

# Community experiences of the 2022-2023 Australian floods in South Australia, Victoria and south-western New South Wales: Final report

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We acknowledge the Traditional Custodians across all the lands on which we live and work, and we pay our respects to Elders both past, present and emerging. We recognise that these lands and waters have always been places of teaching, research and learning.

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## Executive summary

In response to the 2022-2023 floods in Victoria, South Australia (SA) and south-western New South Wales (NSW), Natural Hazards Research Australia (the Centre), in collaboration with key stakeholders initiated a comprehensive research project to better understand the diverse experiences of communities affected by the floods.

To address stakeholders' interests and ensure a thorough and nuanced study of these experiences, the research was structured in three distinct but complementary Work Packages (WPs), each focusing on specific aspects of community experiences and led by different academic institutions.

This report synthesises the findings from all three Work Packages, offering a holistic understanding of the 2022-2023 flood events and their impact on diverse communities. By integrating quantitative data from WP1 and rich qualitative insights from WP2 and WP3, this report highlights the various ways in which communities experienced, responded to and recovered from the floods. It also underscores the importance of considering cultural, geographical and socio-economic factors in disasters preparedness, response and recovery efforts.

This report presents a summary of the findings from each of the three work packages followed by a summary of the findings within the cross-cutting research themes from across the multiple work packages.

### WP 1: Survey findings

The online survey employed in WP1 collected quantitative data on the experiences of 452 flood-impacted residents across Victoria (VIC), SA and south-western NSW, with the majority from VIC.

**Demographic profile:** The demographic profile of the survey sample was broadly representative of the target population, although it was skewed slightly older and predominantly female. Most respondents lived in single-storey homes, primarily owned or mortgaged, and many properties were used as primary residences.<sup>4</sup>

There were no significant demographic differences across states, but notable distinctions included SA residents having more time to prepare due to the slow-onset nature of the flooding, NSW residents being less likely to have flood insurance for their house/building, and VIC residents experiencing more severe impacts due to rapid-onset flooding.

Across the sample, just under half of respondents had experienced flood damage at their homes from the 2022-2023 floods.

**Preparedness:** Preparedness levels varied, with over half of respondents feeling well-prepared. SA residents, those with prior flood experience, and those who perceived having more time to prepare reported higher levels of preparedness. Barriers to preparation included conflicting advice, early information underestimating flood levels, and caregiving responsibilities.

Trust in information sources was highest for friends, family, and neighbours, although official sources like frontline emergency services, ABC radio, and local SES volunteers were also valued. SMS and online platforms were preferred for receiving warnings, though power outages disrupted access. Decisions to stay or evacuate were split, with those staying often facing challenges due to the loss of vital services (e.g., electricity, water, sewer, and communications).

Housing modifications prior to the floods were common among those with previous flood experience, including raised homes, elevated power points or air conditioner units, and tiled or cement floors. Other pre-flood adaptations were levee construction and planting for ground stabilisation.

Looking ahead, a large percentage of respondents (72%) expect floods or flooding to happen again. Post-flood modifications to reduce this risk focused on more minor modifications – i.e., raising power points, replacing carpeted areas, and using water-resistant building materials. Also, over half of respondents indicated their plans to stay and repair their properties, with a smaller proportion (15%) wishing to leave.

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<sup>4</sup> It is worth noting that a number of properties affected by the floods in SA were 'shack' or holiday homes.



**Recovery:** Recovery was slow and challenging, with many homes still unrepaired over a year later. Respondents reported health, financial, and bureaucratic difficulties during recovery. Support from informal networks—e.g., family, friends, neighbours, and community groups—was rated highly, while formal organisations like recovery centres and the Australian Red Cross were also regarded positively. Despite the hardships, many respondents felt their communities became more cohesive and connected due to the shared experience of the flood event.

In conclusion, the survey highlights both the severe impacts of the floods across the three surveyed states, differences in people's level of preparedness and types of responses to flood information, the challenges that people faced during recovery, and the resilience, social connections and solidarity within affected communities.

## WP 2: Aboriginal communities' experiences of the floods

WP2 focused on Aboriginal communities' experiences with the 2022-2023 floods. Notably, all researchers involved in this research were trained in trauma-informed approaches and are committed to sensitive, safe and restorative research with Indigenous people.

While many of the findings from WP2 align with those from WP1 and WP3, there were several significant issues that arose in WP2 that reflect the unique impacts of the 2022-2023 floods on Indigenous people. A summary of each is included below, and the reader is encouraged to review the final report for additional details (Kuligowski et al. 2025).

**Conceptualising the 'Disaster':** Many of the Traditional Owners who participated in this research did not view the flood itself as the disaster. Many participants contextualised the flood within a history of colonial interventions in river systems- environmental degradation caused by locks, weirs, and agricultural modifications; noting that these interventions disrupted natural flows and the biodiversity of the river system, which were discussed by some as the true disaster. Many also celebrated the flood for its ecological and cultural benefits, such as the watering of lagoons and the rejuvenation of fish and bird populations.

**Impacts on Cultural Heritage:** Emergency preparedness and response activities, particularly the construction of levees, caused significant damage to cultural heritage sites. Traditional Owners reported that these activities often disregarded the presence of ancestral remains and sacred sites along riverbanks.

The legal framework in Victoria<sup>5</sup> allowed emergency services to alter levees without consulting Traditional Owners or conducting Cultural Heritage Management Plans (CHMPs), exacerbating the destruction of heritage. Participants called for greater protection and consultation regarding cultural heritage during disasters. VICSES has acknowledged the potential for cultural harm associated with levee works and have since completed a review of the power's application in this flood event, which identified the need to strengthen procedures and processes for Traditional Owner engagement in future floods.

The floods also physically eroded scar trees and middens, making some heritage sites unrecognisable or lost. In SA, mismanagement of water flows had already exposed specific heritage sites through drought, and the floods intensified this erosion.

**The critical role of Aboriginal Community Controlled Organisations (ACCOs):** ACCOs played a vital role in supporting Aboriginal communities during the floods. These organisations were trusted more than traditional emergency management agencies and acted swiftly to provide communication, food, medical support, and financial guidance and aid in response to the floods.

For example, an ACCO in Shepparton, VIC quickly restored phone lines and coordinated relief efforts, demonstrating agility and the capacity to meet the immediate needs of residents. In Mildura, Indigenous organisations supported children and youth, offering safety information and psychosocial support. These efforts were crucial in bridging gaps

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<sup>5</sup>Section 32 of the *Victoria State Emergency Service Act 2005* (VICSES Act).



left by mainstream services. ACCOs also helped residents access government relief and provided direct financial assistance.

**Caring for Country as disaster resilience:** Participants from Traditional Owner organisations emphasised that Caring for Country is central to disaster resilience. Practices like cultural burning were described as beneficial not only for bushfire prevention but also for flood preparation and recovery. Rangers acted as first responders, often without funding or formal support, driven by community commitment.

Participants advocated for greater involvement in preparedness activities, suggesting that training and inclusion of Traditional Owners reduces disaster impacts. In SA, for example, pre-flood restoration efforts led to biodiversity booms post-flood. These insights reinforce the value of Indigenous knowledge and practices in building environmental and social resilience.

### WP 3: Experiences of communities impacted by slow-onset and rapid-onset floods and CALD communities

This section summarises the findings of WP3 organised into four sections, including rapid-onset flooding experiences in VIC, slow-onset flooding experiences in SA, CALD communities' experiences and stakeholders' perspectives.

**Rapid-onset flooding experiences in VIC:** In Rochester and Echuca (VIC), residents experienced severe flooding that developed over a shorter period of time (i.e., days). Residents relied on various official sources for information (e.g., community meetings, SES Facebook pages, and the VicEmergency app); however, many found communication to be late, unclear and lacking in detail, eroding trust in official sources.

Community-led platforms, especially local Facebook pages, became vital for timely updates, though concerns about data reliability and accuracy persisted. The lack of timely and locally specific information as well as initial communication that downplayed the risk and the frequent changes in water level predictions led to an underestimation of risk and delayed preparation and evacuations.

The physical and emotional impacts of the flooding were severe. Homes and infrastructure were heavily damaged, and many residents remained displaced long after the floods. Insurance processes were described as stressful and inadequate, with poor-quality rebuilds adding to the burden. Survivor guilt and grief over the loss of homes, community spaces and a sense of normalcy were common. Despite these challenges, residents showed resilience and a strong sense of community, with many planning to evacuate earlier and prepare more thoroughly for future events.

**Slow-onset flooding experiences in SA:** Slow-onset flooding in SA was characterised by gradual water level rises over extended periods (i.e., months). In Mannum, Mypolonga, Berri, and Blanchetown (SA), slow-onset floods allowed more time for preparation but created prolonged uncertainty about the flood's impacts, causing severe anxiety and stress.

Residents accessed information through various official channels (e.g., community meetings, SASES Facebook page, SES newsletters, weekly updates from water and power agencies, local council updates, and doorknocking). However, technical data such as water volume measurements were difficult to interpret, and communication was often perceived as inaccessible to older residents and farmers. As a result, trust in official sources declined, and informal networks became essential for updates. Additionally, risk perception was significantly influenced by the slow-onset nature of the floods, inconsistent official communication, and prolonged uncertainty about flood timing and impacts.

Preparation efforts were extensive, including sandbagging and moving entire house contents, and often physically and mentally exhausting. Despite these efforts, many protective measures were rendered futile. The prolonged inundation of the floods caused widespread damage to homes, infrastructure, agricultural land, businesses, and tourism.

Despite these challenges, some positive outcomes emerged, such as strengthened community bonds and enhanced biodiversity and natural beauty in water-transformed landscapes. Recovery was perceived as slow, with delays in



damage assessments and resource allocation and rising insurance costs. Similar to the residents in VIC, SA residents expressed frustration with government inaction and emphasised the importance of community support and self-reliance for future preparedness.

**CALD communities' experiences:** CALD communities in Shepparton (VIC) faced unique challenges due to limited English proficiencies and language barriers. Misunderstandings about specific terminology and the nature of floods led to confusion and inadequate preparedness. Residents reported that sandbagging was rare, and access to resources was limited. Innovative strategies, such as using WhatsApp and social media, became key tools for sharing information in native languages, with children often acting as interpreters.

In addition, evacuation centres were perceived as overcrowded and culturally inappropriate, e.g., lacking privacy and Halal food options. As a result, many families chose alternative accommodations or stayed behind.

Recovery support was described as minimal among CALD participants, with insufficient insurance payouts and inadequate housing repairs leading to health issues. Also, some cultural events funded during recovery were seen as irrelevant, and residents felt excluded from decision-making on effective recovery for their community. Across the sample in Shepparton, anxiety about future floods remains high, especially during rain events.

**Stakeholders' Perspectives:** Stakeholders from emergency response agencies, local councils, and recovery organisations highlighted systemic challenges in flood response and recovery. Common themes included difficulties with communication, a shortage of resources, media misrepresentation, and the immense strain on local councils and their staff. Communication with the public proved difficult, with rapidly changing flood modelling results and media misinformation causing confusion and distress during a critical time. Some councils found success in supplementing more traditional communication methods with the "grapevine strategy"; i.e., disseminating information via trusted community groups, but overall, better communication strategies were needed. Also, resource shortages and staff burnout strained emergency efforts.

Recovery timelines were perceived as underestimated, and short-term contracts (e.g., for funded recovery roles) hindered long-term planning. Stakeholders called for enhanced local flood rescue capabilities, improved insurance policies, better pre-flood planning, and more investment in both immediate and long-term recovery, among other improvements. Creative community initiatives were praised, but sustained funding was noted as essential to support communities and frontline workers more effectively.

## Cross-cutting themes

This section summarises the research findings within key cross-cutting themes across all three work packages.

1. **Information and communication issues/challenges:** During the 2022-2023 floods, residents received flood information from diverse sources, including broadcast media, digital platforms, government websites, and community meetings. While broadcast media was the most common channel through which residents from all three states *first* found out about the floods; regional differences were evident in other commonly reported sources: SA residents relied more on state government reports and personal networks due to slow-onset flooding, and VIC and NSW residents were often first made aware via environmental cues, official government websites (e.g., BOM and VicEmergency), and official social media accounts (e.g., SES and BOM). Despite multiple channels, many felt the information was vague, delayed, or lacking locally relevant specifics. Significant communication gaps were also reported, especially among Aboriginal communities and CALD groups. Participants described exclusion from official messaging and reliance on community networks for accurate updates. Flood level predictions perceived as inaccurate and inconsistent further eroded trust in official sources. Many residents preferred practical data like water heights over technical water volume measurements to assess their flood risks, and trusted friends, family, and frontline personnel and local emergency volunteers more than print media, local council representatives and television.



2. **Risk perception:** Lower risk perceptions among affected community members were shaped by underestimated flood water levels and shifting flood height predictions. Many residents compared the 2022 floods to previous events and felt unprepared for the greater impacts the 2022-2023 floods brought. Official designations of 'dry zones', particularly in VIC, led to complacency and inadequate levels of preparation for homes that were subsequently inundated. Conflicting predictions and advice from various sources added to the confusion. Residents reported receiving mixed messages from local, state, and cross-border agencies, undermining their ability to respond effectively. CALD communities also faced additional barriers due to language and cultural disconnects in emergency messaging, often misinterpreting flood warnings as mere heavy rainfall events. Whilst Aboriginal residents acknowledged flood impacts, rather they emphasised the ecological benefits of floods and highlighted the risks and harm associated with the colonial impacts of river management as the true disaster.
  
3. **Slow vs rapid onset flooding:** Slow-onset flooding in SA allowed more preparation time but caused prolonged stress and physical exhaustion to residents. Some residents built large levees or protective walls around their homes and others, who had the capacity and access to resources, moved entire household contents to higher ground over weeks; however, the anticipation of the flood event was psychologically taxing, with some describing the anticipation as more traumatic than the flood itself. The prolonged uncertainty created anxiety that affected participants' abilities to accurately assess their risks. Also, the nature of the flooding influenced both physical impacts and recovery. Affected residents in VIC experienced higher losses in household contents and home damage, while SA residents faced prolonged inundation and as a result, extensive damage to homes, agricultural lands and local infrastructure. Recovery timing was critical; SA residents often perceived support services as arriving too early, before damage could be assessed due to the long inundation period.
  
4. **Physical impacts of the floods:** The physical toll of the 2022-2023 floods varied by region but was universally disruptive. The survey results found that VIC had the highest percentage of seriously damaged or destroyed homes (i.e., 42.1% in VIC reporting that their home was seriously damaged or completely destroyed, compared to 29.8% in SA, and 23.3% in NSW). However, in SA, agricultural losses were severe, with destroyed crops and livestock affecting livelihoods, exacerbating preceding economic hardships. Participants across the three states described long-term economic impacts and displacement. Additionally, WP2 highlighted riverbank erosion and cultural heritage loss due to the rapid speed and volume of water, and emergency levee construction.
  
5. **Environmental impacts of the floods:** Despite the physical impacts discussed in the previous theme, the floods were also seen by many as ecologically beneficial, especially in SA and VIC. Residents and Traditional Owners described the floods as a "flush-out" that revitalised ecosystems, improved water quality, and restored biodiversity, especially of birds and fish. The opening of the Murray Mouth and the return of wildlife were noted as positive outcomes. However, negative environmental consequences also emerged. As a result of the floods, soil chemistry was altered, leading to toxic conditions and agricultural challenges. Blackwater events depleted oxygen, causing mass die-offs of fish and other species. Extensive flood impacts to homes also generated massive waste, as people discarded damaged goods.
  
6. **Recovery process:** Recovery was described as a slow, prolonged, and frustrating process across all regions. WP1's survey data showed that 76.5% of respondents across the three states felt that recovery was taking



longer than expected. Insurance delays, a lack of available tradespeople, and financial constraints were major barriers. WP2 participants also expressed frustration over restricted access to Country and cultural sites. Insurance issues were particularly problematic, with residents facing unclear communication, pressure to accept lower settlements, and delayed claim processing. Renters were especially vulnerable, often left in unsafe or unrepaired homes. The emotional toll of displacement and uncertainty was significant, with many reporting anxiety and negative impacts to their mental health.

7. **Housing/Displacement:** Housing insecurity was a major issue during recovery. Residents faced long-term displacement, frequent relocations to temporary housing, and difficulty maintaining connections or reconnecting with their community. Renters described their struggles with exploitative landlords and inadequate repairs, particularly in Aboriginal and CALD communities. Temporary accommodation was unstable, with some residents moving every few days. The lack of permanent housing disrupted routines and support networks and contributed to mental health decline. These challenges were compounded by reportedly slow damage assessments and insurance processes and limited support for renters.
8. **Added challenges of recovery for communities exposed to slow-onset flooding:** Regarding slower-onset flooding, SA communities experienced prolonged displacement due to the flooding event. Recovery was delayed as properties remained submerged for months, preventing damage assessments and rebuilding. Also, farmers faced ongoing agricultural losses and reduced income, as did those in the tourism industry. The extended uncertainty created emotional fatigue and diminished hope, with residents describing feelings of being stuck in limbo and unable to resume normal life. The “long tail” of recovery was evident, with community resilience tested over time.
9. **The role of community in disaster preparedness, response and recovery:** Community networks played a vital role in all phases of disaster management. Residents relied on informal channels like Facebook groups and WhatsApp and their local networks to fill perceived gaps left by official (or formal) agencies. Additionally, Indigenous community members placed their trust in ACCOs for timely, locally relevant, and culturally appropriate information during the floods. During emergency response, community members also led rescue efforts and in the recovery process, they provided temporary housing, assisted with cleanup efforts, shared resources, and offered emotional support. Additionally, some formal support services were also highly rated by participants, including community groups/charities (e.g., the Lion’s Club and community/neighbourhood houses), recovery centres, the fire service and the Red Cross. Overall, personal networks were the most trusted and valued sources of support during recovery.
10. **Important role of local knowledge:** Residents frequently advocated for integrating local expertise into emergency management. They seek to be acknowledged as active contributors rather than passive recipients, and desire engagement that genuinely respects and incorporates their local knowledge, experience, and expertise. Those with extensive knowledge of the landscape, such as Traditional Owners and farmers, expressed frustration at not being appropriately included in planning and response efforts. Their cultural, historical and environmental knowledge was seen as essential for effective flood management, and residents expressed concern that ignoring local insights could lead to inefficient and costly decisions. Moving forward, participants called for collaborative approaches that respect community experience; and despite past frustration, many remained hopeful about future partnerships with government agencies.



11. **A resilient future – the likelihood of flooding and the need for adaptation and mitigation:** Most residents believe that future flooding is likely, with 72% across all states expressing concern. Many have made or plan to make minor home modifications, but cost and lack of support hinder more substantial changes. Some residents were more fatalistic in their perspectives, questioning the value of investing in flood-prone areas or expensive flood proof house modifications or rebuilds if they were simply going to flood again in the future. Water management emerged as a key mitigation strategy. Participants discussed the need for better coordination between upstream and downstream areas, maintenance of levees, clear and accurate flood monitoring and warnings, and adherence to floodplain sensitive building regulations. Aboriginal communities framed water management within broader historical and ecological contexts, emphasising its importance for both flood mitigation, environmental health and recognition of Aboriginal knowledge of Country.

The policy-relevant implications outlined in this report originate directly from participants' lived experiences captured via surveys and interviews, and from workshops conducted within the research team. It is important to note that the research team did not conduct a formal review of existing policies or programs currently in place but rather these implications emerged from our analysis of community experiences. These implications require careful adaptation to jurisdictional contexts, as operational frameworks and State Emergency Service (SES) protocols vary significantly across states.

While these implications are high-level in nature, their full potential can only be realised through careful consideration and collaborative development with relevant agencies and stakeholders, translating our findings into comprehensive policy frameworks, existing governance structures and operational realities. We acknowledge that disaster resilience is a shared responsibility involving complex consideration of feasibility, financial and personnel resources, and risk assessment across multiple organisations with varying jurisdictional responsibilities.



## End-user statement

“Before this project began, Victoria State Emergency Service already had anecdotal insights from the 2022 floods. We knew that our warnings weren’t fully hitting the mark- they needed to be more timely, more tailored, more relevant and more accessible. Victoria State Emergency Service received Disaster Ready funding to deliver *Consequence-based Intelligence Driven Warnings*, directly informed by the findings of this research. This project aims to ensure flood warnings are provided for defined areas based on impact and potential consequences more tailored and relevant to communities.

When I was asked, when looking at a problem statement, ‘do we actually have evidence to support this?’ I could confidently say that we did.”

Melanie Gill, Senior Advisor Warnings and Information – Victoria State Emergency Service



## Introduction

The 2022-2023 floods were among the most devastating natural hazards in recent history, causing widespread destruction and significantly impacting communities across different states in Eastern Australia. Building upon seminal research previously conducted in New South Wales (NSW) and Queensland (Taylor et al., 2023) and Tasmania, this project examines the experiences of communities affected by the 2022-2023 floods in Victoria, South Australia (SA) and south-western NSW<sup>1</sup>. In these locations, the flood manifested in two distinct patterns: slower-onset riverine flooding characterised by gradual water level rises over weeks that predominantly affected SA and (relatively) rapid-onset<sup>2</sup> flooding where intense rainfall led to much faster water level rises within a few days and severe impacts in Victoria and NSW. In response to these events, Natural Hazards Research Australia (the Centre), in collaboration with key stakeholders, initiated a comprehensive research project to better understand the diverse experiences of communities affected by the floods. To address our stakeholders' interests and ensure a thorough and nuanced study of these experiences, we structured our research into three distinct but complementary Work Packages (WPs), each focusing on specific aspects of community experiences and led by different academic institutions. Work Package One (WP1), led by Macquarie University, employed a large-scale survey to capture the perspectives of individuals and communities directly impacted by the floods in Victoria, SA and south-western NSW. This quantitative approach provided a broad overview of the flood impacts, documenting the varied experiences of residents across these regions. The survey sought to understand how different demographic groups experienced the floods, including their prior flood exposure; impacts and losses; information, warnings and communication; risk; actions taken during the floods; clean-up and recovery efforts; support received; current living conditions; and future plans.

