has been applied sparingly to date (for coastal or flood-prone communities, rather than for bushfire-impacted communities). The managed retreat carried out in the town of Grantham in the Lockyer Valley, following inland flooding in Queensland in 2011 (see chapter four), is considered a managed retreat 'success story'. However, its voluntary nature in Australia (until now) limits its scale.

> **Managed retreat** refers to policies and programs designed to relocate residents to lower risk areas. It is an adaptation response that prioritises relocation over structural protection of housing or alternate accommodation options (Hino, Field et al. 2017). In Australia and abroad, it has been applied in limited contexts. Challenges include it being a voluntary option, thereby potentially disrupting a community's social fabric.

Planners in coastal-flooding impacted areas in Western Australia recommend that **buybacks** in hazard-prone areas be prioritised over reconstruction as the cost of providing services to residential properties often exceeds the rate revenues received (so losing residential rate revenues in those areas should not be a deterrent to property acquisition for hazard mitigation). Additionally, planners surmise that landholders in coastal areas are generally less financially constrained compared to other residents, which may reduce the importance of relocation support services (Robb, Stocker et al. 2020).

**Housing buybacks** are voluntary schemes undertaken and funded by government. They include the purchase of homes (usually at pre-disaster values) in disaster prone areas (Patch 2023). Such schemes aim to move households from harm's way (van den Nouwelant and Cibin 2022).

Local governments are responsible for administering flood-related buybacks, with the funding provided jointly by the Australian Government and state and territory governments (Robb, Stocker et al. 2020). Private insurance can have an influential role in if managed retreat happens or not, as it can influence a household's decision to rebuild or move. In the Australian context, there are calls from the insurance sector for the costs of housing recovery to be shared with governments, other institutions, and communities; whilst other voices call for better integration of insurance with planning processes and policies so that insurance is driven as a public good rather than for profit.

In the case of **Grantham** after the 2011 floods, managed retreat to higher ground was planned and implemented as a land-swap initiative initiated by the elected officials of the local community. One of the key lessons from the intervention was its application at whole of settlement-scale or community-level, rather than household-level, thereby avoiding a piece-meal outcome. A new estate of 120 lots was designed and constructed in collaboration with the whole neighbourhood, acting as an additional incentive for people to make the relocation as a community (see chapter four).

In **New Zealand,** land use regulations are used to prohibit new development and enforcement of managed retreat from existing developments, including voluntary and compulsory buyouts. The provisions for managed retreat are contained in the Coastal Policy Statement 2010, as well as other regulatory and non-regulatory mechanisms. However, managed retreat is managed exclusively by regional councils, reducing the ability of district or city authorities. Additionally, critics have cited a lack of national guidance on framing, implementation, timing and cost allocation; with multiple uncertainties facing policymakers and affected parties. Based on learnings from the 2005 floods and landslides in Matatā, when managed retreat was first implemented, and after the 2011 Christchurch and Canterbury Earthquakes, the local governments were given funding and greater powers to execute managed retreat, in collaboration with the federal and regional authorities. However, additional challenges have emerged.

For example, in the case of the Christchurch earthquake, the government's one-size-fits-all approach to land use zoning (such as red zones) to prohibit development was carried out with little community engagement or consultation, leaving many with little understanding of why their land had been zoned as unsafe or unsuitable for habitation. Being forced to relocate also had high upfront costs, logistical complexity and social, cultural and emotional impacts on those affected (He, Dominey-Howes et al. 2021).

Property buyouts, as is the case in Australia, are the responsibility of the local government. In practice, managed retreat is undertaken in collaboration with affected communities and other key stakeholders. However, socio-cultural ties to areas adds great complexity. In the New Zealand context, compulsory buyouts are an additional—if contentious—mechanism available to policymakers, with responsibility delegated to district and city councils. These delegated arrangements allow local officials to limit new developments, change existing land use, and buy private land for local mitigation measures (i.e. 'managed realignment' by setting back the line of actively maintained defences). Such property purchases are ongoing in several flood-prone areas to reduce the risks of flooding by restoring natural areas (Hanna, White et al. 2020).

**Matatā, Bay of Plenty, New Zealand**

Matatā is a small coastal community in the North Island of New Zealand. A torrential downpour in 2005 led to landslides and flooding, with debris flows destroying 27 homes and damaging 87 others. While a managed retreat was considered a necessity, the local council's response was hampered by a lack of a clear governance framework (due to the powers of strategic land use planning changes with the regional authority) and the necessary regulatory tools and funds. The lengthy public experimentation and learning process caused contention between residents and the local government, with the residents and staff having to bear personal costs during the delays. This tension was only resolved when regional and central governments eventually agreed to co-fund the buyouts of properties in 2019—14 years after the event (Hanna, White et al. 2020).

In **Canada**, flood insurance options are limited and only became available to property owners in 2015—a consequence of the government reacting to the high costs of 2013 flooding in Calgary (Sandink 2016)—but remains unregulated. As insurance for floods is not mandatory, and usually provided as a separate endorsement or as part of existing sewer backup coverage, many Canadians are uninsured or underinsured for floods.

Like Australia, managed retreat in Canada is considered a voluntary option used mainly in flood-risk areas, not fire-risk areas (Haney 2019; Cottar, Doberstein et al. 2021). As such, any support for housing recovery is commonly provided by provincial and federal governments. Whilst funding is made available by the federal government in the aftermath of a major disaster (defined as damages exceeding CAD $46 million), it is provincial governments that have the responsibility for funding and implementing housing recovery programs. This includes property buyouts in flood impacted areas, in collaboration with municipal governments (Cottar, Doberstein et al. 2021). However, property buyouts remain a sparsely used (and contentious) post-disaster recovery strategy (Haney 2019). One notable historical exception was the flood disaster in 1954, caused by Hurricane Hazel, that impacted the Greater Toronto area. In this example, amendment of a Conservation Act, within six weeks of the floods, allowed the metropolitan Toronto Planning Committee to acquire and expropriate 3,000 hectares of land, rezoned for recreation and greenspace purposes and the implementation of flood control and future flood risk mitigation measures (Doberstein, Fitzgibbons et al. 2019).

### *Pointe Gatineau, Quebec and Constance Bay, Ontario, Canada*

After inland floods in 2017, varying recovery strategies were observed in Pointe Gatineau where managed retreat was part of formal risk mitigation strategy, as opposed to Constance Bay, Ontario, where it was more informal, resulting in unplanned retreat. In Quebec, residents who had experienced property or valuables damage were eligible to apply for financial compensation as part of a formal disaster risk reduction and recovery policy. The retreat process occurred through a combination of mandatory and voluntary buyouts, the establishment of Special Intervention Zones (SIZ) and the government placing a lifetime limit on disaster aid and prohibiting rebuilding for properties at risk of repeated overland flooding (1:20 flood zone).

Despite the strategy being termed as voluntary, a cap of disaster-aid for those who decide to live in high-risk locations (or SIZ), meant that it was mandatory without expressly terming it so. Moreover, the buyout was criticised for its lack of inclusivity because it required a minimum damage threshold of CAD $100,000. This rendered many people ineligible (Cottar, Doberstein et al. 2021). The non-inclusive nature of the buyout and the ad hoc nature of some of the retreat decisions led to undesirable outcomes with the land that was purchased often underutilised rather than repurposed for communal benefits. With some houses demolished and others left standing, the retreat led to a 'Swiss cheese' patchwork of derelict spaces, a loss of sense of community, and lower property prices (Cottar, Doberstein et al. 2021).

In the case of Constance Bay, Ontario, however, a lack of buyback strategy for recovery by the provincial government led to an informal and unplanned retreat. Some owners sold their houses and moved away, transferring the risks to new owners (Cottar, Doberstein et al. 2021). The high municipal property valuations in Ontario acted as a deterrent to implementing formal retreat in Constance Bay.

In **California**, home buyout programs are the most common form of managed retreat. The federal government is the main funder of voluntary buyouts in flood-prone areas via the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Assistance programs. These programs cover 75 per cent of buyout costs. States, LGAs and other groups are expected to cover the remaining 25 per cent. Different states and local governments have varied means of funding their contributions, including stormwater fees, sales tax increments, and legislative appropriations (Tyler, Sadiq et al. 2019).

**Camp Fire, California**

Housing recovery in fire-impacted areas typically focuses on home owners and overlooks the needs of disadvantaged groups. After the 2018 Camp Fire in California, FEMA invited residents to purchase the mobile homes they lived in. However, relocating mobile homes in high fire-risk areas was not permitted, and any mobile homes that did not meet the California fire code were mandated to be removed. As moving these mobile homes to safer areas was expensive, many owners of undamaged homes were forced to demolish their mobile homes. Loans were not accessible for renters or families that did not have previous land ownership credentials, while uninsured landowners faced challenges meeting the milestones for permanent housing reconstruction (such as covering the costs of hazardous tree removal and water and power connections). Thus, 39 per cent of surveyed residents said they were unable to return to their previous home or lot, with social services providers concerned that both home owners and renters could become homeless due to a combination of rebuilding constraints and limited alternative affordable housing options (Chase and Hansen 2021).

### Building regulations: Build Back Better

The most common response to disaster recovery in Australia in the past has been to rebuild housing in place. In this context, a complementary strategy to relocation is therefore reconstructing houses post-disaster that are more resilient to flood and fire hazards (such as flood proofing, house raising, fire-resistant building materials and so on). This approach is commonly known as build back better. It has gained policy traction in Australia in recent years, with national examples embracing the concept, including the ADRF and the National Partnership Agreement for Natural Disaster Reconstruction and Recovery. It is also a concept that has been embraced by states that are committed to enhancing community resilience to future disasters.

However, there are practical barriers to building back better. The rebuilding of houses post-disaster is primarily funded by the insurance sector, and additional costs for resilience measures are not covered by most insurance companies; the 2019 Townsville flood being a notable exception (Gissing, O'Brien et al. 2019). Rather, funds are allocated based on simply replacing 'like for like'. Furthermore, pragmatic constraints to the implementation of build back better are not limited to the private sector. After the 2004 bushfires in Duffy, Canberra, resource constraints and authorities' evolving priorities and roles adversely affected the capacities of local planning authorities to promote the sustainable redevelopment of fire-impacted urban areas. Planners also faced diverse social and political pressures to restore stability as quickly as possible and, therefore, had to balance individual rights and community expectations within the constraints of a codes-based approach to redevelopment. The emphasis was on facilitating efficient and speedy redevelopment according to regular building standards rather than the mandatory use of the 'Australian Standards for Construction of Buildings in Bushfire Prone Areas' for rebuilds (MacKenzie 2017).

**Bushfire-resilient building design** concerns the design and use of building materials that can withstand or greatly reduce the effects of heat, smoke and flames. It comprises resilient design principles tailored to housing plans and siting, construction techniques, material and certification, and extends to the proper siting and landscaping of buildings with reference to the environment and hazard profile (QRA 2020).

**Flood resilient building design** concerns both building materials and functionality. It is the practice of using materials, construction systems and designs that:

- Can withstand substantial and multiple inundations by actively mitigating the effects of and decreasing the consequences of flooding; and,
- Enables home owners to safely remove and store belongings prior to flooding and easily clean and repair their property to resume life after floods, with minimal long-term disruptions (DFES 2024). This might include, for example, wet proofing or raising the elevation of a house. Wetproofing is the use of materials and designs that minimise the damage caused by moisture.

While build back better is desirable to improve the resilience of housing stock to future disasters, a reliance solely on market-based financial mechanisms, as is currently the case, is not likely to deliver the sustainable solutions required. For instance, New Zealand saw high adoption of seismic design and construction technology, after the 2011 Canterbury earthquake, particularly in the Christchurch central business district (Kahandawa, Domingo et al. 2021; Filippova, Elwood, et al. 2023). This change can be attributed to the shock effect. In other words, the shock experienced by communities, the delayed housing recovery, and the collective urge to have robust housing in the context of a rising disastrous event, led to improved standards and building guidelines. However, change was instigated as a result of a massive shock or devastating event.

When factoring in interacting issues, such as rising premiums due to climate change, underinsurance and socio-economic disparities, there are opportunities for the insurance sector, different levels of government, and other institutions, to work together to reduce exposure to risk, and, when disasters do happen, for affected communities to recover and build back better with more resilient housing. It is also critically important that community voices are heard in this recovery process. For example, the 2022 NSW Independent Flood Inquiry (NSW Government 2022) found that, when it comes to approaches to build back better, community needs and aspirations need to be taken into consideration, including adequate investment in housing stock, as well as housing options that are proximate to existing services.

## 2.4 Policy development implications

- Policy development needs to recognise increasing socio-economic polarisation that unevenly affects people based on their demographic and geographic position.
- Underinsurance, socio-economic inequalities and escalating disaster risk necessitate evaluation of the historical reliance on market-based approaches.
- Government, insurers and other actors need to adopt a shared and coordinated approach, with present and future roles and responsibilities clearly defined.
- With disasters likely to become a more common occurrence, managed retreat policies are likely to become necessary and therefore long-term planning is required (which requires detailed hazard risk mapping).
- As highlighted by the Grantham example, whole-of-society planning for, and recovering from, disasters is critical to reconstruction. Proactive community involvement needs to be recognised in all multi-level government policies.
- Detailed hazard and risk mapping is needed by local authorities to inform future development. Building in high-risk areas needs to be prohibited (also recognising and accounting for the 'levee effect').

- Various stakeholders, including government authorities and insurers, must agree to use the same hazard and risk mapping for decision-making, and deviations taken directly to community stakeholders and wrap-around supports for prior consultation.
- Although 'build back better' has gained recent political traction for increasing the disaster resilience of housing and flagged in building regulations and codes, there are critical private and public barriers to its effective uptake and implementation.
- New governance arrangements and mechanisms need to be considered to overcome these barriers, such as consideration of initiatives like public subsidies to top-up insurance funds, ensuring that houses are built back better or made more resilient after disaster.

# 3. Forms of housing recovery that have helped or hindered community resilience to future disasters

- **There are several options for emergency and temporary recovery, including commercial motels and hotels, short-term rentals, and modular and moveable homes.**
- **Each recovery option is dependent on regions having a diverse mix of housing and accommodation that can be quickly mobilised.**
- **Housing shortages, high rents and homelessness pose major barriers to achieving effective emergency and temporary relief.**
- **The unavailability of commercial options, such as motels and hotels, during the COVID-19 pandemic, created additional pressures on governments and housing service providers.**
- **Many options, such as modular housing, are also difficult to quickly mobilise and demobilise. This prolongs displacement.**
- **Community-centred housing relief and decision-making are rarely prioritised due to the speed at which relief programs are rolled-out to meet immediate needs amid disaster.**

## 3.1 Introduction

More than a basic need and source of shelter, well-designed, implemented and maintained emergency and temporary housing is critical to recovery after a disaster.

In Australia, the provision of such housing follows established policies and programs that are implemented and administered at the state and territory level in concert with local housing service providers. Following recent disasters that have displaced households (and sometimes entire towns), there has been increased awareness and scrutiny of housing relief that has focussed on a host of positive and negative outcomes for displaced communities. This includes the repetition of both good examples of housing delivery options, as well as well-intended, but ultimately suboptimal, examples.

This chapter draws on real world evidence to understand what forms of recovery have been implemented and the successes and challenges of each for boosting community resilience to disasters. Our empirical focus includes the 2009 Victorian Black Saturday Bushfires, 2019—20 Black Summer Bushfires (NSW), 2022 Northern Rivers Floods (NSW), 2022 Victorian Floods, 2021 Ex-Tropical Cyclone Seroja (WA), and 2023 Western Australian Floods.

## 3.2 What is known about post-disaster housing provision?

Post-disaster housing provision that is effective, timely and equitable remains a significant challenge for policymakers, government and providers (Charlesworth and Fein 2024). Ultimately, options are heavily dependent on the existing mix of housing, accommodation and modular structures that are already situated in a region or that can be quickly mobilised (Biswas 2019). Community diversity and unique needs add further complexity, meaning planning and review are essential (Rahmayati 2016).

While some evidence indicates the usefulness and utility of temporary houses such as pods, there are several challenges, including: the very high unit cost (when infrastructure and services are included); their temporary nature and what happens to tenants when their leases expire; and reported conflict and anti-social behaviour when numerous pods are assembled into temporary villages.

Further, evidence demonstrates the need for options that place communities at the centre of decision-making through acknowledgement that community social agency is a critical success factor (Global Shelter Cluster 2018). This highlights the need for a range of approaches that factor in the community's overall wellbeing and the liveability, sustainability and economic viability of housing options (Charlesworth and Fein 2024).

## 3.3 2009 Victorian Black Saturday Bushfires

### 3.3.1 Kinglake Temporary Housing Response

A community-led approach underpinned housing recovery after the 2009 Victorian fires, coordinated by the Victorian Bushfire Reconstruction and Recovery Authority (VBRRA). The response was structured according to four themes: people, buildings, economy and environment (VBRRA 2009a). VBRRA encouraged the establishment of Community Recovery Committees (CRCs) as part of a deliberative process towards positive and long-term outcomes. CRCs were voluntary arrangements in recognition that some communities were not yet ready to rebuild, or else had other supports in place. In total, 33 CRCs were enacted, including 25 local councils repurposing citizen groups and the remaining communities pursuing recovery efforts via municipal-level institutional structures. The VBRRA consulted and supported all those affected over a two-month period, providing guidance and templates for the development of local recovery plans. These plans were then incorporated into a state plan (funded by the Australian Government, the Victorian Government, the Victorian Bushfire Appeal Fund, and other donors). The Kinglake CRC was established to oversee the region's recovery plan.

#### Emergency relief

A mix of emergency services, the Australian Defence Force (ADF) and community organisations played critical roles in the immediate aftermath of the fires, providing emergency relief and ensuring access to food, water, clothing, medical and shelter needs. Whilst material aid and donations were welcomed by communities, the sheer volume of aid meant there were significant logistical challenges facing agencies on the ground. In turn, the VBRRA introduced a 'points' management system (1,000 per household) to ensure equitable resource access to donations, vouchers and services.

A private company, Grocon, was contracted by VBRRA to clear debris. They hired local contractors (where possible) to manage the scale of devastation, resulting in the clean-up of over 3,000 properties in four months. While the clean-up was rapid, well-intended and some residents had positive experiences, other residents reported negative experiences, including not being able to retrieve valuables before demolition.

## Temporary housing

The idea of 'holding the space' (River, cited in Ireton, Ahmed et al. 2014) emerged in recognition that communities dealing with trauma and loss needed the space, time and support to make informed decisions about their future. The planning and rebuilding of new services and infrastructure also requires time. These considerations ultimately led to the need for temporary housing.

While the initial thinking of Murrindindi Shire Council (that includes Flowerdale, Kinglake and Marysville) was to provide basic infrastructure in-situ (shed, toilet, motor and water tank), plans were superseded by Flowerdale residents' positive experiences who opted for a temporary village (funded by a private benefactor). The VBRRA subsequently established two more villages in Kinglake and Marysville, and a smaller temporary housing arrangement in Whittlesea town.

Temporary villages had a mix of unit types for individuals and families, communal cooking (except in Whittlesea) and dining areas, toilets and recreation areas. They were considered cheaper and quicker options than assisting individuals directly, as well as fostering community cohesion. A 'toilets and showers' program was provided for those who chose to remain on their properties. At full capacity, 314 people lived in four villages, with the Department of Human Services (DHS) managing the tenancies and supporting residents in their transition to more secure permanent housing.

Kinglake temporary village took a while to get ready, opening in July 2009—five months after the bushfires—for communities to move into. The delays were partially caused due to the site being located on a paddock, requiring the installation of all services (stormwater, rainwater and sewage). The settlement plan was developed by architects on a pro-bono basis (those who helped were not paid nor reimbursed for their travel expenses) who were mandated to make the village 'look good'. However, the reality of the temporary village was that it was there for a limited 12-month period before being dismantled and the land returned to use as a paddock. This meant services had to be kept aboveground to preserve the paddock and nearby springs. No substantial infrastructure was provided. Units were two-bedrooms and were assembled from flat packs, while communal kitchens were donated by large private sector organisations.

## Successes

Most residents had a positive experience living in temporary villages. Reasons included an appreciation of the houses having some degree of space, privacy, hygiene and thermal comfort (such as heating to stay warm during snowfall in Kinglake), their proximity to the town, and access to communal facilities such as pet enclosures, wireless internet and a games room.

## Challenges

Some of the criticisms of the temporary villages included a lack of community consultation, dense settlement plan in a region where people were used to living on half-acre blocks, the village becoming the focus of media attention despite the community needing time and space to heal, and anxiety among some residents about the 12-month limit (in reality, the Kinglake temporary village didn't close until two and a half years after the bushfires to allow for people to progress on their recovery pathway). The quality of the flat pack unit was one of the disappointing aspects of temporary villages. Units were also not appropriate for the cold climate of Kinglake. All units had mould from heavy condensation (including walls, clothes and beds), causing health concerns among residents. Lastly, the management of the village was also viewed by some as lacking in professionalism, creating anxiety among residents. One interviewee said:

> *We though [the temporary village] was setup as a home for us. But we were aware that it was just a cog in this whole part of recovery. When I think back on it at the time, it was quite a circus—we couldn't just get on and be whole and live a little life in a village. We had to be on show, and we had to share our shame with everyone and that was bad. I just think it would be good if that was done differently in the future (VIC-Interviewee4).*

Thus, temporary villages do not suit all communities. For those who were used to living close to each other (such as Flowerdale), a temporary village worked. For the Kinglake community, where people were used to living spaced out on acreages, it would have been a better option to give people the option of establishing themselves on-site (like in Strathewen). However, Kinglake community members were not given that option.

