Natural Hazards Research Australia

# Community experiences of the January – July 2022 floods in New South Wales and Queensland
Summary Report

The research summarised in this document was conducted by:

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## Natural Hazards Research Australia

Natural Hazards Research Australia is Australia's national research centre for natural hazards resilience and disaster risk reduction, continuing the coordinated national research effort of the Bushfire CRC and the Bushfire and Natural Hazards CRC. It began on 1 July 2021, funded with $85 million from the Australian Government, and is currently working closely with the government, partners and research sector to develop and implement a program of strategic research for Australia. For more information, visit www.naturalhazards.com.au.

Natural Hazards Research Australia's staff work from Wurundjeri, Yuggera, Turrbal, Burramattagal and Dharawal Countries. We thank and acknowledge the Traditional Custodians of these lands and all the lands where we work, live and walk, and pay our respects to Elders past, present and emerging. We recognise that these lands and waters have always been places of teaching, research and learning, and that sovereignty has not been ceded. We are committed to strengthening reconciliation and building resilience through respectful and empowering relationships with First Nations communities, peoples and partners.

**Cover photo:** Floodwater in Warwick, Queensland 2022. Photo: Queensland Fire and Emergency Services.

**Australian Government**

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PHOTO: MEL TAYLOR

Madeleine Miller and Bob May during fieldwork in the Northern Rivers, NSW.

# Introduction

## The 2022 eastern Australia floods

The eastern Australia floods in 2022 followed two years of above average rainfall, and nationally, the wettest month on record was recorded in November 2021. There was flooding in Queensland in November and December 2021. Ex-Tropical Cyclone Seth brought further rainfall in late December and early January causing flooding in southeast QLD and the Mary River. Soils were saturated.

Southeast QLD experienced extreme multi-day rainfall and significant flooding from 22 February to 7 March 2022. Flooding impacted 23 of QLD's 77 Local Government Areas (LGAs). Areas impacted by flooding included the Wide Bay and Burnett district to the north, Darling Downs and Granite Belt to the west, and the southeast coast districts. In QLD the Bureau of Meteorology (BOM) issued more than 500 warnings, and the highest recorded weekly rainfall total was 1344mm in Upper Springbrook, inland from Burleigh Heads, near the QLD-New South Wales border. Although many towns were affected, the towns of Gympie and Maryborough, and Brisbane suburbs from Ipswich to Logan and to the north and west of Brisbane, and the Sunshine Coast were particularly impacted.

The multi-day rainfall extended from QLD into NSW, flooding eastern NSW with more than 1 metre of rainfall. The Northern Rivers area in the northeast of NSW was seriously impacted with river heights on the Wilsons River in Lismore peaking at 2 metres above previous records on 28 February 2022. Major flood levels were reached on the Richmond River at Coraki and Woodburn on 28 February, and on the Hawkesbury-Nepean River to the west and north of Sydney during the period 8-9th March. Further flooding occurred in other areas including the Clarence, Lower Hunter, and Wollombi creek catchments. Disaster declarations were made in 61 LGAs.

Further rain fell in late March, impacting Toowoomba and Dalby in QLD, and Byron and Ballina in NSW – as well as other areas that had been flooded earlier in the month. This second flood, although not as severe, was a major set-back to communities still clearing up from the first flood, in places like Woodford, Coraki, and Lismore. Further damage was also done to eroded riverbanks, landslips, undercut roads, and other already damaged infrastructure.

Further heavy rain occurred in NSW in late June, leading to further – and higher flood levels – in early July, with impacts in the Greater Sydney – Woronora area, Camden, Illawarra, Central coast, and Hunter. At Windsor, the Hawkesbury River peaked nearly a metre higher in the July flood compared to March, and flooding in the Bulga and Wollombi areas also exceeded the March levels. Disaster declarations were made in 37 LGAs in the July 2022 floods.

## Download all reports at
www.naturalhazards.com.au/floods2022

# About this research

This document summarises key high-level findings from the *Community experiences of the 2022 Australian floods – Queensland and New South Wales* research project, conducted by Natural Hazards Research Australia in partnership with Macquarie University, the University of Southern Queensland and the Queensland University of Technology, and supported by the NSW State Emergency Service and Queensland Fire and Emergency Services.

The purpose of this project was to hear and learn from the personal stories of people who were impacted or threatened by flooding in Qld and NSW between January and July 2022 with a large mixed-method, post-event study.

The outcomes from this research, including those summarised in this document, can be used by government departments, emergency services and other groups to inform strategies that improve flood safety and community resilience, from preparedness and response to longer term adaptation, not just in NSW and Qld but across Australia.

# About this document

The high-level findings presented in this *Summary Report* include an overview of the research and methodological approach (including interviews and survey), with brief descriptions of:

→ **five overarching cross-cutting themes:** these are interlinked, highlighting a set of issues that contributed to the complexity of the 2022 floods and post-flood recovery. These themes recur in the content of resident interviews and also provide context for interpretation of many of the survey findings.

→ **13 themes emerging from interviews:** these are common issues reported from the perspective of many residents, identifying problems and challenges that were faced directly by the interviewed resident, their household, or local community members, friends and neighbours. Selected themes have been included in this *Summary Report* based on their salience to residents and immediate policy relevance to stakeholders, so they still only represent a subset of themes identified during the coding.

→ **five content areas derived from survey:** these are determined by the structure of the questionnaire that was co-designed by researchers and research end users from their perspectives and provide a deductive 'top-down' contribution to the study and analysis.

→ **four main challenge areas:** broad areas that require ongoing consideration and coordinated approaches by a range of stakeholders.

→ **policy-relevant implications:** relating to preparedness and mitigation, response and recovery, including possible approaches to addressing these implications.

For a more detailed breakdown of findings and stakeholder implications, read the in-depth reports of findings (available via link and QR code on page 2).

# End-user statements

**Commissioner Carlene York APM, NSW State Emergency Service**

New South Wales communities have experienced severe to catastrophic flooding in multiple locations between 2020 and 2023. Some communities were impacted by flooding numerous times over the past 3 years with the floods occurring across NSW in 2022 resulting in over 20 floods of record. Communities across the state were impacted, sometimes two or three times. Recovery for many of these communities is ongoing and will take many years.

There has been much anecdotal information on the experiences of communities impacted by natural disasters. This research project has provided the NSW SES with an opportunity to work with communities impacted by flooding to better understand their perspective. It provides a rich contextual overlay to assist emergency management organisations, government departments, local councils, community organisations and community members better understand the complexities of community experience before, during and after severe-weather events and disasters.

The research provides a wealth of data that will be utilised by stakeholders, across all hazards, to develop policies and approaches to address gaps, and improve community preparedness, safety, and recovery.

NSW SES would like to thank the members of flood-impacted communities who shared their experiences of the floods with the researchers. It is through learning from community experiences and working together that we grow our collective capability to improve community safety before and during disasters, and to recover afterwards.

The important insights gained through this research project will inform future preparedness, response and recovery work undertaken by NSW SES.

**Commissioner Greg Leach, Queensland Fire and Emergency Services**

The severe rainfall and flood events experienced in southeast Queensland and northern New South Wales in the first half of 2022 delivered unprecedented flood levels, destruction and demands on emergency services. While community safety and engagement at the time of such events is imperative, there also exists a complex post-event world that presents people with long-term challenges and obstacles to rebuilding their homes and communities. With community members open to sharing their spectrum of experience related to these, the 2022 rainfall and flood events presented an opportunity for researchers to apply methodology in capturing people's stories and translating them into findings and products with real-world application.