Work Package Two (WP2), led by Monash University, focused specifically on the experiences of Aboriginal communities, including residents, organisation and Traditional Owner groups. The primary objectives of WP2 were to:

- Understand the experiences of Aboriginal people, as residents, Traditional Owners and Aboriginal community organisations, during and after the 2022-2023 flood.
- Identify Aboriginal priorities in post-flood recovery efforts.
- Determine if and in what ways, the experiences of Aboriginal people differed from those of non-Indigenous residents.

To address these objectives, the research team selected study areas across central and northern Victoria, north-western Victoria, southern NSW and SA. These regions were chosen due to their significant impact during the flooding event and their higher-than-average population of Aboriginal residents. The study areas included Greater Shepparton and Barmah Forest, which experienced rapid-onset flooding. These areas were selected to explore the experiences of Aboriginal communities in regions with high flood exposure and significant cultural and environmental ties to Country. In north-western Victoria, Swan Hill, Robinvale and Mildura which were affected by slower-onset flooding were selected to provide insights into the challenges faced by Aboriginal communities in regions where floodwaters rose gradually over weeks. In southern NSW, the Aboriginal reserve of Cummeragunja was included to examine the experiences of Aboriginal communities in a cross-border context, where formal recognition of Traditional Ownership differs between states. The study areas encompassed regions where Traditional Ownership has been formally recognised through state mechanisms, such as the *Native Title Act 1993* (Cth), *Traditional Owner Settlement Act 2010* (Vic), *Aboriginal Heritage Act 2006* (Vic) or *Aboriginal Land Rights Act 1983* (NSW), as well as areas where formal recognition is still pending, such as regions south-east of Mildura. This diversity allowed the research team to explore how varying levels of legal and cultural recognition influenced community responses and recovery efforts.

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<sup>1</sup> For increased readability, the following abbreviations are used throughout this document: Victoria (VIC), South Australia (SA) and New South Wales (NSW).

<sup>2</sup> Throughout this report, we use the term 'rapid-onset flooding' to distinguish the flooding patterns experienced in Victoria and New South Wales from the slower-onset riverine flooding in SA. We acknowledge that 'rapid-onset' in flood terminology often refers to flash flooding (occurring within minutes to hours). In our context, 'rapid-onset' refers to flooding that developed over a few days rather than the weeks to months of gradual water level rises experienced in South Australia. This distinction is important for understanding the different warning timeframes and preparation opportunities available to affected communities across the study regions.



Work Package Three (WP3), led by RMIT University, investigated the experiences of culturally and linguistically diverse (CALD<sup>3</sup>) communities, as well as communities affected by both rapid-onset and slow-onset flooding events in Victoria and SA, respectively. The primary objectives of this WP were to:

- Explore how communities in Victoria and SA experienced and responded to the 2022-2023 floods.
- Investigate community perceptions of communication strategies and their influence on individuals' risk perception and responses to floods.
- Examine the unique challenges that communities faced in slow-onset flooding conditions.
- Explore the unique challenges faced by CALD communities in accessing flood-related information and support.
- Provide insight into recovery processes and community resilience following the floods.

To address these objectives in WP3, the research team in consultation with the Project Reference Group (PRG), selected several study areas across Victoria and SA. The study areas included Rochester, Echuca and Shepparton in Victoria, which experienced rapid-onset flooding. Rochester and Echuca were selected to represent communities with varying levels of exposure to rapid-onset flooding. The selection of Shepparton was to capture the specific challenges faced by CALD communities. WP3 also focused on Mannum, Mypolonga, Berri and Blanchetown in SA which were impacted by slow-onset flooding. These locations were also chosen to examine the experience of rural and semi-rural communities.

This report synthesises the findings from all three Work Packages, offering a holistic understanding of the 2022-2023 flood events and their impact on diverse communities. By integrating quantitative data from WP1 and rich qualitative insights from WP2 and WP3, this report highlights the various ways in which communities experienced, responded to and recovered from the floods. It also underscores the importance of considering cultural, geographical and socio-economic factors in disasters preparedness, response and recovery efforts.

Together, these Work Packages provide a comprehensive foundation for improving future flood management strategies, ensuring that the voices and experiences of all communities - Aboriginal, CALD and those affected by different types of floods - are heard and addressed in policy and practice. This report not only contributes to the growing body of knowledge on natural hazards impacts but can also serve as a critical resource for stakeholders, policymakers and emergency management agencies working to build more resilient communities in the face of future flood events. The findings from this research can inform the development of more effective communication strategies, targeted support for vulnerable communities and improved mitigation and recovery measures to better prepare for and respond to future floods.

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<sup>3</sup> This report uses the term CALD (Culturally and Linguistically Diverse) communities while acknowledging that terminology in this area is evolving. Alternative terms such as "migrants and refugee communities", "multicultural communities," or "minority ethnic groups" may be preferred in different contexts.



## Research design

This section outlines the research design, methods and ethical considerations employed across the three WPs of this study. It also briefly describes participant recruitment strategies and data collection and analysis approaches for each WP. A key strength of this research is that the study employed a mixed methods approach, combining quantitative and qualitative methods across three WPs to capture a comprehensive and contextual understanding of community expectations before, during and after the 2022-2023 floods.

## Methods across three work packages

Each WP was designed to address specific research objectives mentioned in the previous section, with methods tailored to the unique focus of the WP. WP1 utilised a large-scale online survey to gather quantitative data, WP2 employed qualitative oral interviews to explore Aboriginal communities' experiences and WP3 conducted semi-structured interviews to investigate the impacts of different types of floods on various communities. Together, these methods provided a comprehensive understanding of the flood's varied impacts.

## Ethical considerations

This study was constructed with strict adherence to ethical research principals, ensuring the well-being and safety of all participants. Ethics approval for the study was approved by RMIT University's Human Research Ethics Committee (HREC) for the overall project (Ref# 27219) and specifically for Work Package 3 (Ref #27282). Additional approvals were obtained from Macquarie University's Human Research Ethics Committee (HREC) (Ref # 11902) and Monash University's Human Research Ethics Committee (Ref #41737). In all WPs, participants provided informed consent before participating in the research. Especially in WP2 and WP3, particular attention was given to research fatigue and trauma sensitivity as participants shared deeply personal experiences.

## Participant recruitment strategies

Recruitment strategies varied across the WPs to ensure broad and inclusive participation: in WP1, participants were recruited through social media, local media, project websites, flyers, letterbox drops and phone recruiting in targeted flood-affected areas. A total of 452 flood-impacted residents completed the online survey.

In WP2, recruitment focused on Aboriginal communities, with participation facilitated through existing networks as well as through Aboriginal Community Controlled Organisations (ACCOs) and Aboriginal Community Controlled Health Organisations (ACCHOs) in the following locations:

- Robinvale (six people)
- Mildura (eight people)
- Shepparton (seven people)
- Barmah and Cummergunja Reserve (five people)
- Berri Barmera (six people)

A total of 32 individuals participated in interviews.

In WP3, a comprehensive recruitment strategy was implemented including multiple channels: local media outlets (radio and newspapers), social media platforms (local Facebook groups and Centre channels), official communications (emails from local councils and SES), physical advertising (letter drops and posters) and snowball sampling (asking



participants to share our study with others in their networks). This multi-faceted approach resulted in 88 interviews with 96 individuals across five locations in Victoria and SA.

## Data collection and analysis approaches (all three WPs)

In WP1, the online survey, developed using Qualtrics, was open from 6 March 2024 to 19 September 2024. The design of the survey employed in WP1 followed an approach used by researchers working in natural hazards research with the Bushfire CRC, the Bushfire and Natural Hazards CRC and now the Centre. The survey was informed by the Centre-funded study of the community experiences of the Eastern Australia floods in NSW and Queensland 2022 (Taylor et al., 2023). It comprised 13 content sections, covering topics such as prior flood exposure, impacts and losses, warnings and communication, action taken during the floods, recovery efforts, current living conditions and future plans, support received, community actions and health and well-being. The survey included skip logic to bypass irrelevant sections and provided space for open-ended comments. A total of 452 responses were collected, with 55.3% from Victoria, 27.9% from SA and 16.8% from south-western NSW. Data were analysed using Stata and R, with descriptive statistics and bivariate analysis (Chi-square tests) conducted to identify patterns and relationships.

WP2 employed oral interviews as the primary data collection method, guided by the principles of Dadirri, a Ngan'gikurungkurr concept of deep listening. This approach emphasized empathy, respect and the integration of historical and contemporary perspectives. Interviews were conducted by a diverse team with expertise in history, anthropology, education, gender philosophy, geography and Indigenous governance. Interviews were conducted between August 2024 and February 2025 with 32 individuals, including residents, Traditional Owners and representatives of community organisations. The interviews explored themes such as cultural connections to Country, access to resources and the unique challenges faced by Aboriginal communities during and after the floods. Data were analysed thematically, with a focus on identifying structural influences and community priorities for recovery.

WP3 employed semi-structured interviews to explore the experiences of CALD communities and those affected by rapid-onset and slow-onset flooding. Data collection for this study was conducted between May and October 2024, approximately 18 months after the event. Interviews were conducted both in person and online, with participants recruited from selected study areas in Victoria and SA. In total, 88 interviews were conducted with 96 participants, including instances where married couples or family members chose to participate together in a single interview session. The research included 28 participants from rapid-onset flooding case studies in Rochester and Echuca, 44 participants from slow-onset flooding case studies in Mannum, Mypolonga, Berri and Blanchetown and 24 participants from CALD communities in Shepparton (who experienced rapid-onset flooding). These numbers include interviews with 10 stakeholders across all case studies, including emergency service personnel, community support workers and local government representatives. These stakeholders provided valuable institutional insights into flood response and recovery processes, complementing the experiences shared by community members. Reflecting the gentle story-based approach, interviews began with an open-ended question about flood experiences to allow people to begin with issues of importance to them. This open, conversational approach included questions covering key themes such as information and warning received, planning and preparation, responses to the floods, assistance received during and after the event, experiences during the floods, recovery and future plans and adaptation. Before the interview, participants completed a brief background questionnaire to provide demographic and contextual information. Data were analysed using Nvivo 12, with a structured coding framework developed to identify key themes and patterns. Regular cross-checking among team members ensured consistency and reliability in the analysis.

## Limitations of the study

Before the findings are presented, it is important to identify the limitations of this research study. First, all three WPs collected self-selected samples based on ethics procedures, which could have introduced potential biases in the data



collection and analyses. Self-selection may have resulted in a sample that overrepresented certain groups while inadvertently excluding others, potentially skewing the overall research findings. Demographic representation emerged as a significant challenge. The WP3 study sample demonstrated a notable imbalance, with skew toward older participants and women. While WP3 interviewees often relayed information about the experiences of others in their household and/or social network, this unbalanced representation may limit the comprehensive understanding of flood impacts across diverse demographic groups. Critically, the findings presented herein reflect the perspectives of a select segment of the community and caution should be taken when considering these findings as a representation of all community members.

The temporal context of this research presented another limitation. Conducting research two years after the floods may have influenced participants' recollection of specific events. Additionally, the timing of the study may have biased recruitment efforts, in that those who were more severely impacted and therefore still heavily engaged in recovery processes, may have been more likely to participate. On the other hand, this research was also conducted during a period of multiple concurrent studies and community challenges, which may have impacted participants' willingness and ability to engage fully with the research process.

Lastly, this research focused specifically on community members' experiences and therefore this final report and other reports specific to WPs present findings to give voice to community members affected by the 2022-2023 floods. It is therefore the hope that agencies, local councils and other organisations involved in flood response and recovery can glean relevant insights and learnings from these voices to initiate change, where possible. This research is not meant to serve as an evaluation of the effectiveness or success of agencies or organisations during the flood event.

Despite these limitations and through its comprehensive approach to capturing diverse experiences, this research provides important insights on community experiences before, during and after the floods. The mixed methods approach and collaborative engagement with community stakeholders allowed for an in-depth examination into the complex impacts of flooding, even as the study acknowledges its inherent methodological constraints.



## Geographical context of the study

The survey undertaken as part of WP1 captured the experiences of people from across a vast area of flood-affected communities in SA, Victoria and south-western NSW. The qualitative components of the study, undertaken as part of WPs 2 and 3, focused in on communities affected by both rapid- and slow-onset flooding in particular localities in SA, NSW and Victoria, as recommended by the Project Reference Group. WP2 particularly focused on Aboriginal communities in the regions of central and northern Victoria including the Greater Shepparton and Barmah Forest; north-western Victoria including Swan Hill, Robinvale and Mildura; the southern NSW Aboriginal reserve of Cumeragunja; and Berri and surrounds in north-eastern SA. The following section provides a brief geographical background to these localities, outlining the different nature of the floods and key socio-economic features pertinent to flood impacts.

All of the localities included in the study fall within the Southern Basin of the Murray-Darling River system, as shown in Figure 1 and Figure 2, covering the sovereign Country of numerous Aboriginal nations. The transformation of the river and its catchment through agriculture, associated water-control infrastructure (including river levees, dams, weirs and irrigation systems), removal of native vegetation, including catchment forests and wetlands, construction of roads and establishment of urban settlements has resulted in dramatic changes in flood behaviour. Whilst floods are a naturally re-occurring feature of the landscape and bring numerous ecological benefits, flood flow and inundation patterns have changed radically since colonisation.

The area affected by the floods included in this study is largely rural, with local economies dominated primarily by agriculture, tourism and services. Whilst Shepparton, Echuca, Rochester and Berri form large to medium sized regional towns, the other localities included in this study are much smaller towns. According to the Australian Bureau of Statistics (ABS) Index of Relative Socio-Economic Disadvantage (ABS, 2023), the flood-affected towns included in this study, especially in SA, were already experiencing some measure of relative socio-economic disadvantage prior to the floods, with all flood-affected LGAs having an average median income below the national average. ABS data on the flood-affected LGAs in SA and Victoria, demonstrate that Indigenous people were disproportionately impacted by the floods, comprising 4.1% of the population impacted by the floods, yet only 2.4% of the SA population and 1% of the Victoria population.

Rochester, Echuca and Shepparton in Victoria experienced high rainfall and rapid-onset flooding in October 2022, with the fast-rising floodwaters influenced by the relatively hilly catchment of the Campaspe, Murray and Goulburn-Broken Rivers. Victoria experienced one of its most severe flooding events in recent history, impacting communities statewide, from urban centres to rural agricultural areas. The floods were primarily triggered by an extraordinary rainfall event on 12 and 13 October 2022, exacerbated by already saturated catchments. The month of October set a record as the wettest month ever in Victoria C since records began in 1900, with rainfall more than double the monthly average (Bureau of Meteorology, 2022). This intense rainfall saturated already full catchments and land at its highest moisture levels, contributing to widespread flooding.

**Rochester**, which is located along the Campaspe River, faced devastating flooding in October 2022, with nearly every home (of over 800 houses) in the town impacted. The rapid floods resulted in more than 100 swift water rescues and over 400 residents were relocated to Emergency Relief Centres in Echuca and Bendigo (Campaspe Shire Council, 2023). According to the latest ABS data, Rochester has a population of some 3,154 people and has a relatively ageing population, with the median age being 53 years, compared to that of 38 years for the state of Victoria and the nation. Some 2.3% of the population of Rochester identify as Aboriginal and/or Torres Strait Islander. The median personal weekly income of \$583 is significantly lower than the state and national average (of \$803 and \$805, respectively)

**Echuca** is located at the confluence of the Campaspe and Murray Rivers on Yorta Yorta Country. Echuca experienced approximately 90mm of rainfall in just over two days (13-14 October). As water levels rose to their highest point since 1916, VICSES, as the control agency, in collaboration with local government (Campaspe Shire Council), made the decision to create a levy to minimise impact on critical infrastructure and community functioning. Echuca has a



population of 15,056, of which 4.1% identify as Aboriginal and/or Torres Strait Islander. Median personal weekly income is \$710, which is lower than the state and national average (of \$803 and \$805, respectively).

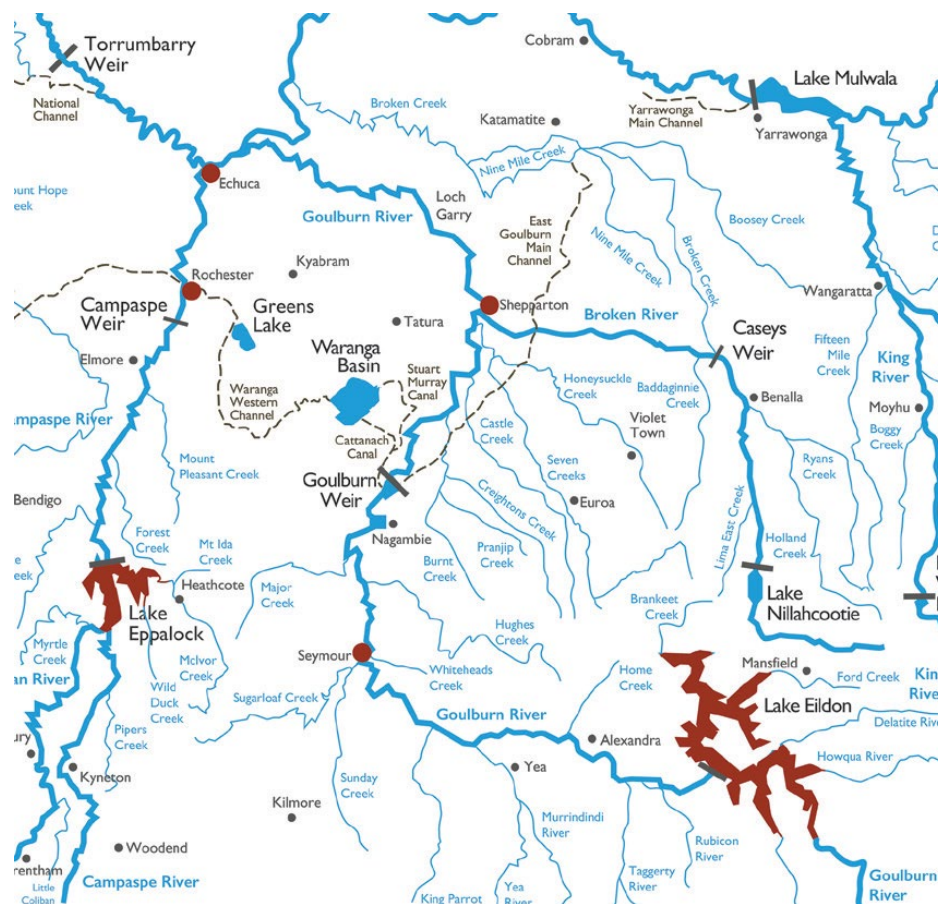


FIGURE 1. THE LOCATION OF LAKE EILDON AND LAKE EPPALOCK AND THE TOWNS AND CITIES THAT EXPERIENCED SEVERE FLOODING (Legislative Council Environment and Planning Committee, 2024)

**Shepparton** is also located on Yorta Yorta Country along the Goulburn River. The Goulburn River is one of the largest and most regulated tributaries of the River Murray, with the Goulburn-Broken River region receiving high annual rainfall and snow melt. Shepparton is a large regional town with a population of some 137,618 people, of which 3.3% identify as Aboriginal and/or Torres Strait Islander. Shepparton hosts a significant CALD population, with 17.9% of residents having parents born overseas (ABS, 2021). The median personal weekly income is \$679, which is significantly less than the state and national average (of \$803 and \$805, respectively).

Berri, Blanchetown, Mannum and Mypolonga in SA form part of the Lower Murray region and experienced slow-onset and slow-retreat flooding in 2022-2023 due to the floodwaters from the heavy rainfall upstream. Because of the richness and availability of resources throughout the region, there are multiple and overlapping Traditional Owner groups. This high concentration of Traditional Owners groups has chosen to pursue recognition through native title as an Indigenous sociality. As such the River Murray and Mallee Aboriginal Corporation are the recognised Prescribed Body Corporate and hold the rights and interests of Traditional Owners in trust and administer those rights on behalf of the group.

The flood was the largest flood recorded in SA since 1956 and posed particular challenges due to the long lead time, with the extended period of anticipation causing some anxiety in the community and the long period of inundation, which caused significant disruption and delayed the process of recovery. The regions affected by the floods were already experiencing economic challenges due to the rising cost of living, shocks to local industries (tourism, agriculture) and complex challenges due to an aging population, declining council-rates base and rising infrastructure maintenance costs (Legislative Council of South Australia, 2024). Berri Barmera, Mid Murray and Murray Bridge LGAs



were already experiencing some measure of relative socio-economic disadvantage prior to the floods, as captured in the ABS's Index of Relative Socio-economic Disadvantage with each LGA attaining scores in the second decile of 907, 914 and 891, respectively (ABS, 2023).