Potentially, governments should have offered the option of providing temporary housing units to people earlier on, rather than putting them all in a temporary village, allowing people to be on their own land. Such a unit could have become interim housing or core housing that could transition into permanent housing or 'holiday cottages' that were organised by the Strathewen community. Such core housing or interim housing options could have been a better option than spending resources on temporary housing, and displacing communities' multiple times (Ireton, Ahmed et al. 2014).

Although CRCs are an important part in community-led recovery, Kinglake's CRC composition was not ideal. Communities complained that regular DHS policies and processes were applied to post-disaster temporary housing. For instance, during normal times, people experiencing homelessness require long-term housing, as opposed to the disaster affected who only require temporary options after a disaster. Moreover, DHS's rules were different for different regions, which further complicated things for people.

## 3.4 2019—20 Australian bushfires

The scale and extent of bushfires across Australia between July 2019 and March 2020 meant a range of emergency and temporary options had to be mobilised for short- to medium-term use. Communities also faced issues in relation to housing reconstruction, funding and insurance. Government intervention was influenced by the introduction of new measures at the state, territory and federal levels, notably the 2018 DRFA.

### 3.4.1 Snowy Valleys temporary housing response

Immediately following the bushfires, measures were taken to provide housing relief to affected residents, especially in badly affected areas, such as Batlow and surrounds.

#### Emergency relief

Most of the towns in the area spent up to two weeks away from home. Insurers facilitated motel and hotel stays and, for those in need, emergency housing was arranged by providers within the region or in larger urban centres, such as in nearby Wagga Wagga. To overcome a shortage of accommodation options, informal provisions were also brokered between family and friends (Workshop February 2024). Indeed, it was common for displaced families to move between properties in the first six months.

A concern among the community was the presence of itinerant and contract workers and tourists in the region, their lack of awareness of evacuation orders and emergency and temporary accommodation. Workshop participants (February 2024) recalled ad hoc measures to transport and house these groups as bushfires were surrounding the region. This experience now factors into the Snowy Valleys' plan for temporary housing.

#### Temporary housing

Several months into recovery, formalised options, such as Minderoo pods (n=11) and council-provided cabins (n=6), were provided. The pods were part of a broader roll-out of 2,475 modular structures across New South Wales provided by the state government and Mindaroo Foundation (Martin 2020). Post-disaster, the NSW Reconstruction Authority (NSWRA) lobbied for money on behalf of Council to purchase the cabins.

Eleven self-contained pods (7.2m x 2.4m) with water tanks and generators or external 'plug-and-play' mains connections (Mason 2020) were deployed in Batlow, which lost 17 houses in the town and a dozen other dwellings in outer areas. Pods were provided by the NSW Government. Recipients received case management from not-for-profits (NFPs) such as Anglicare or other in-community support services. Designed to be temporary, only two of the six pods remained tenanted at the time of writing, with most pod recipients moved into long-term housing through help from housing services.

> *What's in your area is pretty important. As far as our experience here, we worked pretty closely with the community to try and get people into caravan parks and cabins. But that was only because these options were available. The cabins had only just arrived. They came just after the fires. It was lucky that they were there. I don't know what we would have done (NSW-KI8).*

Cabins were provided with funds secured by NSWRA. They comprised furnished two-bedroom structures with a queen bed, two double bunks, a kitchenette and split air-conditioning (Snowy Valleys Council 2020). Cabins were administered by the NSW Department of Family and Community Services (Emergency Housing; DFCS) and leased out at a nominal rate through local real estate agencies. Despite Council's active role in securing the cabins, DFCS and real estate agents used standard processes to select recipients, with Council remaining impartial (Snowy Valleys Council 2020).

Workshop participants (February 2024) raised the idea of expanding modular housing to introduce new dwellings as needed. This can solve issues around utility-connected, temporary housing through the public and private sectors providing infrastructure for cabins, caravans and other structures. Importantly, development projects such as the Itinerant Workers Accommodation Project, which aims to meet the needs of itinerant fruit pickers in the area, have seen the expansion of electricity, water, sewerage and communications services as part of the development of new cabin accommodation, thereby building additional utility-connected infrastructure (Snowy Valleys Council 2022). During the workshop, the idea of providing more utility-connected cabins was raised, whereby more temporary accommodation could be surge mobilised as needed.

### Successes

Cabins were flagged as being especially successful in the area because they provided a contained, functional and fully furnished temporary accommodation option to support people in need while also adding to the existing housing mix in the region (as discussed below). Regarding pods, a key benefit was that they enabled residents to stay in the community and remain connected to personal networks. Among home owners, the deployment of pods meant residents could remain on their properties while clean-up was undertaken and development applications and rebuilds were pursued with the local council. Indeed, the literature highlights the benefits of remaining in place on the health and wellbeing of people affected by disasters (Cruwys, Macleod et al. 2024), greatly influencing personal recovery (Woodhall-Melnik and Weissman 2023). Remaining in place also meant residents could connect with local housing and service providers.

> *I'm absolutely delighted to be able to be back up here on my block…We've spent the weekend clearing the property and I'd like to thank everyone who has made it possible to return (Mason 2020).*

Inherent to the success of temporary modular housing in the Snowy Valleys was the abundance of private land whereupon prefabricated structures, such as pods, could be set up. Further, the existing tourist infrastructure, such as caravan parks (six in total across the LGA), meant there was space (albeit finite) for cabins to be bumped into the area. This differs from other hazard-prone LGAs where space availability largely dictates housing options (such as Lismore City and Tweed Shire Councils after the 2022 floods, and Forbes Shire and Dubbo Regional Councils after the 2022 floods) (NSW-KI4).

### Challenges

Notwithstanding these successes, initial deployment of modular housing faced constraints, both logistical (such as delivery into regional areas and across bushfire-affected terrain), and regulatory (such as complying with state land use regulations and local council requirements). Further, cabins were favoured over pods due to concerns about their fire resistance vis-à-vis the local hazard profile of the Snowy Valleys.

Other limitations of the temporary housing response included monetary expenses, generator pollution from power facilities, and the unsuitability of pods in cold conditions.

> *By the time the pods arrived [in April 2020], other issues emerged such as people needing to run diesel generators to keep the pods warm, especially in this area in the wintertime. Diesel isn't great to breathe in while you're trying to relax in your new dwelling (Workshop participant, February 2024).*

The need for temporary structures was made more difficult by the council removing long-stay cabins prior to the disaster. As remarked during a workshop (February 2024), the long-stay nature of the prior cabins and poor site upkeep and maintenance meant the cabins were viewed as 'detracting' from the tidiness of the town. In turn, removal and site maintenance came at the downstream expense of a shortage of immediate options.

Limited awareness held by itinerant and contract workers in the region demonstrated the lack of knowledge exchange following previous disaster events in Australia. To this end, the Queensland Floods Commission of Inquiry (QFCI 2012) suggested guidelines be created and publicised for people in short-stay accommodation. Without knowledge exchange and implementation, regions will continue to repeat past planning mistakes.

## 3.5 2011 Brisbane floods, Queensland

Over three-quarters of Queensland was affected by floods between November 2010 and January 2011, including large swathes of Brisbane City and nearby suburbs. Nearly 30,000 homes were inundated, and over 200,000 people were affected (QFCI 2012).

### Emergency relief

Emergency accommodation was coordinated by the Queensland Government. Moving from evacuation centres, relief was provided in motels and hotels throughout the city—a viable option compared to other contexts examined in this report due to the sheer volume of accommodation options spread across urban south-east Queensland. Many people relied on family and friends (nearby and interstate). Short-term arrangements were also reportedly established by the community sector, such as the use of local council and school infrastructure. NGOs and housing services surveyed areas frequented by the homeless and insecurely housed to provide safe and dry lodgings.

73 LGAs affected by the floods activated Queensland Government funded NDRRA measures to ensure residents could receive financial and material support. This included 65,500 Personal Hardship Assistance Scheme Payments, such as emergency assistance grants and essential household contents grants (Queensland Reconstruction Authority 2011b: 15).

Taking stock of emergency relief after several disasters in recent years, the Queensland Department of Housing's (2023) *Temporary Emergency Accommodation (TEA) Plan* states that displaced households that can secure private arrangements (such as family and friends or via insurance) will help to ensure assistance is given to those in need.

### Temporary housing

Within six months of the floods, several options were made available to inundated households that encompassed government, non-government and commercial options. Again, the urban context meant that a more diverse housing mix was available to be activated. A Queensland Government (2011: 7-8) submission to *The Natural Disaster Insurance Review* reported that 375 (65%) applications were approved for social housing; over 5,000 rental assistance loans (4,791 bond loans) and grants (901 rental grants) were provided; and additional places were made available under the Community Rent Scheme (which supports individuals to build up their rental history).

One hundred pods and caravans were also secured to create temporary villages, described in the media as 'work-camp' hubs. This measure was used, despite poor optics at the time, to reduce people slipping through the cracks and becoming homeless (AAP 2011). Within a few months of the disaster, a portion of pod recipients were contacted to arrange a rental payment for their temporary housing; an arrangement many were not aware they had accepted amid the hasty search for housing after the floods (Mariner 2011).

Insurers also played an active role in Queenslanders' temporary housing journey. 56,200 claims were lodged within six months of the disaster, with estimated insured losses being valued at $2.55 billion, of which 47 per cent were settled through covering repairs or providing financial payouts (Queensland Government 2011).

### Successes

The Queensland Government's timely response and clear communication about housing relief remains a clear success of this devastating flooding event. Within days, a diverse mix of emergency and temporary housing was mobilised by the state government in concert with NGOs and housing providers. This included motels, hotels, short-term lets, social and community housing, pods and caravans. The options available were manifold given the event took place in a dense urban area where government and housing providers had existing temporary accommodation arrangements ready to be activated. Joint state government and Australian Government funding that was made available through NDRRA also worked to build people's capacities. For instance, money was used proactively to loan rental bond payments, build up people's rental history through access to community housing, and provide access to social housing.

### Challenges

The fact that much of Brisbane and its surrounds were inundated by floodwaters meant that many accommodation providers and support businesses also experienced water inundation, blackouts and disruptions to their businesses. Many households were also not insured or were underinsured, which meant they were more reliant on support from government and non-government organisations. Further, there were reports of policyholder confusion about whether they were covered for storms and floods. Flood coverage was sometimes not honoured depending on how the floods originated (e.g. river, rainfall or storm surge). Reports have since detailed how:

> *Many assumed they were covered automatically for all types of flooding events, severe storms and other natural disasters, only to discover, post event, that they did not have the necessary insurance protection. The number of disputed claims arising from the Queensland floods reinforces the need for a standard, unambiguous definition to be enshrined in Federal legislation and for the insurance industry to provide greater clarity in product disclosure statements as precise policy coverage. A clear, standard definition of flood is required to ensure policyholders know where they stand and have confidence in the insurance product they are purchasing (Queensland Government 2011: 3).*

## 3.6 2022 Northern Rivers floods, New South Wales

Widespread flooding across the south-east coast of Australia in early 2022 resulted in the evacuation of entire areas, including Lismore and surrounds in the Northern Rivers.

### 3.6.1 Northern Rivers temporary housing response

The housing response was influenced by several local factors, as well as changes to which departments were mandated to manage disaster response and housing.

At the local level, the existing housing crisis in the area, defined by a lack of available housing as well as increased sales and rent prices after COVID-19 (van den Nouwelant and Cibin 2022), meant the region was experiencing significant homelessness (around 1,500) and housing insecurity and that services were already inundated with requests for housing and other assistance (Northern Rivers Community Foundation 2022). Further, the widespread nature of the floods meant that even those working in local and state government or in housing service provision were themselves impacted by the floods (Workshop, August 2023). The restructure of Resilience NSW to become the NSW Reconstruction Authority (NSWRA) and the creation of the State Recovery Committee (SRC) were influential for housing relief. Such changes mandated NSWRA to lead housing relief, supported by the Department of Communities and Justice (DCJ).

#### Emergency response

Community hubs were crucial in providing essential services and mental health support. Northern New South Wales makes up nearly 50 per cent of the state's homelessness (Healthy North Coast 2023); a high proportion of people live in caravans and unaffixed structures; the area is home to scores of dwellings built without planning approval. The housing and homelessness profile of the region affected immediate relief operations.

The DCJ provided emergency accommodation to 788 flood-affected individuals in the fortnight following the floods, using local accommodation providers. Within a few months, this figure increased to 1,440 people in emergency accommodation (NSW Auditor General 2024). Yet despite the region being home to scores of motels and hotels as part of its tourism industry, many such businesses were themselves flood-affected or underwent service disruptions, decreasing emergency options (Workshop, August 2023). The Housing Contact Centre (HCC) within DCJ, adapted its approach and secured four camp-style accommodation facilities and procured motorhomes at three caravan parks across the region (NSW Auditor General 2024: 5).

#### Temporary housing

This section examines the whole-of-government approach to housing recovery, beginning with temporary modular housing (pods) and moveable homes (caravans).

**At-Home Caravan Program:** The NSWRA secured over 250 caravans as an additional source of housing (NSW Auditor General 2024: 3). Through the *At-Home Caravan Program*, administered by NSWRA and Camplify, moveable structures were installed on eligible properties (initially for a period of six months, with the possibility of extension). These structures were connected to existing power and electrical sources.

**Pod villages:** Noting shortfalls in the provision of emergency motel and hotel options, modular housing was established as medium-term temporary housing villages comprising pods and caravans. NSWRA and the Housing Taskforce (HTF) mobilised 11 villages post-floods (Figure 3), standing up 546 dwellings for around 1,000 people between late 2022 and early 2023 (NSW Auditor General 2024: 3). These villages (Ballina Shire n=3, Byron Shire n=3, Lismore n=1, Richmond Valley n=2, Tweed Shire n=2) were selected by local and state government after suitability and feasibility assessments by NSW Department of Planning and Environment (DPE).

> *Each Council is different and might have different views on what they believe their role to be and the amount of engagement or capacity they have after a disaster. But for all our program responses, we've only ever implemented a program with Council's support of the identification of land. In some cases, Council is able to identify land and support its use. In other cases, they haven't been able to, but they are still supportive of the program occurring on other land. We always seek in-principal support from Council (NSW-KI4).*

Pod structures (ranging from studios to four-bedroom dwellings) featured internal facilities (kitchen, bathroom and washing machine); power and water costs were covered by the government. Communal bathrooms and kitchen facilities complemented the internal fit-out of caravans, with some users footing the bill for waste (NSW Government 2024). Recovery support services were provided by Uniting, the Salvation Army, among others. NSW Public Works (NSWPW) also put forward a public Registration of Interest (ROI):

> *The ROI called for registration from suppliers of granny flats, portable buildings, relocatable homes, kit homes, working camp style cabins or other portable structures that may be suitable to meet the need for short to medium-term accommodation (NSW Auditor General 2024: 22).*

The response was a multi-actor flexible approach after one of Australia's costliest floods.

### Successes

The delivery of caravans onto people's properties was identified as a major success as it allowed people to stay on their properties, be connected to their communities and start (at their own pace) the recovery process. The *At-Home Caravan* Program comprised an effective public-private intervention through government partnering with Camplify.

> *We initially look to caravans in the first instance, partnering with industry, so that people can remain in community, because that's identified as a critical need. Then we look at the rollout of pods down the line for that more medium-term temporary housing so people can be there while they rebuild (NSW-KI1).*

The procurement, delivery and set-up of pod villages were also highlighted as a success by stakeholders, again due to the government partnering with industry:

> *The private sector act like the service delivery partner for all our programs. They produce quickly and have scalability essentially in their production lines. They can do a whole program end-to-end, including storage, transportation and construction on-site. That's great for moving quickly (NSW-KI4).*

**Figure 3: Pod village in Mullumbimby, Northern Rivers, NSW**

Source: T. Heffernan 2024.

This removed some of the challenges faced by the government to quickly procure and stand-up modular housing, including offsite prefabrication, storage and delivery.

> *Often near rivers because it's the cheapest land accessible. But these are often the hardest hit during floods. It's risky to put people back into those environments during or after a disaster (NSW-KI1).*

Regarding policy and program development, the response highlights two successes. The multi-approach taken by several government departments demonstrated agility amid the constraints of limited emergency and temporary housing options. This includes government securing caravans and the ROI for additional structures. Further, the roll-out of pod villages and the *At-Home Caravan Program* required in-situ changes to local and state government policies that restrict the ad hoc establishment of caravan or camping grounds, and the amount of time caravans can be stationed on private property (DPE 2022).

However, stakeholders further noted that caravan parks are often situated in vulnerable and rapidly shifting areas of towns or villages:

## Challenges

The temporary housing response has been criticised on several grounds, especially regarding emergency accommodation constraints and the slow movement of the affected households to transition from temporary to longer-term housing options. As of July 2023 (18 months post-disaster), 1,021 people were still in temporary housing villages and 257 caravans remained on people's property (NSW Auditor General 2024).

Housing constraints included accommodation arrangements being unsuitable for some households, such as placing multiple generations in one motel or hotel room for weeks and sometimes months. Often a bar fridge, toaster and kettle were all that were available, with no proper cooking facilities and either limited or shared laundry facilities (Workshop, August 2023). Some families did receive family accommodation options that offered more space and facilities, but these were limited and in high demand (for example, only one had become available in the town of Ballina [Workshop 2023]).

In addition to cramped conditions, many accommodation providers did not accept pets, which is both an eligibility barrier to receiving emergency accommodation and a barrier to people's immediate recovery; health research frequently cites distress amid disaster due to people not being able to take pets with them (Chadwin 2017).

While a standard list of accommodation providers was initially used in the response, stakeholders remained unconvinced of the utility of mobilising private holiday rentals. Some suggested properties leased out via platforms such as Airbnb (~6,000) could be mobilised as part of the housing response during a disaster. Council staff assisting the government with housing provisions, such as the following stakeholder, did not agree:

> *The problem is that if you own an Airbnb as an investment, the preference is not to house somebody [affected by disaster] if the owner thinks they can sell accommodation to North Shore Sydney instead. Investors tend to be selective. If that's where their business interests lie, then we couldn't really count it in our capacity. They prefer short-term lets as a business model. So, our lesson was that the capacity was definitely there in terms of the number of bedrooms, but these properties weren't available to us. It would be politically and legally very nearly impossible to bring that capacity into our needs (NSW-KI7).*

This goes to show that holiday rentals in areas known to be tourist destinations cannot be readily counted on as surge capacity to meet local housing needs following disaster.

Regarding the region's significant homeless and insecurely housed residents, many were categorised as tourists when accessing emergency shelters. This required them to check-out and check-in again every few weeks. One service provider broke down in tears, retelling the experience of a person who had packed up their belongings, checked-out and then waited for hours to be instructed on where to go, only to be told they could stay for another week (Workshop, August 2023). Such treatment highlighted inequities in the provision of emergency housing. Others spoke of a battle of postcodes: people living in insecure housing within a wealthier postcode struggled to find emergency shelter and, later, longer-term solutions that fit their needs.

Regarding temporary housing, 724 households remained on the waitlist in the second half of 2023. A review led by the NSW Auditor General (2024: 5) into the NSW Government's temporary housing arrangements surmised that the extensive waitlist:

> *Indicates that while the temporary housing…was able to meet some of the Northern Rivers' demands for housing, it was unable to fully meet the needs of the Northern Rivers community.*

Further, concerns have been raised about the economic viability of the pods program, with the government unable to cost initial and ongoing costs as 'various pod styles, sizes, providers and contractors' had been used (McLeod 2023). While certainly adding to the housing mix, there are few indications of how the government intends to demobilise the villages. In the second half of 2023, only 75 households were recorded as having exited temporary arrangements, more than 18-months on from the initial flooding event:

> *Of these, only 30 had had either moved into a longer-term housing solution or moved out of the area, with the remaining 45 either not having a known reason or leaving for other reasons, such as through being evicted from the temporary dwelling (NSW Auditor General 2024: 5).*

While the level of disruption caused by the floods was cited as a reason for low numbers of households exiting temporary housing, in addition to existing pressures on housing services due to homelessness and insecure housing in the region, the report found that:

> *The number of households leaving to enter longer-term accommodation is relatively low, and it is unlikely that turnover alone will accommodate households on the waitlisting. The NSW government does not have a strategy for meeting the outstanding demand… (NSW Auditor General 2024: 5-6).*

Finally, there was division over whether the pod structures and village configuration have been designed in the interest of recipients, a point that generated much debate.

> *Prefabricated housing producers are essentially commercial operators. They see the roll-out as a commercial venture. There's a cost benefit assessment to be had and I think a lot of what the commercial sector has ready to roll out is not necessarily designed for a community outcome. Western Australia successfully deployed Humanihuts. Some of those are your more camp models, more what you'd see in a mining camp or in an overseas disaster context. That wouldn't have been fit for purpose in the Northern Rivers (NSW-KI4).*

> *Pod villages are set up like prisons. They're not warm enough and they don't operate in a trauma-informed way. Pods were seen initially as a golden ticket. But after a few months, no one felt like that. This was even the case among the recovery support services staff (Workshop participant, August 2023).*

## 3.7 2022 Victorian floods

Emergency Recovery Victoria (ERV)—the permanent agency that supports communities to recover after a major emergency—had been formed just two weeks prior to the floods, so Rochester served as a steep learning curve.