Partnering as an end-user agency with Natural Hazards Research Australia on this work afforded Queensland Fire and Emergency Services (QFES) the opportunity to support and engage in a unique community-focused post-event investigation. Grounded in the rigour of a mixed-methods approach used previously by the Bushfire and Natural Hazards Cooperative Research Centre, and aligning strongly with QFES values and guiding principles, the research described in this report captured community members' post-event stories, including less quantifiable aspects that can often be missed. A more person-centred community focus permitted more personal input beyond traditional metrics used to describe experiences associated with an event, with analyses leading to a set of policy-relevant themes.

Accurately gauging, considering, and applying community experience and perspective is an important part of contemporary emergency sector agencies and the services they deliver. The current research demonstrates that community members directly impacted by the 2022 rainfall and flood events have valuable insights that they are willing to share, together with an optimism that lessons learned from their tragedy can genuinely contribute to the evolution of prevention, preparedness, response, and recovery policy. QFES looks forward to seeing the uptake and application of these important findings and to expanding research partnerships on further community-focussed topics.

# Research summary

## Approach

The study design followed a post-event research approach used consistently by Australian researchers working in community-focused research, post bushfire. The study comprised two phases:

→ Interview phase (Aug 22 – Oct 22) – a mix of virtual (videocall/phone) and in-person interviews.

→ Survey phase (Nov 22 – Feb 23) – an online questionnaire.

A total of 192 flood-impacted residents (92 QLD/100 NSW) were interviewed using a participant-led and trauma-informed approach that invited residents to 'share their story'.

The online survey was informed by the interviews and included a mix of questions used in prior post event research as well as tailored questions. A total of 430 flood-impacted residents participated in the survey; 67.4% were from NSW (n=290) and 32.6% were from QLD (n=140). Study participants did not receive financial compensation for their contributions.

The mixed methods approach used in this study is a strength. The qualitative (interview) component of the study provides detail and richness about individual lived experiences, and the analysis into themes allows for commonly reported experiences to be presented and reported succinctly here. The quantitative (survey) component of the study allows for broader trends in the data to be identified and for statistical analysis to be undertaken to identify significant associations between variables. Qualitative data are not readily generalisable to the broader population, whereas quantitative data are expected to be more representative of the target population, i.e., adult residents (18+) in QLD and NSW who were impacted by flooding in the period Jan-July 2022. In this study the total sample (n=430) provides an estimated margin of error of 4.8% at the 95% confidence level, and samples within each state have a margin of error of 5.8% for NSW and 8.3% for QLD.



Research promotion at local markets in Qld.

PHOTO: BARBARA RYAN
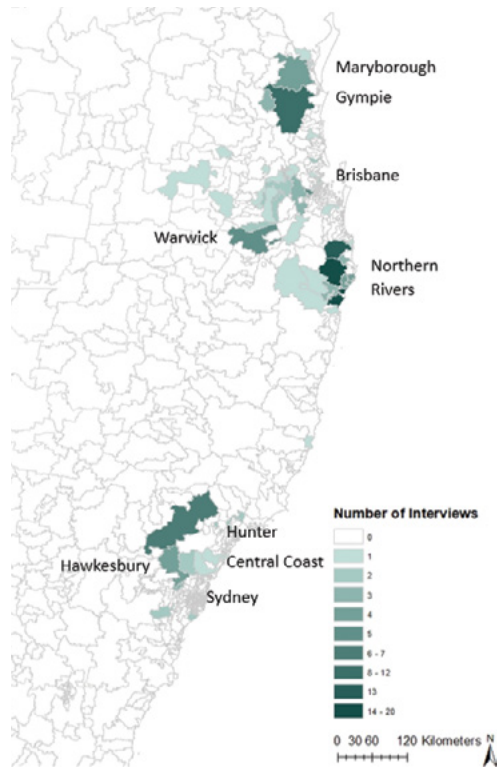
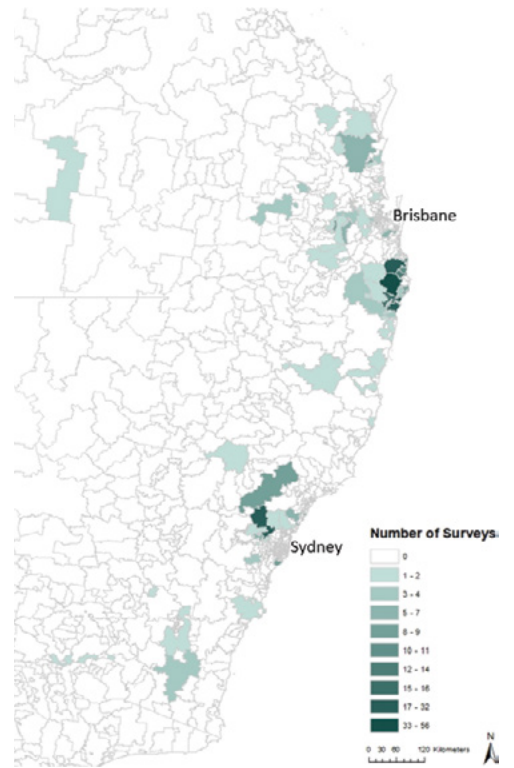**Figure 1.** Map showing location (postcodes) of the 192 residents who participated in the interview phase of the research.



**Figure 2.** Map showing location (postcodes) of the 430 respondents who participated in the survey phase of the research.



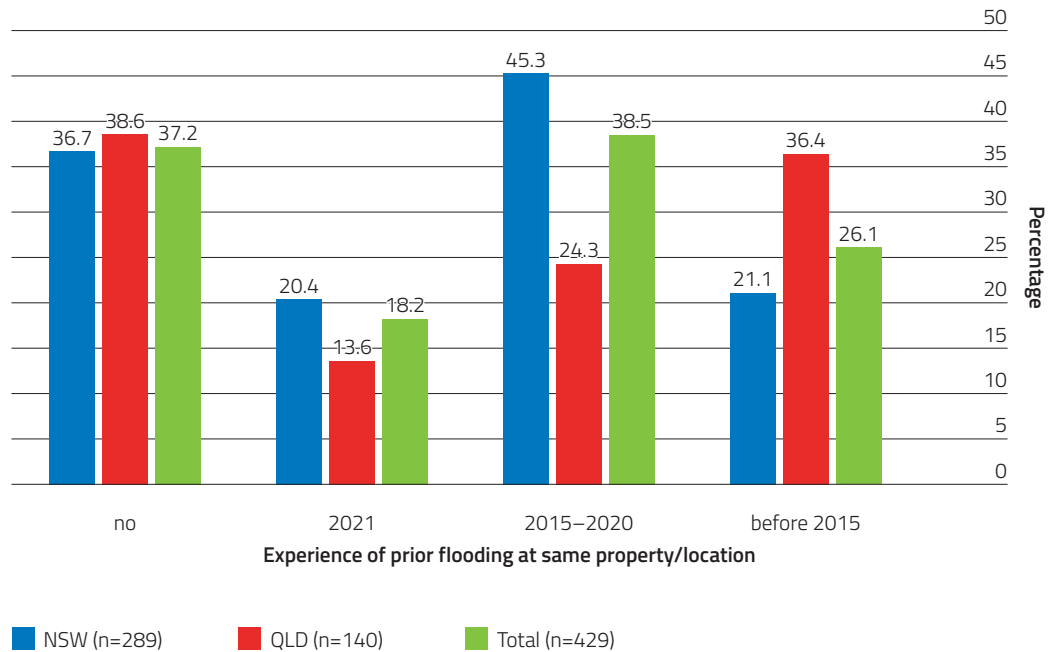**NSW (n=289)**  **QLD (n=140)**  **Total (n=429)**

**Figure 3.** Exposure to prior flooding at the same property/location and the timing of prior flooding (multiple responses permitted).