**Berri Barmera** is part of the Country of the River Murray and Mallee people, whose Native Title rights and interests were recognised by the Federal Court in 2011. The town of Berri forms the central hub for most of the region's social services and government offices, with the Riverlands' flood recovery coordinated from Berri. Prior to the flood event, the council constructed 14 kms of public urban levee banks to protect the communities of Cobdogla, Barmera and Berri and closed the connection between Lake Bonney and the River Murray (Legislative Council of South Australia, 2024, p. 319). Despite only 48 properties being inundated, the community was deeply impacted by the social, economic and physical consequences of the event which have continued long after the waters receded (Legislative Council of South Australia 2024, p. 319-323). The Murray and Mallee Aboriginal Corporation plays a key role in the shared responsibility of caring for Lake Bonney and other culturally significant sites along the river system. Despite their critical role, they received no additional resources for the emergency response. There are ongoing and unresolved issues concerning the impact of closing Lake Bonney for flood mitigation purposes on the numerous sites of cultural significance for River Murray and Mallee people around Lake Bonney (Legislative Council of South Australia 2024). The region was slowly recovering from the economic impacts of COVID, that particularly affected tourism businesses, when the flood occurred and has since been grappling with additional challenges like fruit fly outbreaks, cost-of-living increases and housing shortages (Legislative Council of South Australia 2024, p. 319-320). Like the neighbouring Mid Murray Council, Berri Barmera saw significant infrastructure damage, including to roads and wastewater systems (Legislative Council of South Australia 2024, p. 319). The extended closure of key roads due to inundation and flood impacts (e.g., Bookpurnong Road) increased costs for some businesses and individuals and further compounded isolation for parts of the community (Legislative Council of South Australia 2024, p. 324). The personal median weekly income in Berri Barmera LGA is \$637 which is significantly less than the state (\$734) and national median weekly income (\$805). Some 5.1% of the population of Berri Barmera identify as Aboriginal and/or Torres Strait Islander, which is higher than the state and national averages (of 2.4% and 3.2%, respectively).

**Blanchetown** is a small town located on the Country of the Ngayawang people of the Meru language group, which forms part of the Lower Riverland Nations. The first lock on the River Murray ('Lock 1') was constructed at Blanchetown in 1922. Blanchetown is on a large bend of the Murray River with the easterly bank made up of dramatic sandstone cliffs and the flats on the westerly bank occupied by numerous dwellings known as shacks. The town experienced severe inundation, taking many weeks before floodwaters receded. Blanchetown and Mannum fall within the Mid Murray Council area, which was one of the most severely affected council areas with some 2,310 residential properties inundated (Parliament of South Australia, 2024). The latest census data indicates Blanchetown has a population of 305 people, although it has likely declined since the census. Blanchetown has an ageing population captured in its higher median age of 58 years compared with the state (41 years) or nation (38 years) (ABS, 2021). The median weekly income in Blanchetown is \$504 which is significantly less than the state (\$734) and national median weekly income (\$805). Some 4.3% of the population of Blanchetown identify as Aboriginal and/or Torres Strait Islander. Blanchetown has a unique history and socio-economic profile due to the presence of a large number of shacks on the flats of the western bank of the river. Shacks have historically been fairly rudimentary, temporary dwellings located on leased land beside the river. Culturally, the shacks have provided cheap housing or holiday accommodation for people wishing to be located beside the river or escape city life. Overtime, a number of shacks have been renovated to resemble more conventional dwellings and have become more permanent places of residence, however, their proximity to the river means they are highly exposed to flood risk. Blanchetown was significantly impacted by floods, with many buildings, especially shacks, damaged or destroyed due to inundation. Other infrastructure, including boat ramps, roads, bridges, electricity and sewerage services, caravan parks and other local businesses were also seriously impacted. The slow-onset nature of the event meant that there was a long period whereby people were able to prepare.

**Mannum** is located on the Country of the Ngarrindjeri people, whose land stretches all the way to the mouth of the River Murray at the Coorong. The flood peaked at Mannum at 3.29 meters on 7th of January 2023 (Denman, 2024;



Department for Environment and Water, 2023). The river level in Mannum topped out at about 2.5 meters higher than normal (ABC NEWS, 2023). In Mannum, a 5 km temporary levee was constructed to protect council assets and businesses (National Emergency Management Agency, 2023). The latest census data indicates Mannum has a population of 6,594 people. As with Blanchetown, Mannum has an ageing population as captured in its higher median age of 55 years compared with the state (41 years) or nation (38 years) (ABS, 2021). The median weekly income in Mannum is relatively low at \$505 compared to that of the state of SA (\$734) and national median weekly income (\$805). Some 2.5% of the population of Mannum identify as Aboriginal and/or Torres Strait Islander.

**Mypolonga** is a rural town on the western side of the lower Murray River on the Country of the Ngarrindjeri people. Mypolonga is located in Murray Bridge Council. The flood peak passed Mypolonga between 7th and 9th of January, with an emergency flood levee urgently constructed to protect parts of the town, including the school. The latest census data indicates Mypolonga has a population of 506 people. The median weekly income in Mypolonga is relatively low at \$642, compared to that of the state (\$734) and national median weekly income (\$805). Some 1.8% of the population of Mypolonga identify as Aboriginal and/or Torres Strait Islander.

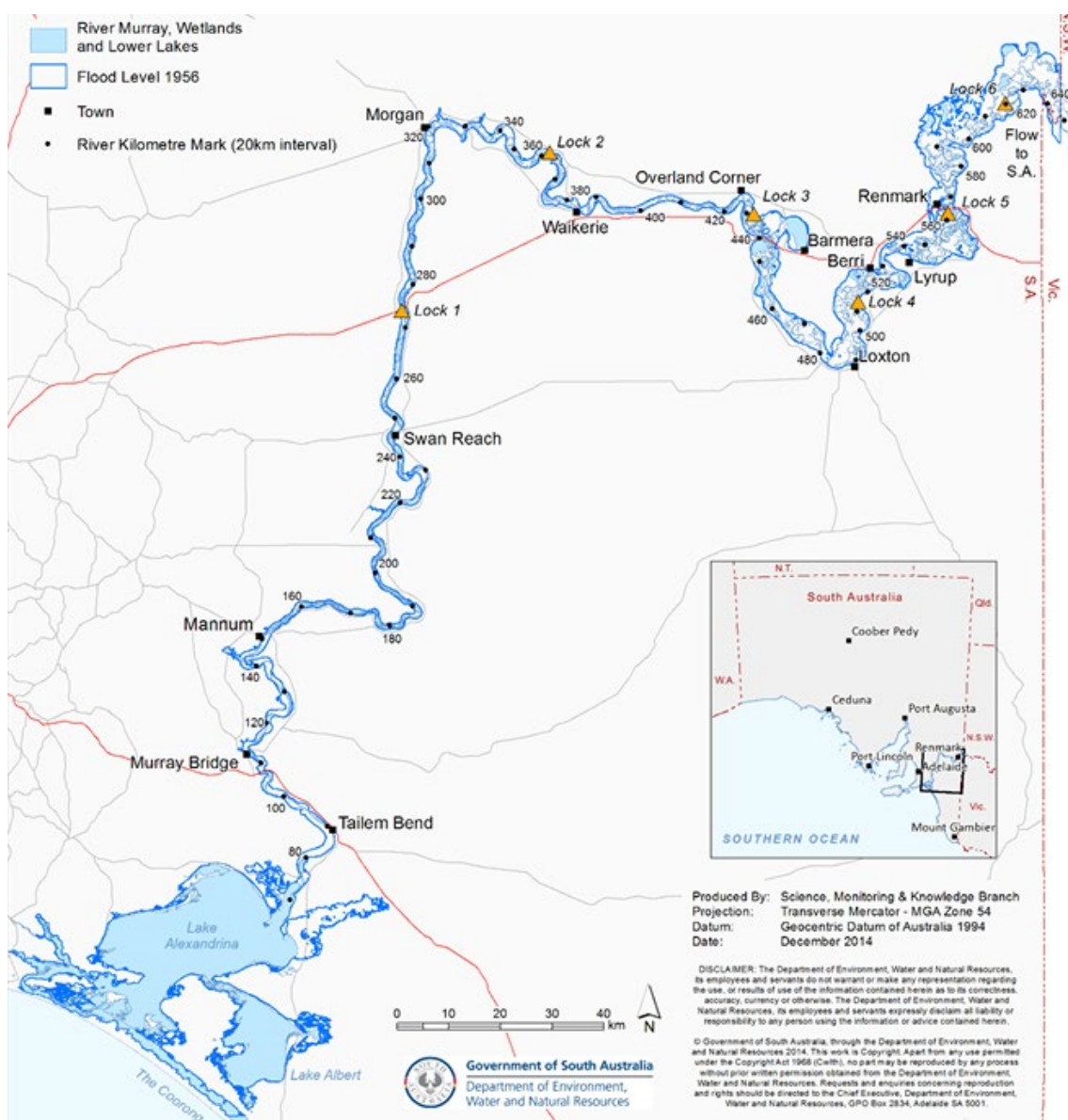


FIGURE 2. THE MURRAY RIVER IN SOUTH AUSTRALIA AND THE TOWNS THAT EXPERIENCED FLOODING (Department of Environment Water and Natural Resources, 2015)



## Findings from the Work Packages

In this section of the report, findings from each work package will be provided as summaries. Following these summaries, later sections of the report will delve into cross-cutting research themes across multiple work packages, followed by a list of research-based implications.

### WP 1: Survey findings

A total of 452 flood-impacted residents participated in the survey (between March-September 2024), of which 55.3% of respondents (n=250) experienced the flood/s in Victoria, 27.9% (n=126) in SA and 16.8% (n=76) in south-western NSW. Regarding the geographic distribution of the sample, within the Victorian subsample there is a concentration of respondents from Greater Shepparton (n =51) and Campaspe (n=86), within the SA sample from Mid Murray (n=26) and Loxton Waikerie (n=18) and within the NSW subsample there is a concentration of respondents from Edward River (n=8) and Federation (n=8).

In terms of the demographic profile of the sample, the total sample comprised 68.1% female, 30.1% male respondents and 0.4% identified as non-binary. The age profile of the sample was slightly skewed towards older age groups with 35.1% of the sample aged 18-44; 38.0% aged 45-64; and 26.9% aged 65 or older. For 62.5% of respondents, their property was their primary residence, for 4.1% it was their business and for 18.4% it was their home and business. It is worth noting that a number of the properties affected by the floods in SA were 'shack' or holiday homes. More than half (53.7%) reported that their property was a house or unit on a residential block, 16.7% were hobby farms/small acreages and 14.6% were large farm properties. The majority (80.8%) were owned/mortgaged and 15.4% were rented. More than half (66.5%) were single storey and 18.0% were double or multi storey. There are no significant demographic differences between the Victoria, SA and NSW subsamples and there were no significant differences in previous experience with flooding at the property/location or preparedness across states.

Key differences in the sample by state include: respondents in SA had more time to take action than respondents in other states, due to the slow-onset nature of the floods; NSW respondents were significantly less likely to have flood insurance for their house/building than respondents in other states; and Victoria respondents reported more severe flood impacts than respondents in other states, most likely due to the rapid-onset nature of the floods in Victoria. Overall, just over half of all respondents had not been flooded previously.

In terms of preparedness, over half of respondents felt that they had done 'everything' they could do or 'a lot' to prepare for the floods, with higher levels of perceived preparedness reported by SA respondents, those who had prior experience of flooding and those who had more time available to prepare. For those who reported lower levels of perceived preparedness, the top reasons reported as to why they felt unable to fully prepare was conflicting advice (from various sources), early information underestimating the level of flooding and caregiving responsibilities.

In terms of information and warnings, the highest percentage of respondents reported that they first found out about the flooding via radio or television. Regarding people's reported levels of trust in different sources of information for understanding the likely extent and location of flooding, official sources of information particularly 'Frontline emergency services', 'ABC radio' and 'local SES volunteers' were rated highly, yet the most trusted source was the category 'Friends, family, or neighbours'. Regarding the sources people received official SES warnings from, respondents reported that online sources (such as emergency service website/apps/social media) and SMS (text message) were the most effective methods of receiving warnings. Respondents reported that the main difficulty they encountered accessing warnings and information, was disruption due to electricity outage/loss. In the future, people expressed a preference to receive information and warnings via SMS.

People who were at their properties during the floods were asked about the decision to either stay or leave/evacuate. Just under half of respondents stayed at their property, with 44% leaving prior to the floods. Of those who stayed, a



quarter suffered serious damage or complete destruction of their properties. A majority (78.8%) of those who stayed indicated that it was always their intention to stay. The most common problems they reported while sheltering in place were the loss of vital services such as electricity (48.4%), water (36.7%), sewerage (39.8%) and communications (29.7%).

Regarding housing modifications, reconstruction and adaptation, people were asked about what modifications they had made to their properties *prior* to the floods to reduce potential flood damage. Considering nearly half of respondents had previously experienced floods at their property, it is unsurprising that many had made prior modifications, with nearly 40% living in houses that had been raised; other commonly mentioned modifications included raised power points, raised A/C units and tiled or cement floors. Other flood prevention strategies commonly mentioned by respondents included levees, blocks/walls and planting for ground stabilisation.

On the topic of recovery and reconstruction, just under half of respondents experienced flood damage at their homes. Among those respondents, one in four indicated that, at the time of data collection—on average more than a year and a half after the floods—their homes had still not been repaired to a fully functional, secure and safe condition. Many of these respondents expected that it would take many more months before they could return to live in their home. Recovery-related fatigue and negative health and wellbeing impacts were reported with many people trying to rebuild reporting numerous health, bureaucratic, financial and supplier related challenges with their recovery.

A large proportion of people, some 72% of those surveyed, perceive the likelihood of future flooding to be extremely or somewhat likely, with many planning to make some modifications to their properties to reduce future flood risk. The main post-flood structural modifications that people indicated included replacing carpeted areas with tiles or cement floors, raising power points and using water-resistant building materials in order to reduce future flood impacts. People were also asked about their plans for the future, with over half of respondents indicating that they plan to stay and repair their properties and a smaller proportion (just 15%) wishing to leave.

Regarding people's level of satisfaction with sources of support from a range of formal and informal sources, what is apparent is the importance of support provided by family, friends and neighbours as well as the local community and community groups, with family, friends and neighbours rated very highly in terms of level of satisfaction. Among the formal organisations providing support, recovery centres, community groups/charities and the Red Cross received the highest rating of satisfaction.

Considering the devastating consequences of the floods across the three states, one positive outcome has been that generally people (close to half of respondents) felt that the experience of the floods had made their community closer and more cohesive, with a large proportion of people also feeling more connected to their community. These feelings were particularly pronounced amongst those who had recently participated in community groups as well as young people. In conclusion, the survey documents the significant impacts people experienced across the three states and the challenges people face with their recovery. However, feelings of community cohesion and connection and satisfaction with community support remain strong.

## WP 2: Aboriginal communities' experiences of the floods

WP2 was carried out by researchers from the National Indigenous Disaster Resilience program at Monash University. The research team was led by Dr Bhiemie Williamson and included non-Indigenous researchers Nell Reidy and Dr Emma McNicol. Despite coming from diverse academic backgrounds, all researchers are trained and experienced in designing and conducting qualitative research, which was the primary method used. Notably, all researchers are trained in trauma-informed approaches and are committed to sensitive, safe and restorative research with Indigenous people.



While many of the findings from WP2 align with those from WP1 and WP3, there were several significant issues that arose in WP2 that reflect the unique impacts of the 2022-2023 floods on Indigenous people. These are discussed below.

## Conceptualising the ‘disaster’

Many of the Traditional Owners who participated in WP2 did not focus on the flood itself as the disaster. For these participants, the flood event accentuated the ongoing challenges of colonisation, specifically the conflict between Indigenous ways of engaging with the river system and state enforced management of the river system. Approximately half the participants engaged in WP2 explicitly placed the flood event in the context of a long history of intervention in the river system for the purposes of agriculture and industry, referring to the disastrous impacts that the modification of the river system, through locks and weirs and the like, has had on the natural flow of the river and its ability to support the surrounding biodiversity. In this context, the human intervention in the natural flow of the river system was discussed as an ongoing disaster, rather than seeing the flood event itself as a disaster. On the contrary, many Indigenous people placed a high value on the environmental impacts of the flood. Some celebrated the flood for its beneficial impacts on Country, *“We enjoyed it. We watched it come, we watched it here and we watched it go”* (WP2.A3). Traditional Owners acknowledged and placed a strong emphasis on the biodiversity benefits the floods had on native fish and bird species.

One Traditional Owner also discussed the power dynamic between land management and emergency agencies and Traditional Owners, whereby the former were able to restrict or permit access to Country: *“They quarantined it off and then they come in with their big badges and uniforms like, ‘we know best’”* (WP2.A1). This participant also discussed the way that these agencies defined the public narrative of the flood:

*“They tried to control it from the start but all they were doing was reacting. They had no control over this natural phenomenon but they got control of the narrative. They recorded it the way they wanted and there’s nothing from our perspectives on the public record around the floods.”* (WP2.A1)

## Impacts on cultural heritage

Also viewed as more disastrous than the flood event itself was some of the preparedness and response activities by emergency services and private land holders that destroyed and displaced significant cultural heritage, particularly the erection of levees to protect property and assets along the river. Given the plentiful resources offered by rivers and waterways, they have been densely populated areas for millennia, resulting in a heavy concentration of significant cultural heritage and ancestral remains in and along riverbanks. Traditional Owners who participated in WP2 reported a widespread disregard for cultural heritage during and after emergency erection of levees, *“they were cutting levees through paddocks and on the edges of forests and that’s where cultural heritage was impacted. It was just a free for all... cultural heritage is just seen as secondary”* (WP2.D1).

In Victoria, Section 32 of the *Victoria State Emergency Service Act 2005* (VICSES Act) authorises SES members, as well as “a person who voluntarily places the person’s services at the disposal of the Chief Officer, Operations and is directed by a Service member, either individually or as a member of any agency” to “construct, remove or alter a levee”. There is no legal obligation for SES members to engage with Traditional Owners in relation to these works, either under the VICSES Act or the *Victorian Aboriginal Heritage Act 2006* (Heritage Act) and while the use of this power has a qualified exception to aspect of the Heritage Act, including the requirement for a Cultural Heritage Management Plan (CHMP), VICSES has acknowledged the potential for cultural harm associated with levee works. The 2022 floods were the first widespread riverine major flooding event since the introduction of this power and VICSES have since completed a review of the power’s application in this flood event, which identified the need to strengthen procedures and processes for Traditional Owner engagement in future floods. Traditional Owners who engaged in WP2 advocated for



greater consideration for and protection of cultural heritage before, during and after a disaster. One Traditional Owner groups explained:

*“It almost became an open invitation to landholders to disturb Country, to put fortification or embankments around their assets. They didn’t need permits or cultural heritage management plans to do this because there was an impending disaster coming. Not one First Nations group was engaged to do a CHMP over any of these works” (WP2.B1)*

*“If they knew the flood was coming two weeks prior to that flood, they should have been putting precautionary things [like CHMPs] in place to make it less destructive” (WP2.B3)*

While Traditional Owners expressed greatest concern for the impacts on cultural heritage of levee banks, they also discussed the impact that the sheer volume and speed of the water passing through the Murray River had on scar trees and other significant cultural heritage, with one group reporting:

*“A lot of cultural heritage in regards to scar trees, middens and bits and pieces long the banks. And with all that water flow and the movement of water, it scoured sections of river and we’re still feeling the impacts today... it’s nearly eroded some cultural heritage sites that are on the [Victorian Aboriginal Cultural Heritage Register] to the stage where we can’t find them no more” (WP2.D1)*

In SA, Aboriginal rangers highlighted areas where prolonged drought was caused by water mismanagement through diverting water flows from wetlands. In these areas, cultural heritage had been exposed through desertification and erosion. This latent threat to cultural heritage was then exacerbated by the floods which caused widespread and rapid erosion of these heritage sites.

## The critical role of Aboriginal Community Controlled Organisations

Aboriginal Community Controlled Organisations (ACCOs), including health services played a critical role in supporting community members before, during and after the floods with many Indigenous community members holding a greater degree of trust in these organisations than in traditional emergency management agencies. These organisations were quick to mobilise to support community members despite one such organisation reporting not being included in any coordinated preparedness meetings or activities. One large ACCO in Shepparton activated six backup phone lines, while Telstra was unsuccessfully attempting to provide phones for people who had been cut off: *“I had the phones up and going in less than an hour... he goes, ‘how’d you do that?’ I said, ‘oh, if you want anything, just ask us” (WP2.C3)*. The organisation’s ability to set up instant communications meant that they could begin supporting Elders and others in need immediately. They coordinated food drops as well as prescriptions and medical support for people who were evacuated, cut off or otherwise unable to leave their homes. Once floodwaters began to subside, they established a drop-in centre with staff supporting residents to make calls to Services Australia to claim relief payments: *“[by] the time they got off the phone, the money would be in their account... so that was a significant help for us to have them doing that. It was culturally appropriate and I think that was a really big positive” (WP2.C4)*. In addition to supporting Indigenous community members to access state and federal flood recovery support, this organisation also provided financial support directly to Indigenous community members whose homes had been impacted, for instance, one participant was supported to buy a fridge. In Mildura, an Indigenous not-for-profit company supported Aboriginal children and youth through providing support, delivering programs and advocating for young people throughout the prolonged period of flooding. This organisation was critical to provide Aboriginal children and young people with important information regarding safety (such as not swimming in flood waters) as well as provide psycho-social support to Aboriginal children and young people.



## Caring for Country as disaster resilience

Participants from Traditional Owner organisations also detailed their involvement in the flood event, which, while significant, was accompanied by frustration that they weren't supported to be more involved: *"Rangers are out there as first responders, but they're not funded or supported to do that. They do it because it's their community and they do that"* (WP2.B1). All of the ACCOs and Traditional Owner Corporations which participated in WP2 expressed a desire to be more involved in preparedness activities, recognising that this would mitigate the impacts of natural hazards: *"I think having Traditional Owners trained up in every area where a flood's going to occur and having them prepared... [these] things would make it less destructive"* (WP2.B2). Traditional Owners also viewed disaster resilience as a whole of Country issue, with one organisation explaining the importance of cultural burning not only in relation to bushfires but also in preparation for floods to reduce the leaf litter that contributes to the formation of silt in the river system, but also to support the natural regeneration after a flood.: *"If we would've done a cultural burn prior to the flood coming through, we would have all new natural regeneration"* (WP2.B2). Accordingly, the work of rangers and other organisations in Caring for Country was squarely positioned as building social, cultural and environmental resilience.