### 3.7.1 Rochester temporary housing response

The Victorian Government funded the setup of a Community Recovery Hub at Rochester to act as a one-stop-shop for communities to navigate recovery. Prior to the formation of the Recovery Hub, Rochester Community House played a key role in the early days post-disaster, as they had prior experience from the 2011 floods. The Campaspe Shire Council and the Community House operated temporary flood recovery hubs from several locations until a fit-for-purpose Recovery Hub opened on 10 July 2023.

The Recovery Hub comprised of various support services such as Campaspe Shire Council, Emergency Recovery Victoria, Windermere Child and Family Services, Anglicare Financial Counselling and Recovery Support Workers, ARC Justice, Mind Australia, EACH - Financial and Business Counselling (Campaspe Shire Council 2022). It provided flood affected residents with support, information and resources to recover, express their priorities by bringing the ICA to host insurance forums and supporting residents to lodge submissions to the Victorian Flood Inquiry into the 2022 Victorian Floods (Campaspe Shire Council 2022). ERV Recovery Hub was considered to have done the heavy lifting for the housing recovery effort (VIC-Interviewee7).

The Campaspe Shire Council also supported three community recovery committees (CRCs), including in Rochester. A meeting between CRCs and the first new Municipal Recovery Committee (MRC) was held in July 2023. It is intended that the MRC will act as a link between government departmental agencies, other community recovery committees, impacted communities and the Council (Campaspe Shire Council 2023).

### Emergency relief

Within 48 hours, the flood waters had receded. Rochester Community House played a key role in the early days, during and immediately after the floods. They formed an initial relief centre at the Presbyterian Church, organising volunteers, gathering information, offering food and hygiene products, and making a list of people and needs (who is where and who needs what support and so on). There was no formal database to contact and track residents, so the community worked together to develop a spreadsheet and used it to keep track of residents who needed help and who were available to assist. Samaritan's Purse, a volunteer relief organisation, also worked in collaboration with Campaspe Shire Council Flood Recovery Hub and other recovery agencies to identify residents who needed assistance with waste removal.

Local community members, the Victorian State Emergency Service (VICSES), and the Australian Defence Force performed more than 100 water rescues, over the first four days post-initial-floods. However, there were criticisms that VICSES was under-resourced. VISES, a volunteer organisation, also responded. However, the prolonged nature of the flood meant the volunteer organisations were fatigued.

The Australian Government provided one-off financial assistance of $1,000 per eligible adult and $400 per child, through the Australian Government Disaster Recovery Payment (AGDRP) (DHA 2024). The eligibility criteria included those whose homes were damaged or immediate family members who were affected. This financial assistance was topped-up by the local council, who also announced a rates relief package for 2022—23 (considered the most equitable response). Further, the Disaster Recovery Allowance (DRA) provided income support payments to employees, primary producers, and sole traders who experienced a loss of income as a direct result of the floods. This provided fortnightly payments for up to 13 weeks up to the applicable rate of JobSeeker Payment or Youth Allowance, depending on individual circumstance. Overall, however, residents felt that there was a lack of support from the Victorian Government in the immediate aftermath of the floods with recovery efforts being driven by local people in Rochester.

Within the first 24 hours, renters from over 100 properties were evicted from their homes. Real estate agents have the right to end a tenancy agreement as the house is no longer habitable. However, tenants also have the right to housing, a returnable bond, and to not have to pay rent due to housing disruptions, however, many tenants were not aware of their rights.

Various options were used by residents for accommodation, during and in the immediate aftermath of the flood event. Some people lived with friends and families. Others stayed in caravans (on the property or outside of town) or paid for rooms at hotels, motels or caravan parks. Of those who could not afford or secure accommodation, 340 Rochester residents went to Echuca Emergency Relief Centre (ERC), Basketball Stadium (open for 35 days), 60 Rochester residents went to Bendigo Emergency Relief Centre, Showgrounds, which housed a total of 220 residents from across the region (open for 16 days). A further 300 regional residents stayed at the Centre for National Resilience, which was provided by both the Australian Government and Victorian Government.

### Temporary housing

ERV provided temporary accommodation to flood-affected residents and hospital patients. Elmore Village was set up within 14 days and operated for nine months (ERV 2022). It comprised 20 short-term modular houses, reused from the 2019—20 bushfire program, set up in Rochester Caravan Park (making use of pre-existing services). In excess of 200 residents (100 families) took up the offer of living here. These modular houses were comprised of one-, two- and three-bedroom dwellings and include a split kitchen and living area, a bathroom and a deck, with the structures customisable for accessibility. Dwellings were provided at affordable rates to eligible residents. Locals also successfully lobbied for a temporary housing village close to town. Caravans were bought using funds from either the government or insurance companies.

> *In the first three and a half months, we saw 250 caravans with the fiscal count within our community of people were living in. So, while we had about 40% of our population displaced, we had around 20 to 30 per cent of our population living outside of their dwelling on their property (VIC-Interviewee5).*

### Successes

Views about Elmore Village temporary accommodation varied. Residents who accepted temporary housing said it helped to keep the community together, helped to retain a sense of community, and kept young people in school through transport options to Bendigo and Shepperton. Residents had to pay nominal rent based on their hardship assessment, which was viewed as financially prudent and beneficial long-term for temporary housing recipients. The design of housing cabins at the National Centre of Resilience in Mickleham was viewed in even more positive terms, as each cabin had a living space, kitchen and bathroom. Stakeholders felt that the provision of temporary accommodation at caravan parks is a 'must' after any mass devastation.

### Challenges

There were many residents who were dissatisfied with the temporary housing due to the design and management of the village. Not all units had kitchen or cooking facilities or dining and recreation areas. These units only had beds. There was no space for pets, so they were not allowed in the village. Food was prepared by chefs and was served in the communal kitchen at a set time, limiting its suitability for all. Despite such challenges, residents were worried they would be judged as ungrateful if they complained.

On-site caravans were not great either. People ended up staying in them much longer (some are still living in them). Some residents felt that having provided caravans, insurance companies became lax, which delayed their housing recovery. Caravans were neither thermally comfortable in winter, nor great for the elderly, and possessed fire and heat dangers in summer. Many elderly people ended up using bathrooms set up in their front yards (such as Portaloos) and injuring themselves after having fallen over in the middle of the night. Caravans were problematic for disability access too.

In contrast, short-term modular homes acted as a stepping stone for speedy recovery.

## 3.8 2021 Ex-Tropical Cyclone Seroja, Western Australia

### 3.8.1 Kalbarri and Northam Temporary Housing Response

Ex-Tropical Cyclone Seroja had an impact area covering 133,000km2. It affected over 40 communities, especially the remote towns from Kalbarri through to Northam. It coincided with the COVID-19 pandemic and lock-down of Perth, and the school holiday period, greatly compounding the emergency and temporary housing response. An extra 30,000 holidaymakers were in the region at the time (DFES 2023a: 10). Compounding these factors was the remoteness of the communities and damage to roads and other infrastructure (DFES 2023a), which meant the housing response encountered delays.

#### Emergency relief

The Western Australian Department of Communities (WADC) organised emergency accommodation and provided relief funds for personal supplies (DFES 2023a). Approximately 70 per cent of buildings were damaged or destroyed, leading to widespread evacuation. Emergency shelter options were provided in mostly regional centres, such as Geraldton.

Due to the remote location of townships and the extent of housing damage and displacement, staying with friends and family in the immediate vicinity was not an option for many, leading some households to seek alternate arrangements. Those that were able to provide free accommodation to cyclone-affected individuals and families were offered a 50kL allowance on water use (Morawa Council 2021) to cover costs and incentivise public assistance of emergency and short-term accommodation.

#### Temporary housing

This section explores government's housing recovery approach, including temporary modular housing (such as pods) and moveable homes (such as caravans). The provision of prefabricated housing was constrained by state border closures as part of the pandemic.

Temporary modular housing was provided in the form of pods, a response necessitated by the significant delay of housing repairs and rebuilding (by up to three years) due to a severe shortage of available materials and tradespeople in the region. In some cases, the use of modular housing on private land was restricted under law (discussed below). Temporary housing was funded under DRFA Category D of joint state government and Australian Government funding.

Modular housing for 100 people was donated by the mining sector to accommodate tradespeople moving through the area to conduct housing repairs and reconstruction.

Eleven repurposed caravans were secured by the WA Government and provided to displaced households in and around Northampton, a response based on community consultation:

> *People want to stay in their community in Northampton and some want to be on properties that were destroyed—they want to be close to animals and close to communities. The response we have provided for accommodation has been varied and bespoke according to need. The need, based on what community told us, in terms of a small number of people, was the provision of caravans (Minister for Emergency Services; Western Australian Government 2022).*

Six caravans were made available within four months of the disaster. The remaining five were secured but deployment was temporarily paused until the community was able to accept the caravans, based on their feedback during consultations.

### Successes

The success of the temporary housing response included:

- The delivery of bespoke housing relief arrangements, as communicated through community consultations and based on local needs, such as the deployment and staged delivery of caravans (Western Australian Government 2022).
- The WA Government partnering with the mining sector to provide repurposed mining modular housing to accommodate tradespeople.

Regarding policies and programs created or amended in relation to this disaster, two stand out as important for ensuring relief was offered with local residents at the centre:

- The *Temporary Accommodation for Workers Program* was introduced to remove the accommodation burden created by the influx of intra- and interstate tradespeople. The program included 30 two-bedroom units in Kalbarri, and several caravans in Northampton, Mingenew, Morawa and Perenjori (Mitchell 2021). The program funds cyclone impacted LGAs (under DRFA category D) to accommodate non-regional based tradespeople while homes and infrastructure are rebuilt (Western Australian Government 2022), albeit this required changes to zoning (WA-KI4).
- At the Commonwealth level, the Income Tax Assessment Act 1997 was amended following Ex-Tropical Cyclone Seroja, via the *Treasury Laws Amendment (2022 Measures No. 1)* Bill 2022, to ensure that recipients of grant assistance (under DRFA Category C) were not penalised at tax time by assistance grants being deemed as personal income. This is important given complaints in the New South Wales case studies (this chapter) on such penalisation.

### Challenges

Due to the specific factors of the disaster event mentioned above, recovery efforts continued for years, with DFES (2023a: 4) Commissioner Darren Klemm stating the cyclone was 'one of the largest recovery operations Western Australia has experienced'. Indeed, cyclones are not common in this area of Western Australia, meaning emergency and preparedness planning did not extend to this hazard type, and infrastructure and housing were not designed to specifically withstand cyclones (see Chapter 4).

> *I was a little underprepared thinking that it would never happen to us in Geraldton. When the tin [roof] ripped off, you sort of definitely realised it was pretty serious, and [we] bunkered down in the bathroom and waited for it to pass over (Doug Brown, quoted in NEMA 2022).*

The remoteness of towns poses another challenge in Western Australia, given its size (2.646 million km²), diverse topography, and varied hazard profile:

> *The problem with [modular housing] is you can't store it easily when it's not being used, you can't easily store it in Western Australia to then quickly deploy and mobilise. […] You've gotta keep that infrastructure live and that's a lot of space to store them in the state the size of WA. Where do you store them and how do you keep them live? Who pays the cost to keep them live? (WA-KI1).*

To ensure a diverse housing mix in the region, stakeholders highlighted the need to have adequate stocks, services and supplies outside of disaster:

> *We've got to make sure we have adequate supplies so that we've got choice and options in disaster events. At the moment, for example, in the mid-west Wheatbelt, we've got 101 towns and, in the past two years, there's been pretty consistently one rental property that comes up for availability for every four towns. If another disaster was to happen, we already don't have anywhere for people to stay in terms of rentals (WA-KI4).*

Further, restrictions on temporary moveable housing were criticised, particularly with reference to changes that have been made in other states following recent disasters:

> *There's recognition here of what's been successful in the eastern states, in terms of amending legislation to allow people to have temporary dwellings on their land for longer periods. Here, it's three to six months. Anything longer requires ministerial exemption, and that's common nationally, but it's been changed elsewhere. We saw that, after Seroja, legislation was restrictive for people who wanted to put pods or caravans on their land (WA-KI9).*

Regarding funding, stakeholders highlighted delays in receiving recovery money under the Australian Government's Disaster Ready Fund Arrangements (DFES 2023a: 18):

> *I recall there was about $100 million available for recovery after Seroja across state and federal funding. Up to 18 months afterwards, only a fraction had been allocated because the conditions that had to be met to use any of that money was just crazy. It was like you were doing a budget submission. In a disaster, it's not an ideal time to be preparing formalised budgets. We didn't even have power in Geraldton for two almost weeks post-cyclone (WA-KI4).*

> *Just $12.3 million has been spent from this package, leaving a shameful $92.2 million undelivered and unspent (Shadow Minister of Emergency Services; Aldridge 2023).*

The pace at which different levels of government work was also highlighted as a challenge to timely housing relief. One state government stakeholder commented on their experience of working with local government, who are charged with identifying land for housing relief, and the WA Department of Planning, Lands and Heritage, which advises on planning procedures broadly, to ensure land use and development follows existing strategy, policy and planning standards:

> *There's not much flexibility in how local government and the Department of Planning, Lands and Heritage [DPLH] approach planning for emergency accommodation. They apply the same requirements to temporary housing as they do to build forever accommodation. It's complex and bureaucratic. I suppose there is a lot of red tape and the like. I would say that DPLH in practice are very open, flexible and supportive, but they're bound by a lot of arrangements as well, so it's at the policy or the legislative level (WA-KI9).*

Finally, funding and bureaucratic delays were a barrier to private sector assistance:

> *I had them on the phone saying, "Mate, just tell us which site you need the temporary accommodation developed. We'll put it on trucks and take it up there." They just needed a bit of financial assistance from government to make it work. There were all these processes. Eventually they lost interest (WA-KI4).*

## 3.9 2023 Western Australia floods

### 3.9.1 Kimberley temporary housing response

Ex-Tropical Cyclone Ellie and its associated monsoon trough brought unprecedented flooding to northern Western Australia between December 2022 and January 2023, affecting around 40,000 people and displacing over 1,500. Pastoralists on private properties and First Nations people living in community housing (owned and managed by the WA Government) were mainly affected. The closure of a 700 kilometres section of highway isolated communities and disrupted evacuation and housing relief.

#### Emergency relief

Emergency evacuation and relief was assisted by emergency services personnel, volunteers and the ADF. The ADF transported 1,233 people from remote flood-affected communities to emergency accommodation. More than 680 people were provided with commercial accommodation arrangements (DFES 2022). Others stayed with family and friends or were provided with alternate community housing arrangements. A major concern among relief actors was moving First Nations communities off Country and into regional centres, often hundreds of kilometres away.

#### Temporary housing

Due to the remote location of damaged and destroyed dwellings, estimates of up to three years were given for houses to be fully repaired and rebuilt (DFES 2022: 19). As such, temporary and modular housing were offered in two stages under the *Temporary Residential Accommodation Program* to ensure relief was **culturally appropriate**. The program was delivered by WADC and community and commercial partners and was funded as short-medium temporary residential accommodation under DRFA Category D.

**Culturally appropriate housing and relief**

Culturally appropriate housing refers to the design, quality, affordability and allocation of housing that not only meets basic shelter needs and standards (AIHW 2023) but also takes into consideration the cultural requirements of First Nations communities (Lea and Pholeros 2010). This might include, for example, housing being proximal to culturally important sites on Country, being managed by Aboriginal Controlled Organisations, or may concern the configuration of who and how people are housed by taking into consideration accessibility and kinship (Puszka 2024).

It follows that culturally appropriate relief acknowledges and complies with such needs, standards and configurations when a disaster necessitates temporary relocation.

Stage One (December 2022 to early 2023) comprised anything beyond the immediate evacuation and relief of flood-affected housing, including motel and hotel accommodation in larger regional centres in Broom and Derby (WA-KI8). Accommodation was delivered by the WADC and community housing service providers.

Stage Two (mid 2023 onward) aimed to provide longer-term temporary accommodation on or close to Country. This was achieved by modular or refurbished housing deemed suitable for extended families while homes were being repaired or rebuilt (DFES 2022). In total, 96 temporary modular homes (Humanithuts) were provided (Western Australian Government 2024a). Dwellings were fully furnished and were made up of two demountable modules joined by a veranda. Notably, they were installed to withstand a one-in-fifty-year flood (DFES 2022: 47), increasing housing resilience.

As part of Stage Two, the Derby Hostel in the Kimberley Region was refurbished to provide additional longer-term temporary accommodation. The hostel houses up to 40 people and has been upgraded to support people with complex health needs. The Hostel is owned by *Aboriginal Hostels Limited*, operated by *Emama Nguda Aboriginal Corporation* and leased by WADC.

Community from across the Fitzroy Valley were accommodated, including Buruwa, Camballin, Darlngunaya, Muludja and Junjuwa (Western Australian Government 2023a). The arrangement between the WA Government and an Aboriginal Controlled Organisation meant the housing provided was done so in a culturally safe manner:

> *It's not just putting someone in a room. I think the fact that it was being run by a local organisation, meant that they could see what the supports were, what people needed. They organised fishing trips, they organised bus trips back to Country for people. It wasn't about the hire of a room or getting money, it was about creation of community (WA-KI9).*
>
> *Aboriginal people have a cultural responsibility to guide and oversee recovery activities. Service providers need to engage with respected community members to obtain guidance, ensure that services are culturally appropriate, and make sure all impacted people feel able to access and engage with the support they need (DFES 2022: 19).*

Additionally, the Temporary Workers Accommodation Program was also introduced to support the Shire of Derby-West Kimberley to manage the operations of a 40-person worker camp facility donated by the mining sector, in consultation with elders (WA-KI1).

### Successes

The success of the temporary housing response included:

- Acknowledgement that not all commercial accommodation options are suitable for post-disaster relief—with accommodation used in Stage One described as 'options that were just the quick and the ready' (WA-KI8)—instead, the state government should commit to temporary accommodation options that fit the needs of those displaced.
- The delivery of culturally appropriate housing and arrangements coordinated through consultation with Aboriginal Controlled Organisations and elders:

  > *What we have in the longer-term Stage Two is often on Country, and far more climate responsive, and culturally responsive as well, and a family friendly type accommodation, rather than just some Humanihut in a caravan park (WA-KI8).*
  >
  > *Having a local Aboriginal community-controlled organisation providing culturally appropriate accommodation to members of their community meant that it was a respectful accommodation option for people (WA-KI9).*

  This ensured a 'do no harm approach' was applied (DFES 2023a: 8), seen as the gold standard externally provided housing relief (McGhee, Brokopp et al. 2020).
- $38 million to employ 70 full-time staff in DFES to boost disaster recovery.
- Funding arrangements to ensure accommodation stocks for contract workers, via the *Temporary Workers Accommodation Program*. This involved the WA Government entering into agreements with local Aboriginal Controlled Organisations, thereby providing formality and structure around the program. The program aimed to ensure tradespeople could stay in the region to complete home rebuilds, which is depended on sound accommodation options (Western Australian Government 2023a).

### Challenges

The challenges of the temporary housing response included:

- Removal from Country, despite best efforts to minimise the effects of this on the community. As stated in the Kimberley Floods State Recovery and Resilience Plan:

  > *The displacement and disruption of the floods have ruptured people's support networks, social contact and connection to Country [due to the evacuation of townships and relocation into temporary housing]. There is a need for activities that maintain and strengthen people's connection to family and Country, and reconnect people to services such as schools and health care (DFES 2022: 19).*

- Costs associated with damaged commercial properties and accommodation:

  > *The cost of damage to the accommodation from the Kimberley floods was higher than the cost of the accommodation itself, because we had people that had not been in commercial accommodation prior. For us, the provision of financial assistance ideally promotes self-management (WA-KI9).*

- Adoption of temporary housing models that were designed outside of the Western Australia context, such as South Australian-designed Humanihuts, that were developed with different geographic, political and social conditions in mind:

  > *Permits to mobilise temporary structures, such as Humanihuts, made it confusing, by taking the options that have worked in South Australia over to Western Australia. Because suddenly there were all these different requirements, which then caused more and more delays. With [temporary] accommodation, you want a very rapid deployment response (WA-KI9).*

- Tensions arising from the WA Government and the ADF descending on remote communities.

## 3.10 Community perspectives on housing recovery

It is well-established that communities should play a lead role in disaster recovery (Fernandez and Ahmed 2019). In this section, we draw selectively on survey responses (n=30) and key informant interviews (n=31) to illustrate the degree to which local communities felt they were involved in the post-disaster housing response.

### 3.10.1 Survey findings

Fifty-eight per cent of respondents were from New South Wales, 21 per cent were from Victoria and 21 per cent were from Queensland. Findings revealed that most respondents (73%) had been impacted by floods, followed by 17 per cent affected by bushfires, and 10 per cent affected by other disasters such as severe rainstorms or hail. Notably, 74 per cent of the respondents experienced a disaster within the last two years, with floods making up 91 per cent of cases. Most affected properties were houses (80%), followed by units (7%), caravans or mobile homes (7%), and residential investments (6%). In terms of ownership, 63 per cent of the respondents owned their damaged properties, 27 per cent were renters, and 10 per cent had other ownership arrangements.