# Cross-cutting themes

These themes are interlinked, highlighting a set of issues that contributed to the complexity of the 2022 floods and post-flood recovery. These themes recur in the content of resident interviews and also provide context for interpretation of many of the survey findings.

→   **Flood severity**: the exceptional nature of the flooding and its physical impacts, and how that affected residents in flood prone areas. This includes residents with prior experience of flooding who had varying degrees of preparedness, as well as those who had little or no awareness of the potential for flooding, and never experienced flooding at their property, and were unexpecting and unprepared.

→   **Scale of flooding**: the magnitude of the flooding and associated impacts, such as the stretching of resources in response, constraints on help and support, shortages of supplies, expertise, and trades, and accommodation.

→   **Timeframes:** linked to the scale of flooding, resulting in slow progress in recovery, extended demands on services and supports, implications for mental health, and waiting in uncertainty, 'in limbo', for external decisions and processes that are beyond individual control, such as insurance outcomes, buybacks, etc.

→   **Compounding, cascading disasters, and climate change**: the interplay of prior flooding and multiple recent floods, bushfires, COVID, and other adversities on the capacity of individuals and communities to recover and function, and institutions to respond, in the wake of the 2022 flood/s. The impacts of COVID, as a concurrent challenge, on flood response and recovery. The uncertainty of the, then, ongoing threat of (a third) La Niña, and a future of more severe and more frequent natural hazard events in the context of climate change.

→   **Vulnerability context:** the pre-existing and varied physical, economic, social, and environmental vulnerabilities across flood-impacted communities, and the tendency of disasters to exacerbate these pre-existing vulnerabilities. Recognition that not all communities start-out from the same position before disasters strike and that they have different adaptive capacities.

*At the moment this town is full of people in these caravans.*

*Nearly every house or even second house has a rented caravan on it, at ground level. So, if there's another flood, even a small flood, all of those caravans are going to flood.*

*I don't know what the answer is, I don't know what we're going to do. I don't know if this is going to be an ongoing issue, if it's just a particular La Niña issue, is it climate change, is it… what?*

*I don't know, but for me personally, there's no guarantee that it's not going to happen again, therefore it's not worth me spending my limited resources fixing something that it then becomes vulnerable, because I don't have the money to fix it a second time.*

**NSW006**

Flooding in the Hunter region, NSW.

PHOTO: JONATHAN BENISTON

## Themes emerging from interviews

Thirteen qualitative policy-relevant themes are detailed, identifying problems and challenges that were faced directly by the interviewed resident, their household, or local community members, friends and neighbours. These themes are:

→ **Flood data** – issues with accessibility to good quality data, trust in the accuracy of data for local flood risk management, and ongoing flood literacy issues.

→ **Localised perspective** – the need for focus at the local level and inclusion of local knowledge. Rejection of official information due to lack of local relevance. Having local knowledge rejected.

→ **Dashboards** – issues in the use of local council information hubs.

→ **Information expectations** – a need for timely, relevant, and accurate official information, and the move to established trusted community sources on social media.

→ **Forgotten people and forgotten places** – a sense of being forgotten, let down, and overlooked during the floods, managing disillusionment, and the role of media.

→ **Community responders** – the changing role of communities and integration into emergency management. The good and bad impacts of disaster on communities, and communities planning for future response.

→ **Clean-up** – managing the challenges of the clean-up. Renegotiating relationships with possessions, dealing with looting and scavenging, the impacts of untrained and overzealous helpers, and an appeal for support with help literacy.

→ **Insurance** – the advantages and disadvantages of insurance in a large-scale disaster. Challenges with claiming, assessment, resolution, rebuilding, and reinsuring.

→ **Bureaucracy** – encountering a range of challenges in gaining financial support. Challenges for persistence, connectivity, and documentation in post-disaster settings. Potential for retraumatising effects of repeated lodging of claims and discontinuity in responses.

→ **Temporary housing** – managing displacement, being moved around, loss of agency, and being 'homeless'. Caravan living, and issues for people who are homeowners and/or have insurance.

→ **Disaster opportunism** – frustration at the perceived financial exploitation of flood-impacted residents and the disaster situation broadly. Scams, rorts, opportunism, and theft.

→ **Recovery fatigue** – communities struggling to keep volunteering in recovery support with insufficient resources.

→ **Infrastructure, planning, and maintenance in sensemaking** – frustration at the lack of maintenance of stormwater drainage and water and rain gauge systems, and the impacts of planning decisions and infrastructure construction in compounding the impacts of flooding.

*We just started [cleaning up], they were just loading the truck and I'm trying to say, trying to save the most important things, and my husband was supposed to be doing that in the garage, but he was in such a state that he was helping to load the truck! They just threw out everything, and he was supposed to be saying, "No, stop it", but he wasn't capable. And then later on, he's saying to me, "Where's such-and-such?" "They loaded it on the truck". "Why did they load it on the truck?" "Because you weren't capable of stopping it. You were supposed to be directing, and you couldn't do it". The memory's gone of that; it's like childbirth for him – he can't remember what happened.*

NSW026

## Localised perspective
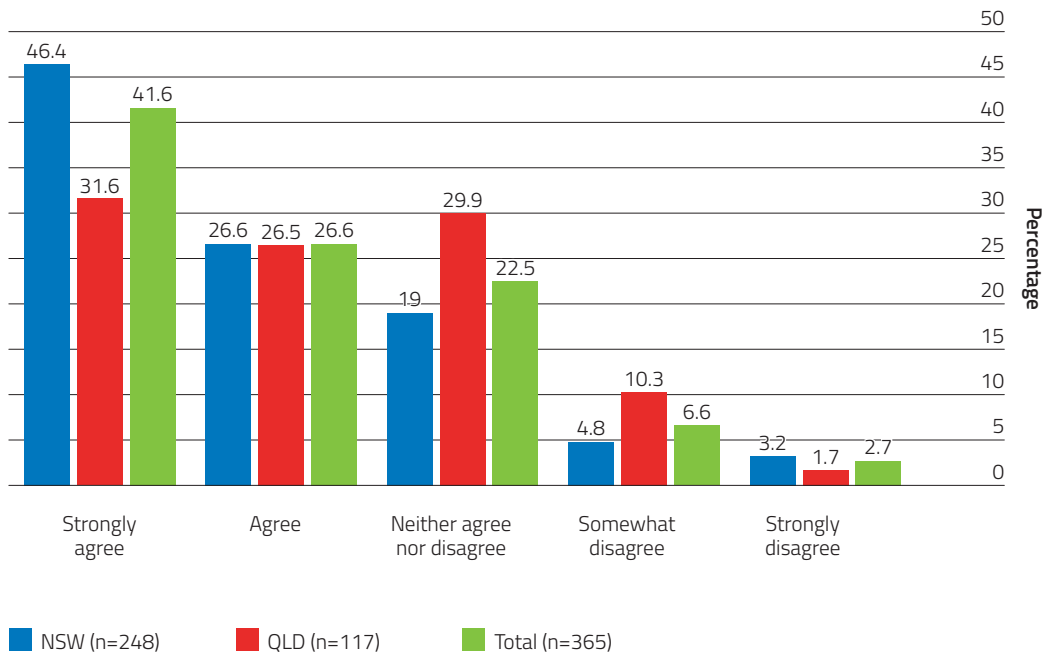


**Figure 4.** Level of agreement or disagreement with the statement "I will rely more on local information from community in future flood events.