In SA, Aboriginal rangers highlighted other areas where they had been supported to conduct cultural heritage restoration through erosion control and biodiversity enhancement. Because of this work pre-flood, the extensive watering from the flooding was resulting in a biodiversity boom, with various native grasses such as Emu Bush, resprouting along riparian areas. In this way, Caring for Country work intersects with the flooding to enhance biodiversity, reproduce culturally significant resources and repair, reinforce and protect heritage sites.

## WP 3: Experiences of communities impacted by slow-onset and rapid-onset floods and CALD communities

This section presents the findings of Work Package 3 (WP3) of the project, organised into four main sections including rapid-onset flooding experiences, slow-onset flooding experiences, CALD communities' experiences and stakeholders' perspectives.

### Rapid-onset flooding experiences in Victoria

The rapid-onset flooding case studies focused on Rochester and Echuca in Victoria, where communities experienced severe flooding that developed over a short period of time (i.e., days). Residents accessed critical information through a range of official sources and channels, including community meetings, state and local SES Facebook pages, the VicEmergency app, the Emergency Alert system, local government social media platforms and direct doorknocking by emergency personnel. However, despite these efforts, many residents still struggled to find timely and relevant information and official communication was frequently described as unclear, with residents noting a lack of specific details, leaving them feeling unprepared and eroding their trust in official sources. In turn, many residents turned to community-led platforms, such as the local community (e.g., Rochester) Facebook page that acted as a 'one-stop shop' of information from a variety of sources, including SES and Bureau of Meteorology updates, rainfall totals and river volumes and flows to explain potential local risks and live streams of community meetings. These pages were perceived as accurate and updated regularly. While these platforms filled a critical gap, concerns about the reliability and accuracy of the information shared persisted.

Risk perception and response were significantly impacted by the rapid nature of the floods and the issues with flood communication. Many residents underestimated the severity of the event due to initial communication that downplayed the risk and the frequent changes in water level predictions. Past experiences, particularly the 2011 floods, also influenced residents' perceptions of the flood's severity. Many believed that the 2022 flood would not surpass the 2011 levels, leading to a false sense of security. This misjudgement led to delayed evacuations and inadequate preparation, exacerbating the challenges of emergency response. The sudden onset of flooding, especially



for those not expecting to be affected, left little time for residents to protect their properties or evacuate safely, placing immense pressure on both locals and emergency services. In some cases, residents were forced to rely on civilian rescues, with neighbours and local volunteers using personal boats, tractors and other equipment to assist those trapped by floodwaters.

The physical impacts of the flooding in these case study locations were severe, with widespread damage to homes, infrastructure and agricultural land. Due to this devastation, many residents were unable to return to their homes for extended periods. At the time of the interviews, many remained displaced, living in temporary accommodations. The mental and physical toll of this prolonged displacement was a recurring theme, with some residents forced to relocate multiple times, leaving them struggling to regain a sense of normalcy in their disrupted lives.

Recovery efforts in Rochester and Echuca were reportedly hampered by delays in insurance payouts, poor-quality rebuilds and a lack of adequate support from government and local services. The insurance process was perceived as stressful and confusing, with many residents describing it as a “nightmare”. Respondents reported that poor communication, delays and inadequate support from insurers added to the burden, leaving them feeling frustrated and overwhelmed. In addition to insurance challenges, many residents faced poor-quality work by tradespeople during the rebuild process. Some tradespeople were described as unqualified and taking advantages of the situation, leading to substandard work that caused ongoing issues long after the rebuild was supposedly complete. Residents often had to oversee the rebuilds themselves to ensure quality, adding to their stress and emotional strain.

The emotional toll of the flood extended beyond the immediate trauma, with many residents experiencing survivor guilt. Those who were able to return to their homes or complete their rebuilds often felt guilty about their relatively better circumstances compared to neighbours who were still displaced or struggling. This guilt was compounded by grief over the loss of homes, community spaces and a sense of normalcy.

The residents’ frustration with the lack of government action to mitigate future flood risk, particularly regarding water level management at Lake Eppalock, was a recurring theme. While some residents made minor property adaptations such as raising electrical power points, significant changes remained unaffordable for most. Many residents expressed concerns about the future of their community, with some fearing that repeated flooding could turn their town into a “ghost town”. Despite these challenges, residents demonstrated resilience and a strong sense of community, with many planning to evacuate earlier and prepare more thoroughly in the event of future floods.

## Slow-onset flooding experiences in SA

The slow-onset flooding case studies focused on Mannum, Mypolonga, Berri and Blanchetown in SA, where communities experienced gradual rises in water levels over an extended period (i.e., of months). Unlike rapid-onset flooding, residents in these areas had more time to prepare, but the prolonged uncertainty of the flood’s impacts created significant anxiety and stress. Many described the anticipation of flooding as more traumatic than the event itself, highlighting the mental toll of slow-onset disasters.

As observed in the Victorian case studies, SA residents accessed flood-related information through multiple official sources and channels, including community meetings, the SASES Facebook page, SES newsletters, doorknocking initiatives, the Emergency Alert telephone messaging system, weekly updates from the Department for Environment and Water (DEW), SA Power notifications and local council updates. However, significant communication challenges emerged across these communities. Residents struggled to interpret technical flood data, such as water volume measurements and expressed a need for more practical information, such as water height, to assess risks effectively. Official communication strategies were often perceived as not inclusive and less accessible to farmers, older residents and those without access to technology. As a result, trust in official channels waned and many residents increasingly turned to informal networks, such as friends, family and community groups for real-time updates. Older residents, who often felt excluded from digital communication, relied heavily on word-of-mouth and community meetings, though these were not always accessible or timely. Residents also took the initiative to seek out and interpret flood



data themselves, though concern persisted about whether they possessed the necessary skills to analyse this technical information accurately while shouldering the burden of acquiring essential flood-related information.

Risk perception and preparedness were significantly influenced by the slow-onset nature of the floods, inconsistent official communication and prolonged uncertainty about the severity and timing of the flood. Residents experienced significant anxiety due to what they felt were conflicting flood predictions, technical data that was difficult to interpret and a lack of clear, actionable advice from official bodies. The slow progression of the flood created a perception of reduced urgency, with some residents delaying preparedness efforts until it was too late.

In response to flood risks, however, many residents took proactive measures to protect their properties, such as reinforcing levees, sandbagging, moving belongings to higher ground and relocating livestock. In comparison with the rapid-onset flooding locations, residents in SA locations had many weeks to prepare and in turn, used much of this time to engage in time-intensive mitigation efforts, like building extensive sandbag walls around homes and moving entire house contents to higher ground. However, the scale of the flooding often rendered some measures futile, with sandbagging walls failing and levees being overtopped. The physical and mental toll of these preparations was substantial, with many residents describing the process as exhausting.

The physical impacts of slow-onset flooding were widespread, with prolonged inundation causing significant damage to homes, infrastructure and agricultural land. Levees, intended to protect communities, often failed or were overtopped, exacerbating the damage. Tourism and local businesses were severely impacted, with many forced to close for extended periods. Despite these challenges, some positive outcomes emerged, such as strengthened community bonds and enhanced natural beauty in water-transformed landscapes. The flood also led to the return of native wildlife, including birds and fish, which revitalised the local system and provided a sense of renewal for some residents.

Recovery from slow-onset flooding was a prolonged and exhausting process for residents. Many residents reported delays in damage assessment and resource allocation, leaving them in a state of uncertainty. Increases in insurance premiums post-flood made coverage unaffordable for some, leaving them vulnerable to future floods. Farmers identified particular challenges with floodwater impacting crops and livestock. The financial and emotional burden of the recovery affected all residents. While government programs provided targeted support, many residents reported feeling underserved given the scale of the need, leading to significant reliance on grassroots initiatives.

Looking to the future, residents in slow-onset flooding areas expressed a desire to evacuate earlier and prepare more thoroughly in the event of future floods. Some planned to hire shipping containers to store belongings, avoiding the perceived ineffectiveness of sandbagging. However, financial constraints and a shortage of tradespeople limited significant property adaptations.

Similar to the Victoria case studies, frustration with perceived government inaction was a recurring theme, particularly regarding levee maintenance and repairs. Despite these challenges, residents emphasised the importance of self-reliance, community support and understanding flood risks for future preparedness.

## CALD communities' experiences

The experience of CALD communities in Shepparton, Victoria, highlighted unique challenges in accessing flood-related information and support. Limited English proficiency and the lack of *in language* communication created barriers for many CALD residents in accessing timely information during the 2022 floods. Misunderstanding of term 'flood' - such as associating it with sudden, catastrophic events like tsunamis caused significant distress and confusion. This communication gap led to widespread misperception of the threat, resulting in inadequate preparedness and heightened vulnerability during the floods. Preparedness actions among this case study community involved packing important documents and essentials. Sandbagging was rare, however, with only a few participants in the case study sample able to access sandbags and the availability of sandbags in general was perceived as limited.



To overcome these barriers, CALD communities developed innovative strategies, such as using WhatsApp groups and social media to share real-time updates in their native languages. Cultural hubs became central points for information dissemination, with agencies like the police and local government providing updates in these spaces. Children played a crucial role as interpreters, using digital tools like the VicEmergency app to keep their families informed. This intergenerational involvement was vital in bridging language and digital literacy gaps.

Residents in the CALD community case study perceived evacuations centres, such as the Shepparton Showgrounds, as overcrowded and lacking culturally appropriate amenities. Residents noted that separate facilities for men and women, including sleeping arrangements, toilets and areas for cleansing rituals were unavailable, which was particularly problematic for Muslim families. Additionally, Halal food options were perceived as insufficient or inconsistently provided. As a result, some families sought refuge with friends or booked hotels for privacy and comfort, while others stayed behind because their homes were not affected, their limited social networks, or the inability to evacuate in time. Those who stayed in affected areas experienced significant stress, with families taking shifts to stay awake and monitor the rising water levels.

Recovery support for this CALD community in Victoria was reportedly minimal, with most assistance limited to small payouts or vouchers from charities. Many CALD residents struggled with insurance claims, receiving insufficient payouts or inadequate repairs, with flood-damaged homes left with mould and/or structural issues. As a result, poor health during recovery was also a significant issue. The recovery process was particularly challenging for those who had to evacuate, as they experienced instability, moving frequently between various accommodations, such as friends' homes and caravan parks, over several months. Residents explained that in some cases, their children developed rashes while adults reported worsening chronic conditions from the mould and cleanup efforts. The lack of culturally appropriate support further hindered effective recovery for CALD communities, who questioned the use of recovery funds by local authorities. Instead of providing more practical alternatives like first aid training or emergency supplies, one community champion described poorly attended cultural events and festivals that didn't address immediate needs. The lack of consultation about recovery priorities left many CALD communities feeling their recovery needs were not fully addressed during the recovery process.

Looking to the future, many community members in this case study have become more anxious about the possibility of future flooding; expressing uncertainty or hope that it will not happen again. However, their anxiety has consistently increased during rain events, due to fears of a repeat of the 2022 flood.

## Stakeholders' perspectives

Stakeholders from emergency response agencies, local councils and recovery organisations offered valuable insights into the challenges and successes of managing the 2022-2023 floods. Their perspectives showed that while there were significant efforts made to support communities, there were also systematic issues that hindered both immediate response and longer-term recovery efforts. Across SA and Victoria, common themes included difficulties with communication, a shortage of resources, media misrepresentation and the immense strain on local councils and their staff.

Communication emerged as a double-edged sword during the floods. In SA, stakeholders described the rapidly changing flood modelling as confusing and unreliable, making it difficult to plan an effective response. Some councils found success in supplementing traditional communication methods such as social media and public meetings with the grapevine strategy, i.e., disseminating information through trusted community groups. However, misinformation from larger media outlets created problems and stakeholders called for a 'media code of conduct' to prevent the emotional harm caused by insensitive or sensationalist reporting. There was a strong view that better, more consistent communication could have reduced confusion and distress during a critical time.

Another concern was the lack of personnel and funding, which strained emergency response and recovery efforts. In Victoria, the SES' limited capacity forced firefighters and civilians to conduct rescues without proper training or equipment, particularly in high-risk areas like Rochester. Local councils in both states struggled with redirected staff



and financial constraints, as recovery funding failed to recover the full cost of emergency operations. Many stakeholders emphasised that burnout and mental health impacts on staff were overlooked, leaving councils unable to meet community expectations for recovery and rebuilding.

Stakeholders also stressed that recovery timelines were vastly underestimated, with many residents still displaced over 18 months later. While funded recovery roles, such as Well-being Officers, were praised for their community support, short-term contracts hindered long-term planning and retention of skilled staff. Creative initiatives, like men's health events and group activities, provided vital emotional relief, but stakeholders argued for sustained funding to address the multi-year nature of disaster recovery.

To improve future flood responses, stakeholders proposed several measures: enhancing local flood rescue capabilities, developing multi-state flood plans for cross-border rivers and simplifying data-sharing between aid organisations. They also emphasised the need for better insurance policies that enable 'building back better' with flood-resistant features and include regular property inspections for floodplain locations, as well as improved pre-flood planning, particularly for slow-onset events, where advance notice could streamline evacuations and resource allocation. Above all, stakeholders called for greater investment in both immediate response and long-term recovery to reduce the burden on communities and frontline workers.



## Cross-cutting themes

This section of the report focuses on identifying key cross-cutting themes from the research across all three work packages. Eight key themes are identified, including information and communication issues and challenges; risk perception; slow vs rapid onset flooding; physical impacts of the floods; environmental impacts; the recovery process; the role of community in disaster preparedness, response and recovery; and a resilient future (i.e., the likelihood of flooding and the need for adaptation and mitigation).

### Information and communication issues/challenges

During the 2022-2023 floods, communities in Victoria, SA and NSW received information from a range of sources. According to the WP1 data presented in Figure 3, broadcast media, such as radio and television was the most common way that residents **first** found out about the floods, especially in SA (22.5%), compared to 15.5% in Victoria and 13.9% in NSW. Digital platforms also played key but varied roles across states: NSW residents also used the Bureau of Meteorology website (11.1%), while Victorians more commonly relied on official social media accounts like those of the SES or the Bureau of Meteorology (9.2%). SA also showed dependence on government sources such as the Department for Environment and Water’s River Murray Flow Reports (15.7%).

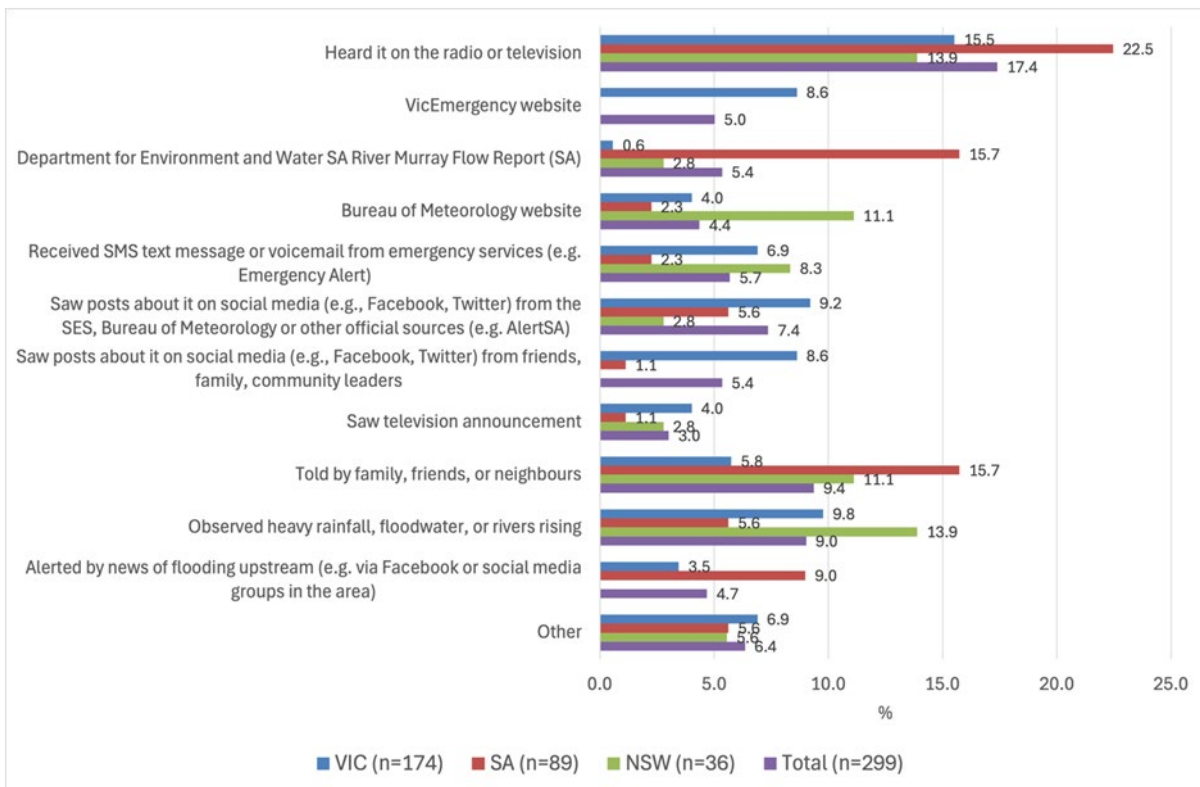


FIGURE 3. HOW RESIDENTS FIRST FOUND OUT THAT THEIR TOWN OR SUBURB WAS LIKELY TO EXPERIENCE FLOODING

Regional differences in initial information sources and channels reflected both environmental influences and local communication habits. SA’s slow-onset flooding event encouraged residents’ active monitoring of upstream conditions through social media groups (9.0%) and personal networks (15.7%), whereas Victoria’s more rapid inundation meant that residents relied more on environmental cues (9.8%) and the VicEmergency website (8.6%) for initial information. In contrast, NSW residents initially utilised the Bureau of Meteorology’s website (11.1%) and direct observations (13.9%) and showed the lowest use of official social media (2.8%) when compared with the other two states.



According to WP3 findings, additional information channels for communicating the flood risk and evacuation warnings in the lead-up to the floods also included town meetings and doorknocking initiatives led by emergency officials, as well as local council-disseminated newsletters, among other means.

Despite the presence of multiple information sources and communication channels, participants across WP1, WP2 and WP3 reported significant challenges in accessing flood-related information. These challenges were particularly evident in the perceived lack of accurate flood level predictions and practical and inclusive information, which left many communities feeling unprepared and unsupported and ultimately led to the loss of trust in official sources.

In WP2, which focused on Aboriginal communities, participants reported that communication with Aboriginal Community Controlled Organisations (ACCOs) and Traditional Owners was poor. As one participant noted, *“We were just left out. We never heard really from anyone”* (WP2.C2). In Victoria in particular, there was a notable lack of engagement from emergency management agencies in involving these groups in coordinated preparedness activities. This lack of engagement with Indigenous communities meant that individuals, communities and organisations did not receive consistent information either about the progress of the flood or the response efforts, resulting in a reliance on ACCOs and other community members for both information and support. This underscores a broader issue of perceived exclusion and inadequate outreach to Indigenous communities by official channels, as a participant noted: *“They dispossessed us of the flood. It’s out 1 in 150 year flood and they dispossessed us of it”* (WP2.A1).

Similar issues were reported by farmers in the SA case studies of WP3, specifically in the Mannum and Mypolonga case study, as a participant noted:

*“I said to mum, ‘There’s no point going to these meetings; because none of the information is relevant to us’. So we would go directly to the Department of Environment and Water.”* (WP3.B17)

Additionally, boat owners, older residents and people without access to technology were disproportionately affected by the lack of inclusive official communication strategies.

Another issue highlighted by findings from both WP1 and WP3 was the reportedly changing and inaccurate water level predictions, which impaired preparation and response capabilities for entire communities. FIGURE 4 from WP1 reveals that across all states, ‘early information underestimating the level of flooding’ was a common issue, with predictions falling short of reflecting the actual severity of the floods. This issue was particularly evident at the state level, where 59.7% of respondents in Victoria, 56.1% in NSW and 46.3% of those in SA reported receiving early flood forecasts that underestimated floodwater levels. Supporting these findings, participants in WP3 described how forecasts lacked accurate figures and were often inconsistent, making it difficult to plan effective responses. For instance, a participant from Rochester noted: *“we had meetings. They knew something was coming but we never actually got figures; and we talked ‘major”* (WP3.A10). The uncertainty about the severity of the flood not only delayed community responses but also caused high levels of trauma for residents.