#### Housing damage and assistance

When it comes to the extent of damage, 37 per cent of the properties were severely damaged, 30 per cent had a lot of damage, 23 per cent had little damage, and 10 per cent experienced no damage. Floods were the primary cause of damage for 85 per cent of the severely damaged or extensively damaged houses. A noteworthy finding was that 40 per cent of the respondents exercised the included option in the survey to not disclose whether they had home insurance. Among those who did disclose their insurance status, close to half (44%) did not have insurance at the time of disaster.

The survey results revealed some interesting findings about the housing assistance received. It found that a significant 40 per cent of the respondents did not receive any form of assistance with temporary housing. Among those who did receive assistance, 13 per cent stayed in temporary accommodation, 10 per cent in rental accommodation, 13 per cent with friends or family, and 17 per cent used other accommodation options. Notably, 42 per cent of respondents who did not receive any assistance did not have home insurance, and 33 per cent chose not to disclose their insurance status. In contrast, all respondents who stayed in rental accommodation had home insurance and found the assistance they received to be effective. They also reported that the assistance was provided in a timely manner.

Moving on to permanent housing, 60 per cent of the respondents did not receive any assistance in this regard. 88 per cent of renters who participated in the survey did not receive any assistance with permanent housing. Some respondents were still residing in their flood-damaged homes due to various reasons, as one respondent shared:

> *We had no choice but to return to our flood damaged home. My partner needed major surgery last July. We still have no kitchen or proper bathroom. No furniture. No fences (Survey-Participant13).*

Additionally, 20 per cent of the respondents received offers for buyouts. However, there was confusion and time delays associated with these. As another respondent stated:

> *We were initially told we would get a buyback. Late June 2023 we were [then] told no. Disgusting how this has unfolded. The government would rather send money overseas and look good than help their own (Survey-Participant20).*

Flood-affected residents experienced more issues with their temporary and permanent housing assistance than the residents who were affected by bushfires.

### Community engagement

Most respondents (76%) indicated they found the information they received about reconstruction and recovery to be helpful. Additionally, 68 per cent of respondents reported that they understood the information about housing recovery moderately or very well. However, a significant majority (68%) felt that their communities were not involved at all or minimally involved in housing recovery decisions.

Respondents highlighted the negative impact on the community's wellbeing due to the absence of consultation and transparency and described it as more distressing than the disaster itself, as one respondent shared:

> *The [Northern Rivers Reconstruction Commission] could have stopped holding sham community meetings and lying about the rules. They could have mailed or emailed information to flooded home owners in simple language (Survey-Participant1).*

Frustration over unmet expectations followed community meetings, resulting in a sense of disappointment. Anger was also highlighted. As one respondent explained:

> *We were given false hope only to find out there was nothing available. There should be an inquiry into how this has been handled (Survey-Participant29).*

Respondents emphasised the importance of greater community involvement in housing recovery and identified various ways in which communities could be better engaged in the process. These included:

- emphasis on meaningful and transparent conversations, engagement, and proactive involvement of community members
- recognition of key community members who could provide valuable insights for effective recovery efforts and get them actively engaged in the recovery process

> *There were key people who helped orchestrate the recovery movement in our town that could have advised the so-called authorities of what was really needed (Survey-Participant6).*

- addressing the challenges faced by smaller communities, which can be overshadowed by decisions made in larger neighbouring communities
- recognition of the need for individual assessments as opposed to general policies, considering the diverse circumstances of community members
- advocacy for early engagement with renters and individuals facing housing stress, emphasising the importance of genuine consultation and on-the-ground support from relevant agencies
- advocacy for improved access to information and the establishment of community forums to facilitate meaningful discussions, potentially through the formation of a community panel.

### Recommendations for better housing recovery in future disasters

The survey findings revealed that a significant majority (72%) of respondents did not feel any safer from the possibility of future disasters based on their past experiences. The survey sought feedback on how housing assistance could be enhanced in the aftermath of future disasters and garnered various insightful suggestions from the respondents. Some of those recommendations include:

- Prioritise understanding and meeting the needs of affected community members by collaborating with existing community groups in affected areas.
- Provide clear and comprehensive information about available aid and resources.
- Ensure transparency and timeliness in buyback processes.
- Emphasise the importance of building resilience against future disasters by avoiding rebuilding identical structures and instead considering disaster-resilient measures.
- Replace top-down directives with empathetic and supportive communication.
- Offer various options tailored to individual circumstances and establish a responsive policy framework to minimise delays in providing assistance during future disasters.
- Improve the availability of housing options, including moveable and public housing.
- Avoid making false promises and ensure that help is genuinely available.
- Address the issue of isolation faced by affected residents relocated interstate.
- Speed up identifying suitable rentals and provide subsidies for bond and rent.
- Standardise the insurance coverages provided by insurance companies to facilitate comparison and better understanding.
- Explore the option of insurance companies providing portable on-site dwellings as part of their offerings.
- Establishment of a one-stop shop for building information at the local level and the introduction of mobile building advisors.

### 3.10.2 Case studies data

The formation of Community Recovery Committees (CRCs) has been identified as a promising means through which to engage communities in decision-making (Fraser, Aldrich et al. 2021). In the Victorian town of Kinglake, after the 2009 Bushfires, 33 communities established their own CRCs, including 25 local government councils repurposing existing citizen groups, to engage in a deliberative recovery process.

The lessons learnt have been instructive (McAllan, McAllan et al. 2011). They note that a one-size-fits-all approach does not work for all communities, which was evident in some CRCs being formed too quickly while others took a longer time. In 2009, many locals did not have clarity on what CRCs were, how one should be formed, or the scope of works for a CRC. Kinglake advised forming a CRC through the community election process for transparency but also to ensure the committee comprised members with the right skills necessary for navigating the process of recovery. Additionally, they recommended CRCs be 'ratified' by the community in one form or another, have regular meetings with communities to understand basic needs and to plan for recovery, and take leadership in reaching out to the government and donors rather than waiting. For example, the Strathewen community decided to incorporate the 'Strathewen Community Renewal Association', which also helped them access and manage funds (McAllan, McAllan et al. 2011).

Elsewhere, culturally appropriate and trauma-informed approaches to housing recovery seen among predominantly First Nations communities in Australia hold tremendous promise for ensuring equitable recovery across Australia more broadly. Following the Kimberly Floods in Western Australia, for example, government recovery managers reflected on the positive outcomes derived from engaging directly with Aboriginal Controlled Organisations to make decisions through consultation with the community. As one recovery manager in the WA Government stated, commenting on the refurbishment of the Derby Hostel for longer-term accommodation:

> *The Derby hostel was a really good initiative for people in the Fitzroy Crossing. It built on the principle of community supporting community after a disaster. Having a local Aboriginal community-controlled organisation providing culturally appropriate accommodation meant that it was a respectful accommodation option. Through the floods, we ended up with about 160 people we were supporting in commercial accommodation in Derby. Those people were often from remote communities, had not been in commercial accommodation before, were in small rooms, and were next to the pub. There was a lot of underlying racism from the accommodation providers, and difficulty supporting people in a way that was useful for them (WA-KI9).*

Once flood-affected families were successfully accommodated in the Derby Hostel, certain activities were prioritised to ensure people's wellbeing and safety through engaging in social and cultural activities. As the recovery manager went on to say:

> *It became apparent that a few of the guys were in a band, and so they bought a couple of guitars, and then they bought some kangaroo steaks, and they had a barbecue. They did an Easter egg hunt for the kids, and they had the guys from the band singing and everyone sitting outside singing. Now that gives me head tingles, because it is about the community supporting the community in the way that the community wants to be supported, so you're integrating personal support with a housing option (WA-KI9).*

Community-led and trauma-informed approaches to housing recovery demonstrate how wider benefit can be derived when the interests and agency of community members themselves are prioritised over sourcing cut-and-dry housing and accommodation.

## 3.11 Policy development implications

- Community-centred and culturally appropriate recovery organisations are well-placed to guide a region's housing recovery and inform decision-making. However, such organisations are currently not prioritised in housing recovery policies.
- Community engagement prior to disaster is a key ingredient of successful recovery, evidenced by the most effective relief programs being 'community-centred'.
- Jurisdictions need to plan for temporary housing recovery. This includes developing a business case for procuring and mobilising different temporary housing types to ensure utility in different legislative environments, topographies and climates.

  Prior planning will further ensure that transitional housing arrangements are equipped with a transition plan that involves ways for adding to a region's existing housing stock or putting forward an exit strategy for demobilisation.
- Temporary housing needs to include the provision of adequate heating and cooling, storage, washing and cooking facilities, recognising that short-term temporary housing options are rarely short-term.
- Local and state and territory government policies need to allow for caravans and other moveable homes to be sited on land for longer periods of time in the aftermath of disaster.
- Local and state and territory government economic planning and development needs to consider the presence of itinerant and contract workers and their need for accommodation, which can diminish available accommodation that can be used for displaced households.
- Dealing with trauma and loss often requires 'holding the space', with affected communities requiring time, space and support to make recovery decisions. Offering the option of remaining in place can contribute to a reduction in trauma.
- While a quick recovery is optimal, those affected need the time to retrieve valuables before clean-up takes place. These plans need to be clearly communicated.
- Recovery policies need to take account of the needs of the homeless and insecurely housed, such as discrete accommodation options that do not simply place together the homeless and insecurely housed in with 'tourists', as this can affect the options available to them. Indeed, there is a need for longer-term and needs-based temporary housing.
- Well-resourced hubs are a valuable catalyst for community recovery, offering support, information and resources to help with recovery pathways. Support to enable community recovery committees should be included in local policies.

# 4. Housing recovery post-disaster: barriers and opportunities

- **The pace and effective management of post-disaster housing reconstruction are critical for achieving good outcomes.**
- **Establishment of state and territory government agencies that oversee reconstruction efforts greatly benefits rebuilding programs and coordination.**
- **Community-centred recovery organisations are well placed to guide a region's housing recovery and inform decision-making.**
- **Insurance is an example of a market-based mechanism that can assist people to rebuild or refurbish their properties.**
- **Insurance should not be seen as risk transfer—rather, planning by home owners, government and support services is required.**
- **Underinsurance and non-insurance are known issues that, if addressed, can greatly assist reconstruction outcomes and place less financial pressure on governments.**

## 4.1 Introduction

Efforts to rebuild housing and amenities post-disaster are nothing short of monumental and require cross-sector inputs from the community, government, NGO, insurance and service sectors. Indeed, timely and effective reconstruction is critical to ensuring a range of post-disaster outcomes are met, including the viability and sustainability of rebuilt housing and infrastructure as well as community health, safety and wellbeing.

In Australia, state and territory governments and the Australian Government play a lead role in coordinating housing reconstruction. Several reconstruction agencies have been established to enact policies and programs to aid rebuilding, including the Queensland Reconstruction Authority (QRA) and NSW Reconstruction Authority (NSWRA). Following its creation after the 2011 south-east Queensland floods, the QRA has overseen recovery and reconstruction programs of more than $16 billion across more than 80 disasters (QRA 2021). Market-based mechanisms, such as building, home and contents insurance, also facilitate the recovery and rebuilding process. However, rates of underinsurance and non-insurance continue to grow, contributing to the stress of rebuilding post-disaster.

This chapter explores the experience of housing reconstruction, and the important role played by insurers in post-disaster recovery across each case study area, noting the use of public and private funds to undertake housing reconstruction. This includes examining the successes and challenges of timely and effective programs and outlining opportunities for addressing and streamlining several identified program challenges.

## 4.2 2009 Victorian Black Saturday Bushfires

### 4.2.1 Kinglake

The VBRRA and the DHS played an important role in recovery. One highly valued initiative was the establishment of community services hubs and rebuilding advisory services. Kinglake had two hubs, and they served as a one-stop-shop for households to obtain advice or support for finance, housing and mental health. Community members had access to case managers (online and on-site) as they navigated their individual recovery journeys. This proved popular, with over 5,000 people accessing the service, helping them to obtain planning approval, building permits, and occupancy certificates, among others. However, not everyone had a good case manager. One interviewee said:

> *The government said we're going to give everybody a case manager. That was much easier said than done because they had to find these case managers. So, they pulled a whole lot of people out of retirement, and they seconded people. And there were people with very mixed skills. I basically had to give him [case manager] all of the information because sometimes you couldn't get anything progressed unless you went through your case manager, but sometimes they didn't have the skills to help you so. DHS rules were different between the regions, too, which made it very complicated (VIC-Interviewee6).*

Funding for housing recovery was expected to be managed by residents mainly through market-based measures such as insurance or personal savings and loans. However, this turned out not to be the case in the Black Saturday bushfires event, with the Australian Government and Victorian Government contributing $867 million. Rebuilding Together, including donor contributions took the total public cost of the recovery to $1,060 million (VBRRA 2009b). Simultaneously, the Victorian Bushfire Appeal Fund was also established by the Victorian Government in partnership with the Australian Government and Australian Red Cross, for individuals to donate, and funds were distributed through the DHS under the oversight of an independent Advisory Panel.

The Victorian Government announced housing buybacks to reduce future exposure of communities living in high-fire-risk areas, ultimately buying up 116 properties destroyed in the Black Saturday bushfires at a cost of $25 million. However, announcements were made too late; many who lost houses had already made decisions about rebuilding or relocating. Apart from buybacks, councils (including Murrindindi Shire Council) relaxed enforcing planning regulations, which meant that irrespective of residents living on land having bushfire overlay controls, they did not have to apply for a planning permit. From the council's perspective, they did not wish to put more pressure on residents who were already traumatised; rather, they supported streamlined and speedy housing recovery.

From residents' perspectives, finance became a major challenge. This was due to rising insurance premiums associated with the increased costs from building to higher bushfire safety standards, and shifting standards for design and construction of buildings in bushfire-prone areas (AS 3959-2009). The introduction of Bushfire Attack Levels (BAL, revised and launched in March 2009) further added to the cost of construction through the burden of meeting new and existing standards and regulations. Despite 80 per cent of properties being insured, many were underinsured, thereby hindering the rebuilding process due to insufficient finances to rebuild. Moreover, insurance did not cover fence reconstruction, tree removal and septic tank installation.

Funding for housing recovery came from multiple sources, predominantly from bushfire appeals, enabling survivors to build back better with sustainability designs, greater energy efficiency, and other improved safety features. As one resident explained:

> *You might have got 50 grand on top of your insurance and there was a pathway to get rebuilt. We had a big focus on sustainable design, energy efficiency design, where the house facing for airflow and north facing. With the building regulations, they're also much safer from a fire (Vic-Interviewee1).*

Financial support was provided to those who intended to rebuild but not to those who decided to purchase an existing property. Additionally, a vast majority of payments by the Victorian Bushfire Appeal Fund for rehousing, house repair and recovery assistance were directed at home owners and landlords, with much smaller gifts made available to tenants directly (Beani and Ulubasoglu 2018). Simultaneously, the Kinglake Community Recovery Committee developed a draft recovery plan, The Kinglake Design Framework, including designs for the Kinglake Memorial Reserve and Kinglake Neighbourhood House. Such town-level recovery planning took over two years, as survivors focussed on their own housing recovery first.

Over a longer-time period, data suggests people's attraction to living in the bush, despite bushfire risk, reflected the increase in the number of private dwellings in Kinglake, which increased by 40 per cent (from 521 in 2011 to 724 in 2021). Concurrently, the median house prices in Kinglake also increased significantly, by 108 per cent, from $315,000 in 2012 to $645,000 in 2023 (Valuer-General Victoria 2024). Kinglake also has the highest percentage of home ownership in Victoria, with 92 per cent of residents owning their home with a mortgage or outright (ABS 2021).

### Successes

Type of hazard or bushfire optics matter. A large scale, rapid onset disaster resulted in government and media attention, timeliness of insurance claims and pouring in of donor funds. The 2009 Black Saturday bushfires witnessed an unprecedented scale of material and financial donations. Without such additional financial support, bushfire survivors would have struggled to rebuild their homes, which cost nearly two and a half times their pre-fire building cost. Thus, timely and multiple sources of financial support poured in after bushfires, enabling communities to rebuild safer homes.

The revision in building regulations also ensured that Kinglake residents built back safer. In that regard, the financial resources were well spent. While the establishment of rebuilding advisory services and allocation of one case manager per household was a good idea, residents felt that not all case managers were adequately skilled to support residents. Residents suggested allocating highly skilled case manager to work with a group of disaster survivors on their housing recovery would be beneficial. Effective case managers, with training to work with traumatised people and the ability to work in a group setting would be preferable.

### Challenges

A mismatch arose between government desires and community needs. Government sought to facilitate a speedy recovery. Yet fire-distressed communities wanted time to think about their recovery pathway (such as rebuilding in the same place or relocating). Although building regulations have improved with time to reduce future risk, there is a need for pre-disaster planning to be informed of future risk scenarios.

Six years after the Kinglake Recovery project, the community facilities developed as part of the initiative were facing financial difficulties. Murrindindi Shire Council, which includes Kinglake, was identified as struggling to secure sufficient funds to maintain infrastructure, particularly a new multi-purpose community centre and an adjacent sports hall. Some community members complain that they were never consulted about such community infrastructure, and now their rates have gone up substantially. One stakeholder said that disaster survivors thought that the donations and new infrastructure were a gift and did not realise the burden of infrastructure maintenance that it would impose upon them.

## 4.3 2019—20 Australian bushfires

A decade later, during the 2019—20 bushfires, disaster-affected communities in New South Wales faced similar issues concerning housing reconstruction, funding and insurance. Yet government intervention was influenced by new measures at the state and federal levels, notably the 2018 DRFA. In this section, we focus on housing reconstruction in the Snowy Valleys LGA. Noting the importance of tourism and primary industries in this region, and the disruption of cascading and compounding disaster events, we explore housing reconstruction alongside economic development and market disruptions.

### 4.3.1 Snowy Valleys

Bushfire-affected residents were eligible for state and federal funds to assist with clean-up, reconstruction and rebuilding under the DRFA. Such funds were broadly and positively supported by research participants. Housing reconstruction in the Snowy Valleys has been consistent, if marginally slower than other regions in New South Wales, due to several local, regional and international factors, as outlined below. The first houses were reconstructed within six months of the fires, highlighting the initial post-disaster motivation of home owners and actors in the broader housing ecosystem.

Nevertheless, the amount of work involved in cleaning up properties and submitting development applications, mixed with resident movement out of the region, led to a significant loss of morale over subsequent months and years. For this reason, only 40 per cent of rebuilds were completed within two and half years of the disaster, as some residents opted to sell their properties and leave the region. At the time the research was conducted, two households remained in temporary housing. Council initially took the view that affected households should rebuild as soon as practicable. However, this view shifted with the realities of housing reconstruction after severe bushfires and the added hurdles created by the COVID-19 pandemic (NSW-KI10).

Locally, the COVID-19 pandemic exacerbated rebuilding challenges. It slowed down community recovery and reconstruction efforts due to restrictions placed on social gatherings, in this way curtailing community motivations for reconstruction. There were also severe shortages of available tradespeople and materials, delaying the rebuilding process significantly, sometimes even by years. Indeed, a growing focus in the disaster risk reduction literature concerns the compounding and cascading nature of disaster events today (Cutter 2018). This literature recognises that multi-hazards exist but that such hazards can cascade and compound residents' vulnerabilities. This leads to protracted recovery journeys marked by false starts and multiple setbacks.

Within New South Wales, reconstruction efforts that support housing recovery to build back better have been hampered by increased building standards that were introduced just after the 2019—20 bushfires. On the back of several inquiries into substandard developments in mostly metropolitan areas, changes to standards (such as the *Design and Building Practitioners Act 2020*) increased rebuilding requirements, design, certification and costs. This was identified by workshop participants as adding to the cost and timeframe of rebuilding post-disaster. These standards added costs to the structure of the building and highlighted poor interoperability and communication between government agencies. When delays in rebuilding occurred, often necessitating families to source short-term accommodation, there were very few options due to a pre-existing housing crisis in the region.

As rebuilding efforts commenced, underinsurance complicated housing recovery, emphasising the need for comprehensive support. Many home owners were caught unaware, with inadequate coverage or no coverage at all. For example, one family in the region had coverage for up to $90,000, making rebuilding impossible without additional capital and external support.

In addition to this, equity issues about the timely use of insurance payouts were identified by workshop participants. Payouts that were not spent immediately due to lengthy delays in rebuilding led to reduced social welfare payments due to means testing. The *Social Security Guide, 4.3.2.30 Income Exempt from Assessment* (legislated), notes insurance payouts fell under the 'Treatment of compensation and insurance payments for buildings, plant, or personal effects'. Means testing of insurance payouts was initially delayed by 12-months due to the fires. However, because of the above delays, some recipients of insurance payouts in the Snowy Valleys were ultimately penalised when money was not spent down by the time the grace period lapsed.

Another complicating factor included resident competition with tourists and local industries for housing as well as tradespeople and construction materials. The LGA's proximity to Canberra (~200 kilometres) has seen increased outside investment (used as second homes or rented out on Airbnb). Further, as the region is part of south-eastern Australia's food belt, many fruit-pickers also move through the area during picking season and require lodgings. Finally, national infrastructure projects, such as Snowy Hydro 2.0, have seen accommodation booked out months and even years into the future, further constraining supply.