## Clean-up
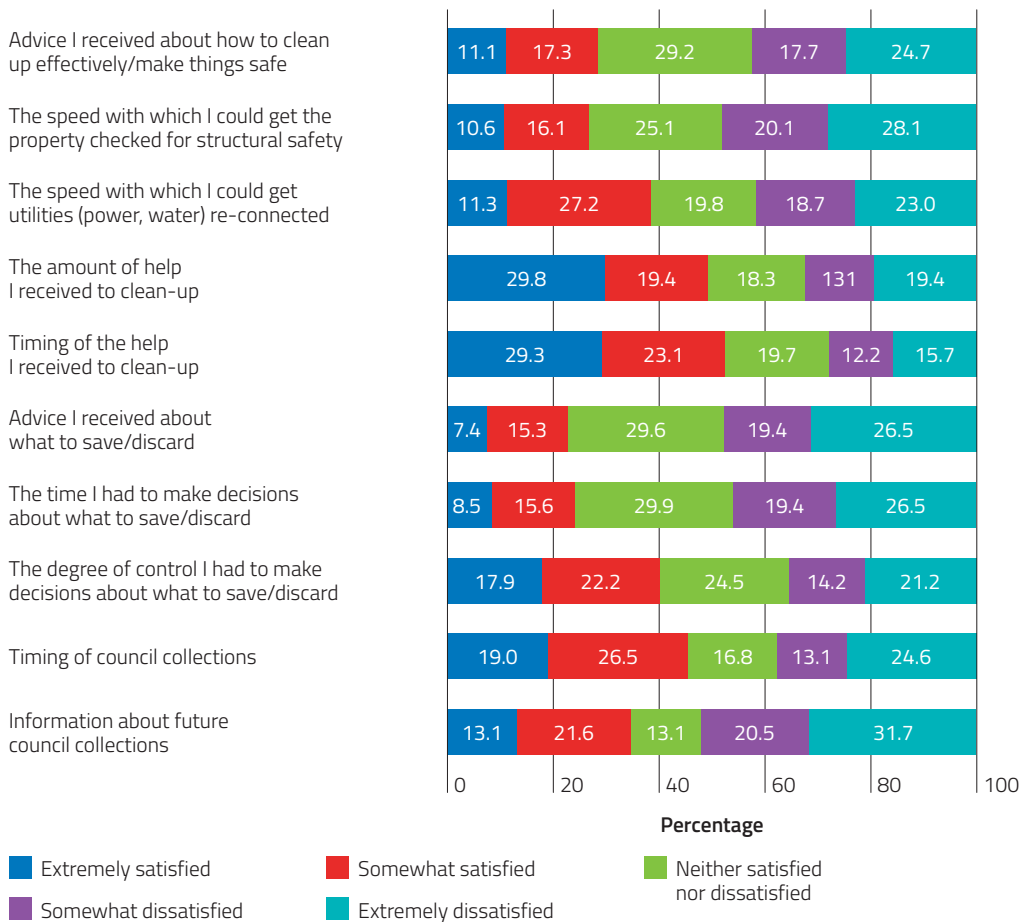


**Figure 5.** Satisfaction with various aspects of the clean-up process.

## Infrastructure, planning, and maintenance in sensemaking

| | | |
|---|---|---|
| Recent or new developments/buildings (n=302) | 27.5 · 17.2 · 16.6 · 12.3 · 26.5 | |
| Land use planning generally (n=322) | 12.7 · 14.6 · 13.7 · 19.6 · 39.4 | |
| Poor stormwater/drainage maintenance (n=333) | 12.3 · 13.8 · 11.4 · 18.3 · 44.1 | |
| New roads/infrastructure (n=312) | 23.4 · 14.1 · 15.7 · 16.3 · 30.4 | |
| Operation of a local dam (n=235) | 41.3 · 15.7 · 13.2 · 11.1 · 18.7 | |
| Alterations made on private land – e.g., levee bank, structures (n=246) | 34.1 · 16.3 · 16.3 · 11.8 · 21.5 | |
| Climate change (n=331) | 18.1 · 12.4 · 15.1 · 16.9 · 37.5 | |

Percentage

■ Not at all   ■ A little   ■ A moderate amount
■ A lot   ■ A great deal

**Figure 6.** Attribution of a range of factors that contributed to flooding.

Rebuilding sections
of a house after
flooding.

# Content areas driven by the survey

Five policy-relevant content areas driven by the structure
of the survey have been detailed. These are:

→ **Preparedness** – investigation of levels of preparedness, the role of prior experience,
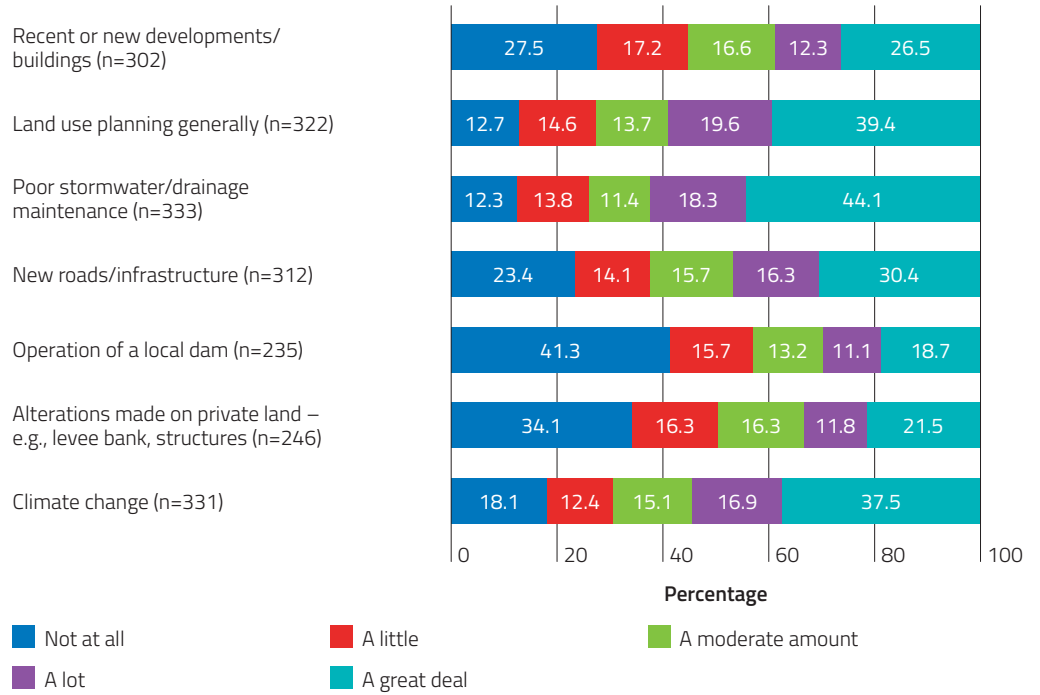why some residents were not prepared, and actions taken to prepare.