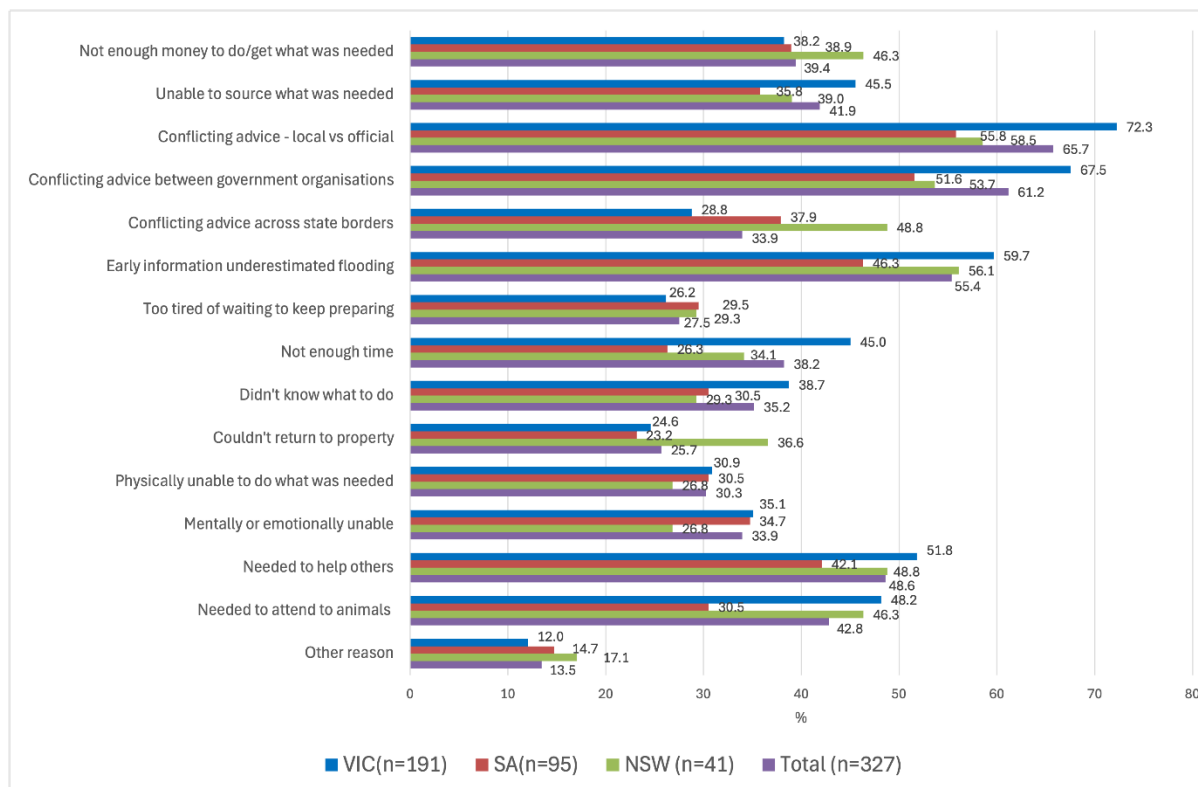


FIGURE 4. REASONS FOR REPORTING LOWER LEVELS OF PERCEIVED PREPAREDNESS (MULTIPLE RESPONSES PERMITTED)

Residents in the SA case studies struggled to interpret technical data such as water volume measurements. They expressed a clear need for practical information, specifically highlighting the need for water heights to assess flood risks. One participant explained:

*“So we will be given misleading - well, not misleading, but confusing information; because they were dealing in flows; we needed to know, ‘What does that mean in a height?’” (WP3.B17)*

In the rapid-onset flooding case studies, where hours could determine safety outcomes, residents criticised official channels for providing vague, delayed and a lack of locality-specific details, leaving residents feeling unprepared. The VicEmergency app, despite being a key information source for many residents, reportedly failed to meet community needs during the fast-moving flooding situations. Residents reported that updates lagged substantially behind real-world events and with localised details notably absent when they were most essential. A resident in Rochester noted that: *“VicEmergency was least two days behind with everything” (WP3.A2).*

FIGURE 5 from WP1 sheds further light on these issues (aggregated across the three states). While the majority of residents felt that the information they had about the flooding enabled them to understand that their property was *likely to be affected* by floodwater (61.8%) and by *when* (55.3%), almost 45% of respondents felt that the information did not provide clarity on the *likely height of floodwater* at their property.

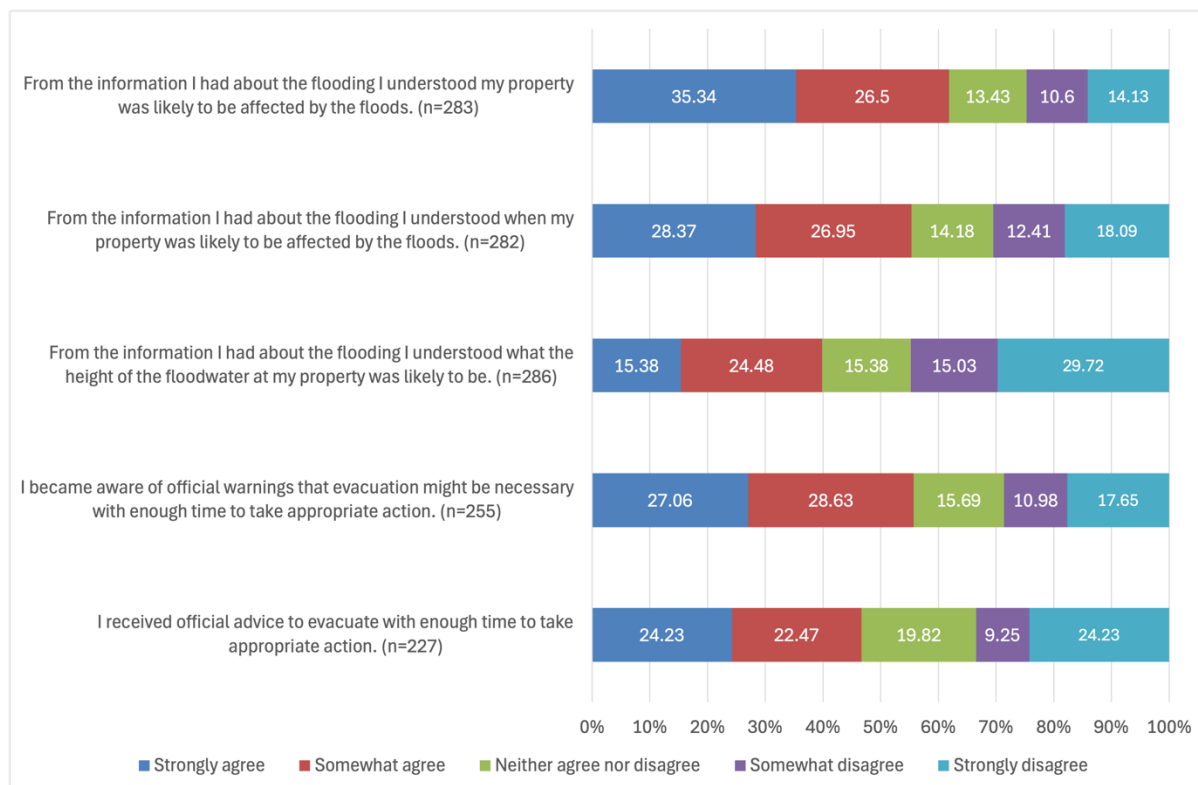


FIGURE 5. LEVEL OF AGREEMENT WITH STATEMENT ABOUT UNDERSTANDING AND USE OF INFORMATION AND WARNINGS

Figure 6 illustrates the level of trust in different sources for help in understanding the likely extent and location of flooding. For respondents from all three states, while official sources such as ABC Radio (43.0%) and the Bureau of Meteorology (39.7%) were relatively trusted, both were rated lower than friends, family, or neighbours (53.6%), which emerged as the most trusted source of information. Additionally, frontline emergency service personnel (43.9%) and local SES volunteers (42.6%) were also rated highly.

Over 40% of respondents also considered local sources of information, such as community meetings and local community-focused social media platforms (e.g., local Facebook groups), as trustworthy. In contrast, trust in some official sources was notably lower. For example, SES staff (State/HQ), other local radio and local community leaders received lower trust ratings. This finding aligns with WP3 research, where a Rochester participant explicitly stated: “the community lost trust in the SES... “Don’t trust them” (WP3.A3). The lowest levels of trust were reported for television, local council/elected representatives (e.g., Mayor, Councillors) and print media (newspapers).

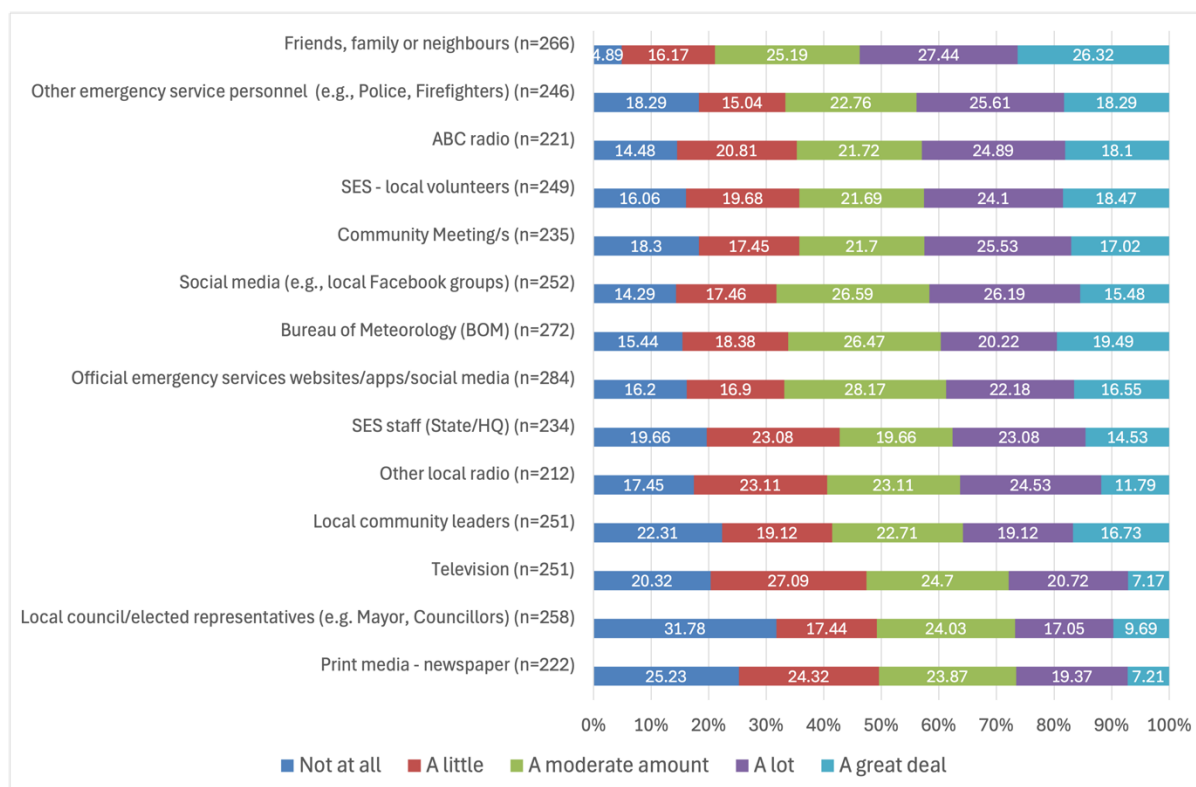


FIGURE 6. LEVEL OF TRUST IN DIFFERENT SOURCES FOR HELP IN UNDERSTANDING THE LIKELY EXTENT AND LOCATION OF FLOODING (N/A RESPONSES REMOVED)

## Risk perception

This section examines the factors contributing to lower risk perception during the floods, including the underestimation of flood levels, which created a false sense of security and delayed preparedness efforts. Shifting flood height predictions added to the confusion, leaving residents uncertain about how to respond. Additionally, language barriers and culturally insensitive communication hindered CALD communities from understanding flood risks and taking appropriate action. These issues were evident in all three work packages.

First, in Aboriginal communities (WP2), there was also an issue of underestimating the severity of the flood. Many participants referenced the 1974 flood, noting that few anticipated the 2022 flood would surpass those levels. As a result, communities were inadequately prepared for the unprecedented scale of the 2022 flood, which exceeded the 1974 benchmark.

## Underestimation of flood levels

In WP1, as shown in FIGURE 4, 55.4% of respondents across all states cited early underestimation of flood levels as a reason for their lack of action, with Victoria showing the highest impact (59.7%), followed by NSW (56.1%) and SA (46.3%). This underestimation led to a false sense of security, with many residents failing to take necessary precautions until it was too late. WP3 case studies further reinforced this issue, particularly in Victoria, where early predictions resulted in authorities establishing ‘dry zones’. Within these zones, resource distribution was significantly limited, lowering risk perceptions among residents located in these areas. In Rochester, for example, this issue manifested when residents located outside of the 2011 flood-affected areas were assured their property faced minimal risk and were allocated only ten sandbags. This official designation and minimal resource provision discouraged further preparation efforts. Days later, there were homes originally located in ‘dry zones’ that were completely inundated (e.g., WP3.A15). By categorising areas as ‘dry zones’ and restricting preparedness resources,



authorities inadvertently created a situation where residents felt safer and in turn, neglected potential self-protection measures based on official guidance. When floodwaters ultimately reached these 'safe' areas, residents found themselves ill-prepared.

## Shifting flood height predictions

Shifting flood height predictions also added to the confusion, making it difficult for residents to know how to prepare. This issue was particularly evident in WP3, where many interview participants across study locations expressed frustration over the constant changes in projected flood levels. A resident in SA, for example, reported receiving multiple updates with conflicting information, leaving them unsure of how severe the flooding would be or what actions to take:

*"But also for our community, not knowing how high the water would go. The prediction was so strange; they were ever-changing... So the ramifications from not being able to tell people when/where and how bad it would hit, I think caused a lot more trauma; than anyone ever expected."* (WP3.B24)

According to FIGURE 4 from WP1, conflicting advice was one of the top reasons respondents felt unable to be fully prepared. Within this category, the most frequently reported barrier across all states (65.7%) was conflicting advice between local/community sources and official information, with most Victoria respondents (72.3%) identifying this as an issue, followed by 58.5% in NSW and 55.8% in SA. This was closely followed by conflicting advice between state government organisations or between different levels of government (61.2% across all states). To a lesser extent but still notable, one-third of respondents listed conflicting advice across state borders as a common issue, but this was more pronounced for those in NSW (48.8%) compared to Victoria (28.8%) and SA (37.9%).

## Communication challenges in culturally and linguistically diverse (CALD) communities

In addition, the lack of information in languages other than English emerged as a significant barrier for CALD communities in understanding flood risks. In WP3, communication challenges were particularly pronounced in our CALD case study community in Shepparton, Victoria, where residents reported that the terminology used in flood messages was as unclear and notifications and warnings were delayed. CALD participants also noted that flood messages were not culturally sensitive or accessible, making it difficult for them to understand the risks and take appropriate action. According to what participants shared with us, the official flood communications were framed in ways that did not align with their understanding or experiences, leading to confusion and uncertainty. One participant noted that: *"we hear flood is coming...; but we don't know what it is they are talking about"* (WP3.C7). Some participants misunderstood the flood as simply heavy rainfall, which reflects a disconnect between the technical language used in emergency messaging and the interpretations of our case study participants. Findings from WP1 reinforce this issue, with survey data in Table 1 showing that 12.6% of the respondents (across all three states) identified the lack of multilingual warnings and information as a reason that respondents had problems accessing warnings and other flood-related information. This challenge was consistent across Victoria (12.8%), SA (12.7%) and NSW (11.8%), underscoring that language barriers (for non-English speakers) resulted in delayed or absent communication of vital flood-related information. Although this percentage was lower than infrastructure-related challenges, the lack of multilingual communication negatively affected non-English-speaking residents.



TABLE 1. SOURCE OF PROBLEMS FOR ACCESSING WARNINGS AND INFORMATION

	Victoria (n=250)		South Australia (n=126)		New South Wales (n=76)		Total (n=452)	
	N	%	N	%	N	%	N	%
Pre-existing mobile phone blackspot/poor reception	45	18.0	30	23.8	15	19.7	90	19.9
Loss of mobile phone or landline connection/outage during the flood	48	19.2	24	19.0	8	10.5	80	17.7
Electricity outage/loss	63	25.2	34	27.0	13	17.1	110	24.3
No mobile phone/landline on property	27	10.8	23	18.3	7	9.2	57	12.6
Didn't know where to look	33	13.2	21	16.7	8	10.5	62	13.7
Warnings/information only being available in English language	32	12.8	16	12.7	9	11.8	57	12.6
Disability or physical limitations, e.g., visual or hearing impairment	20	8.0	18	14.3	6	7.9	44	9.7
Other	7	2.8	5	4.0	4	5.3	16	3.5

## Slow vs rapid onset flooding

The 2022-2023 flood events highlighted stark differences in the challenges and impacts posed by slow-onset and rapid-onset flooding. Slow-onset flooding in SA was characterised by gradual water level rises over extended periods (i.e., months), while rapid-onset flooding in Victoria, for example, occurred more quickly (over days) with less warning time. This fundamental difference significantly impacted risk perception, warning effectiveness and recovery.

Residents exposed to both types of flooding reported receiving official communications that were vague, delayed and lacking locality-specific details. However, slow-onset flooding residents in SA had more time to monitor flood data themselves. Even so, they struggled to interpret technical information such as volume measurements, preferring more practical metrics such as water heights.

The ability of residents to prepare varied significantly between slow-onset flooding and rapid-onset flooding conditions. These differences are reflected in both the quantitative data from WP1 and qualitative insights from WP3, highlighting the interplay between flood characteristics and preparedness. Figure 7 shows that almost 40% of Victorian respondents perceived that they had less than 24 hours to take action once they became aware of the flood risk. In contrast, slow-onset flooding provided residents with extended lead times, allowing for more extensive preparation. Figure 7 highlights that 92.1% of SA respondents had more than 24 hours to take action, reflecting the gradual nature of slow-onset flooding.

WP1 survey data also revealed that respondents in SA had the highest percentage (66.3%) of those who felt they had done "everything" they could (48.4%) or "a lot" (17.9%) to prepare for the flood during the extended lead time. Supported by findings from WP3, SA residents were found to use this time to undertake significant preparedness measures, such as moving entire household contents to higher ground, constructing large levees or protective walls around their properties and continuously monitoring flood predictions. For example, one participant constructed a 3-foot protective wall around their home two weeks before the flood peaked (WP3.B11), while another mobilised over 100 volunteers for several weeks to build a substantial barrier around their home using approximately 3,000 sandbags stacked at least seven layers high (WP3.B4). While these efforts may have helped to reduce immediate losses, they came at a significant physical and mental toll. Many participants reported that the prolonged period of heightened stress and physical exertion was exhausting, underscoring the emotional and psychological burden of slow-onset flooding.

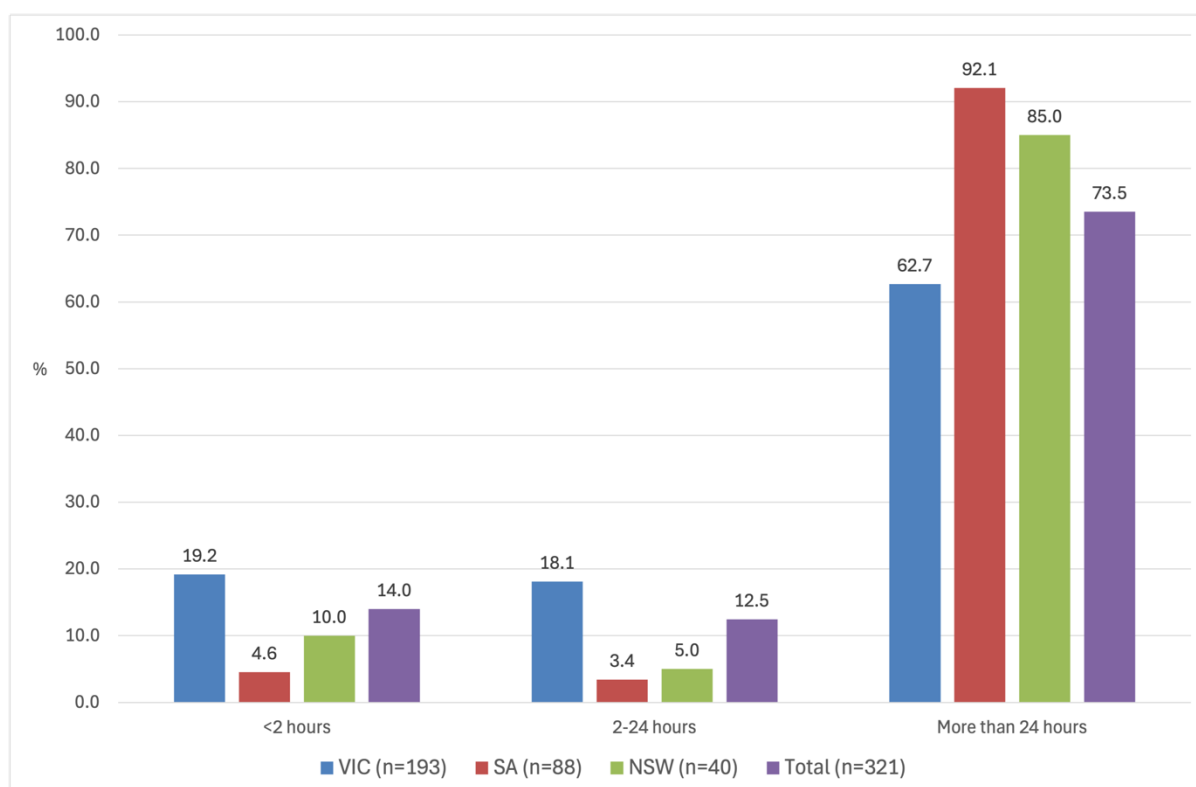


FIGURE 7. TIME AVAILABLE TO TAKE ACTION, AFTER BECOMING AWARE THAT THE FLOOD MAY IMPACT

As mentioned earlier, residents in both slow- and rapid-onset flooding case studies underestimated flood risks, partly due to communication that downplayed the flood's severity and consistently changing flood predictions. However, the psychological impact of the lead-up to flood peak differed markedly across flooding types. In slow-onset flooding areas, some residents described the anticipation as more traumatic than the flood itself. One participant mentioned:

*"Actually, it was a bit of a relief. When it finally flooded, there was nothing else that we could do, we could have a rest... it was actually a relief for me; because it was the first time I have had a rest; because I couldn't do anything." (WP3.B7)*

The prolonged uncertainty created significant anxiety that affected participants' abilities to accurately assess risks. Whereas those participants with lower risk exposed to rapid-onset flooding experienced a different type of stress; i.e., the unexpected (and sudden) inundation of flooding.