Reflecting on the prevalence of local industries to buy-up and renovate housing to accommodate itinerant and contract workers, one local recovery worker noted:

> *With a lack of housing, we're losing out on new residents and school enrolments—whatever housing is available, businesses are buying up and putting fruit pickers in there. But they leave after the picking season, and you don't get people staying here all year round, but the housing is still taken (NSW-KI8).*

Responding to this problem, the *Itinerant Worker Accommodation Project* was set up at Batlow Caravan Park. The council received nearly $4 million under the NSW Government's Bushfire Industry Package—Sector Development Grants (co-contributing $176,000) to deliver the project in 2022—23, which included two blocks of 25 beds, six studios, a camp kitchen, relocatable unisex and accessible amenities (laundry and cleaning room) and updated landscaping and park entry. The Itinerant Worker Accommodation Project demonstrates the dual role council and state and territory governments can play in replacing and expanding housing options across the region, while also meeting local industry needs.

A more diverse housing mix was raised by workshop participants, in addition to long-term planning by the government, local businesses, and housing and service providers:

- Housing options that are tailored to local needs and that consider the projected increase in itinerant and contract workers.
- Easing the transference of tenure through more options for upsizing and downsizing.
- A register of Airbnb properties for disaster planning that could be activated for emergency housing amid disaster, thereby increasing short-stay accommodation.
- Some LGAs are looking to increase rates payable for Airbnbs, with revenue used to supplement government housing costs. Importantly, the benefits of a register are not shared by all areas—see, for instance, the Northern Rivers case study.
- Dual occupancy (attached or unattached) to increase options for residents to stay in place and remain connected to communities and services. Notwithstanding this: dual occupancy has several strict controls related to land size, streetscape, waste management facilities, and zoning (Snowy Valleys Council 2019). It requires the installation of separate meters, sewerage lines, plumbing, electricity, and so on so that housing can be rented out. Trying to find land that suits dual occupancy is also difficult in the Snowy Valleys. Therefore, this option will require the expansion of current infrastructure, and yet resembles a local means of economic stimulation.

Rent control in hazard prone areas was raised as supportive of renters, including addressing issues with rental affordability and overcrowding. Workshop participants described overcrowding as evidence of an invisible housing shortage. The influx of investment into the region following the pandemic caused sale and rent prices to quickly escalate; capping rents could help. A recent Australian study by Bangura and colleagues (2023) found that government economic stimulus and measures to get more first homebuyers into the New South Wales market in recent years had counter-productive effects. First homebuyers have been disadvantaged by a rising housing market that advantaged existing owners and investors, pushing newcomers into rural and regional locales.

The experiences and insights shared by stakeholders underscore the complex and multifaceted nature of post-bushfire housing challenges in the Snowy Valleys region, with several clear successes and challenges along the way.

### Successes

Workshop participants highlighted the motivated nature of many fire-affected households to rebuild, even if initially, after the disaster. This was supported through the DRFA funding scheme, provided by the Australian Government and NSW Government. Further, the council provided substantial support by efficiently managing the rebuilding process. This included waiving fees and contracting additional development application assessors. Finally, locally based corporations, such as VISY and Hyne Timber, donated money and provided material assistance to displaced families.

### Challenges

The COVID-19 pandemic caused severe delays in the rebuilding process due to a shortage of available tradespeople and materials, as well as restrictions on social gatherings. Increased building standards introduced after the 2019—20 bushfires raised costs and complicated the rebuilding process, highlighting poor interoperability between government agencies. Insurance issues, including underinsurance and means testing of payouts, caused financial strain for many home owners, complicating recovery.

## 4.4 2011 Brisbane floods, Queensland

With hundreds of thousands of people affected, the extent of the Brisbane floods required a highly coordinated response to housing recovery and reconstruction. To this end, the Queensland Reconstruction Authority (QRA) was established to spearhead the rebuilding program. The QRA aimed to reconnect, rebuild and improve state infrastructure, housing and amenities, noting that 'reconstruction starts house by house, street by street, community by community, industry by industry' (Queensland Reconstruction Authority 2011a). The *State Community, Economic and Environmental Recovery and Reconstruction Plan* was introduced, which outlined the material, social and economic areas of recovery.

Funds were made available through the Natural Disaster Relief and Recovery Arrangements (NDRRA). Per the QRA's ethos of rebuilding a more resilient Queensland, housing reconstruction became a proxy for disaster recovery overall. The Queensland Government, through QRA and other agencies, has further sought to overhaul flood-resilient building design to increase community resilience to future disasters by ensuring homes are always built back better.

In the 13 years since the floods, research has identified a series of measures to examine post-disaster housing recovery. Housing recovery is based on clusters of indicators, including vulnerability, livelihoods, housing, services, environment and infrastructure, with population density and socio-economic factors (including income) weighing highly. Using QRA data, Irajifar and colleagues (2015) calculated housing recovery in 26 neighbourhoods based on housing reconstruction across Brisbane at three timepoints post-floods (10, 13 and 17 months). Four areas (Sinnamon Park, Kholo, Greenslopes and Paddington) had completed reconstruction within the first 10 months, while in two other areas (Yeerongpilly and Goodna), less than half had been rebuilt within a year of the floods. Brisbane neighbourhoods worked toward housing reconstruction over a longer trajectory, with those experiencing slower recovery at 10 months also experiencing slow recovery at 17 months (Irajifar, Alizadeh et al. 2015). Notably, while urban density is usually thought to constrain recovery (broadly construed), when recovery is viewed from the perspective of housing reconstruction, higher density and incomes were found to be important factors for recovery:

> *In the event of a disaster, density can facilitate the response and recovery process by contributing to resilience attributes such as redundancy, diversity, efficiency, interdependency and resourcefulness. Denser areas in urban settlements usually have better coping capacity in terms of their shelter and medical capacity and their ability to restore systems to pre-disaster levels. (Irajifar, Sipe et al. 2016: 737).*

Research also highlights that when higher density is associated with high resident income, quicker recovery eventuates. In the Brisbane suburbs of Fig Tree Pocket, Tennyson and Anstead, which were identified as having lower population density but higher incomes, recovery was not as rapid as in medium-density and income areas, such as Bulimba, Paddington and Balmoral (Irajifar, Sipe et al. 2016: 273).

Market and non-market mechanisms supported recovery. Insurance companies received around 56,200 claims post-floods, with payouts totalling $2.55 billion. Within six months of the floods, around half (47%) of submitted claims had been finalised, worth $1.23 billion, and 8 per cent had been denied (Queensland Government 2011). The Premier's Disaster Relief Appeal ($231 million donated within the first few months) was another source of recovery funding, though eligibility was means tested. A study of reconstruction eight months post-floods found more than half (56%) of respondents (N=62) had either not completed or started their rebuild; a further 15 per cent had 'not returned to their property on a permanent basis'; and abandoned dwellings across affected suburbs were becoming more easily apparent (Bird, Box et al. 2013). Reasons included rebuild costs, delays in insurance payouts and a lack of trades.

A reliance on NDDRA categories for monetary assistance sparked debate nationally after the floods. It emerged that the Queensland Government had not adequately insured its infrastructure. NDDRA stipulates that the Australian Government contributes 75 per cent of public damages, leaving only 25 per cent for the state and territory governments to manage:

> *There is no compulsion at present [2011] for state governments to take out insurance cover although Queensland is the only one to opt not to purchase reinsurance for its infrastructure assets, claiming that it was "not a value-for-money proposition." Thus "self-insurance" by the State applies only to 25 per cent of the reconstruction costs, with the Commonwealth covering the other 75 per cent (van den Honert and McAneney 2011: 1169).*

In turn, the Australian Government introduced a one-off flood levy, payable by Australian taxpayers earning over $50,000 and not in receipt of disaster assistance funds, to raise nearly $2 billion to support present and future recovery costs. Across government and industry fierce debates followed the Brisbane floods about the role of insurance in disaster risk reduction, noting that 'insurance is a form of risk transfer for the residual risk following risk management efforts and cannot in itself be a solution for poor land use planning' (van den Honert and McAneney 2011: 1149).

The floods highlighted the unviability of residential housing in some areas, notably the town of Grantham in the Lockyer Valley, east of Brisbane. Almost all houses in the area's floodplain were structurally affected by the floods, 29 houses were destroyed and 130 severely damage (Queensland Reconstruction Authority 2011a). This required innovative thinking about how to maintain the Grantham community, while increasing the resilience of their housing and livelihoods longer-term.

A key success in Queensland's housing recovery and reconstruction journey was the *Rebuilding Grantham Development Scheme*, which aimed to relocate the town away from flood risk using managed retreat. At least 150 houses were destroyed in the floods, and scores more were damaged. In response, the Lockyer Council purchased 378 hectares of elevated freehold farmland. Under the new Queensland Reconstruction Act (2011), the township was declared a reconstruction area, a move that was facilitated through the introduction of new powers to fast-track planning. A land-swap initiative was introduced, and a new estate of 120 lots was designed and constructed in close collaboration with the local community, with the goal of relocating the town.

Retreat of the community was co-funded by the Queensland Government ($9 million), the Australian Government ($9 million) and the Lockyer Valley Council ($12 million), totalling $30 million.

Due to the close engagement between authorities and the community throughout the planning and implementation process, the retreat in Grantham was able to overcome the typical obstacles faced by managed retreat interventions. These include home owner resistance and regulatory barriers. In Grantham, households that may have been resistant to relocation were supported by their community and the implementing party (Simmonds 2020). These home owners usually agreed to relocate upon realising that their community was relocating (Sipe and Vella 2014). Further, the close engagement between the retreat implementing authorities, local government and the community ensured fewer administrative roadblocks and delays. The minimisation of these delays and obstacles, in turn, reduced the incidences of hesitant home owners opting for rebuilding and returning home rather than waiting indefinitely for the finalisation of buyout or relocation programs (Hino, Field et al. 2017: 366).

In total, 75 per cent of properties were relocated. While Grantham comprises a small populace, this result was initially viewed as a positive outcome. Notwithstanding this, because the relocation program only included land (and not property) swaps, new dwellings needed to be built by residents upon receiving new land, with this being funded privately or through insurance payouts. As one report has since made clear:

*Those not able to privately finance the construction of a new home were left behind on flood prone land with little or no support. Some of these people were impacted again by subsequent floods in 2017 and 2020 (Rhelm 2023: 5).*

### Successes

Housing recovery and reconstruction in south-east Queensland was viewed as successful, especially given the extent of the disaster impacts and the number of displaced residents. The creation of QRA was instrumental in accelerating and coordinating the Queensland Government's reconstruction assistance and has since been repeated as a model for coordinating housing reconstruction in other states (see Northern Rivers Floods case study). Public donations ($231 million) also greatly assisted recovery. The managed retreat of the Grantham community, again coordinated by QRA, was also a key success during the reconstruction period. The pace with which plans were created, circulated and promoted within a few months of the disaster enabled the relocation to commence with speed. Finally, there has been an increased focus on retrofitting existing houses and building new houses using flood-resilient building design, leading to discussions among designers, developers and the public about the future of the 'Queenslander' house.

### Challenges

Several challenges are also evident, including the governance and policy failure of the Queensland Government to not adequately insure its infrastructure, in this way creating additional processes and costs that were felt acutely by affected households. The additional levy that was passed onto Australian taxpayers further highlighted the derelict position the Queensland and Australian Governments found themselves in. While the levy initially operated as a stopgap, this and other disaster events led to the NDRRA being reviewed, culminating in the DFRA being created. Elsewhere, while the managed retreat of the Grantham community demonstrates policy intervention with the aim to build back better and to incorporate the local community into the process, the fact that the residents (25%) who declined their offer to move were repeatedly flooded in later years demonstrates a need to introduce back-up options to ensure resident safety.

## 4.5 2022 Northern Rivers floods, New South Wales

**Northern Rivers Reconstruction Commission**

The NRRC was created by the NSW Reconstruction Authority and operated from July 2022 to August 2023. It coordinated housing reconstruction and recovery via the three listed programs. Its objectives included: delivering resilient homes (existing and new), driving social and economic recovery, and restoring and building more resilient infrastructure. The NRRC worked inter-governmentally and with local councils to produce outcomes. In spite of this, residents criticised the NRRC's decisions and rejected the premise they were made with community at the centre. In August 2023 the NRRC transitioned to the NSWRA.

Housing reconstruction was coordinated by NSWRA via the Northern Rivers Reconstruction Commission (NRRC), established post-floods. Property assessments were undertaken independently by the for-profit company Johns Lyng Group (JLG). Local and contracted tradespeople performed the assessments, after which reports were made available to owners, local and state governments, and insurers. Based on the assessments and local council settlement planning documents and mapping data, decisions were made about the options available to home owners.

Three funded programs were offered to assist flood-affected owners with housing recovery:

- NSW Disaster Assistance Arrangements:
  Grants for essential household contents, structural repairs, access clearance and debris removal not covered under existing insurance (means tested).
- Resilient Homes Program:
  Assisted owners to improve the flood-resilience of residential properties in the region, resulting in one of the following offers (based on flood mapping):
  - Home buyback: a state government buyback offers to purchase the property at market value.
  - Home raising: ≤$100,000 (incl. GST) for home raising (living areas).
  - Home retrofit: ≤$50,000 (incl. GST) for flood-resilient design and materials.
- Resilient Lands Program:
  Identification of land to relocate affected households, with buyback offer recipients under the Resilient Homes Program given the first opportunity to purchase land.

Acknowledging the disaster impact size and population size (~300,000 people), we delimited our exploration of housing recovery and reconstruction to the Lismore City Council, Ballina Shire Council and Byron Shire Council areas—that is, the eastern and central areas of the Northern Rivers region. Rhelm (2023) provides information about recovery and reconstruction in the neighbouring northern localities of the region.

Pop-up information hubs, community meetings and door-knocking properties were all undertaken to raise awareness of these programs (Scully 2023). Early reports stated that around 2,000 affected residents would each receive an offer to buyback, retrofit, or raise their property. This was later corrected to 2,000 in total across each measure (Shand 2023). After more than a year, up to 1,100 owners were offered a buyback and 340 offered home raising or retrofitting. To this end, a decision was made to prioritise the highest risk to life based on flood mapping, greatly reducing the number of offers for eligible properties. The average buyback offer was $583,567 (McLeod 2023). Many of these outcomes resulted due to Tranche Two of the program not being fully funded by the NSW Government.

As a Commission under the legislation, the establishment of the NRRC is an example of agile legislation amid disaster. It provided flood-affected households and the region at large with a body that can singularly address pertinent issues relating to buyouts, house raising and retrofits. The establishment of the NRRC closely resembles the experience in Queensland following the 2011 floods (as discussed above), whereby the housing taskforce initially created to develop housing recovery was superseded by the creation of QRA. This demonstrates a clear example of implementing the learnings and program developments introduced after a disaster in another jurisdiction.

> *The thing that's been really interesting about the [Northern Rivers floods] is essentially a state government agency was set up, the Northern Rivers Reconstruction Commission, and funded and resourced to essentially take on that role. Council's role has always been behind it, and we had more of an advocacy role rather than a directing the role in a policy setting (NSW-KI13).*

The extraordinary shifts in government architecture and mechanisms to create such a body have enabled local councils to think in broader terms about the future of housing:

> *One result is policy recognition for the need for planned retreat for the most high-flood risk areas where there can't be mitigation or other measures to reduce risk. Basically, it shaped the idea in a policy context that we may need to retreat. That was the first time [Lismore City] Council had identified the idea of retreating from high flood risk areas may be necessary (NSW-KI13).*

How, then, have reconstruction programs been received by flood-affected residents? Three examples are offered from people eligible and ineligible for the Resilient Homes Program, including home owners and moveable home residents, highlighting the degree to which the program was able to boost disaster resilience.

A home owner (NSW-Interviewee1) bought a property just prior to the floods after saving for two years. Although the area was designated as flood risk, the floor level was above past flood levels, so the interviewee decided to accept the risk and purchase. They were in the process of moving belongings into the new house when the 2022 flood occurred. Temporary accommodation, lasting two years, was sourced from a nearby friend, paying below market value rent while the interviewee negotiated a buyback.

> *I completely avoided [emergency housing] and what people went through, you know….being moved from hotels to campsites, which sounded like it was pretty bad. I think due to me having somewhere safe and stable to stay has allowed me to advocate for myself as best I could to like the insurance company, the NRRC and for my next house purchase. I can't imagine having done all that whilst living in, you know, poorer conditions than what I was living in (NSW-Interviewee1).*

When an offer to buyback the property was made, a second building report was required by the NRRC. There was also a lot of confusion around whether having an insurance policy would affect the government's decision to purchase the property:

> *When the NRRC contacted me to buyback my house, they had to send an independent assessor to check the condition and value it. I said to them on the phone that John Lings had already done one and that report exists. So, I felt like that was a little bit unnecessary and double dipping. You know, like that there's been a bit of disaster capitalism that's of gone on in the process (NSW-Interviewee1).*

Two years after the floods, the interviewee was able to purchase a new property and move into it, bringing to a close the protracted process of housing recovery:

> *This has been a crazy tightrope juggling act. The timing has been crucial. And it's all worked out really well in the end. Basically, I got a total loss payout through insurance because I waited so long and fought hard. I got a buyback on my house from the NRRC for pre-flood value, but also a compensation payment that I negotiated with my bank to redraw the full amount on my loan (NSW-Interview1).*

Another interviewee (NSW-Interviewee2) experienced a similar process, but after 18-months was deemed ineligible for assistance under the Resilient Homes Program. Correspondence with the NRRC, which had been frequent, suddenly ended, requiring the interviewee to gather information on why they would no longer receive support. Ultimately, an insurance payout funded the clean-up of the property and refurbishment.

> *I said to the NRRC representative that I've just heard that I'm not gonna be eligible, that I'm like priority four. She said, "look, I don't understand the data. We haven't been told any information, we're still waiting for it to trickle down." So, suddenly it went from her saying, "I've got a bottle of champagne here and we're gonna open it to celebrate" She was really sweet, but then she was gone.*

Priority four classed the property in a 'likely risk' area but not as 'highest risk to life' (based on flood mapping), rendering the interviewee ineligible for further assistance. Following this experience, the interviewee used the insurance money to refurbish the house using flood-resilient design and materials, including: stainless steel kitchen, cement benchtops and tables, detachable skirting boards, wall drainage holes, raising electrical mains, and insulating the roof storage cavity (accessible by drop-down ladder).

Finally, a third interviewee (NSW-Interviewee3) lived marginally in one of several caravan parks housing approximately 2,500 people across the wider region. Their application for a temporary pod structure was rejected without clear justification, leaving them and others with few options. The financial burden was immense post-floods (ongoing rent of $300 per week and $147 per month in compulsory site fees) until the caravan was demolished six weeks later. Aspects of the report by JLG were 'contradictory', adding to the confusion about available assistance from the government.

A shortage of tradespeople in the area and skyrocketing construction material costs delayed repairs further. Those living in caravans were ineligible for the Resilient Homes or Land Programs, exacerbating disadvantage. NRRC denied payments to many, and JLG often endorsed rebuilds only for these to be later denied due to state budgetary limits. Advocacy was challenging due to technical barriers (such as a lack of access to computers or personal records) and limited resources. The ongoing recovery was, therefore, slow, with estimates of multiple years to complete caravan park rebuilds. This highlights the need for clear eligibility and fairer access to assistance for those affected.

Several designs have been put forward since the floods with the aim of increasing resilience to future disasters and improving the region's liveability.

To complement the artistic and alternative character of the Northern Rivers, communal and sustainable design and materials have been prioritised, especially those embracing food and water security and relying upon renewable energy (Northern Rivers Community Foundation 2022). 80 per cent of dwellings in the region are single freestanding houses. Designs that could maintain the region's characteristics and yet offer more space through urban and peri-urban densification include duplexes, villas, terraces and townhouses, all of which could be developed as private, social or affordable housing (Living Lab Northern Rivers 2023).

To achieve these or similar objectives, a combination of infill housing and new developments has been identified as promising. The benefits of infill housing are that it curbs urban sprawl through 'gentle density' by building duplexes, townhouses and low to medium rise apartments within existing districts, thereby linking new residents to existing services. Challenges include ensuring these options promote the tenets of build back better and, logistically, the unaffordability of urban land and planning restrictions (Living Lab Northern Rivers 2023: 22). 400 new homes have been announced as part of new developments in Lismore through the NSW Government working with Southern Cross University, headquartered in Lismore, to unlock a parcel of university land to build new houses positioned on higher land. It will include a mix of low- to medium-density housing and low-rise multi-dwellings. Priority will be given to those who were made an offer under the Resilient Lands Program (NSWRA 2024).

### Successes

There have been several successful aspects to housing reconstruction, including:

- The development and roll-out of the largest residential relocation program in Australia's history via the Resilient Home and Land Programs.
- Evidence of collaboration at each level of government and departmental interoperability in the service of effecting housing recovery for diverse populations.
- Responsive policymaking, such as the creation of the NRRC, for program delivery.
- A commitment to build back better through managed retreat, buybacks, house raising and retrofitting programs that will increase future disaster resilience.
- Staged offers to buyback, raise or retrofit properties, while certainly very stressful for some, were highlighted as well-timed by others (NSW-Community2) given the enormous mental and administrative burden on the community after the floods.
- Community hubs and citizens' groups were also highlighted as beneficial for ensuring proper community representation at meetings and in the media, as well as offering welcoming spaces to receive needed support, comfort and resources.