→ **Information, warnings, and trust** – how residents found out about
flooding, who they trust for information, ability to act on warnings, issues
with accessing warnings, and preferred sources of information.

→ **Sheltering and rescue** – actions taken during the flood. Who stayed, who left, and why.
Expansion on sheltering – reflections on decisions, problems encountered, rescues.

→ **Housing – modifications, reconstruction, and adaptation** – types of housing, pre-flood
modifications, losses, and damage to homes. Current living situations, challenges in reconstruction,
plans for flood modifications in rebuilding, future flood threat, and future housing plans.

→ **Sources of support and recovery** – satisfaction with support from external
organisations and the community, and self-reported recovery.

*I learnt more from our community Facebook group than I did from
watching the news and trying to get weather reports and stuff.*

Q2230

*…we had sort of said to insurance company the day that the water was
gone, "Okay, can we please knock the walls out, so that we can start
drying it out?"; and they said, "No." So, we ended up having to leave the
walls on for about a week before they could send someone out to tell
us that our house had been flooded and the walls had to come off.*

Q2210

*Everybody agrees that the dam definitely overflowed and there's this
conversation around why, there's a lot of anger about the management
of the dam and given the amount of rain that we have been having,
surely, it's foreseeable that this could be a problem and why aren't they
strategically releasing water to relieve the pressure in the dam.*
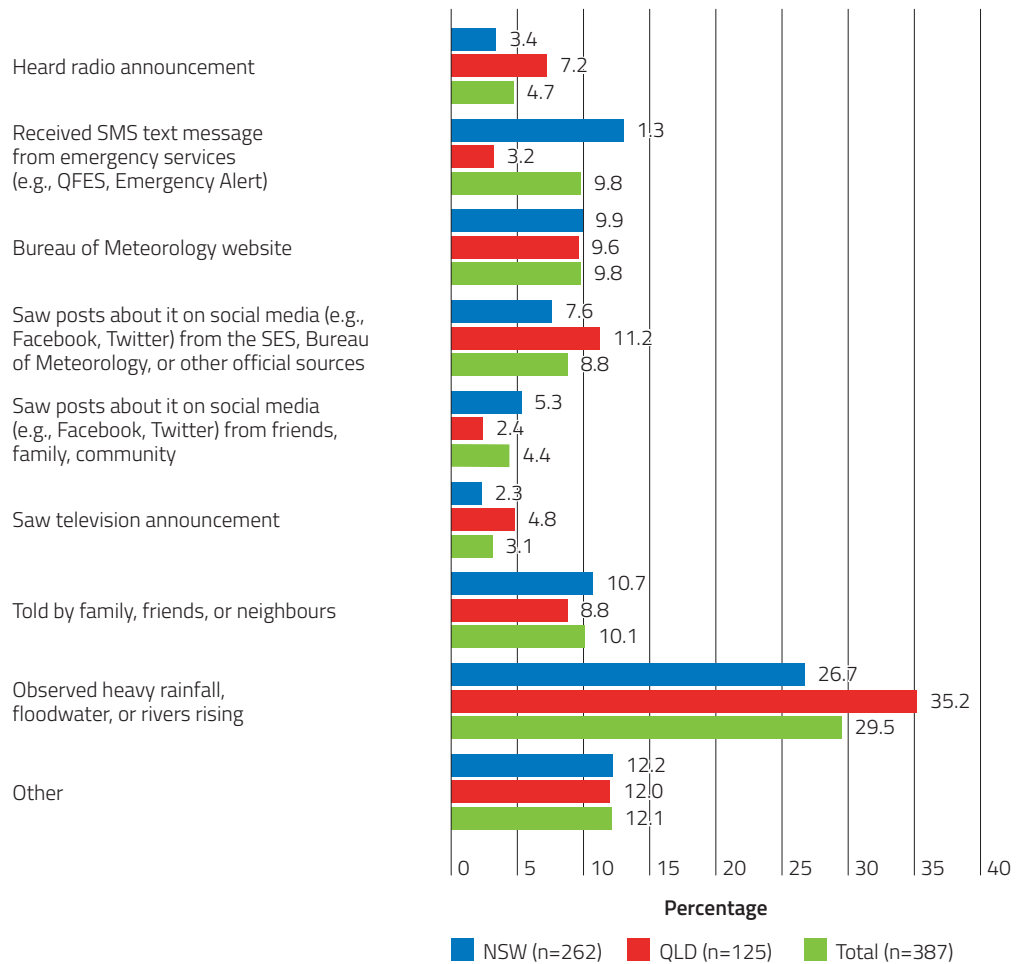
NSW024

# Information, warnings, and trust



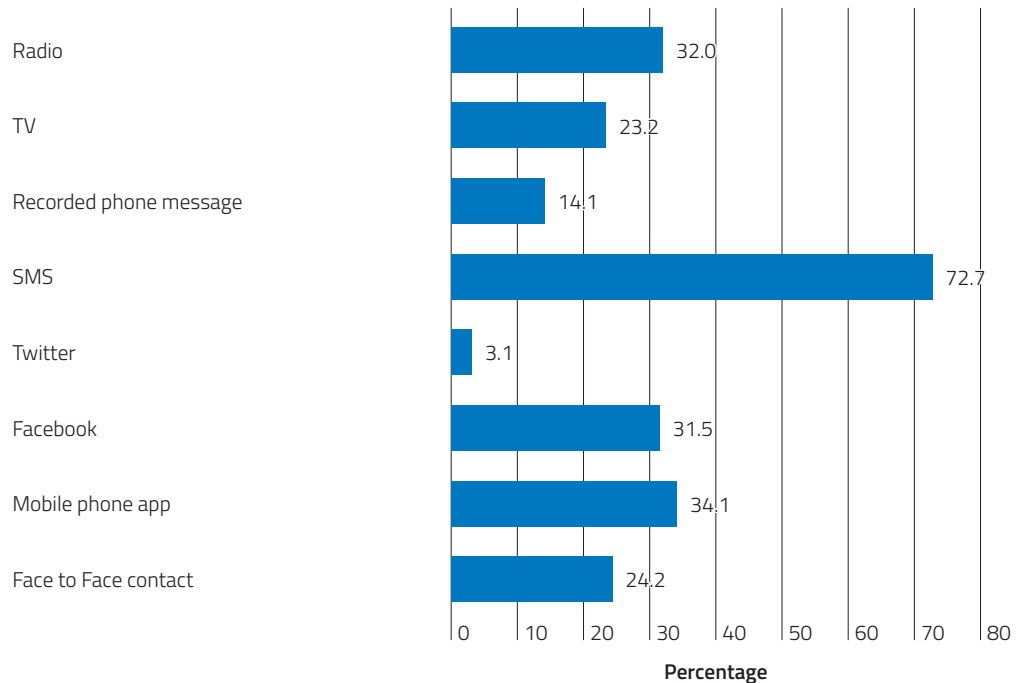**Figure 7.** How residents FIRST found out that their town or suburb was likely to experience flooding.