The physical damage caused by flooding also varied significantly between slow-onset and rapid-onset flooding, reflecting the distinct characteristics of each flood type. Rapid-onset case studies in Victoria experienced severe and immediate damage to personal belongings and homes. Quantitative data from WP1 highlights these differences. Figure 8 shows that 37.1% of respondents in Victoria lost more than 75% of their household contents during the 2022-2023 floods, far exceeding the corresponding percentages in SA (17%) and NSW (16.7%). Similarly, Figure 9 reveals that 32.2% of VIC respondents reported serious damage to their homes, compared to 20.3% in SA and 20.0% in NSW. These figures are echoed by qualitative accounts from WP3, where a participant in Rochester, Victoria described the devastating loss as: *"everything got destroyed. All my kids' clothing and all their personal belongings"* (WP3.A6).

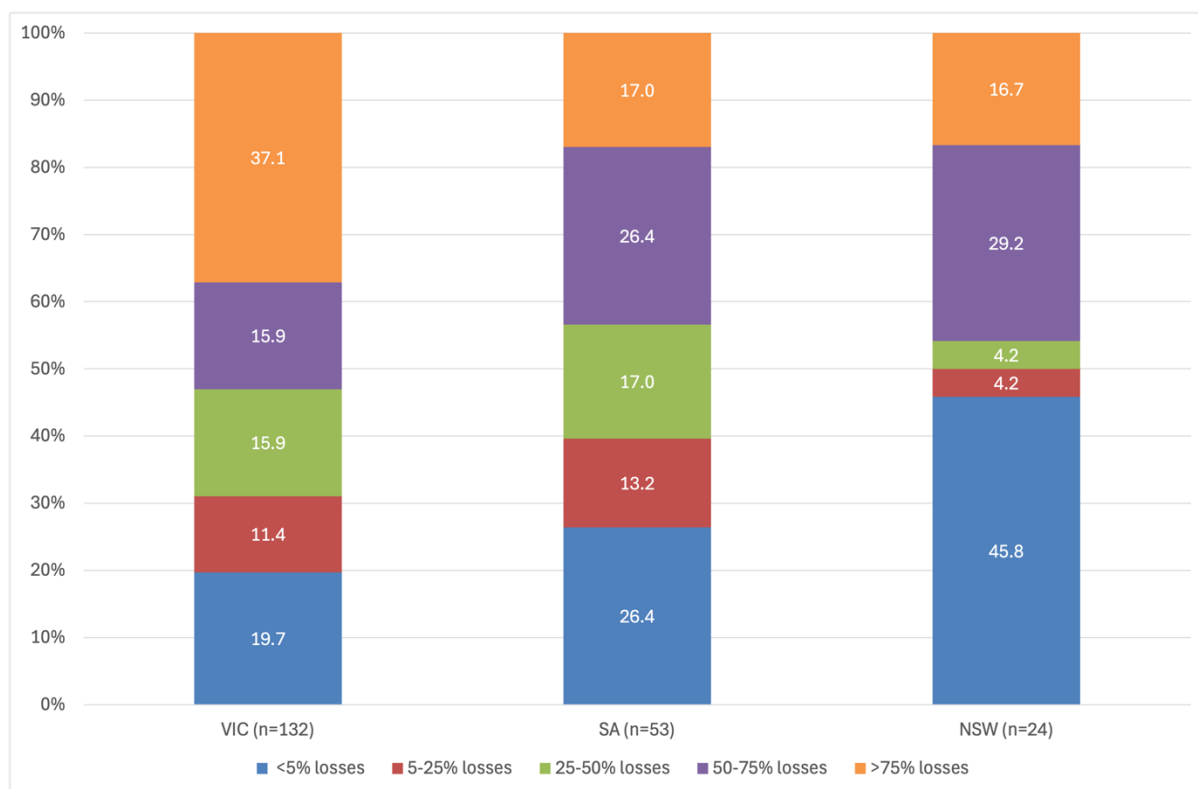


FIGURE 8. ESTIMATED HOUSE CONTENT LOSSES FOR VICTORIA, SA AND NSW RESPONDENTS

In contrast, slow-onset flooding in SA caused prolonged inundation, leading to different but equally severe challenges. While the percentage of respondents reporting significant content loss (17.0%) or serious home damage (20.3%) was lower than in Victoria, qualitative findings reveal that the extended duration of flooding exacerbated issues such as levee failures or water exposure. The prolonged exposure caused gradual but extensive damage to homes, agricultural land and local infrastructure, as one participant noted:

*“I have planted over 30,000 trees on our property; which are now - most of them are drowned and dead; because we went 30 metres under water there” (WP3.B16)*

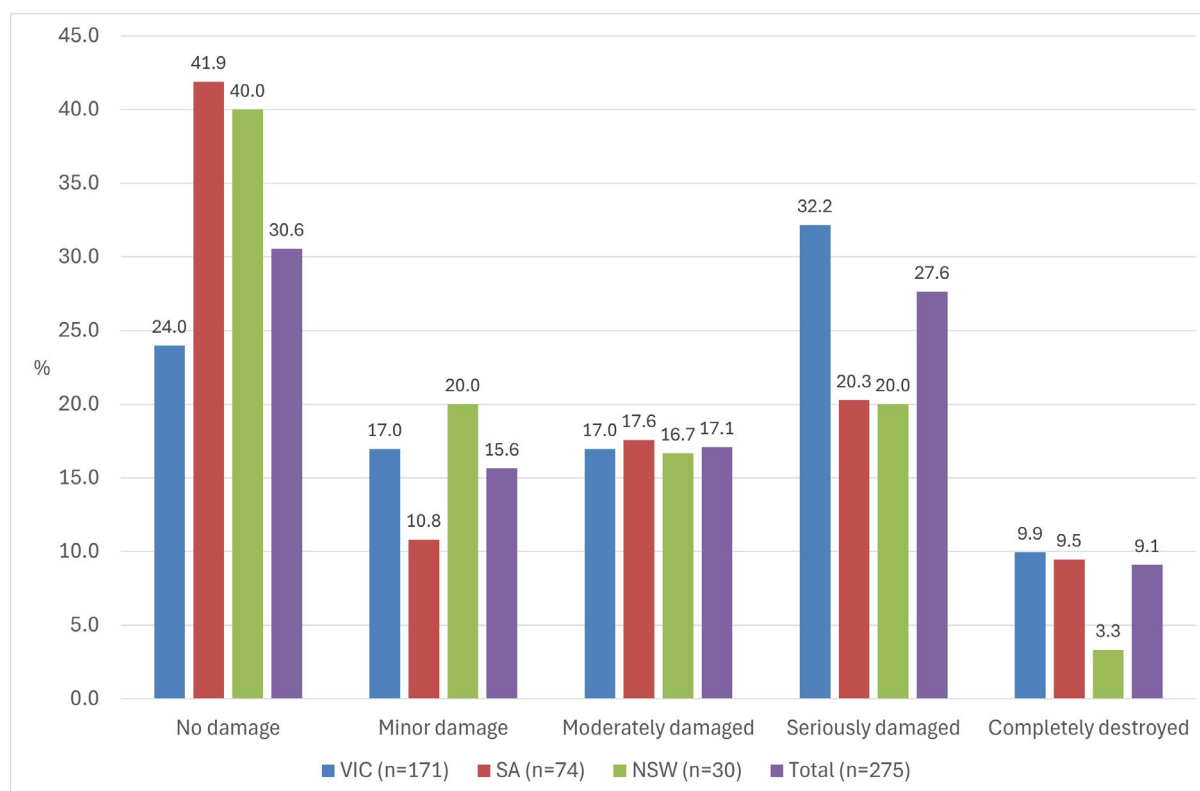


FIGURE 9. EXTENT OF DAMAGE TO HOUSE/HOME FROM THE FLOOD

Both flood types left many residents still displaced at the time of interviews; however, slow-onset flooding created a unique challenge. Prolonged inundation delayed damage assessments for months after the flood peak while simultaneously leaving residents emotionally exhausted. This created a complex situation where some residents had difficulty accessing or utilising recovery resources at optimal times for their specific circumstance. One participant from SA noted that:

*"We were out of action for 12 months; we knew we were out of action. We didn't know what we wanted because we were still under water. There was still no way of even understanding what was required. And they [the recovery centre] were set up way too early for us. Had they come probably six months later, it might have been better" (WP3.B15)*

This individual perspective highlights the challenges in timing recovery support to meet diverse needs across different flooding scenarios.

Insurance issues plagued residents exposed to both flooding types, though areas in SA (exposed to slower-onset flooding) reported more significant premium increases post-flood, with some left without coverage for future events.

These contrasting experiences between rapid-onset and slow-onset flooding are further illustrated through participant narratives in Appendix 1, which present detailed accounts from two participants: one experiencing rapid-onset flooding in Victoria (A16) and another facing slow-onset flooding in SA (B7). Their stories encapsulate the distinct temporal, physical and psychological challenges discussed throughout this section, providing concrete examples of how flood conditions shaped individual experiences of preparation, impact and recovery.



## Physical impacts of floods

The 2022-2023 floods caused significant physical impacts to communities, as highlighted across all three WPs. While the extent and nature of these impacts varied depending on the type of flood (rapid-onset vs. slow-onset), the widespread disruption caused by flooding was a common theme.

Figure 9 shows the extent of damage to homes for respondents who had flood or stormwater enter their properties. Damage was significantly higher for Victorian respondents, with 42.1% reporting that their home was seriously damaged or completely destroyed, compared to 29.8% in SA and 23.3% in NSW.

In WP2, participants expressed concerns about the impacts of the flood itself, noting that *“it scoured out sections of the river”* (WP2.D1). Concerns were also expressed about the physical impacts caused by emergency management activities, such as the construction of levees, which, in many cases along the Murray River, displaced or destroyed cultural heritage. In WP3, participants in Victoria focused on household-level destruction, describing damage to their homes and the displacement it caused. However, in the SA case studies, the focus shifted to agricultural losses, with participants highlighting the devastation to their farms, the destruction of crops and livestock and the long-term economic consequences for their livelihoods.

## Environmental impacts

According to findings from WP2 and WP3, the environmental impacts of flooding reveal a complex ecological narrative, showcasing both regenerative benefits and destructive consequences. Many residents and Traditional Owners in Victoria and SA perceived the floods as a necessary ecological reset for the river system, with one participant expressing: *“People say, ‘Oh, you had a flood; how terrible.’ ‘Well, actually, no, we have had a flood; it’s been wonderful”* (WP3.B5). This positive perspective emphasised the flood’s role in revitalising the ecosystem through what residents called a ‘flush-out’ that improved water quality, enhanced biodiversity and restored natural flow patterns. A particularly critical benefit was how *“It opened the Murray Mouth”* (WP3.B5), addressing a persistent problem in the lower Murray where river flow had been diminished by upstream extraction. Several participants in SA noted the return of wildlife and the renewal of local ecosystems. One farmer observed the transformation of their paddock: *“The soil – oh, I had the most fantastic clover grow... It’s been a more productive paddock than what it was”* (WP3.B22). Additionally, the river’s cleanness improved, with participants observing thriving birdlife, including pelicans and swans: *“There were thousands of birds and the beauty of it all”* (WP3.B15). These findings align with perspectives from WP2, where many Aboriginal participants did not perceive flooding as a disaster. Instead, they highlighted the ecological benefits that floods bring to Country, reinforcing the natural role of flooding in maintaining the health of the landscape. Traditional Owners of the Barmah Forest and around Berri Barmera discussed an increase in native vegetation in the wake of the flood, as well as an increase in the local emu population at the Barmah Forest. They also spoke about how floods replenish lagoons, nourish forests and sustain biodiversity, seeing these events as an integral part of the environment rather than a catastrophe: *“It’s a good thing to have these floods, to flush out systems, clean out rivers and water trees”* (WP2.B7).

The aesthetic and sensory experiences of the flooded landscape were frequently described in appreciative terms. One SA resident remarked: *“It was so serene; it was so quiet; no traffic noise. The bird life was amazing; absolutely beautiful”* (WP3.B22), while another noted that, *“it actually looked lovely with all the water”* (WP3.B1). Similarly, another SA resident was amazed at the vibrant blue water: *“See, water was so blue; and that was the sky reflected into it (pointing). The sunsets; and the sunrises; you know, just beautiful”* (WP3.B21).

However, the environmental narrative wasn’t uniformly positive. The prolonged nature of slow-onset flooding created significant soil chemistry challenges that persisted long after the waters receded. Unlike bushfires that regenerates soil through ash, one participant explained how flood silt *“actually suffocates all the nutrients in the ground”* (WP3.B25). This resulted in complex soil transformations involving salt concentrations and chemical reactions:



*"Some of the river flats, the black - heavy black, it is almost like peat, if they open up and air/oxygen goes down and reacts with the sulphur, it is iron sulphates; and it can react with the salt as well and becomes toxic, because it goes to a PH of 2" (WP3.B22).*

The severity of these environmental impacts was highlighted by a dairy farmer who noted that despite the flood's cleaning effect, *"salts are already coming back up into his pasture"* (WP3.B3).

Agricultural ecosystems suffered significant disruption, with *"black water"* depleting oxygen to trees and causing widespread tree mortality. One SA farmer reported dramatic harvest reductions: *"We were probably, oh, at least 50 per cent down"* (WP3.B20). Blackwater events along the Murray River also resulted in a depletion in native river species such as the Murray Cod: *"A lot of fish were dying, there was no oxygen flows so the water turned black, big Murray Cod"* (WP2.A2) and in another location, Traditional Owners reported a *"mass dieback of shrimp, yabbies, cod, yellow belly to the stage where they've littered the bank and actually become a biohazard, it's pretty heartbreaking"* (WP2.D1). Since the floods, Traditional Owners around the Barmah area have been monitoring key species, with particular focus on native crayfish and their surveys have yielded concerning results, *"not one crayfish has been caught during the six-week period, two years after [the flood] ... 420 surveys during that six week period and not one crayfish"* (WP2.D2). The displacement of wildlife created additional challenges as *"it drove most of the vermin from down on the swamp areas, up higher. So, foxes, rabbits, snakes; you name it, we had everything up there"* (WP3.B20). Despite these challenges, several SA residents maintained a philosophical perspective that acknowledged nature's dominance in the landscape:

*"we have no control over it; so you have to work within it; because nature, I don't care what anyone says, has final say" (WP3.B3)*

## Recovery process

Delays in the recovery process were a pervasive issue across all work packages, with residents facing prolonged challenges in rebuilding their lives and homes. Survey data from WP1 presented in Figure 10 shows that 76.5% of respondents across the three states felt that recovery was taking longer than it normally should at the time of data collection—on average more than 18 months after the floods. Findings from both WP1 and WP3 underscore the prolonged and often frustrating nature of post-flood recovery, driven by a range of factors including insurance disputes, lack of available tradespeople and financial constraints. Among these, insurance-related challenges emerged as a significant driver of delays, exacerbating the emotional, psychological and practical challenges faced by affected communities.

Participants interviewed for WP2 also expressed frustration regarding lengthy recovery times. Traditional Owners in the northwest of Victoria discussed a lack of access to Country, with unusable tracks and roads through public lands: *"I'm not understanding how it's been two years and we still don't have access and there's significant sites that we still can't get to"* (WP2.B2). While these concerns relate to physical barriers to accessing Country, others were frustrated about not being permitted to access Country by land management agencies: *"They locked us out for months, then it was like, 'ok no one's allowed to go back to the forests until we're ready to say'; they say 'we'll let you, we'll give you', like who do you think you are?"* (WP2.A1). Another participant mentioned:

*"No one's been able to get over to the island... we don't know what kind of shape it's in. It was fully submerged... there's a lot of artefacts there, [hundreds of] canoe trees, mia mias and midden sites" (WP2.A2)*

## Insurance challenges as a key driver of delays

Insurance-related delays were a critical barrier to recovery, as highlighted across all three work packages. In WP1, 26.5% of respondents (across the three states) whose homes were damaged cited delays in insurance payouts as a key



challenge preventing them from rebuilding (see Figure 10). The inability to access insurance funds in a timely manner left many residents unable to afford repairs or move forward with rebuilding, prolonging their displacement and adding to their stress and frustration.

The findings from WP2 reinforced the insurance-related challenges identified in WP1. Participants in Greater Shepparton reported struggling with unclear and inconsistent information from insurers, extended delays in claim processing and pressure to accept lower settlements. These delays directly impacted their ability to repair or rebuild their homes, leaving many in a state of limbo. Renters, in particular faced significant challenges, as unresolved insurance claims prevented them from returning to their properties.

Similarly, WP3 highlighted the role of insurance challenges in prolonging the recovery process. Participants in all case study areas described prolonged back-and-forth negotiations with insurers, citing poor communication as a major barrier to recovery. One participant in Victoria described the experience of contacting the insurance company as *“the start of a nightmare, the phone calls back and forth”* (WP3.A14). Many felt that insurers were unresponsive or unwilling to provide adequate support, leaving them unable to move forward with repairs or rebuilding.

The delays caused by insurance challenges were further compounded by other factors, such as housing shortages and a lack of available tradespeople. In WP1, the most commonly reported barriers included difficulties securing tradespeople (52.9%), financial constraints (29.4%) and delays in insurance payouts (26.5%). These compounding issues left many residents overwhelmed, with 64.7% of participants reporting that they felt unable to cope with all the tasks required for recovery (See Figure 10). The shortage of tradespeople, in particular, emerged as a critical issue in WP3 interviews. As one participant noted: *“Finding tradespeople to be able to do that is impossible”* (WP3.B23).

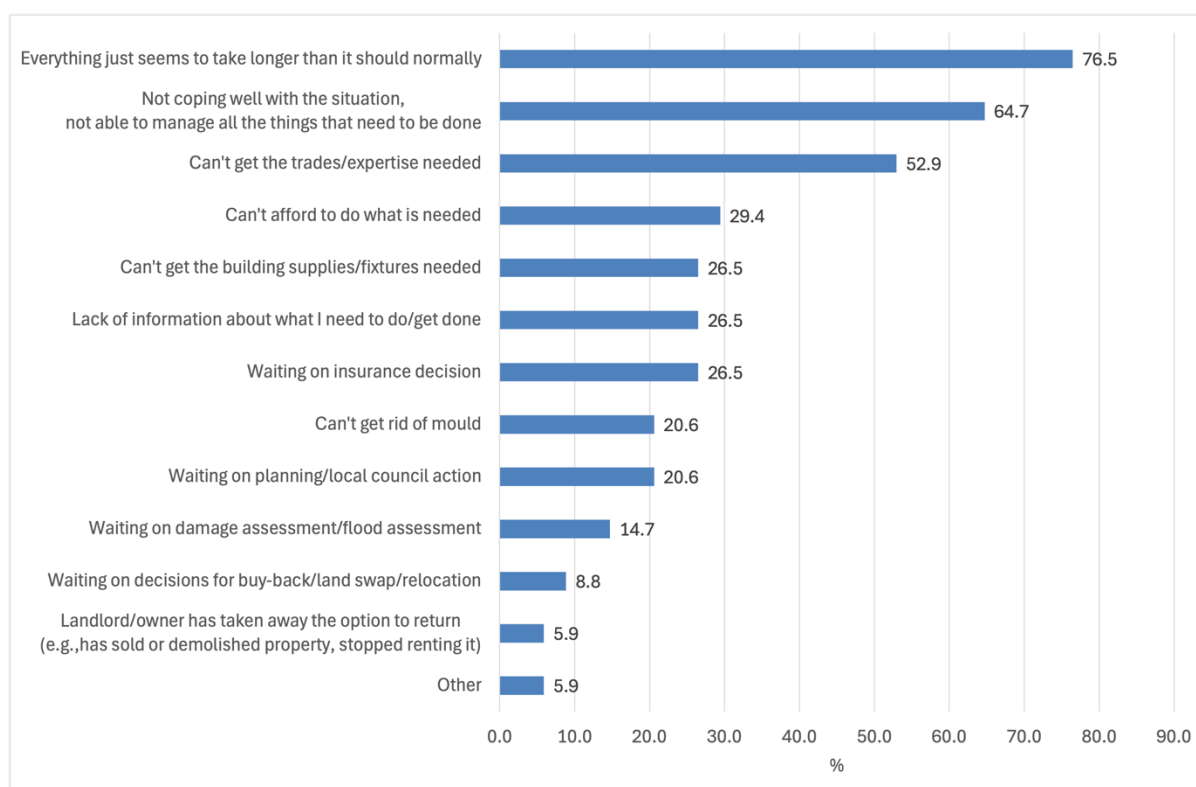


FIGURE 10. WHAT ARE THE CHALLENGES FACING YOU TO GET BACK INTO LIVING IN YOUR HOME/PROPERTY? (MULTIPLE RESPONSES PERMITTED (N=34))

The prolonged nature of the recovery process had significant negative impacts on mental health and well-being, as highlighted in WP1 and WP3. Delays in rebuilding, securing tradespeople and resolving insurance claims created a cascade of challenges that exacerbated the emotional and psychological toll on affected communities. According to



Figure 10 from WP1, 64.7% of participants across three states mentioned that they are not coping well with the situation. WP3 further highlighted the emotional and psychological consequences of delays, with many participants describing the trauma of constant relocation, the frustration of dealing with insurers and the strain of living in inadequate or unfinished homes. One participant described how ongoing challenges, such as unresolved issues with demolition and property restoration, created significant anxiety: *“I get very frustrated with my ongoing battles; and a lot of anxiety; and I don't sleep well, all that sort of thing”* (WP3.B2).