## Challenges

Housing reconstruction and recovery in the Northern Rivers has received sustained criticism, and it remains to be seen whether existing disadvantages in the region, such as homelessness (DCJ 2023), increased during program roll-out. Clear inequities emerged among particular subsections of the community, creating a political economy of assistance (i.e. those with and without insurance, within or outside of particular flood mapping risk categorisations, fixed dwellings compared to moveable homes). These inequalities extend to the difficulties faced by renters in the region. Indeed, research by the Northern Rivers Community Foundation (2022: 20) showed evidence of middle-class homelessness, as less than 1 per cent of rentals are vacant and available and around 60 per cent of renters have experienced rental affordability stress. Further,

> *Long-term local renters describe a process of having to move further and further out from their community in order to find a home that they can afford. Those who don't succeed in this quest are forced to leave the area. Unscrupulous landlords are participating in rental bidding, where they accept offers over the listed price. Others are evicting tenants with no just cause in order to release their property back onto the market at an elevated price (Northern Rivers Community Foundation 2022: 20).*

Other challenges include issues relating to program eligibility and delivery and the liveability of the Northern Rivers, especially its larger towns and regional centres:

- Communication challenges within state government are evident, the effects of which emanated out to the community, causing considerable confusion and alarm. This was especially in relation to:
  - Program eligibility: a review of the Resilient Homes Program cautioned that clearer eligibility requirements should be introduced in relation to property size (see NSWRA 2023b). Insurance policyholders were also left unsure in the immediate aftermath of the floods as to whether they would be eligible to apply for the Resilient Homes and Lands Programs. Long-term residents in moveable homes were rendered ineligible for assistance that was open to landholders.
- Contention arose over the timeliness and effectiveness of program delivery. While recovery offers took up to two years, residents often had only 90 days to respond. During the extended wait time, some residents spent protracted periods in temporary housing; others struggled to work with the NSW Government and contracted assessors to manage buybacks, demolition or reconstruction, adding to costs.
- Erosion of local authority through the extended presence of the NSW Government in the region and inconsistent engagement between the community and local and state government, thereby reducing the influence of local government in recovery.

> *Councils had, again, very little input into [the Resilient Homes and Land Programs] other than to provide our flood modelling and then the relocation. […] It's frustrating where again, council's very much in a backseat role whereas the state has set up this authority or a bureaucracy to lead that program. Our role as council, it becomes this advocacy role trying to get inside the tent to put our case for the way we would like things to happen… (NSW-KI13).*

## 4.6 2022 Victorian floods

### 4.6.1 Rochester

The recovery hub, set up by ERV in collaboration with the local councils, has been vital in providing one-on-one support to Rochester residents, with clear pathways to recovery. It also brought together the following organisations to help communities with decision-making: Anglicare, ICA, Salvation Army, banks and financial services, Telstra, Samaritan's Purse, and organisations offering building assistance.

For the most disadvantaged communities in Rochester, or those living in rental housing and public housing, approximately 120 families, Anglicare allocated a recovery support worker per family. This support worker then referred the families to a financial counsellor. For renters who were evicted from their homes and had nowhere to go, causing displacement, the recovery support workers were of great help. With funding support from government, recovery support workers assisted people with rental tenancy issues and NDIS access, and advocated for emergency housing (for existing public housing tenants who lost their home). As a result, people without insurance have managed to rebuild their homes, while those with insurance are still struggling to rebuild.

Financing housing recovery became a major challenge as approximately 60 per cent of affected homes were either underinsured or not insured. Those with home and contents insurance faced prolonged processes with their insurance companies. The majority of insurance companies lacked transparency and timely and clear communication, and were unable to provide a 'rebuilding case manager' to assess damage and provide scope of works in a timely manner. In addition, 'loss adjustors' were not supported with a transparent back-end system. Most insurance companies put pressure on people to accept the lowest possible amount of money and take a cash settlement. Insurance companies were ready to pay for 'like-for-like' options, devoid of future flood proofing. Insurance companies claimed they had a shortage of experts to assess and manage flood claims. Some residents were advised that there may be an 18- to 24-month period before their properties were repaired. Many residents said that the insurance claim lodgement process had left them 'retraumatised'.

> *We've got this convergence of a high level of housing unaffordability and a housing shortage mixed with the new building code, which has dramatically increased the cost of housing construction (VIC-Interviewee3).*

For those without insurance—approximately 40 per cent of residents—a funding scheme by the Victorian Government to support housing recovery was established. Funding was means tested and provided families up to $50,000 for clean-up, re-carpeting, or re-flooring. However, the eligibility criteria and language used by the state government created confusion. For example, people thought they were ineligible if they had insurance, despite their insurance not actually covering floods. Additionally, there were issues with only one assistance payment provided per home address, despite unrelated families (typically migrant families or young people) living in the same shared quarters.

> *It's one of those bureaucratic things that just got lost in the system that meant people getting half…There's just so many traps that people can fall into, and most often they don't recognise it as something that legal assistance can help (VIC-KI2)*

ERV engaged JLG to independently assess whether to perform make-shift or knockdown, as well as demolition services. However, insurance companies did not accept JLG's assessment reports (as to whether to move or knock down). Although demolition was efficient, it was also considered brutal. For example, home fittings that could have been reused were damaged during demolition (which residents had to pay for), and things that were not required to be demolished were removed, such as hardwood flooring that could have been left to dry, rather than removing it and replacing it with particle board. Residents called Johns Lyng group as "strippers (people who strip your home out)". Moreover, the financial resources wasted in getting the building assessment done by JLG, which the insurance companies did not accept, could have been used elsewhere.

Shortage of building materials, tradespeople and registered builders further stretched the timeframe and recovery costs. Timber and tiles were in short supply. The reality was that most good builders did not want to work with the insurance companies. Subsequently, many unregistered builders ventured into town, being opportunistic and preying on traumatised residents who might have wanted speedy recovery. Some builders also engaged in price gouging in their scope of works. For example, builders asked residents to sign Scope of Works payout by insurance companies and suggested that they would add things at a later stage. If the residents did not understand the implications of this, they could then be left with a huge out-of-pocket expense. However, all of the unregistered builders have now left town. Only the registered, genuine builders, with project managers that communicate well (most of them are from either Bendigo or metropolitan Melbourne) remain.

As per the 2021 Census, out of a total of 1,529 dwellings, only 1,390 (or 90%) were occupied by a total of 3,128 people (ABS 2021). As of February 2024, over 300 households had not recovered, and remain living in caravans or sheds (as noted in Table 6, Appendix III).

Loan procurement also became an issue for residents whose houses were deemed unliveable. As of February 2024, 51 houses had frames and services, and were deemed uninhabitable; banks will not lend money to buyers interested in buying those properties. As such, buyers cannot secure mortgages for these properties, and owners cannot sell them, causing a stale-mate situation. Additionally, the home values have decreased so much since the 2022 floods that owners are not able to buy anywhere else. Indeed, the number of listings for sale has been increasing as many residents are trying to relocate. In the past 12 months alone, the decrease in the median value was 22.6 per cent (CoreLogic 2024). This has made the relocation difficult for many residents who want to relocate. In the few instances that houses were able to be sold, they have tended to be bought by young people who are looking for affordable housing. Apart from a changing demographic, the challenge lies in the incoming young families having no lived experience of floods.

### Successes

- Support services (such as those provided by Anglicare) at the Rochester Recovery Hub were one of the most crucial aspects of community-led recovery. However, these services were undersold. People were unaware of these services for quite some time.
- Rochester did not lose access to water, power and sewage because of retrofitting performed after the 2011 floods.

### Challenges

- Rochester Recovery hubs weren't officially established until 12 months after the floods. In the meantime, the Rochester Community House stepped in to fill the gap. Residents had pre-established trust with the staff members of Community House and went there for assistance rather than to the Recovery Hub.
- A pre-existing housing crisis did not help affected residents to find replacement housing, causing displacement of renters.
- Financial assistance for housing recovery was one of the major barriers to recovery. Those who had insurance found it was either inadequate or was not supportive of building back safer. Those with home and contents insurance are struggling to recover and are also now having to pay a much higher insurance premium. In contrast, those who did not have flood insurance have recovered, with government support. It is making people reconsider whether to continue investing in home and contents insurance. Moreover, the government's financial assistance eligibility and language was confusing for Rochester residents.
- Planning issues were overlooked. Many residents wanted to relocate. However, a lack of government investment in integrated flood risk modelling and management upstream means that Rochester residents do not trust the local Campaspe Shire Council's land use planning controls, such as flood overlays. Moreover, a lot of water channels have been decommissioned over time, and are re-directing water and changing water direction, making floods unpredictable. Without integrated flood risk management, residents compare living in Rochester feels like 'someone is pointing a gun at you all the time' (VIC-Interviewee2).

- Lack of government intervention with insurance companies meant that the building damage assessment performed by ERV-appointed John Lyng engineers was not accepted by insurance companies. This caused duplication in processes and added trauma for residents. Government should have mandated that insurance companies accept ERV's independent damage assessment reports.
- House type and number matters. Houses built on wooden stumps were more problematic than houses on concrete or metal foundations. This was mainly due to the complexities of damage to stumps in 2022 as well as during the 2011 floods. Timber stumps were likely to have moved due to prolonged drying of saturated ground. However, in most cases, insurance companies suggested the damage to stumps would have been from the 2011 floods and, as such, were not prepared to pay for stump repair or replacement. Also, houses clad in weatherboard took longer to fix.
- Hazard type matters. Unlike bushfires, flood events did not attract government or media attention. The Rochester community had to mobilise, leading to submissions at the Parliamentary Inquiry into the 2022 Victorian Floods. Additionally, residents did not receive any additional funds (such as the Bushfire Appeal Fund) to assist with additional cost of future floodproofing of their house.
- The shortage of materials and trades did not help.
- Most residents were unclear about the renovation process: what to look out for, the scope of works, how to access insurance funds and how to deal with surveyors, valuers, builders and other professions.

## 4.7 Western Australia floods and cyclones

### 4.7.1 Kimberley

Most housing affected by the 2023 Kimberly floods was owned and operated by the WA Government as community housing. As part of the state's housing asset mix, a significant housing and infrastructure reconstruction program was undertaken by the WA Government (DRFA Category D), the scale of which would likely not have occurred had the housing been predominantly privately owned (WA-KI8).

> *About half of the total stock of housing is provided through non-market mechanisms: social housing, employer-provided housing (including GROH [Government Regional Officer Housing]), and community housing. This is very different from any other region (Kimberely Development Commission 2023: 8).*

Fifteen months post-floods, the first of 22 new modular houses was installed at an elevated level, following consultation between WADC and First Nations communities about site installation and design (Western Australian Government 2024a).

Prefabricated modular dwellings are useful in that they are delivered ready for use and can be elevated to a particular height to avoid future flooding inundation. This increases housing and community disaster resilience by meeting environmental needs and helping ensure residents experience a smooth transition between temporary and long-term housing. However, questions remain over the *degree to which* modular housing is flood resilient, given that the literature suggests that these kinds of dwellings are unable to withstand increased usual flood severity (Ginigaddaraa, Ekanayakeb et al. 2023).

For private property owners affected by the 2023 floods, two grant schemes were made available, including the WA Recovery Grant and Resilience Grants (under DRFA Category D). Eligible households were able to receive up to $50,000 across both grants.

The allocation of grants, similar to the issue of government spending down on available recovery funds, has been reported as slow and ineffectual. Up to 40,000 people were affected by the floods, with many eligible for grants. However, a year post-disaster, only 123 applications had been processed and $530,000 disbursed via the Recovery and Resilience Grants, highlighting the slowness of the scheme (Aldridge 2023).

Importantly, rebuilding works needed to be undertaken by registered businesses, the availability of which can be difficult to secure in remote areas, as discussed in Chapter 3, highlighting the utility of the *Temporary Workers Accommodation Program* (under DEFRA Category D) that helped to bring more tradespeople to the region.

### Challenges

Three challenges to building community resilience to future disasters include:

- Low property value and increased building and construction costs, which affect property maintenance and restrict the introduction of new investment into the region (Kimberley Development Commission 2023: 7). This can affect the ability of properties to withstand the effects of adverse weather events on building integrity.
- The reduction in lending by banks after the introduction of restrictions in 2017, which saw some banks cease lending in remote areas, or increase the loan-to-value ratio on a property (sometimes up to 60%) (Kimberley Development Commission 2023: 7).

> *Banks won't lend, or you've got to have at least 50 per cent deposit or more. Finance is a huge barrier, not just to development generally but also to people's financial situation. If they're trying to upgrade their property to better withstand those sorts of events, or if they wanted to move somewhere else, their capacity to do that is limited by that finance barrier, because the banks can look at it and go, "Hang on, this is a negative equity situation. We're not gonna lend for that." That's where I think it goes back to the need to have other ways of funding if remote areas are going to be viable (WA-KI4).*

Limited commercial financing can affect the ability of owners and investors to attract needed capital to purchase or maintain properties, with downstream effects on the design, construction and up-keep of properties in the face of natural hazards.

- The cost of home and contents insurance, which is higher in northern Western Australia than anywhere else in Australia:

> *The average premium in 2022–23 for a combined home and contents policy was most expensive in northern Western Australia ($4,395, a slight decrease of 3 per cent in real terms compared to 2021–22), followed by the Northern Territory ($2,922, an increase of 6%) and north Queensland (remained steady at $2,918). The rest of Australia experienced an increase in average premiums of 7 per cent, with policyholders paying on average $1,779 in 2022–23 (ACCC 2023: 2).*

## 4.7.2 Kalbarri and Northam housing reconstruction

For private property owners, the WA Recovery Grant and Resilience Grants were available (under DRFA Category D) for the kinds of projects outlined above in section 4.9.1. Eligible households were able to receive up to $20,000 across both grants.

## Challenges

Reconstruction efforts in the three years following Ex-Severe Tropical Cyclone Seroja have been constrained by several key challenges, including:

- Cost of materials and extended wait times:

  Coinciding with the COVID-19 pandemic, reconstruction was severely hampered by increases in the cost and delivery time of building materials. From basics such as timber and roofing tiles to cabling and electronics, delays were experienced across the board. Rebuild costs and wait times contributed to the disaster's financial and emotional toll on residents (Lewis and Angeloni 2024). To ease a shortage of tradespeople in the region, a transfer of Crown land from the WA Government to the Shire of Northampton was provided for the development of workers' accommodation in Kalbarri. It aimed to attract and retain staff to support local businesses and tourism (Western Australian Government 2024b). This property transaction between state and local government followed protracted negotiations between the WA Government and a private developer.

- Insurance payouts: coverage gaps and price of premiums

  The insurance bill is estimated at $350 million across homes, businesses and infrastructure. For those who were underinsured or not insured, there was a coverage gap that was, in most cases, eased through the Community Recovery Grants scheme.

  To supplement the emergency relief provided by these grants, the Kalbarri Rebuild Fund was established by Australian not-for-profit, Echo Nation. The fund aimed to assist residents and business owners to rebuild, with priority given to the underinsured or uninsured. $92,628 was raised and helped to kickstart the rebuilding of 38 local homes in the town of Kalbarri (Echo Nation n.d.).

- People leaving the area:

  Due to extended delays in rebuilding and reconstruction, in addition to issues regarding uninsured and underinsured property owners, there were reports of residents and business owners leaving the area:

  > *For a lot of people, their insurance wasn't adequate to cover the cost, and the last thing they wanted to do was have a planner come in and say, "Right-o, you're gonna have to build it to a higher standard." I used to have a figure of what that meant per dwelling, it was something like $20,000-30,000 (WA-KI4).*

  > *You might have insured your house for let's say for $130,000, but the cost to rebuild in a regional area in this climate, is probably more like $450,000. There's been shocking underinsurance. Then, later, you won't be able to sell your house for that much. The economics of housing in remote and regional areas when you have to do reconstruction and rebuilding is difficult (WA-KI2).*

Two years into housing recovery and reconstruction, the WA Government made $9.2 million available through the state budget to the 16 affected LGAs for eligible community resilience projects (Western Australian Government 2023b). This provided for the establishment of community centres or, notably in response to residents leaving, the demolition of abandoned properties post-cyclone.

The downstream effects on community resilience to future disasters include changes to the make-up of local communities that indelibly mark social cohesion and, therefore, their recovery process (Sobhaninia 2024). Effects on building back better include lengthy delays in reconstruction and the effects this has on the sense of place and community, sustainable and economic viability, and livelihood factors.

### Implications for building design and construction

Much of the disaster impact area was deemed non-cyclonic. Researchers have observed that, alarmingly, most buildings experienced structural damage and destruction at between 80 to 90 per cent of the design ultimate windspeed (Boughton, Falck et al. 2021: 22). Issues with roofing and leakage of doors and windows were identified a major source of structural weakness. Poor design for internal pressure has been associated with the extensive loss of 70 per cent of buildings in the area, including both houses and business (Parackal, Boughton et al. 2022; Turner and Couture 2024). In turn, renewed calls for a review of building standards have been mounted (Engineers Australia 2021).

## 4.8 Policy development implications

- Reconstruction in remote areas is slowed by funding delays and supply chain issues. Policymakers should expedite funding, leverage modular housing, and boost local workforce capacity to address housing insecurity quickly.
- Tradespeople travelling into disaster affected areas to undertake housing and infrastructure reconstruction often place additional strain on available temporary housing and accommodation for the public. Policymakers should look to funding and modular solutions to accommodate tradespeople in these areas.
- Temporary housing often operates off-grid, relying on generators. Policymakers should integrate utilities or use mobile solutions like solar power to enhance liveability and sustainability during recovery.
- Temporary housing is frequently unsuited for extreme weather or future disasters. Policymakers must adopt standards for climate resilience, ensuring temporary structures meet safety and comfort needs year-round.
- Recovery is hindered by unavoidable tensions among governments, businesses, local services, and First Nations communities. Policymakers should foster collaboration through clear roles, shared goals, and inclusive decision-making processes.
- Reconstruction plans often overlook local needs and knowledge. Policymakers must include diverse community voices to create housing solutions that are practical, equitable, and culturally appropriate.

# 5. Optimising housing disaster recovery: strategies for immediate recovery and long-term resilience

- **Recovery efforts should aim to optimise disaster recovery by transitioning from temporary housing to rebuilding homes and providing continued assistance, in acknowledgment that people face prolonged relief periods and inadequate support.**
- **Preparedness and prevention require long-term planning at every stage of disaster management, including recovery and rebuilding efforts, with a focus to build back better and to improve insurance access.**
- **Localising power and decision-making in housing recovery is essential for effective disaster response, as community-centred approaches and local government involvement lead to better outcomes and stronger community engagement.**

## 5.1 Introduction

This sub-inquiry report has been structured around three sub-questions. The final chapter aims to use this research to address the overarching question, 'What are the best housing disaster recovery approaches that meet both immediate needs and contribute to the preparedness, mitigation and prevention of future disasters?'

## 5.2 Analysis

It has been noted that post-disaster housing provision remains one of the most 'intractable problems' in disaster response and recovery (Ashdown 2011: 25). Our research confirmed that efforts to rebuild housing and amenities post-disaster are nothing short of monumental. Despite being a wealthy country with a stable democracy and no threat of large-scale conflict, Australia has real challenges. These include increasing climate-fuelled rapid onset disasters, growing socio-economic inequities, cost of living pressures, and a large concentration of its population in a relatively small area along its coast. Recent disasters come on the back of a worsening housing crisis, including the unaffordability of homes and disaster-related difficulties in accessing affordable insurance.

The first part of the research question concerns meeting immediate needs. After a disaster, people's immediate basic needs to be kept warm and dry are vital, and immediate solutions to this are needed. Rendered homeless or insecurely housed from a disaster, there is a range of options people use, including makeshift halls, hotels, motels and caravan parks, sleeping in vehicles (such as cars, vans and caravans) and staying locally with friends, relatives and strangers who may offer space in their homes.

The challenge is to move away from temporary as quickly as possible and aim towards recovery. However, it should be noted that a problem for many is that a perpetual state of relief pervades, with little chance of moving on. Better efforts in this regard aim at re-establishing some sense of returning to normal. For home owners and landlords, this may mean rebuilding homes (if affordable and/or through insurance claims). For those renting, this may include continued assistance with rent through welfare if livelihoods have been affected. For people living in social and community housing, their recovery experience is very much dependent on government schemes for repairing and rebuilding state assets. In areas with contract and itinerant workers, contestation over who receives temporary housing options emerges. If people are not home owners or cannot afford to rebuild, the options become much harder. Some households may never recover, while communities such as those living on Cabbage Tree Island in the NSW Northern Rivers may be prevented from returning to their land (at the time of writing this decision is under review).

The findings from our survey were sobering. For example, 88 per cent of renters said they did not receive any assistance with permanent housing. Several people returned to their flood-damaged homes. As one respondent stated, the lack of coordinated support meant they were compelled to return to their flood-damaged home, as their partner required major surgery. At the time of the survey, they still lack a kitchen, a proper bathroom, furniture, and fences (Survey-Participant13).