**Figure 8.** Preferred methods for receiving future flood warnings.

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# Sources of support and recovery
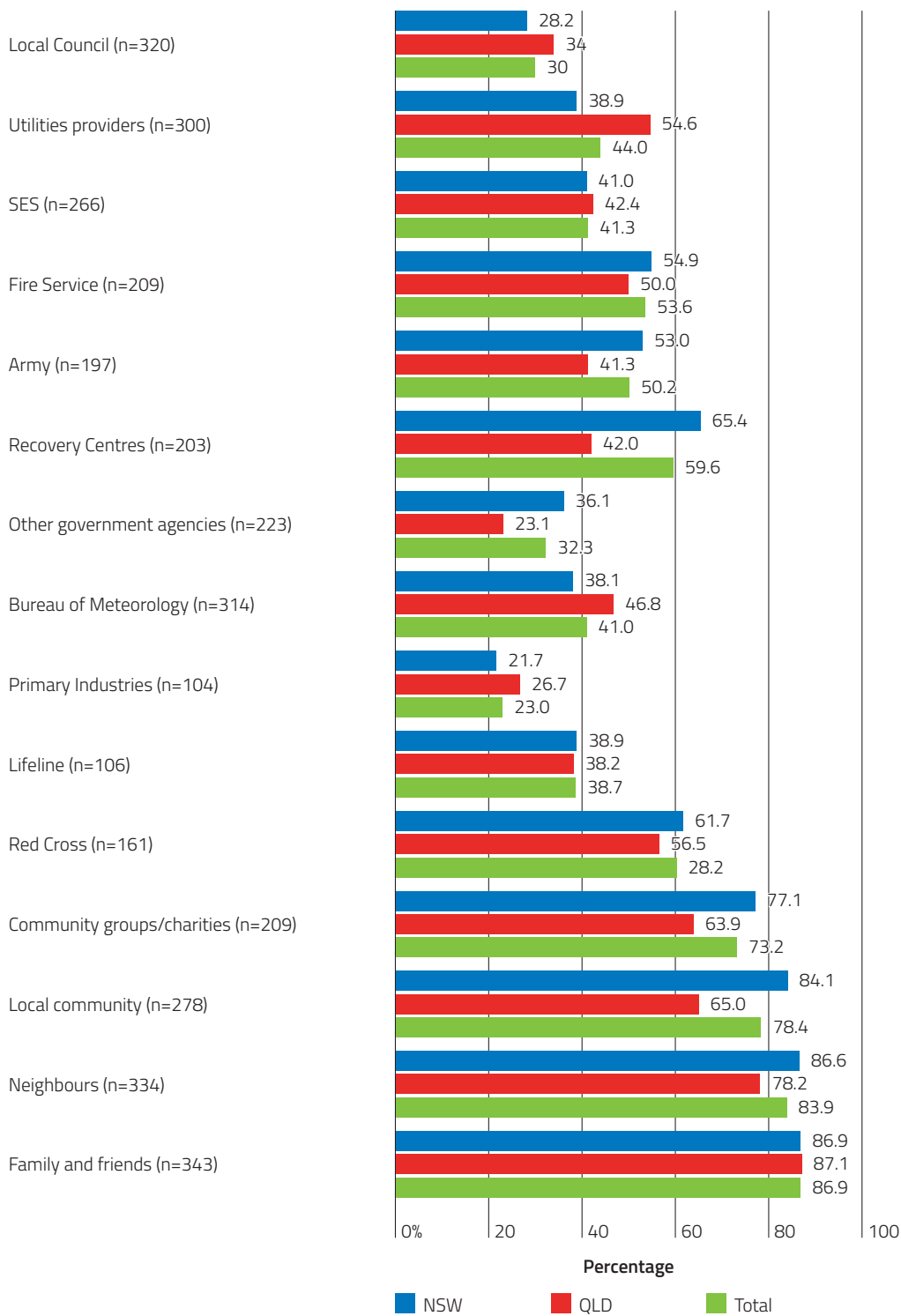


**Figure 9.** Ratings of satisfaction with the support received.

| Source | NSW | QLD | Total |
|---|---|---|---|
| Local Council (n=320) | 28.2 | 34 | 30 |
| Utilities providers (n=300) | 38.9 | 54.6 | 44.0 |
| SES (n=266) | 41.0 | 42.4 | 41.3 |
| Fire Service (n=209) | 54.9 | 50.0 | 53.6 |
| Army (n=197) | 53.0 | 41.3 | 50.2 |
| Recovery Centres (n=203) | 65.4 | 42.0 | 59.6 |
| Other government agencies (n=223) | 36.1 | 23.1 | 32.3 |
| Bureau of Meteorology (n=314) | 38.1 | 46.8 | 41.0 |
| Primary Industries (n=104) | 21.7 | 26.7 | 23.0 |
| Lifeline (n=106) | 38.9 | 38.2 | 38.7 |
| Red Cross (n=161) | 61.7 | 56.5 | 28.2 |
| Community groups/charities (n=209) | 77.1 | 63.9 | 73.2 |
| Local community (n=278) | 84.1 | 65.0 | 78.4 |
| Neighbours (n=334) | 86.6 | 78.2 | 83.9 |
| Family and friends (n=343) | 86.9 | 87.1 | 86.9 |

PHOTO: SUPPLIED WITH PERMISSION

Flooded areas of Allora, Qld.

## Main challenge areas

The implications of the main findings are reviewed in the context of four broad challenge areas for emergency management stakeholders. These are:

→ **Loss of trust in institutions** – the gradual erosion of trust that needs to be addressed across the entire emergency management system.

→ **Navigating the balance of control** – grappling with the need to embrace self-activating communities and integrate community into all phases of disaster.

→ **Emotional impacts** – managing the long-term psychological impacts of an increasingly complex disaster landscape.

→ **More than disaster** – the need to see disaster support as part of a wholistic person-centred approach.

A Technical Report is available that provides additional information about the study methodology, the approach to coding and the coding frame, and summary survey data for the total sample and the NSW and QLD sub-samples. This report is available on request from Natural Hazards Research Australia. To ensure that the research team are able to publish academic papers using this data, the Technical Report will not be available to the wider academic sector until May 2024.

PHOTO: SUPPLIED WITH PERMISSION

Flooded backyard in Qld.

# Policy-relevant implications

Policy-relevant implications have been driven directly by the findings from this comprehensive study of community experiences of the Jan–Jul 2022 flooding.

During the period of data collection reviews were undertaken by many stakeholders, improvements and new initiatives have been initiated, and some relevant actions that were recommended by the Royal Commission into National Natural Disaster Arrangements have been further advanced. In assembling the following set of policy-relevant implications there has not been an analysis of existing policy documentation. The following points have been generated from the reports of residents and reflect their lived experiences at the time of the floods and up to the point of data collection, and in the context of the policies that were in place during those times.

Suggestions for how they may be addressed have come from participants during their interviews, comments in surveys, and from the research team's experience and knowledge of disaster science and its application. No presumptions have been made about the feasibility or financial viability of these suggestions. It is acknowledged that disaster resilience and risk reduction is a shared responsibility, that there are complexities, and a need to assess the risks and benefits of the suggestions being offered. In large scale disasters it is also acknowledged that the whole of community is affected in some way, including those who work for disaster management organisations, local councils, etc., resulting in additional challenges for scaling-up early response.

Finally, it is noted that there are many organisations involved in disaster management and there are different disaster management arrangements in NSW and QLD. Local councils in QLD are primarily responsible for managing disaster events within their local government areas, including the provision of localised public flood information and warnings, and are required to have disaster dashboards. These responsibilities are not the same in NSW. These differences underlie the rationale for providing data in the main report separately for the NSW and QLD subsamples, along with the total sample data.