## Housing/Displacement

Housing insecurity and displacement were critical issues during long periods of time in recovery. This led to situations where residents were unable to ‘get back to a routine’ or put down roots or connect/reconnect with community, which can also be linked to reductions in physical and mental health. A participant from WP2 mentioned: *“We were renting... It was hard. We had to stay at the in-laws for about 11 months. That was hard”* (WP2.C5). Another participant from our Victorian CALD community case study noted that:

*“I was supported by the government. Like, when I rang them and I asked for accommodation, they gave me accommodation. We had to move and move; but yeah. We had to move, like, every ten days. We had to move hotels or - yeah; because they put us in the hotels. For 6 months!!”* (WP3.C2)

Renters also faced significant challenges navigating the recovery processes. In WP2, participants in Greater Shepparton, Victoria reported severe damage to their homes, with some renters unable to return due to exploitative practices by landlords. Renters described feeling powerless to compel landlords to address issues such as mould and structural damage, leaving them in unsafe living conditions. WP3 echoed these findings, with CALD participants also in Shepparton, Victoria describing similar challenges. Many renters were forced to remain in flood-damaged homes that had not been adequately repaired, while others faced prolonged displacement and instability as they moved between temporary accommodations.

## Slow retreat (challenges for slow-onset floods)

The SA communities’ experiences with slow-onset flooding revealed a complex and extended recovery process. As participants noted, recovery is still an ongoing process with profound implications for both individual livelihoods and community resilience.

For farmers, the impact of flooding was particularly severe and long-lasting. As participants directly stated, their land had not recovered from flood waters, which directly impacted their harvest and income. One participant captured the ongoing struggle at the time of our interviews, noting that areas of the town and personal properties were *“not quite back even now to what it was”* (WP3.B1).

The extended nature of slow-onset flooding created a state of perpetual displacement that fundamentally disrupted community life. Slow-onset flooding in SA kept properties and critical infrastructure submerged for weeks or even months, creating a profound sense of uncertainty and disconnection. Families found themselves trapped in an indefinite waiting period, unable to return home, rebuild, or fully restart their lives.

The prolonged recovery process also created a continuous state of uncertainty. Residents found themselves in an extended limbo, unable to fully return to their pre-flood lives. For many residents, the prolonged uncertainty manifested in growing fatigue, diminishing hope and the challenges of what has been referred to as the ‘long tail’ of recovery (Shtob, 2024).



## The role of community in disaster preparedness, response and recovery

The findings from WP1, WP2 and WP3 consistently highlight the critical role that community-led networks play in disaster preparedness, response and recovery. Across all case studies, local networks, social media and informal support systems filled the gaps left by official (or formal) agencies, ensuring that communities could access timely and relevant information and provide immediate assistance where formal services were unavailable or delayed.

### Community-led information dissemination

An important theme across the work packages is the reliance on community-driven communication channels for flood-related information. In WP2, Indigenous community members placed their trust in Aboriginal Community Controlled Organisations (ACCOs), which provided culturally appropriate and locally relevant guidance during the crisis. This trend was echoed in WP3, where the Rochester, Victoria Community Facebook page, administered by a local resident, emerged as a “trusted face” for the community, a source residents turned to for critical updates: “if you want to know something, I’ll go straight to the Facebook page [the Rochester Community Page]” (WP3.A26).

Similarly, CALD community members in Shepparton, Victoria depended on their networks for access to crucial flood information, often bypassing traditional emergency communication channels that were perceived as not tailored to their linguistic or cultural needs. As a participant mentioned:

*“The good way I get that information it was to the group, because we have a WhatsApp group for the Congolese community. So there, they update everything; and then you get everything from there”*  
(WP3.C7)

The significance of informal networks in information-sharing was further reinforced by WP1, which found that while official sources such as ABC Radio, Bureau of Meteorology, frontline emergency service personnel and local SES volunteers were considered trustworthy, the most trusted sources of information were friends, family and neighbours. Over 53% of respondents across all three states identified these social connections as their primary information sources, with community-run Facebook groups and local meetings also serving as critical platforms for real-time updates (See Figure 6). These findings highlight the effectiveness of grassroots communication efforts in keeping residents informed, particularly in fast-changing flood conditions where official updates were sometimes delayed, unclear, or not inclusive of diverse community needs.

### Community-based assistance

Beyond information-sharing, communities played a hands-on role in emergency response, often stepping in where formal agencies were unable to reach residents in time. Prior to the floodwater peak, all WPs found that residents helped each other sandbag their houses, move belongings to higher ground and relocate valuable equipment to safer storage locations like friends’ sheds and shipping containers. Community-led rescue efforts were also highlighted in both WP1 and WP3. WP1 findings show that of the survey respondents who required rescue during the floods (n=32), 40% of the rescues were carried out by civilians (community members) across all three states. Friends, family and neighbours became first responders, assisting those trapped by rising waters and ensuring their safety before professional emergency teams could arrive. In WP3, a stakeholder described the rescues in Rochester, Victoria in the following way: “community members entered fast-moving floodwaters to retrieve their fellow citizens, using whatever means they had at their disposal; from kayaks, boats, trucks, tractors, by water or even road” (WP3.A25).

Another example of community-led assistance is related to the collective action of community in SA when the levee banks breached. In these cases, community members immediately “went into action mode” (WP3.B26), working together to stop the flowing water using available sandbags.



Similarly, in WP2, Indigenous participants discussed the critical support provided to prepare for the floods with sandbags. Residents at the Cumeragunja Reserve were also supported by community members. In the lead up to the flood, one community member felt that little to no preparedness support was provided by emergency services and residents predicted at that stage that *“everything was going to go under”* (WP2.D3). Nearby Indigenous and non-Indigenous residents rallied to support the community to sandbag: *“We just all pitched in, no questions asked. We all just went there and it was almost the 11<sup>th</sup> hour, the last few days... trying to help everyone get their sandbags up... there were people going along the Cobb Highway saying, ‘there’s a mob there on the river, they need help”* (WP2.D4).

The community-based support also extended beyond the immediate response. WP1 and WP3 findings demonstrate that community members played a vital role in supporting each other’s recovery, whether through providing temporary housing, assisting with cleanup efforts, sharing resources, or rebuilding tasks. Beyond these practical ways, residents provided considerable emotional support and community connection during recovery through organising community gardens, facilitating gatherings and checking in on people. The importance of family, friends and local community groups in disaster recovery is further reflected in the survey results from WP1. In particular, participants’ satisfaction ratings with the levels of support received from a range of organisations/groups, which show that residents from all three states, especially residents in NSW, overwhelmingly valued the support received from their personal networks more than formal aid (See Figure 11). These findings underscore the indispensable role of community-led assistance in bridging the gap between immediate disaster response and long-term recovery.

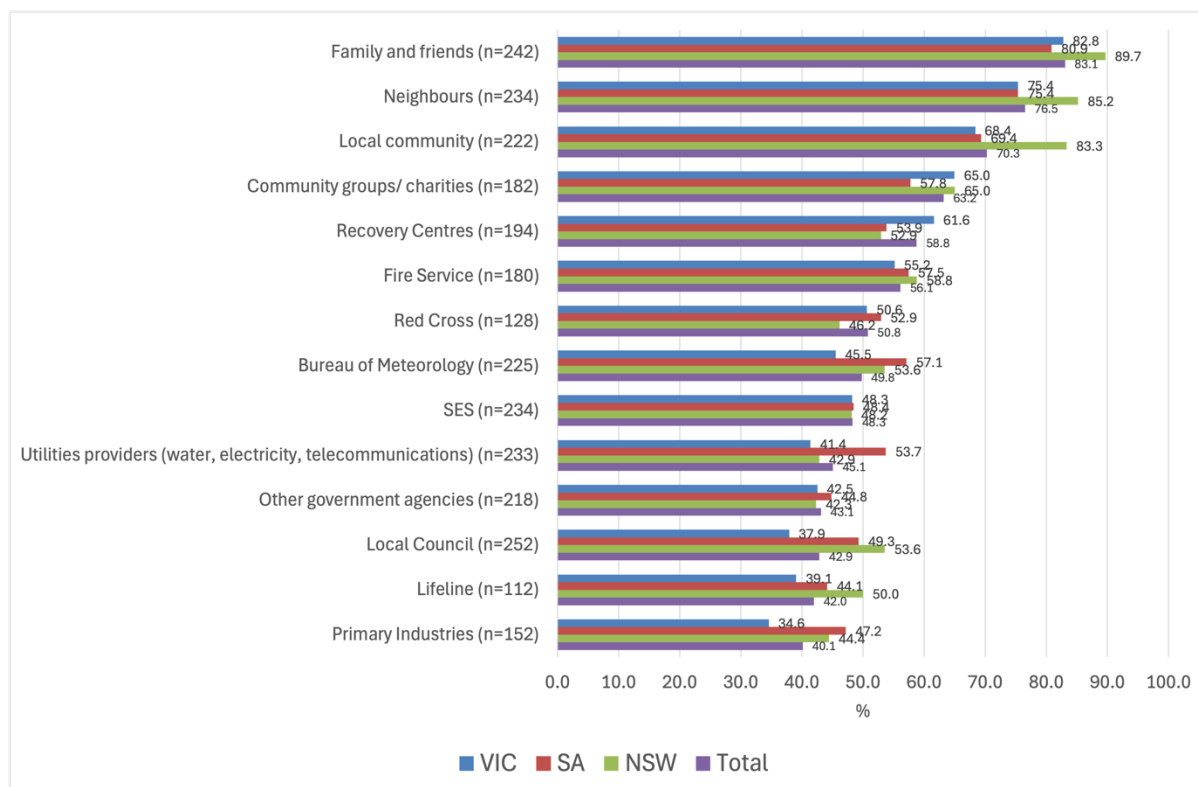


FIGURE 11. RATINGS OF SATISFACTION WITH THE SUPPORT RECEIVED (COMBINED PERCENTAGE OF ‘EXTREMELY + SOMEWHAT SATISFIED’ RESPONSES; N/A RESPONSES EXCLUDED)

It is important to acknowledge; however, that some formal support services were also highly rated by survey participants, including community groups/charities (63.2%), recovery centres (58.8%), the fire service (56.1%) and the Red Cross (50.8%). WP3 participants, as examples, spoke highly of BlazeAid, a national volunteer-based organisation that helped rebuild fencing after the floods; the assistance provided by organisations such as the Lion’s club and Community or Neighbourhood Houses (e.g., the Rochester Community House); as well as certain initiatives offered by local councils during recovery, including gardening workshops organised to support community wellbeing. These targeted support efforts were recognised and appreciated by affected communities, highlighting the potential for well-designed official intervention to complement and enhance community-led recovery efforts.



## The importance of local knowledge

Communities are also advocating for a more collaborative approach to flood management that integrates local expertise into planning, response and recovery strategies. They seek recognition as active participants, not just beneficiaries and want to ensure that local knowledge, experience and expertise are appropriately valued. This approach requires more flexible, community-centred emergency management protocols that respect and leverage local insights. The call for collaboration with locals is deeply rooted in the qualitative findings from WP2 and WP3, which highlight the crucial role of local and community-based knowledge in flood management. Many Traditional Owners expressed frustration at the disregard for their knowledge of the river system: “[emergency service and land management agencies] come in with the big badges and their big uniforms and ‘we know best’, they don’t know best, we’ve been around the floods” (WP2.A1). Aboriginal Community-Controlled Organisations discussed the need for their inclusion in coordination mechanisms, as they possess deep knowledge of Country, their communities and valuable physical resources. WP3 participants emphasised the irreplaceable value of community knowledge in effective flood management, while expressing deep frustration at what they perceived as systematic dismissal by authorities. Residents across our case study communities described their local expertise as encompassing an intimate understanding of the local physical landscapes, natural environments and social dynamics essential for disaster preparedness, responses and recovery. One participant in Victoria stated: “The bigger government bodies need to listen to the people on-the-ground.... there’s a lot of what you call “historical knowledge” that comes” (WP3.A20).

The generational experience of many farmers was also discussed as an untapped resource for effective flood management. The farmers, whose families had witnessed and responded to floods for generations, described their extensive historical understanding of flood patterns and effective responses. One resident in SA questioned why this knowledge was not better utilised, stating:

*“And the farmers, they know best. Like I said before, most of them are elderly/older; they have been here through a flood before. Their fathers were here at the beginning, like grandfathers. All of these issues - if you go back through the stories in history here at Mypolonga, we can read the stories; the same, more of the same, same, more of the same; nothing changes. So why was there that lack of knowledge? Why aren't they seeing what we have got here in our history? Why aren't they understanding the issues, leading up to, during and especially in recovery?” (WP3.B15)*

The consequences of disregarding local knowledge were frequently described as costly and inefficient. One farmer explained that levee repairs required ‘enormous amounts of labour and equipment’ that “would never have cost them as much, if they had listened to the local farmers” (WP3.B14). Similarly, CALD community members suggested recovery funds could be better directed based on local input, with one noting that money spent on festivals could instead have been used to support “houses or community members that got affected by the floods” (WP3.C13).

While acknowledging that knowledge-sharing requires patience on both sides, participants emphasised that incorporating local expertise alongside technical knowledge would lead to more effective and efficient flood management systems. Despite past frustration, residents remained hopeful about future collaboration:



*“if someone comes and they really want to listen and I can have input into government making changes or improvements, I hope this will happen.” (WP3.A20)*

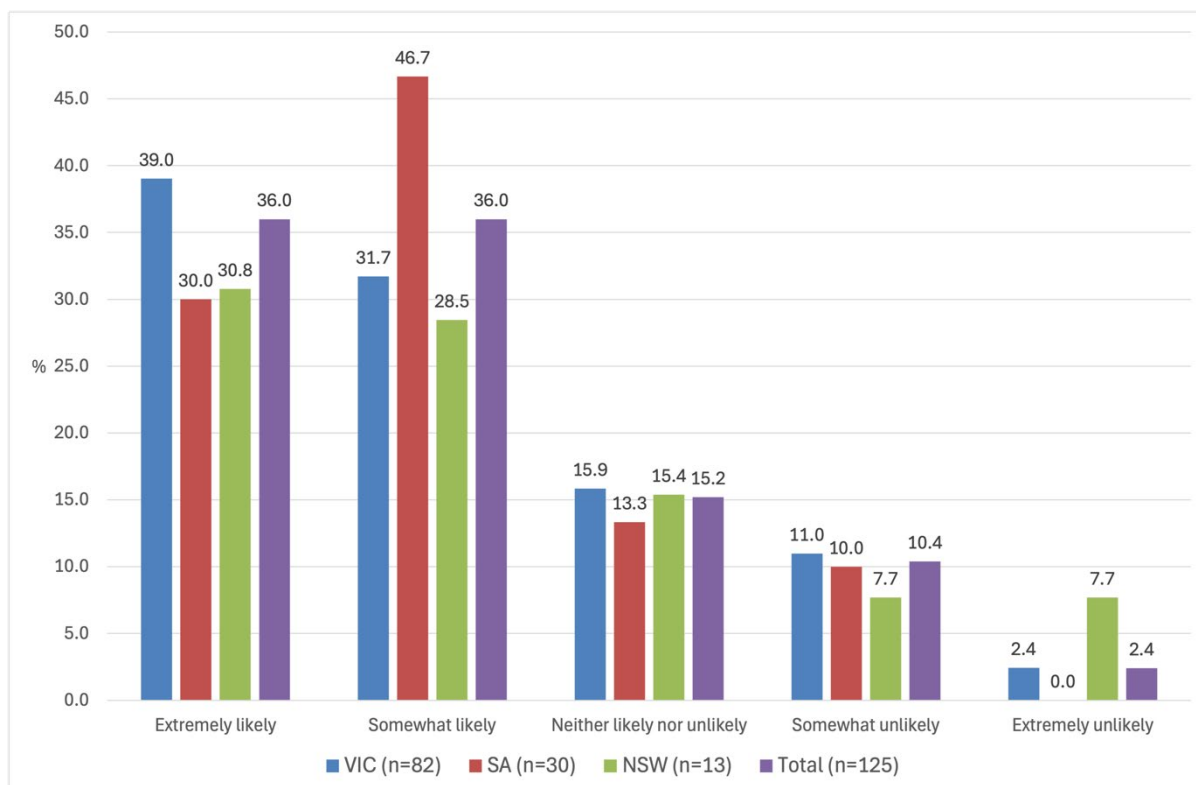


FIGURE 12. LIKELIHOOD THAT HOME/PROPERTY WILL BE IMPACTED BY FLOODING AGAIN

## A resilient future – the likelihood of flooding and the need for adaptation and mitigation

According to the Figure 12 from WP1, a majority of respondents across all three states (72%) believe future flooding was likely. Breaking this down by state, 77.5% of SA participants, 70.7% of Victorian participants and 59.3% of NSW participants believe that future floods are somewhat or extremely likely. The findings of WP3 support this; however, this perception was less pronounced among the residents of the CALD community studied in Victoria.

Moving forward, survey respondents in WP1 mentioned the post-flood modifications that they had already made or planned to make to mitigate against future flooding impacts. As shown in Figure 13, results found that residents across all three states have focused or will focus in the future more on minor fixes to their home and property (i.e., raising power points [35.3%], replacing carpet with tile/cement [35.3%], using water-resistant building materials on lower levels [35.3%] and raising A/C units [32.4%]). This is also supported by findings from WP3. In fact, most WP3 participants mentioned a broader interest in performing more in-depth modifications, like raising/lifting their homes or building higher in the floodplain; however, they requested additional options, support and/or incentives to make this happen. Participants characterised these actions as cost prohibitive without help from government investments, grants, or subsidies. Residents in SA, more specifically, mentioned reasons in addition to expense for neglecting post-flood modifications, including age and lacking the authority to make the necessary changes (i.e., in relation to government-owned and operated levees). Others (across all WP3 case studies) were more fatalistic in their thoughts of the future and post-flood modifications, questioning the point if their community was just going to flood again:



*"What's the point? It's going to be washed away in the next flood. Why spend money in the yard; because it's all just going to - I am going to lose it all" (WP3.A15)*

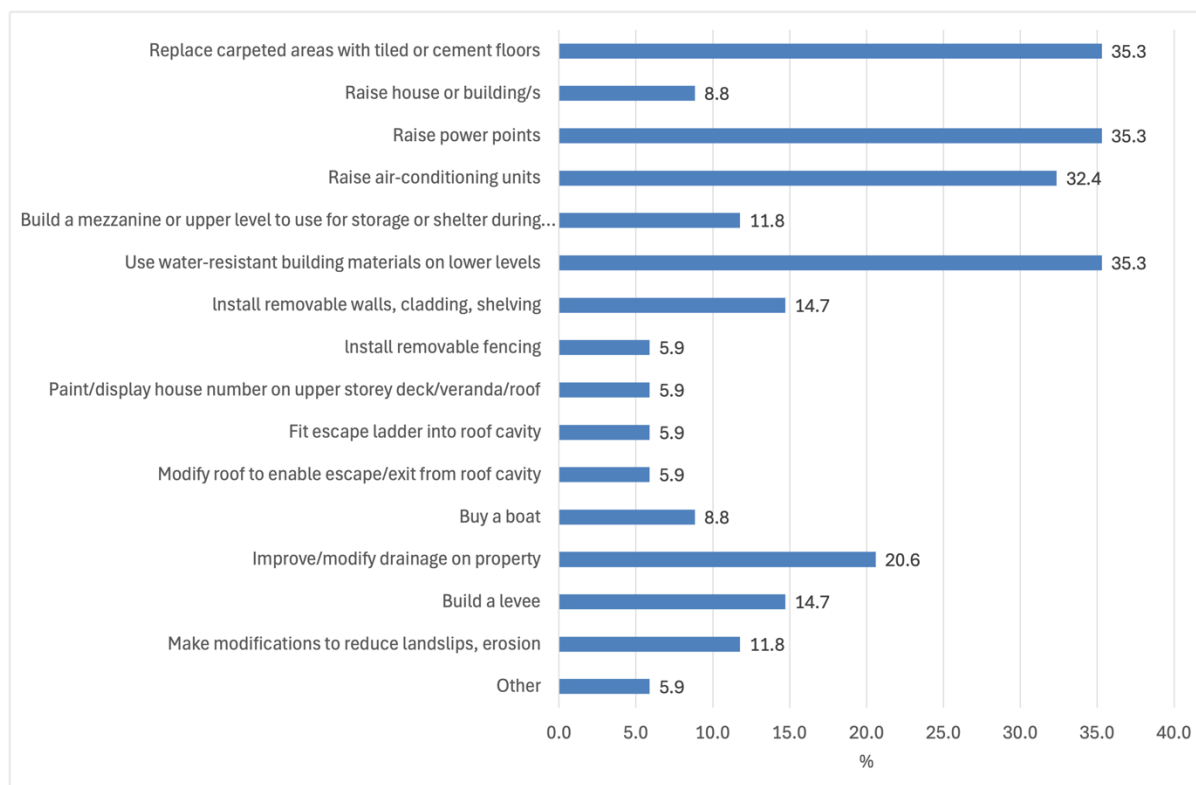


FIGURE 13. WP1 RESULTS ON POST-FLOOD STRUCTURAL MODIFICATION (ALL THREE STATES, N=34)

Instead of relying in individual actions, residents across all case studies in WP3 overwhelmingly called for more action from state and local government agencies to reduce the likelihood of damage in future floods.

Water management as a mitigation approach emerged as a cross-cutting theme across WP2 and WP3, reflecting the ongoing concerns of communities about how human interventions impact the river system. In WP3, participants in Rochester and Echuca, Victoria expressed concern about water management regarding Lake Eppalock, highlighting the complexities of balancing flood mitigation with agricultural water security. Farmers in this Victoria case study; however, provided a counter to the argument that floodwaters should be released pre-emptively, emphasising that mitigation at Lake Eppalock is not that simple. Farmers expressed concern that residents do not always understand the needs associated with farming in the area, particularly the reliance on Eppalock as a critical source of water for irrigation. As one farmer explained:

*"Eppalock is our water; so that's what we water with; and you can't just take 50 per cent of it away. The hardest part of that is: a lot of town people have no idea about farming..." (WP3.A17).*

In the Mannum and Mypolonga case study (WP3), participants expressed frustration and stress associated with the lack of maintenance on levees meant to protect them in future floods.