The second part of the research question focussed on how to contribute to the preparedness, mitigation and prevention of future disasters. Given the context of a probably worsening change ahead—more disasters and greater need—policy at all levels needs to take housing and disasters more seriously. This includes two linked challenges: incorporating planning for the future into disaster management and, specifically concerning disaster recovery, localising power and decision making.

## 5.3 Plan for the long-term at every stage of disaster

The first challenge is the need for government and other actors to plan for the long-term at every stage of disaster (preparedness, mitigation and prevention, relief and recovery). The immediacy of post-disaster events is when political interest and funding commitment are usually at their highest. As time goes on, both these elements often wain. Relatively short political cycles and competing political priorities mean that people affected by disasters (and provided with temporary accommodation) risk being forgotten. The following sections discuss opportunities for planning for the long-term according to each stage of disaster.

### Relief to recovery

Beginning with relief, providing temporary housing villages is usually very expensive, takes time to arrive (especially to remote area), and ultimately pushes the problem back, while creating new problems. Other problems include increased incidences of gender-based violence and uncertainty among residents about what happens next.

**Arguably the best use of temporary housing—if it is used—is for it to become permanent and repurposed, thereby adding to a region's housing mix. Relaxing planning regulations to enable the re-use of land and exploring the reuse of villages is an option**

A challenge associated with temporary housing villages is what comes afterwards. Often the challenges that occur post-disaster remain long-term. In rural areas, a shortage of tradespeople and materials, high rebuilding costs, among other challenges, may mean there is no home to go to. If home owners want to build back better, their efforts may be prolonged by securing council permissions or insurance barriers. Our research found that additional costs for resilience measures are not covered by most insurers.

For non-home owners on low incomes, there may also be nowhere else to go. Regarding temporary villages, there may also be pressure from landowners (such as council sports fields) on which they were built, often for a fixed time, to have their land returned. Such villages, at the time when they are conceived, ought to have a realistic transition plan in place, including how the village might be used afterwards (perhaps sold as holiday parks) and an approximate timeframe for their existence (knowing they will almost certainly be needed longer than the initial timeframe).

Linking relief to recovery is paramount, and in all instances, the temporary housing 'relief' timeframe should be as short as possible. Evidence from Australia and across the world of prolonged relief is expensive, promotes dependency and prevents efforts to recover (a well-worn saying in international response is that 'relief is the enemy of recovery'). It should be noted that temporary housing usually helps only a small number of people. In international humanitarian response, it is thought most of the disaster-affected people receive no housing support (Sanderson 2018).

Our survey found that 40 per cent of respondents stated they did not receive any form of assistance with temporary housing. Recovery means a return to some degree of normalcy. In terms of housing, this can be achieved through rebuilding, refitting or even clean ups (depending on disaster type), but with caveats about how to build back better (discussed further below). For many, recovery may not include the dwelling they lived in before the disaster: many people move elsewhere, and those renting may well have found somewhere else to live. Those living off the grid may undertake their own recovery through rebuilding. Older and more vulnerable people may find themselves living with family or in nursing homes. Others may have no choice but to return to their damaged homes and slowly work to make them better, or not.

It is important to reiterate our findings that the housing recovery needs of vulnerable groups are often insufficiently served. Such groups often lack the means and incentives to rebuild their homes. For instance, people who were homeless before a disaster are almost entirely overlooked in state, territory and federal disaster policies, with assistance for such groups usually coming from NGOs and community organisations.

### Preparedness

There are several preparedness options that can be put in place. Repurposing existing infrastructure and resources is a first step.

**Pre-existing arrangements with caravan and holiday parks to enable their mobilisation post-disaster should be explored.**

Government investments could be provided to build the capacity of caravan and holiday parks. Arrangements could also be explored with existing infrastructure, including hotels and RV providers. An inventory of holiday homes (in places where they exist) should be undertaken with a view to brokering deals with home owners to convert homes into temporary housing.

Temporary housing arrangements (in the event of their need) could be explored, and agreements about their procurement could be put in place before a disaster. Temporary housing villages should probably be a last resort, for the reasons discussed above. If so, pre-existing logistical arrangements with providers and agreements with land owners on which land could be used (ideally with pre-existing services) would help.

Preparedness also includes insurance. As discussed earlier, accessing insurance as a workable mechanism for many is at crisis point. Too many people cannot afford or secure insurance. Our survey of disaster affected people found that 44 per cent of respondents stated that did not have home insurance at the time of the disaster. Another 40 per cent did not disclose whether they had home insurance. If this situation is not addressed, it will likely worsen. The Australian Government needs to address this challenge and work with insurance providers to find an adequate solution. As our research found, a policy development indication is that underinsurance, socio-economic inequalities, and escalating disaster risks require a rethinking of the sole reliance on market-based approaches, such as insurance. Governments, the insurance sector, and other institutions, need to adopt a coordinated approach and shared responsibility to housing recovery and reconstruction.

One option worth exploring is to add flexibility into the Australian Government's mechanisms aimed at increasing insurance protections. In recent years, a cyclone reinsurance pool was created by the Australian Reinsurance Pool Corporation (ARPC). The cyclone pool is backed by a $10 billion government guarantee and comprises a reinsurance arrangement between insurers and ARPC. The efficacy of expanding the cyclone pool to include other hazard types may prove prudential.

### Mitigation and prevention

There are many things that can be done to mitigate and prevent disasters. Regarding the research question, whereby recovery serves as the starting point to future resilience, the most effective approaches to fostering prevention involve investing in the relief and recovery phases of disaster management to support practices to build back better. In their temporary housing recovery study, Charlesworth and Fein (2024) call for a shift from 'replacement recovery' to resilient housing recovery. Insurance and government policy can play a big role here in incentivising rebuilding for the better, and not just replacement.

Prevention also comes, critically, in planning decisions on where to build new housing. Australia is currently undergoing large-scale house building—1.2 million new homes are planned between 2023—28 (Australian Government 2023). A current challenge, and one that could be exacerbated by new builds, is housing located on floodplains; a 2022 study found that over one million properties in 30 LGS are at flood risk (Climate Valuation 2022).

Effective land use planning is essential to prevent poor decisions about where houses are built. This is a federal focus, with COAG (2011:5) acknowledging the need for 'land use planning systems and building control arrangements that reduce, as far as is practicable, community exposure to unreasonable risks from known hazards'. For this to become a reality, discouraging dispersed development and outwards urban sprawl will be critical for ensuring that land use planning systems can be more effective going forward. However, our research found that despite the Australian Government adopting a multi-hazards approach, mapping at the national scale is lagging, as well as not adequately accounting for future risks. For example, it was only recently that flood risk terminology was updated from one-in-one-hundred years to a one per cent probability of maximum floods.

Another prevention strategy previously discussed is managed retreat. It remains contentious. This is partly because wealthier suburbs often dismiss such approaches, while less powerful communities do not always have the same influence meaning they are frequently restricted from rebuilding in vulnerable areas. This, however, is an escalating issue, with disasters to become more common. As our policy development implication states, managed retreat is likely to become necessary across a variety of suburban and regional profiles. Long-term planning is therefore required. Our research described how managed retreat carried out in the town of Grantham in the Lockyer Valley, following inland flooding in 2011, is held up as being largely successful. However, while managed retreat interventions are a potentially valuable disaster risk reduction strategy, their voluntary nature in Australia (until now) limits their scale.

Buybacks are also a form of prevention. While such schemes have merit, they are expensive and can be selective, leading to winners and losers. Anecdotal stories in Lismore speak of buybacks being offered to residents on one side of the street and not to others on the other side. Such approaches can be divisive and cause damage.

Further evidence of the costs associated with the abovementioned should be undertaken. This includes a cost-benefit analysis of each to better understand which policies and programs have the best return on spending to increase the future disaster resilience of communities. When this is undertaken in concert with resident involvement, the resilience of housing and community will no doubt increase.

## 5.4 Localise power and decision making

The second challenge to meeting both immediate needs and contributing to the preparedness, mitigation and prevention of future disasters is to localise power and decision-making. A 2024 literature review of post-disaster temporary housing noted that, according to the United States' FEMA, 'the optimal framework for response and recovery is one that is federally supported, state managed, and locally executed' (Charlesworth and Fein 2024: 3). Our research provides a policy development implication that the proactive involvement of communities needs to be explicitly recognised in all multi-level government policies across the [disaster] spectrum.

There is consensus that community-centred recovery, in the provision of housing arrangements (locations, typologies, who benefits, local support decisions) as in other sectors, is at its best when local voices are considered. Yet, in housing as in other sectors, a largely top-down model in disaster response (including mitigation and prevention) pervades. This can lead to poor decisions supporting the wrong priorities, with assumptions made about people's priorities. This is a systemic issue internationally in disaster response and is also prevalent in Australia. As our research found, community-centred housing relief and decision-making is rarely prioritised.

The review by Charlesworth and Fein (2024: 7) identified eight categories of leading practice in disaster housing recovery: Community Engagement and Participation; Location; Safety; Health; Comfort and Privacy; Cultural and Special Needs; Community and Connection; and Social and Technical Support Services. Our research confirmed the importance of the engagement of a wide range of actors and diverse community engagement in decision-making. All these issues rest at the local level.

To achieve better success in these categories, therefore, local decisions need to be strengthened and supported by state, territory and federal bodies. This requires less top-down decisions and more bottom-up ones. Local government has a vital and overlooked role in leading community-centred decisions on housing recovery.

**If local government areas are known as managers of the three Rs —roads, rates and rubbish—then a fourth R, for 'recovery', needs to be added.**

Disaster management in Australia (and remote places elsewhere) currently operates largely on a top-down model, comprising the Australian Government and state and territory governments. Though LGAs are far and away best placed to respond to local needs, they remain overwhelmed and under-resourced, lacking capacity and specialist knowledge. It is for these latter reasons that the case is made at the state and federal levels to retain specialist skills and approaches. And yet, it is well known that the best disaster recovery (including housing) is community-centred (Sanderson, Heffernan et al. 2024). Non-local organisations run the risk of being remote and not in touch with local needs, priorities and best practice.

Countless examples exist of discord arising during disaster recovery efforts in Australia and around the world. One five-year long global survey of some 5,000 people found that responding organisations gave insufficient time to engage meaningfully with affected communities (Anderson, Brown et al. 2012). The fury voiced by communities and local politicians in Lismore after the floods contributed to pressure for the dismantling of the state body, Resilience NSW, later reforming as the NSW Reconstruction Authority. Our survey found that a significant majority (68%) felt that their communities were not involved at all or minimally involved in housing recovery decisions. Respondents highlighted the negative impact on the community's wellbeing due to the absence of consultation and transparency and described it as more distressing than the disaster itself.

There are examples of state and territory government mechanisms seeking to provide LGA capacity and devolve responsibility, but these are limited. Local governments are responsible for administering flood-related property buybacks for relocation, with the funding provided jointly by the Australian Government and state and territory governments as outlined by the NDRRA framework (Robb, Stocker et al. 2020). In New South Wales, after the 2019—20 bushfires, Resilience NSW provided funds for Community Resilience Officers. While welcomed, these positions were mostly on two-year contracts and met only a fraction of the need. Grant mechanisms for use by LGAs were also provided but again these were tiny sums in response to the funding that is made available after a disaster.

Taking the long-term view discussed above, investments in building the capacity of LGAs are vital if efforts to respond to, prepare for and prevent disasters are to be improved. Power and authority to act locally needs to be devolved and decentralised. The Disaster Recovery Funding Arrangements (DRFA) provide the main framework for how disaster costs (including those for housing recovery) are shared between the Australian Government and state and territory governments. More provision could be channelled to LGAs.

There needs to be more engagement with community groups and local NGOs. It is not unusual for community organisations to form after a disaster, many of which are repositories of knowledge and expertise in community mobilisation. Local NGOs have a vital role in supporting people who find themselves homeless, staying in temporary accommodation and in temporary housing villages. Many NGOs also have a long-term presence and have established relationships and trust with people before a disaster occurs. As our research found, pre-established trust in organisations is vital for the uptake of assistance by homeless people (Brookfield and Fitzgerald 2018). Our research also found that the involvement of communities in planning for, and recovering from, disasters is critical: one recommendation from our survey was to prioritise [community] understanding and meeting the needs of affected community members by collaborating with existing community groups in affected areas.

# 6. Policy development options

Five areas of policy development are identified to enhance housing resilience and recovery. First, **Proactive Housing Crisis Management and Prevention** focuses on forward-thinking measures, such as land-use planning, risk modelling, and construction standards, to mitigate risks before disasters occur. Second, **Post-Disaster Housing Solutions and Recovery** promotes diverse, sustainable responses, including modular housing and build back better principles, to enhance resilience. Third, **Local Empowerment and Community-Led Recovery** highlights the critical role of local governments and communities in disaster preparedness and recovery. Fourth, **Insurance Reform and Financial Support** addresses challenges of affordability and underinsurance, proposing equitable recovery solutions. Finally, **Government Coordination and Long-Term Resilience** calls for improved collaboration across all levels of government to future-proof housing policies and strengthen resilience.

## 6.1 Proactive Housing Management and Prevention

**Adopt proactive housing crisis management:** Acknowledging the increasing complexity and frequency of climate-fuelled disasters, move beyond business-as-usual strategies to proactively address housing challenges.

Expressly include vulnerable groups, such as renters, social and community housing residents, people at-risk of homelessness, and itinerant workers.

**Prioritise preventative measures:** Follow other countries in implementing stringent land planning and zoning laws to avoid constructing new homes in hazard-prone areas, such as floodplains, and ensure adequate bushfire protection measures.

## 6.2 Disaster Recovery and Housing Solutions

**Diversify post-disaster housing responses:** Utilise a variety of solutions post-disaster, including temporary accommodation and existing infrastructure such as holiday parks, motels and hotels, to support local economies and provide immediate relief.

Options should include caravans on-site and support to build other modular housing on-site along with provision of amenities. When built in village style set-ups, ensure that they are configured such that community spirit and connections are maintained. Modular structures should be well-designed for the climate and include spaces for cooking.

**Limit use of temporary housing villages:** Recognising that temporary housing villages are costly and problematic, advocate their use as a last resort with pre-planned transitions for people, buildings and infrastructure.

In the event that temporary housing villages are used, their location needs to be in close proximity to impacted areas to avoid displacement and disconnection.

**Design a suite of policies ahead of time for buybacks and managed relocation:** Promote buybacks and managed relocation as positive mitigation strategies, despite their complexity and potential divisiveness, ensuring fair and transparent processes.

Government relocation support schemes, paired with reduced future payouts for damages, should be considered, as seen in Grantham, Queensland, and Kinglake, Victoria. However, when administering such schemes, state and territory governments need to act swiftly on public buyback programs.[2]

## 6.3 Local Empowerment and Community-led Recovery

**Empower Local Government Areas:** Centralise the role of LGAs in community mitigation and preparedness planning to ensure that they can lead in identifying areas for managed relocation and in establishing temporary accommodation arrangements.

Local Government authorities often find they are ill-equipped to manage recovery efforts as many council members are themselves affected by the disaster event. The Australian, state and territory governments should support local governments in continually developing preparedness, for example through early warning systems and land use planning changes that are based on risk modelling.

Governments are advised to develop factsheets for future disaster-affected communities that include information such as the following resources:

- 'Five questions you need to ask your insurer before purchasing Home and Contents Insurance', or to ask your insurer's loss adjuster because every household requires a financial expert.
- 'Five questions to ask an architect or builder', because every household requires a technical expert.
- 'How the post-disaster rebuilding or retrofitting process works'.
- 'How can I locate and contact local recovery officers and support services?'

## 6.4 Reform Insurance and Financial Support Systems

**Reform home insurance policies**: Address the unaffordability of home insurance premiums by exploring alternative mechanisms with greater involvement by the Australian and state and territory governments to enhance recovery capabilities.

It was notable that the insurance experience was starkly different in each case study locality or across disaster types. Yet without non-market intervention insurance will become more expensive amid the increasing frequency and intensity of extreme events. Indeed, it is already too expensive for many, as evidenced in this report through instances of individual households and whole townships being underinsured.

## 6.5 Government Coordination and Long-Term Resilience

**Encourage build back better policies**: Institutionalise build back better principles in post-disaster rebuilding across all jurisdictions and sectors, supported by insurance and other mechanisms that promote improvements rather than mere replacements.

Build back better, and futureproofing housing for floods and fires, needs to be factored into government and private sector thinking.

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2 For instance, the Victorian Government spent $25 million to purchase 116 properties destroyed in the Black Saturday bushfires to protect high-risk communities. Unfortunately, however, many residents had already made decisions about rebuilding or relocating before the buyback was introduced.

**Implement an accurate Vulnerable Persons Register (VPR) in at-risk areas:** In Rochester, Victoria, during the 2022 floods, the local Campaspe Shire Council did not have an accurate or updated list of residents, a way to communicate with especially vulnerable residents, or a way to know where residents were in order to assist them. The strict eligibility criteria of the Vulnerable Persons Register (VPR) left a large percentage of the community ineligible for support. Moreover, the VPR list is typically held by the local councils but funded by other agencies. People can only be entered into the 'system' by councils. Potentially, the VicEmergency app and website could be used to send SMS to people in certain locations to find out where they are.

**Early warnings need to be well communicated** (with regional digital connectivity a consideration). Potentially, the VicEmergency app could be used to provide accurate and timely warnings, in an adaptive manner that meets community needs, such as language barriers, low literacy and connective issues (Campaspe Shire Council 2022).

**Integrated and future climate-scenario-based flood risk modelling, pre-disaster, is needed for informing land use planning.** Currently, risk modelling is separate for insurance companies and for water catchment authorities, which means that communities are reluctant to relocate not knowing whether relocation will reduce their risk. Communities look to state and territory governments and the Australian Government, the Insurance Council of Australia, and Water Catchment Authorities, to collaboratively develop integrated flood risk modelling for risk reduction. This modelling should consider decommissioned channels as well as the river catchment.

Avoid post hoc changes to eligibility criteria for government assistance based on highest risk to life, as was seen in the Northern Rivers case study. Such changes have significant implications for the continued viability of townships, not to mention adversely affecting residents' wellbeing when they miss out on promised assistance.

**All levels of government have a critical role to play in enabling a community-led housing recovery process.** Community Recovery Committees and culturally appropriate recovery strategies proved effective in the case studies. They were particularly successful in coordinating agencies, offering guidance, creating spaces for consultation, and supporting communities in navigating housing recovery, all to the benefit of local populations.

Community Recovery Committees at the local level hold mutual benefit for communities, governments and service providers. However, a one-size-fits-all approach does not work for all communities. Moreover, communities ought develop or seek guidance on what CRCs are, how they should be formed, the kinds of skills needed for their operation, the scope of works engaged in by CRCs, and how best to future plan CRCs to enhance resilience to future disasters.

**Australian Standards to develop a flood rating system,** just like BAL rating for fires, to ensure buildings constructed in flood-prone areas are built to the highest safety standards.

**The Australian Government should consider establishing a federal insurance scheme** like that offered by FEMA in the United States for those who cannot afford to pay increasing premiums. This will go a long way in transitioning Australian communities away from market-driven mechanisms for housing recovery.

To this end, expanding the cyclone reinsurance pool could be investigated to support various hazard types.

Under such a scheme, government would also be required to intervene and negotiate with insurance companies to ensure the building damage assessment is done independently by ERV and is accepted by insurance companies.

**Government financial assistance is needed to make up for the financial shortfall not met by the insurance sector** (that is, the Australian, state and territory governments standing in as the insurer of last resort). However, because public funds are limited, this assistance may become further restricted as extreme events intensify.

Government should offer re-establishment grants that can top-up payouts to build back better and safer, or to fill the funding gaps created from building regulation changes (for example, the need to build a ramp if the house is raised by 1.5 metres).

**State and territory governments should identify on an ongoing basis a pool of staff experienced in recovery as 'surge staff' during disasters.** These staff would include social workers, mental health clinicians, housing and service providers (including builders), financial advisors and so on. At present, these support services are employed in recovery hubs for one or two years after a disaster event. It would be beneficial to continue to employ this group to build upon lessons learnt and support training of newer staff in subsequent hazards.

**Conduct a comprehensive cost-benefit analysis of disaster resilience policies and programs to identify those with the highest return on investment.** This assessment should be carried out in collaboration with local residents to ensure that both housing and community resilience are effectively strengthened.