## Preparedness and mitigation

→ The scale of the Jan–Jul 2022 flood/s resulted in scarcity of many things – professional and trade skills, supplies, human resources post-flood, and surge capacity in response. COVID and other compounding events added to these challenges. Many flood-impacted residents were disadvantaged as a result. More flexible, adaptable, and nimble approaches are required, along with better integration of community across all areas. A systems-thinking approach is required by stakeholders in planning for similar and worsening situations with more severe, longer, and more frequent natural hazard events.

→ Uncertainty is a feature in all disasters, at all stages, and had many negative consequences for those impacted, including inertia, powerlessness, inability to plan, and anxiety. Communication is key – even if this is communicating what you know/don't know, what you are doing, and what you want others to do/advising people what they can do. All stakeholders need a readiness to engage, to listen, and to make changes or change priorities, and to communicate intent. Communication is not a substitute for action, but it will assist residents to plan and act, and help to maintain trust.

→ State emergency services, local councils, and the Bureau of Meteorology are perceived to have let down some communities with alerting and warning. Some didn't know where to go for information and some didn't get information they could use or use when needed. These stakeholders need to identify better ways to raise awareness of their websites and dashboards, evaluate and improve their communications, and engage with communities to improve the usability of their information and understand the challenges residents experienced.

→ Those impacted by the 2022 floods are aware of the likelihood of future flooding. Subsequent flooding in NSW and QLD and across other states during the rest of 2022 has kept the risk of flooding in community consciousness. Communities can be expected to be more interested in local flood planning and infrastructure and motivated to engage in future flood mitigation activities and preparation. Stakeholders working across the whole disaster management system need to identify ways to help people feel more in control and able to take steps to avoid future losses.

→ Due to the severity of the 2022 floods, many residents were impacted by flooding for the first time/unexpectedly and others were underprepared, relying on prior experience from earlier floods. To increase a sense of safety and agency, response agencies and local councils need to assist residents in systematically reviewing and reflecting on improvements to their plans, decision making, or timing of decisions to assist them to learn from these floods and improve responses to future events. A range of approaches should be used to support this, such as community workshops, webinars, structured training/support, and written guidance.

→ Protracted events, such as these floods, highlight the necessity of planning for business continuity post-disaster. This is important for local businesses, as well as stakeholder organisations providing services and support in all areas of disaster management.

→ Many residents cited poor stormwater/drainage maintenance as a contributing factor to the flooding they experienced. They strongly felt that local councils and water authorities needed to prioritise the maintenance and repair of storm water drainage. Some also wanted improvements to dredging and clearing of rivers, waterways, and channels. It's important that local councils review the contribution of these factors in their flood risk management planning and allocate priority as appropriate to reduce future flooding risk.

→ Disasters magnify existing vulnerabilities in society and individual vulnerabilities add an additional overlay to planning. Older people, those living alone, those with physical limitations/mobility issues and a range of disabilities encountered a range of issues – from not receiving warnings, being unable to lift possessions to protect them, and encountering problems during evacuation. It is critical that stakeholders involved in all aspects of disaster and broader social support, have plans in place to identify, engage, and support community members with a range of different needs.

→ Community connectedness, and the various roles of friends, family, and neighbours were part of recurring narratives in the research. They helped in alerting others to the threat of flooding, they played a role in information sharing, supporting each other in numerous ways as floodwaters were rising, assisting in evacuations, helping with clean-up, and supporting in recovery. They were identified as the most trusted and the most appreciated groups in the survey data. All stakeholders need strategies to support the building of community connectedness. Community are first responders', first at the scene. Community cohesion and connectedness will act as a much-needed force multiplier when it comes to disasters.

→ In addition to supporting community cohesion and connectedness there is a need for the response agencies, as community organisations, to build back connection and embeddedness in their communities. Ties have been weakened through COVID restrictions and now, disrupted by the displacement of residents and the many demands placed on those residents as they navigate their recovery after the floods. Residents, especially female residents, showed interest in a range of flexible community responder/disaster-related roles, and additional roles and tasks. Given the need for more focus on community development, there could be potential for volunteering roles oriented to this area.

→ Despite awareness of local flood risk, there is still a lower acceptance of risk at a personal level. For some, the risks are now undeniable, but others require further support to keep the reality of local flood risk alive. There is a need for greater use of visual markers, especially in newly flood affected areas, e.g., flood heights on buildings, lampposts etc., displays of recent photographs and drone footage, sharing of flood stories. There is also a need to evaluate the effectiveness of signage and other flood awareness-raising approaches that are already in place to assess their effectiveness and assist in identifying and implementing the best approaches.

→ Storytelling is a powerful tool. Information collected as part of this research, and directly sourced information from other flood-impacted residents should be sought by all stakeholders to use in current and future community engagement, guidance and resources, training, and other documentation to exemplify aspects of lived experience.

→ Flood terminology is often misunderstood and is complex and dynamic. There is a need to increase flood literacy. Response agencies, local councils and other relevant agencies need to work to help communities translate information (river gauge readings, visual triggers) to have personal meaning and consequences, so that they can take protective action early.

→ Prospective residents need to know about flood risks before they commit to purchase or rent properties. This will allow them to choose whether they want to accept those risks for themselves and their families, rather than passively having risk transferred to them and only finding out the true consequence when they have floodwater lapping at the door. Local councils and others, e.g., banks, real estate agents, need to identify ways to ensure that risk warnings are prominent on materials provided to renters and buyers – rather than in small print, and that flood levels are understood and made explicit, e.g., written as a level reached at individual properties on accessible records.

→ Residents have raised concerns about the accuracy and availability of local council flood maps, flood risk management planning, and revisions to those plans. Local councils, especially in those recently impacted LGAs, need to ensure that they have updated maps and plans and that this activity is communicated to communities, and they are able to access them.

→ Response agencies and local councils need to find ways to harness and integrate local information and factor that into their intelligence and public information systems. Examples exist of models that are working in some areas and these need to be shared to see if they can be extended to other locations and communities.

→ Local councils, in QLD especially but increasingly in NSW too, need to build knowledge (not just 'awareness') of their disaster dashboards and ensure these are a go-to source of information. These systems appear to be underutilised, with residents not knowing where to go for information. Disaster dashboards should be kept updated and supplemented with local knowledge and interpretation to help people apply predictions to their own circumstances. There also needs to be further assessments of their usability as several interview and survey participants noted problems.

→ Beyond Dashboards specifically, there is a wider need to increase public awareness of sources of local flood warning and recovery information, e.g., HazardWatch, Hazards Near Me app.

→ Residents value visual and 'live' sources of information to monitor river heights, bridges, and local traffic conditions. In some cases, cameras were not working and/or information was not updated on disaster dashboards. Local councils (and other who have access to live information) need to ensure that this is available, and systems are maintained.

→ Community-curated content on social media is improving, with several Facebook pages in flood regions assembling high quality content that is being increasingly relied on by residents and used effectively as a way to share and amplify official emergency messaging. Response agencies, local councils, and other stakeholders, e.g., recovery agencies, telcos, should work to monitor and share information about these pages to ensure that they are picking up local information more quickly and sharing their information to communities via these sites.