*"We are vulnerable with government understanding of our situation, I think you would say. Do they realise that by not fixing that bank, it's adding stress to - and probably adding to what's required for us?" (WP3.B15)*

Additionally, in SA, some residents expressed frustration at the historical pattern of non-adherence to prior and new building regulations, leading to structures that are not, or were never, adapted to high flood risk areas. Thinking about



future flood events and planning, these participants had suggestions of how future rebuilds could be better adapted to the floodplain.

Overall, SA participants in WP3 highlighted the importance of an integrated water management system between upstream and downstream areas. These discussions align with findings from WP2, where Aboriginal participants framed their responses within the broader historical context of water management along the river system. For Aboriginal participants in WP2, water management was not just about flood mitigation but was deeply connected to the long-term changes imposed on the river and its ecosystems. Additionally, WP2 participants similar to residents in WP3, questioned upstream water management and its role in the flood event.



## Implications

This section explores key findings and implications from the research, focusing on strategies to improve flood preparedness, response and recovery. Drawing on community experiences during the 2022-2023 flood events, we identified critical areas requiring attention: the need for more effective communication strategies, stronger collaboration between emergency agencies and communities and tailored approaches for different flood types. Additionally, this section highlights challenges in the insurance process, relief centres and the disruptive nature of temporary housing and the tension between adaptation measures and affordability.

The policy-relevant implications outlined in this section originate directly from participants' lived experiences captured via surveys and interviews and from workshops conducted within the research team. It is important to note that the research team did not conduct a formal review of existing policies or programs currently in place. Importantly, as a next step, these implications require careful adaptation to jurisdictional contexts, as operational frameworks and State Emergency Service (SES) protocols vary significantly across states. These variations necessitate targeted consultation with state and local agencies to translate the proposed implications into existing governance structures and operational realities.

While these implications are high-level in nature, their full potential can only be realised through collaborative development with relevant agencies and stakeholders, translating our findings into comprehensive policy frameworks. We acknowledge that disaster resilience is a shared responsibility involving complex consideration of feasibility, financial and personnel resources and risk assessment across multiple organisations with varying jurisdictional responsibilities.

While our findings reflect the 2022-2023 flood context, we recognise the dynamic nature of emergency management systems and their capacity for change. We acknowledge that progress has been achieved since this flooding event in NSW, Victoria and SA, via the conduct and review of state-level inquiries and other studies (e.g., Taylor et al. 2023) and in turn, emergency services agencies, councils and community organisations have begun addressing many of the identified implications. Just within this study alone, improvements in warning systems and coordination were documented in the WP3 case study of Rochester and Echuca, where Rochester participants reported better communication and coordination in the 2024 flood compared to the 2022 flood (for more detail, see the WP3 report, *forthcoming*).

### 1. Developing more effective communications strategies/messages during floods:

The research findings demonstrate a critical disconnect between how information is communicated during flood events and how affected communities receive and process this information. This disconnect undermines community preparedness and response, highlighting the need for fundamental changes in flood communication approaches.

- Effective communication during floods requires simplifying complex concepts and tailoring information to address the practical, localised concerns of those directly affected. Our research suggests that while officials provided various forms of technical data including height and time-based warnings and/or water flows in many locations, community members needed this information translated into practical, location-specific implications for their homes and neighbourhoods. This mismatch in technical flood data and its meaningful consequences may have impeded effective decision-making and preparedness at the household level. To bridge this gap, improved communication strategies would incorporate both technical measurements and practical implications, presenting information in ways that directly address community questions about potential impacts on their homes and neighbourhoods.
- The research findings also suggest a need to revisit flood maps and modelling methodologies to identify potential improvements. Concerns were raised by community members that changes in the floodplain, due to development, infrastructure modifications (such as levees and irrigation systems) and vegetation removal have altered flood behaviour and flood predictions did not adequately take account of these



changes. These modifications to the natural landscape were perceived to have undermined the accuracy of flood predictions. By better addressing the complex interactions between ongoing human modifications to the landscape and flood dynamics, more accurate prediction models would be achieved that better reflect actual flood behaviour in modified landscapes.

- The research emphasizes the critical importance of delivering timely, accurate, consistent and relevant information through trusted sources. This requires building proactive relationships between emergency services and communities during non-disaster periods. This suggests a shift in resource allocation, with greater investment in community engagement and incorporating community into official communication structures before events occur. Examples of effective official-unofficial communication collaboration include:
  - Emergency agencies using neighbourhood WhatsApp groups to share warnings, real-time updates and evacuation instructions, ensuring rapid dissemination of critical information
  - Collaborating with local Facebook pages administrators to distribute official updates, leveraging existing community networks for broader reach and trust
- Additionally, the findings highlight challenges in communicating effectively with CALD communities. Emergency communication needs to incorporate systematic cultural competency frameworks within emergency management systems to ensure these communities can effectively understand and respond to natural hazards. This includes using clear context-specific language that acknowledges varying interpretations of terms like 'flood', which may carry different connotations depending on cultural backgrounds and previous experiences. Providing visual aids, multilingual resources and culturally adapted explanations of local flood dynamics can help bridge the gap in understanding emergency warnings. The research also identifies specific communication methods that proved effective for CALD communities including:
  - Disseminating warnings and information in communities' origin languages
  - Utilising voice messaging in appropriate languages to address literacy barriers
  - Working directly with CALD community leaders as trusted intermediaries
  - Incorporating visual aids that transcend language barriers

## 2. Facilitating greater collaboration between emergency agencies and communities

The research findings also highlight the critical importance of fostering stronger collaboration between emergency response and recovery agencies and the communities they serve. Effective flood management requires not only coordinated efforts *during* a crisis but also the establishment of trust and partnerships *before* events occur. The following implications outline actionable steps to enhance collaboration, incorporate local knowledge and empower communities in flood planning, response and recovery.

- Establishing relationships with communities before flood events is essential to facilitate communication, cooperation and locally appropriate response. Pre-existing connections enable emergency and recovery agencies to better understand community needs, tailor their approaches and build trust. This is particularly important in addressing the trust deficit between state emergency service (e.g. SES) and local communities, which has been eroded by past experiences. By engaging with communities proactively, agencies can rebuild trust and ensure more effective collaboration during crises.
- Creating more effective and inclusive planning processes could be beneficial to build and nurture collaborative relationships with Aboriginal Community Controlled Organisations (ACCOs). By integrating their knowledge and expertise into planning, strategies can be more culturally informed and community-centred, ensuring they align with the unique needs and perspectives of Aboriginal communities.
- Local communities possess invaluable knowledge about historical flood patterns, local waterways and effective mitigation strategies specific to their areas. This local expertise could be better integrated into flood planning, response and recovery efforts. Creating opportunities for genuine community involvement in adaptation strategies ensures that local knowledge is acknowledged and utilised, leading to more effective and context-specific solutions. A two-way exchange of knowledge between agencies and communities can



also reduce feelings of helplessness and insecurity among residents, fostering a sense of agency and resilience.

- Communities are more likely to support and adhere to flood management strategies when they are actively involved in the decision-making process. Providing opportunities for genuine community engagement during key moments for change- such as after a flood event- can enhance community support and ensure that adaptation measures are locally relevant and sustainable. Regular updates on progress and changes can further strengthen trust and transparency.
- Many community members feel vulnerable due to factors beyond their control, such as inadequate upstream management or poorly maintained levees or lack of capacity to act on warnings, for instance due to carer responsibilities or financial precarity. This sense of vulnerability can lead to feelings of helplessness, maladaptive behaviours and fatalism. Transparent and decisive actions from state and local government agencies would help to address these concerns, such as improving upstream water management and repairing levees, in order to reduce the likelihood of future damage and restore a sense of security among residents.
- The research reveals that community members often serve as first responders during flood events, as seen in Rochester, Victoria. Providing training for community members and developing contingency plans for when volunteers are unavailable can enhance local capacity to respond effectively during emergencies, which also aligns with previous flood research in other locations in Australia (Taylor et al., 2023, p. 60). This approach not only strengthens community resilience but also ensures continuity of response efforts when external support is limited.
- Greater collaboration between communities, emergency agencies and recovery organisations is essential to reduce the prolonged duration of recovery periods. Ensuring good communication with affected community members throughout the recovery process can help address their evolving needs and prevent feelings of abandonment or frustration. This includes aligning recovery timelines with community realities and providing ongoing, long-term support for mental health, rebuilding and future mitigation efforts.

### **3. Acknowledging and preparing for different flood types**

The research highlights significant differences between rapid-onset and slow-onset flooding events, presenting unique challenges that require tailored approaches in preparedness and recovery efforts. The following implications outline strategies to better support communities through these flood typologies.

- Improved awareness raising, within response agencies and the wider community, on the different impacts and challenges of rapid- and slow-onset/slow-retreat flooding would assist with improved preparedness and more appropriate support for recovery particular to each flood type.
- Slow-onset floods characterised by prolonged anticipation and extended preparation periods, create both opportunities and challenges for communities; while some residents use this time efficiently to protect their homes and assist others, others lack the capacity- due to physical, financial, or knowledge constraints- to undertake preparatory measures. For those who take action, the extended period of uncertainty takes a significant toll on mental health, leading to heightened anxiety and stress. To address these challenges:
  - A greater use of standardised vulnerability and capacity assessment tools by response agencies and councils would help identify opportunities for investment in and collaboration with communities in order to reduce vulnerability and enhance capacities as part of future disaster and adaptation planning.
  - Policy frameworks could establish formal mechanisms to support long-term preparation efforts, such as equipment loan programs for extended periods and a volunteer rotation system to prevent burnout. Fatigue management guidelines and resource conservation protocols, along with dedicated funding for ongoing support, can help sustain community energy and resilience throughout prolonged flood events.
- The prolonged nature of slow-onset floods often leads to information overload and preparation fatigue, where residents become overwhelmed by the constant state of alertness and the volume of information.



Providing clear, actionable guidance on how to prepare over an extended period can help mitigate these challenges. This can include breaking down complex preparation tasks into manageable steps and provide regular updates to keep residents informed without overwhelming them.

- The prolonged anticipation of slow-onset floods has significant mental health impacts, which may be overlooked in current response protocols. Funding could be allocated for mental health interventions during extended warning periods, not just during recovery and clear referral pathways could be developed for accessing psychological support services throughout all phases of flood events.
- Slow-retreat floods, where floodwaters recede gradually over weeks and months, present unique recovery challenges. Unlike rapid-onset events, where damage is immediately visible, slow-retreat floods often leave residents uncertain about the extent of damage to their home for extended periods. To better support communities during recovery process:
  - Policy reforms could prioritise flexibility and adaptability in recovery assistance. This may involve replacing fixed end dates with criteria that reflect actual community needs and designing modular recovery programs that can be deployed sequentially, aligning with the pace of water recession. Mechanisms could be established to extend assistance based on water recession rates and ongoing needs assessments, ensuring that support remains available when communities are ready to engage.
  - Policy reforms could also include specific provisions for prolonged flood scenarios, such as phased damage assessments triggered by water recession milestones, medium-term housing solutions for extended displacement and specialised case management systems for households facing prolonged uncertainty.

#### 4. Reforming the insurance process for flood-affected communities

The research findings highlight significant challenges in the insurance process for flood-affected communities, many of which align with the recently published federal report: ‘Inquiry into insurers’ responses to 2022 major flood claims’ (Parliament of Australia, 2024). To address these issues and improve outcomes for residents in our studied locations, the following implications are listed with links to relevant recommendations from the 2024 inquiry, where applicable:

- Many residents face difficulties understanding their insurance policies and navigating the claims process, particularly during the stress of a flood event. Insurance companies could improve insurance processes by providing clear, accessible information about policy coverage and the claims process before a flood occurs (Parliament of Australia, 2024; Recommendation 1, 4.113; Recommendation 2, 4.114; and Recommendation 24, 5.42). This includes developing materials that explain policy details, coverage limits and steps to file a claim in simple, non-technical language. Additionally, transparency in funding allocations and claim decisions could be prioritised, ensuring that residents are fully informed about how their claims are being processed (Parliament of Australia, 2024; e.g., Recommendation 10, 4.172; Recommendation 17, 4.179; Recommendation 33, 5.122).
- The research also identifies inconsistencies in damage assessments, specialist reports and the quality of work by contracted builders and tradespeople. To address these issues, the insurance process would also be improved via robust oversight mechanisms; including implementing independent monitoring of insurance companies, assessors and contractors to ensure fair and accurate damage assessments and repairs (Parliament of Australia, 2024; e.g., Recommendation 21, 4.208; Recommendation 45, 6.141). A dedicated complaint resolution body could also be created, where residents can lodge complaints about delays, unfair practices, or poor-quality work (Parliament of Australia, 2024; Recommendation 42, 6.138).
- The quality of tasks such as specialist reports has been a recurring issue, often delaying recovery efforts and pointing to improvements to the standards and reliability of these critical tasks. Improvements to this process could involve providing guidelines for mould assessments, specialist reports and other required tasks (Parliament of Australia, 2024; e.g., Recommendation 5, 4.117), as well as ensuring that experts involved in analysing expert reports are properly trained (Parliament of Australia, 2024; Recommendation 43, 6.139).



- The availability of skilled tradespeople is often a bottleneck in the recovery process, delaying repairs and rebuilds. Improvements here could be made by accounting for higher labour costs in both the policyholder's sum insured and insurance payouts (Parliament of Australia, 2024; Recommendation 13, 4.175; Recommendation 25, 5.43). Aside from the inquiry recommendations, our findings also suggest establishing programs to increase access to skilled tradespeople, e.g., providing incentives for tradespeople to work in flood-affected areas. By ensuring an adequate workforce is available, the rebuilding process can be accelerated, helping communities recover more quickly and to a higher standard of construction, reducing the likelihood of future issues.
- Navigating the insurance process can be overwhelming for flood-affected residents, particularly those dealing with extensive damage or buy-outs. Policy reforms could require insurance companies to assign case managers to all residents engaged in insurance claims or buy-outs (Parliament of Australia, 2024; Recommendation 34, 5.123). These case managers would provide personalised support, guiding residents through the claims process, answering questions and resolving issues promptly (Taylor et al., 2023). They would also act as a single point of contact for all insurance-related matters, reducing confusion and stress for residents.

## 5. Addressing the disruptive nature of temporary housing

This research also highlights the significant challenges associated with temporary housing for flood-affected communities, particularly the disruption it causes to residents' lives. To address these issues and provide more stable and supportive housing solutions, the following options could be considered:

- The disruptive nature of temporary housing can be mitigated by establishing pre-event relationships with accommodation providers, which also aligns with previous flood research in other locations in Australia (Taylor et al., 2023, p. 78). By formalising agreements with hotels, motels and other housing providers before a flood occurs, emergency agencies can ensure more stable and reliable temporary housing options post-flood. Such measures can also partially offset the negative impacts of floods on local tourism, by providing revenue to accommodation providers (in the wake of tourist cancellations). This approach allows for quicker and more coordinated responses during emergencies. Pre-arranged agreements also enable better planning for the specific needs of displaced residents, such as proximity to schools, workplaces and support services. Provision of temporary accommodation as close to displaced people's homes and community as possible should be a guiding principle, as this greatly assists people's recovery-- they are better able to maintain established information and support networks.
- For slow-onset floods, stakeholders suggest considering local context and resident preferences when planning temporary accommodation. While some may benefit from direct placement into longer-term housing, other families may prefer to remain on or near their properties during rebuilding to maintain connections with school, work and community. Recovery planning should incorporate flexibility to accommodate diverse needs, recognising that one-size-fits-all approaches may not work across different communities. Improved availability of cheap and proximate storage facilities for those experiencing long periods of inundation is also an important need for those able to transport and remove belongings from their homes prior to inundation.

## 6. Improving emergency accommodation and relief centres

The research underscores the critical need to improve emergency accommodation and relief centres to better meet the needs of flood-affected residents. Addressing these gaps requires a focus on accessibility, cultural sensitivity and comprehensive support services. The following can be considered to create more supportive and inclusive evacuation or relief centres:

- Improvements to evacuation centres could focus on ensuring access to nutritious food, reliable transportation, appropriate clothing and adequate sleeping quarters and toilet facilities. Thoughtful planning should also consider the needs of vulnerable groups, such as children, the elderly and people with



disabilities. By offering a holistic range of services, these centres can provide a more supportive environment that helps residents maintain dignity and stability.

- A significant issue raised in the research is the lack of culturally sensitive evacuation centres. Many residents felt their cultural needs were overlooked, which added to their discomfort and influenced their decision to evacuate. Relief centres could be designed with a culturally sensitive lens, providing private spaces for families and accommodating specific cultural practices. For example, separate sleeping areas and toilets for men and women, access to culturally appropriate food and spaces for prayer or reflection can make a significant difference. Creating an environment where families have privacy and their cultural needs are respected will encourage more residents to use these facilities during emergencies.

## **7. Addressing the tension between adaptation and affordability**

The research highlights a critical tension between the need for flood-resilient building standards and the affordability of such measures for residents in high-risk flood areas. This tension poses significant challenges for insurance companies, uninsured (or under-insured) residents and regulatory agencies. The following implications are identified from this study:

- The high cost of rebuilding homes to flood-resilient standards, such as raised foundations and detachable walls, is a major barrier for many residents, particularly in economically disadvantaged communities. Residents have requested the prioritisation of developing and promoting affordable building solutions that meet flood-resilient standards without imposing excessive financial burdens. This could include subsidised building materials, low-interest loans, or grants for homeowners in high-risk areas. By making flood-resilient designs more accessible, communities can reduce their vulnerability to future floods without compromising affordability.
- There are clear limits to adaptation measures that can be implemented at the scale of individual houses through improved building codes. Following major flood events, there is often a window of opportunity to work with communities to explore the acceptability of and interest in buy-backs and rezoning for planned-retreat. For high-flood risk areas, inclusive community planning to consider buy-backs and planned retreat should be undertaken as part of adaptation planning in order to reduce the long-term humanitarian, financial and environmental impact of extreme flood events.



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# Appendices

## Appendix 1

### Participant narrative of rapid-onset flooding in Victoria (A16)<sup>4</sup>

When the warnings began in October 2022, I, as a Rochester resident of many years, relied on official sources: a town meeting led by SES, police and Catchment Management, along with updates from the local Facebook page. The authorities predicted floodwaters 10cm higher than the 2011 floods, a benchmark my family and I used to prepare.

But the reality was far worse. The water surged 80cm higher, overwhelming defences and submerging homes. My trust in official forecasts was shaken. *"You put faith in what the authorities say,"* I reflect, *"but this time, the locals who warned it would be worse than '76 were right."*

My house, elevated on stumps, was difficult to protect with sandbags-each household was limited to 10-20 bags, an impossible number for a large property. Instead, I lifted furniture onto pavers, stacking beds and belongings 30cm high, believing it would be enough.

My primary concern was my elderly neighbours who refused to leave. My eldest son and I stayed behind to assist, coordinating with SES, who checked in that morning to confirm our plans.

By afternoon, the water rose alarmingly fast. The SES returned, this time in panic mode, shouting, *"Get the hell out! Look what's coming!"* A wall of water surged down the street, forcing my son and me into our 4WD. We drove through floodwaters up to the bonnet just to escape. We couldn't return for five days. When we did, the devastation hit hard.

Our insurance company was slow. Their loss adjuster dragged things out for months. Only after escalating to the Insurance Council did they replace him, finally speeding up repairs. Neighbours washed our clothes, cleaned, even housed us temporarily. The Hub organised food vans, though distribution was uneven.

My wife struggled badly. Our elderly neighbours had breakdowns from displacement.

### Participant narrative of slow-onset flooding in SA (B7)

In October 2022, I visited family near Wodonga, Victoria in October 2022, where the Murray River begins. I saw how bad the Victorian floods were. Whole paddocks were underwater and I knew that water would eventually come our way. When I returned to Mannum in late October, people were talking about possible flooding, but since we hadn't had much local rain, many didn't take it seriously. Having seen the water upstream, I warned my family: *"This is going to be big."*

We spent every spare minute from late October preparing. My siblings, their spouses and I worked tirelessly. The hardest part was not knowing exactly how bad it would be. We checked government websites and flood modelling tools, but the projections kept shifting.

At first, everyone focused on sandbagging. We got over 70 volunteers to help build a protective wall around our house. But we weren't engineers. We used farm equipment, pallets and plastic sheeting to try to hold it together. In the end, it didn't work. The wall collapsed outward when water got underneath through old pipes we didn't know were there. All that time and effort was wasted. If I had to do it again, I wouldn't bother with sandbags- I'd just focus on moving our things to safety.

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<sup>4</sup> These narratives are not direct quotes from transcripts, but instead rewritten to closely reflect the participant's experiences/stories without the risk of identification.



Getting my elderly mother to leave was tough. She kept trying to save things by tying them up or putting them on high surfaces. It wasn't until they announced they were cutting power and closing roads that she finally agreed to go. By then, we'd left it too late to save many of our belongings. Kitchen cabinets, furniture, family items ... we had to leave so much behind.

When the floodwaters finally came [peaked on 7th of January 2023], it was almost a relief after all the stress of preparing. But watching our security camera footage as our possessions floated away was heartbreaking. Things we'd tied down broke loose and damaged other structures. Some people even came and stole items that had washed up on other parts of our property.

The cleanup was worse than the preparation. Mud was everywhere- in pipes, walls, everything. Without power, we had to use river water to clean, which felt pointless. Many of the volunteers who'd helped with sandbagging didn't come back for the dirty work. Insurance was slow and now we can't even get flood coverage anymore.