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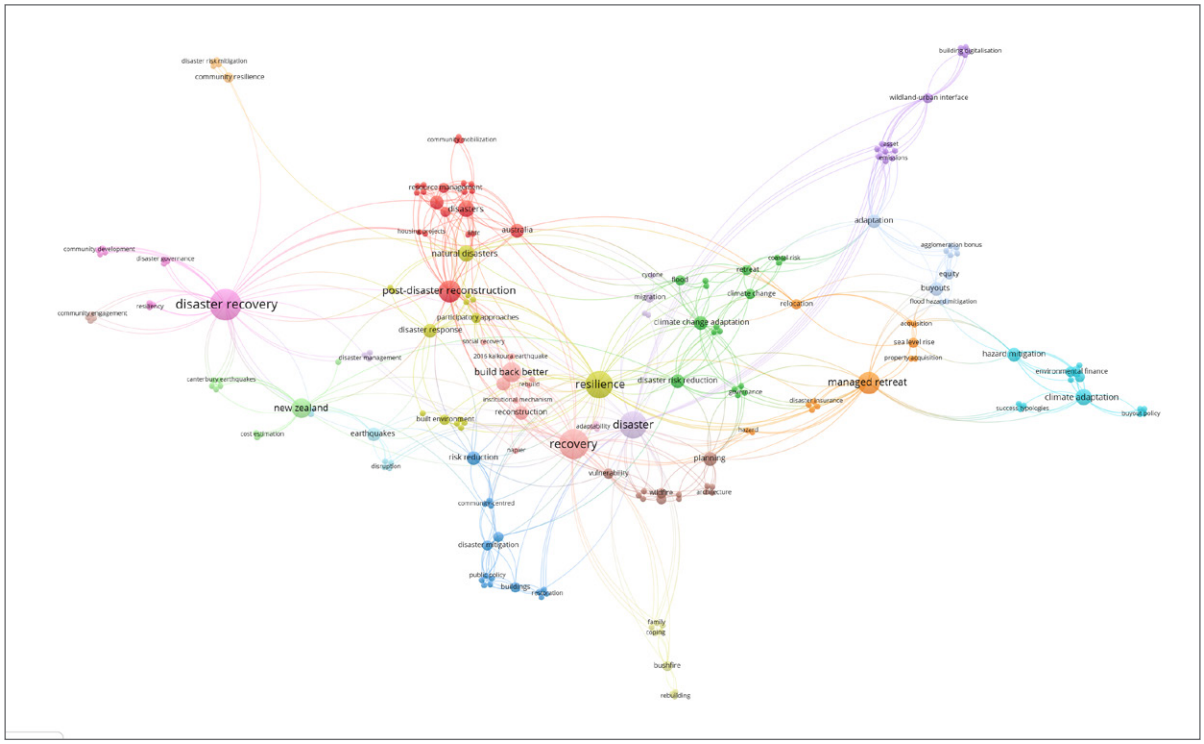
# Appendix I: Bibliometric overview

An overview of the bibliometric review of literature is provided below, including literature map, search string, quantity of publications by date, and by discipline.

**Figure 4: Bibliometric corpus of 63 articles about post-disaster housing recovery**



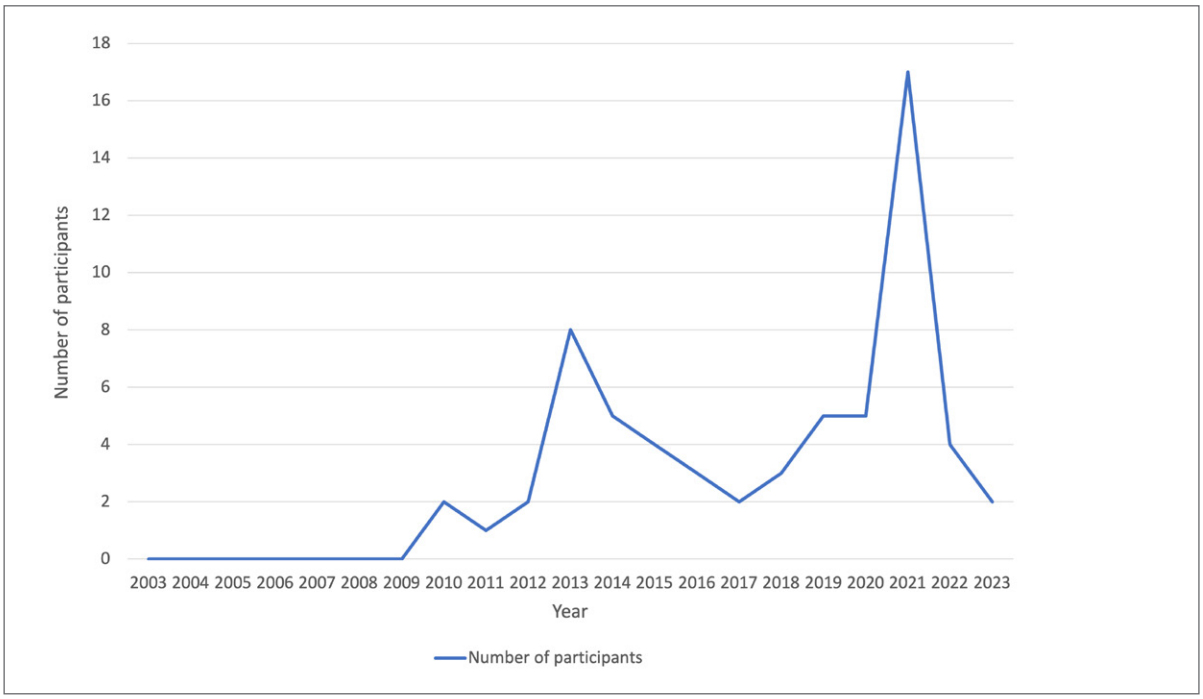

Source: authors

## Search string

hous* OR shelter* OR habitat* OR home* OR dwell* AND disaster* OR hazard* AND recover* OR reconstruct* OR rebuil* AND resilien* OR “Risk reduction” OR “Build back better” AND communit* OR “Community-led” OR “people-centered” OR “owner-driven” AND effective* OR “long-term” OR “success” OR “best practice” OR “longitudinal” AND PUBYEAR > 2003 AND PUBYEAR < 2024 AND ( LIMIT-TO ( AFFILCOUNTRY , “Australia” ) OR LIMIT-TO ( AFFILCOUNTRY , “United States” ) OR LIMIT-TO ( AFFILCOUNTRY , “Canada” ) OR LIMIT-TO ( AFFILCOUNTRY , “New Zealand” ) ) AND ( LIMIT-TO ( SUBJAREA , “SOCI” ) OR LIMIT-TO ( SUBJAREA , “ENGI” ) OR LIMIT-TO ( SUBJAREA , “ENVI” ) ) AND ( LIMIT-TO ( DOCTYPE , “ar” ) ) AND ( LIMIT-TO ( LANGUAGE , “English” ) )

## Quantity of publications by date

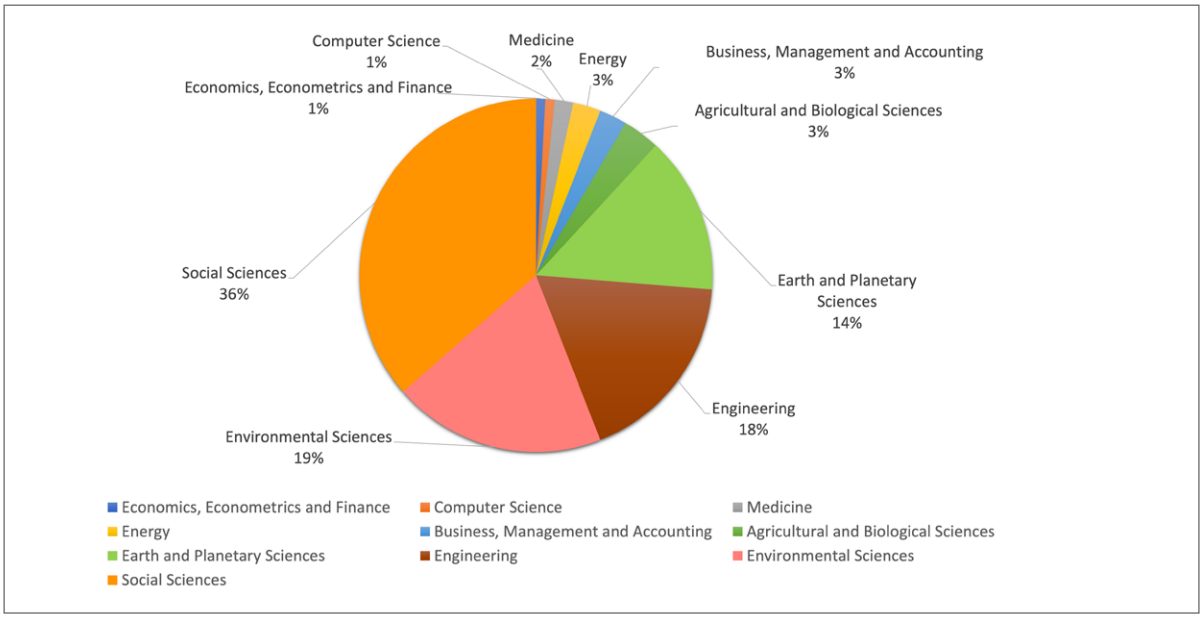
Figure 5: Articles on post-disaster housing recovery programs (2003—23)




Source: authors

## Quantity of publications by discipline

Figure 6: Articles on post-disaster housing recovery programs, by discipline




Source: authors

# Appendix II: Survey respondents' demographics

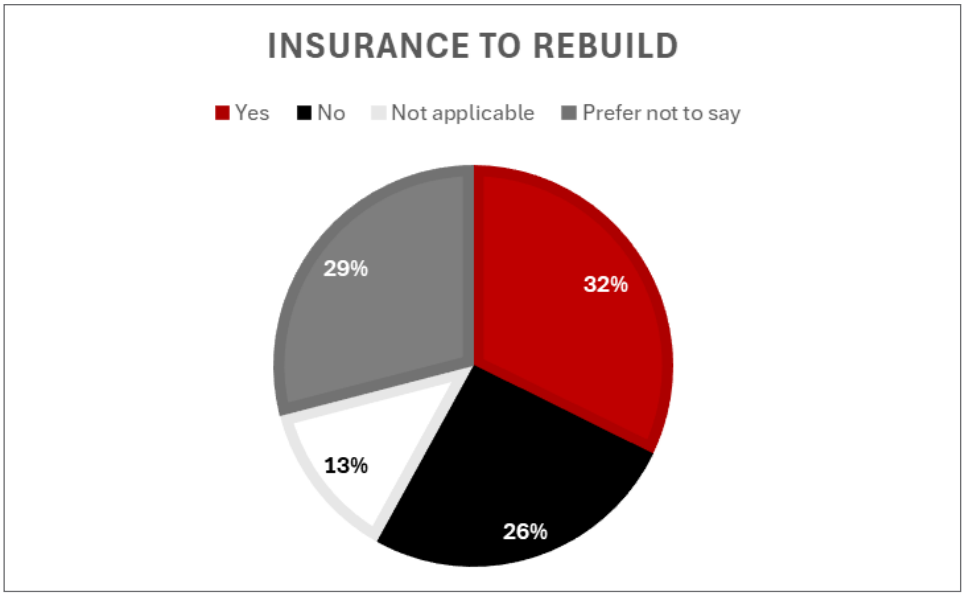
**Table 4: Survey respondent's demographic and disaster characteristics**

| Variable | Category | Percentage |
|---|---|---|
| Gender | Male | 17 |
| | Female | 70 |
| | Other term used | 3 |
| | Prefer not to say | 10 |
| Age | 18-30 | 7 |
| | 31-45 | 20 |
| | 46-60 | 33 |
| | 61 + | 37 |
| | Prefer not to say | 3 |
| Disaster type | Bushfire | 16 |
| | Flood | 74 |
| | Cyclone | 0 |
| | Severe storm or hail | 7 |
| | Landslip | 3 |
| Pre-disaster dwelling | House | 87 |
| | Apartment of unit | 7 |
| | Caravan, mobile home or similar | 6 |
| | Aged care | 0 |
| | Other | 0 |
| | Prefer not to say | 0 |
| Post-disaster dwelling | House | 77 |
| | Apartment of unit | 14 |
| | Caravan, mobile home or similar | 3 |
| | No fixed address | 3 |
| | Other | 0 |
| | Prefer not to say | 3 |
| Post-disaster tenure | Home owner | 70 |
| | Renter | 17 |
| | Social housing | 0 |
| | Staying with familyor friends | 7 |
| | No fixed address | 3 |
| | Prefer not to say | 3 |
| No. of persons in dwelling | Five | 14 |
| | Four | 17 |
| | Three | 17 |
| | Two | 17 |
| | One | 35 |
| State | ACT | 3 |
| | NSW | 50 |
| | QLD | 17 |
| | SA | 3 |
| | TAS | 0 |
| | VIC | 20 |
| | WA | 0 |
| | Prefer not to say | 7 |
| Aboriginal and/or Torres Strait Islander | Yes | 0 |
| | No | 86 |
| | Prefer not to say | 14 |

Source: authors.

*Note: More women than man completed the survey. Becker (2022) notes gender disparities in survey participation are often skewed towards women, even when gender is not the dependent variable. Regarding disasters, surveys aimed at the household level are shown to very often be completed by more women than men (Erman, de Vries Robbé et al. 2021).*

Figure 7: Insurance to rebuild, survey respondents



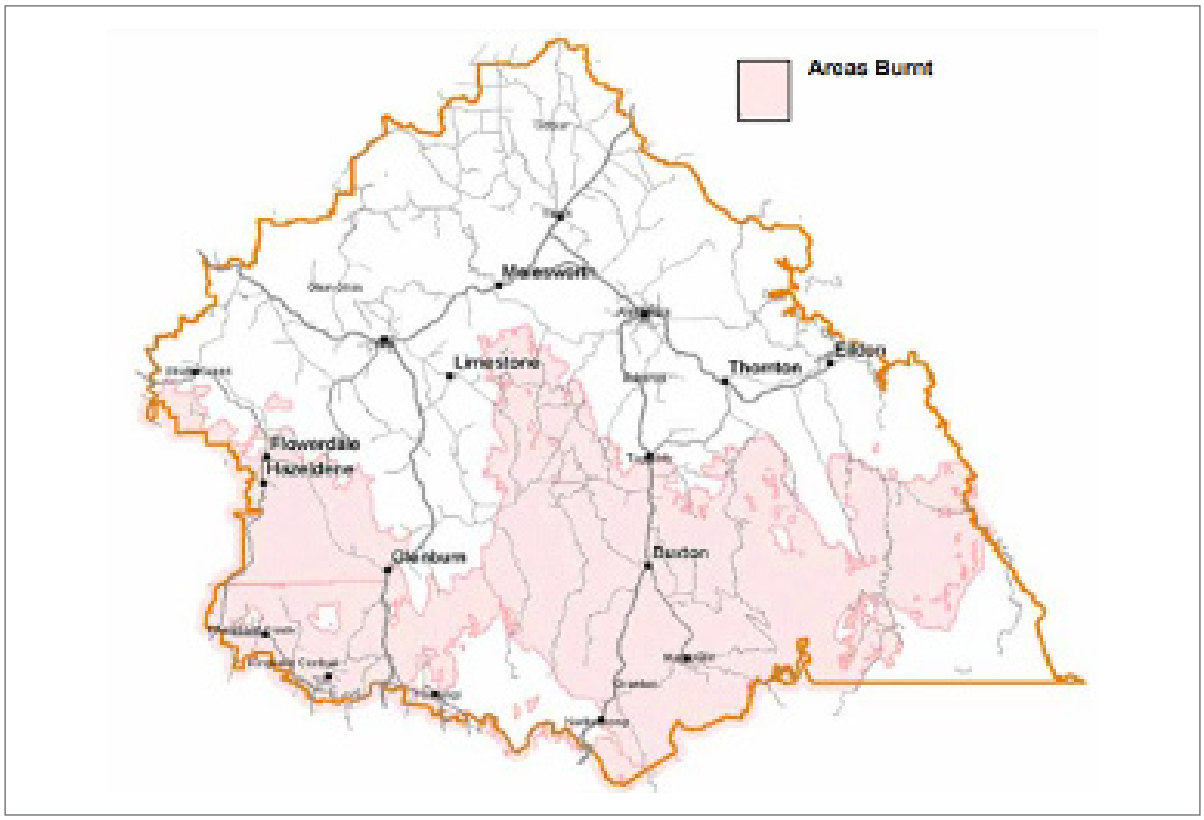

Source: Report survey data.

# Appendix III: Additional case study information

## Victoria

*Kinglake, Murrindindi Shire*

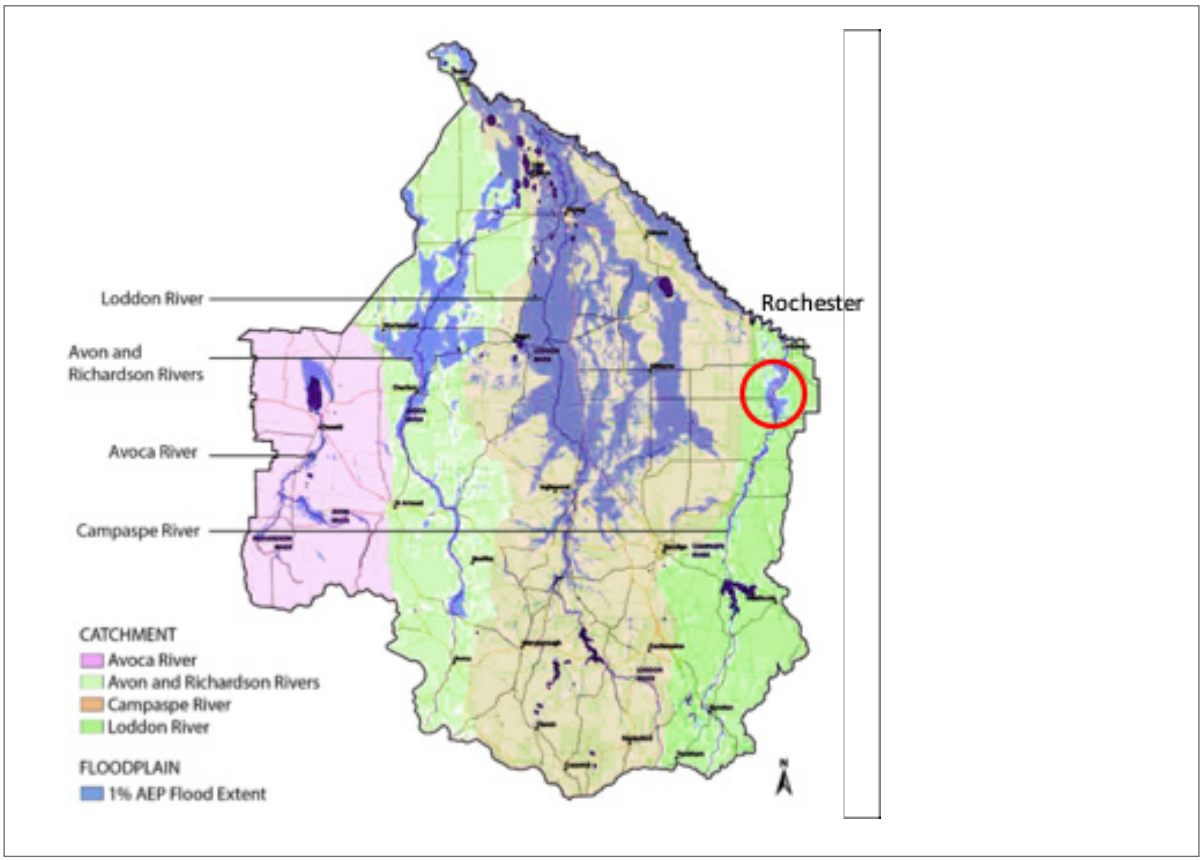
Figure 8: Areas burnt in 2009, Kinglake, Victoria




Source: Murrindindi Council (2009).

## Rochester, Shire of Campaspe

**Figure 9: Indicative flood extent across North Central CMA**




Source: NCCMA (2023).

Figure 10: Water treatment plant during the floods, Rochester

Source: Connect Coliban (2024)

Table 5: Temporary villages post 2009 Black Saturday Bushfires

| | Flowerdale | Marysville | Kinglake | Whittlesea |
|---|---|---|---|---|
| Village opened | 15 March 2009 | 17 May 2009 | 5 July 2009 | July 2010 |
| Number of units | 74 | 94 | 76 | 10 |
| Landowner | DSE (Crown land) | ESA Christian Ministries | Private | Whittlesea City Council |
| Size of site | 2.2 hectares | 7.44 hectares | 15.4 hectares | 0.52 hectares |
| Previous site use | Spring Valley Recreation Reserve | Christian camping and conference centre | Farmland (open paddock) | MacDonald Park, council-managed reserve / parkland |
| Transition arrangements | Site remediated into a recreation reserve, with infrastructure left or removed as requested by the reserve's Committee of Management | Options explored that consider the wishes of the landowner and the needs of residents and the local community | Options explored that consider the wishes of the landowner and the needs of residents, the local community and the Murrindindi Shire Council | Site remediated and returned to the local council. Not referred to as a 'temporary village', as there were no communal facilities. |

Source: VBRRA (2011)

**Table 6: Housing recovery status in Rochester, as of February 2024**

| Resident type | Number of dwellings | Housing recovery status |
|---|---|---|
| Non-private dwellings — those living in rental or public housing | 120 | Recovered and re-housed |
| Non-private dwellings — Nursing home residents | unknown | Still displaced |
| Private dwellings | 15 | Rebuilt back safer e.g. raised floor 1.5m above ground |
| | 200 | Rebuilt like-for-like, no future flood proofing |
| | 68 | In process of rebuilding/repair |
| | 201 | Yet to start repair |
| | 56 | Demolished or listed for demolition |
| | 51 | House for sale, only 2 sold; stripped to framing. |
| | 300 | Not recovered, still living in caravans or sheds. |

Source: authors.

*Note: Data from one year and four months following the floods, out of a total of 1,390 private dwellings and 73 non-private dwellings (ABS 2021). As noted in the above table, the majority of rebuilt houses are not improved, as house raising costs about $90,000 or more for brick houses, making it prohibitively expensive for some community members (Rochester Community House).*

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