→ A high proportion of survey respondents sheltered in place during the floods. Some planned to stay, and some were trapped/unable to leave. They encountered a range of challenges and 25% needed rescue or assistance to evacuate. Improvements in local planning are needed to ensure clear recommendations are provided to the community about the safest options to pursue i.e., shelter or evacuate.

→ Response agencies need to review their sheltering policies and messages either to discourage people sheltering in place or to help prepare them (depending on the strategic direction taken). If sheltering is to be discouraged, then barriers to evacuation need to be removed, e.g., earlier alerting, opening up evacuation shelters and animal

evacuation centres early, waiving road tolls. If preparing to shelter is a strategy, then residents need to be equipped and cognisant of the challenges and risks of staying.

→ Many survey respondents did not choose to shelter, they were unable to leave. There is a need to support residents in situations of flash flooding, fast onset flooding, and generally in situations where flooding leaves residents caught off-guard, e.g., when flooding occurs during the night. Approaches for providing advice to residents for preparing to shelter (as a last resort) are needed.

## Response

→ The speed, severity, and scale of some floods in the Jan-Jul 2022 period meant that some residents in QLD and NSW were not able to receive rescue or other assistance from response agencies when they most needed it. Contact and communication with response agencies was badly affected by failures in telecommunications infrastructure/systems. This resulted in additional trauma for many residents and their families. Given the likelihood of similar and worse conditions in future with the impacts of climate change, response agencies need to identify ways to manage surge capacity in their response workforce, their communications infrastructure, and their staffing. Given issues for the community with electricity outages and mobile phone coverage, plans need to be made to find additional channels and routes for communication to let communities know what is happening and to mobilise alternative resources/community responders.

→ Communities have, and will continue, to self-activate and respond in disasters. Response agencies, local councils, and other stakeholders need to find ways to integrate and share control/power with communities. There is interest in flexible community training for a variety of roles. Stakeholders need to engage with communities to review their policies. There is a need to include and encourage communities to stand up when required to join in and work together in all areas of emergency management. This will extend capacity, ideally in a pre-planned way with some training and resourcing, so it can be carried out as safely as possible for all involved.

## Recovery (first few days and weeks)

→ Many findings in the recovery phase point to the need for more proactive recovery planning at local, regional, state, and national levels, e.g., planning and training for surge capacity, having plans to resource, manage, and communicate support with clean-up and removal of household contents, and working with communities to train and plan for supporting local hubs. All government agencies that have a role in disaster management including response and recovery need to be able to activate resources, supporting whole of government action.

→ Although grateful for help, many residents encountered issues during the clean-up process – making decisions in a traumatised state and being overwhelmed by helpful, but overzealous people. With the compounding issues of scarcity of materials for rebuilding and increased costs, residents reflected on decisions made by them, and more often others, to throw everything away and often to strip out hardwood trims, wiring, plumbing etc. There is a need for recovery agencies, local council, and other stakeholders to support a 'help literacy' campaign to ensure that residents and helpers (from all sources – including emergency service volunteers) are aware of the issues that arise at the time, and later, and to find ways to enable residents to control the pace and have ways to protect and try to save what *they* want.

→ Local councils need to work with flood-impacted communities to provide free skip bins and collections to remove unsalvageable possessions. There needs to be communication around the timing and continued availability of services to assist with removal. This will take away uncertainty and allow those who want more time to take things at their own pace.

→ Looting and scavenging were distressing issues for many residents. Police and local councils need to work together to discourage people from scavenging in the piles of people's belongings before removal, and planning is required to utilise a greater

range of approaches to assist with detecting and stopping looting, such as use of drones, CCTV surveillance, or local community assistance with patrolling.

→ In addition to recovery agencies personnel, personnel in all stakeholders organisations should be trained and ready to hold a presence in community immediately after a disaster and for the months that follow. Being there, checking in on people, and acknowledging survivors was a powerful comfort for survivors. Perceived support is important for recovery, it is often provided by neighbours, friends, and local community, but it is greatly appreciated when coming from those representing official organisation, including SES, local council, fire agencies, Red Cross etc.

→ Insurance companies should develop detailed, explicit advice for customers about what to do (and not do) after a flood event in relation to making a claim, providing evidence, and not invalidating their cover. This information should be provided to all new, and renewing, policy holders with flood cover. To reduce the potential for conflicting information and misinformation when advice is shared, this information should be harmonised as an industry standard, to provide consistent advice across insurers.

→ The requirement to re-tell and re-live experiences when interacting with service providers can have negative psycho-social impacts on individuals and delay service provision. In the early stages post-disaster there is a need to capture residents' information/history in a secure registry or some other way, so that they don't need to repeat their story or keep providing the same information when dealing with multiple services or different people. Data-sharing, with consent and within privacy legislation frameworks, would have benefits for both service providers and flood-impacted individuals and should be investigated further.

→ Access to case managers who can support flood-impacted residents is required, as early as possible post-disaster, and ideally throughout recovery. Support providers need to find ways to ensure that flood survivors are unburdened as much as possible.

→ The provision of temporary housing in a housing crisis and in some locations that are tourist areas resulted in a range of complex issues, with COVID compounding many issues too. Housing should provide stability and security. The wellbeing of potentially traumatised and displaced flood survivors needs to be central to housing decisions. Further planning and coordination with housing providers, tourism bodies, and others who can provide support needs to be undertaken.



PHOTO: MARION CONROW

Clean up underway in NSW.

## Recovery (longer-term)

→ A disproportionate burden in recovery is falling to communities and volunteers who are running community hubs and similar local support. Although there is goodwill and assistance in the early stages, as the weeks and months pass volunteer numbers dwindle as people need to return to work and other activities, and the burden shifts to an ever-smaller group of people. Recovery agencies need to find ways to support, train, and properly resource local community hubs so that they can function well, stay local, and provide support in the months after the floods with an appropriate needs-based phased reduction in service. Recovery hubs need to have a direct line of communication with local and/or state recovery coordinators.

→ Residents were encountering a range of issues with housing and reconstruction. Delays with insurance settlements, assessments, shortages of building supplies and trades, waiting for decisions about buybacks have caused frustration, anxiety, and additional financial pressures. Insurance companies and reconstruction agencies need to consider their practices and communications to assist residents in being able to plan and manage their situations in the interim. These could include better/quicker communication of timelines for assessments and decisions, the financial implications of decisions and actions that residents take, updating communities about issue that are causing delays and the actions being taken to reduce delays, and anticipating problems and sharing their intentions.

→ Some residents were struggling with the administrative load of project managing their rebuilds without feeling sufficiently skilled or supported. Residents were juggling being back at work, having issues related to temporary housing (being off-site), and were managing mental health issues and the general stresses of post-flood disruption. Stakeholders need to consider ways to reduce placing burdens on flood-impacted residents in these situations. This could include provision of better and consistent support, information, and additional resources, e.g., access to skilled project managers for advice or direct support on-site, printed guidance about rebuilding, compromises, or benefits for use of different materials, planning tools, and mental health supports.

*I was there and it was hard, but you couldn't be everywhere at once; there were 14 people throwing your stuff out windows onto the ground…… Between the day of the flood… now I'm going to cry — between the day of the flood [and the day things were removed] you just kept going. But that day, I must admit I lost it. Watching your kids' photos and everything you owned crushed up by an excavator and chucked in a truck, that was pretty heartbreaking. It's the memories, it's the sentimental stuff — it's not the fridges or the lounge or things like that. It's those things.*

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