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2022 Flood Inquiry

The Hon. Dominic Perrottet MP
Premier
Parliament House
SYDNEY NSW 2000

Dear Premier

Report – NSW Independent Flood Inquiry

In March 2022, you established the NSW Flood Inquiry, commissioned to examine and report on the causes of, planning and preparedness for, response to and recovery from the 2022 catastrophic flood events. We now submit the final report of that Inquiry.

Early on, the Inquiry recognised that urgent action is required to enable immediate improvements in the way NSW prepares for, responds to and recovers from events of the magnitude of the 2022 floods. This is why we have brought forward our final report date from 30 September 2022. The need for urgent action has come into even sharper focus in light of the further flood events experienced across eastern NSW earlier this month.

The Inquiry makes 28 recommendations for change. The recommendations are intended to provide practical, proactive and sustained mechanisms to ensure readiness for and resilience to flood (and by extension, other disasters). These mechanisms include enabling governance structures, administrative tools, new or enhanced systems, and better technology and processes to improve the ways in which decision-makers at all levels – state and local government, community and within families and households – plan and prepare for, respond to and recover from flood.

Given the breadth of the Inquiry’s Terms of Reference and the fact that floods are an incredibly complex issue across NSW and Australia, the Inquiry covered a lot of important matters. But we could not cover all of them in this report – many issues will require further consideration and consultation with stakeholders.

The Inquiry appreciates the considerable assistance it was given. We thank all those who took the time to provide feedback to the Inquiry, including community members who wrote submissions or attended town halls; the NSW emergency services and combat agencies; colleagues from government departments in NSW and other jurisdictions; and our colleagues in industry, research organisations and professional associations.

We would also like to thank the secretariat (seconded from various government departments) and advisors to the Inquiry who worked hard to help us understand what happened during the 2022 floods, and how NSW can learn from these events and make necessary improvements in the future.

Sincerely,

Michael Fuller APM
Flood Inquiry Co-lead
29 July 2022

Mary O’Kane
Flood Inquiry Co-lead
29 July 2022
2022 floods: Key statistics

Rainfall
- In the north-east of NSW, the last week of February 2022 was the wettest week since 1900.
- In the Hawkesbury-Nepean, 1–9 March 2022 was the catchment’s wettest 9-day period since 1900.

LGAs disaster declared:
- 61 (Feb–May)
- 37 (July)

9 Lives lost

Assistance
- 141,679 Customer support calls to Service NSW
- 97 NSW Government evacuation centres opened
- 8,400 Personnel deployed (SES, RFS, ADF and others)
- Nearly $4 billion NSW and Commonwealth government support provided

Damage
- Over 2,000 km Roads damaged
- > $500 million Total agricultural losses
- $2.7 billion Total infrastructure damage
- 7,731 People in emergency accommodation
- 212,000 Tonnes of waste (Feb–Mar)
- 14,637 Homes damaged
- 5,303 Homes uninhabitable

Inquiry
- 1,494 Submissions received
- 144 Meetings with community and stakeholders
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Data used in the infographic on the prior page is from the following sources:

- Unless specified above, data has been provided to the Inquiry from Resilience NSW and is valid as of 13 July 2022. This does not include Inquiry data.
Executive summary
Executive summary

In recent years NSW has experienced compounding disaster events. The 2019–20 fires were the worst forest fires ever. These were closely followed by the 2021 floods, then the even worse and more extensive 2022 flood events. Each of these disaster events inflicted significant damage upon communities, and each coincided with the ubiquitous effect of the COVID-19 global health pandemic.

The impacts of the major storms and flooding experienced during February-April 2022, and again in July 2022, are still being assessed. Disaster was declared across 98 Local Government Areas, from the Northern Rivers region down to the Illawarra and west to Broken Hill.1 Almost 15,000 homes have been damaged with over 5,000 uninhabitable,2 and close to 8,000 people are currently living in emergency accommodation.3 Estimates released by the Insurance Council of Australia on 29 July 2022 identified the February-March flood events in NSW and south-east Queensland as the costliest flood in Australian history, and the second costliest weather event ever, with claims totalling $5.1 billion in insured damages.4 The July events are estimated to have cost a further $97.9 million in insurances losses as at 8 July 2022.5 Tragically, 9 people lost their lives.6

Following its establishment by the NSW Premier in March 2022, the Inquiry has worked to understand what happened during the 2022 flood events. As the Inquiry was told often, ‘every flood is different’. It has analysed what made these particular floods different – including what worked well and what did not work well in preparing for and responding to them. The Inquiry’s analysis also covers recovery from the floods, noting that recovery and reconstruction will continue long after this report is finalised and published.

In identifying what did not work well, the Inquiry does not seek to attribute blame. Rather, it makes recommendations for future improvements to the way NSW plans and prepares for, responds to and recovers from natural disasters like the floods.

Throughout this report, a central theme emerges. Because so much of NSW is prone to natural disasters, there is a need for a renewed and strengthened emphasis on sustained disaster preparedness. Consequently, the report focuses strongly on being prepared for, and resilient to, flood and other natural disasters. Preparedness is discussed in relation to emergency management and our natural and built environment. But an important component of preparedness is at a personal or family level. Failure to prepare at this level makes preparations at other levels more difficult and expensive. Targeted public and school education is required to build intergenerational knowledge and enable whole families to engage in disaster readiness.

Preparedness is discussed not only within the bounds of what is known, but also – as best possible – what is unknown. To this end, decision making in the face of uncertainty is another key theme of this report. For example, we know that multiple factors simultaneously and successively amplified the risk of flood in the lead up to early 2022, with one being the alignment of large-scale drivers of climate variability, including consecutive La Niña which delivered above average rainfall and a

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3 Ibid.
saturated catchment. Then, large- and small-scale weather systems co-located to produce intense and sustained heavy rainfall events across NSW in February, March and April (sequential multi-day cumulations), increasing the severity of the flood events. This heavy rainfall in some locations (notably Lismore and surrounds) was of an intensity, frequency and duration never before seen in the observed record.

What we do not know definitively is the influence of climate change on this rainfall. It is possible that changes in climate shifted, influenced or organised those climate drivers and systems to occur at the same time and location, leading to the extreme rainfall. But it is also possible to explain this rainfall through natural variability and ‘just bad luck’, or through the way land is used and developed (exposure made people feel the rainfall more intensely) – or a combination of the three. As a result, it is very challenging to identify trends and patterns in flood events given the complexities in determining the causes of, and interplay between, the various factors that lead to flood. Further, extended prediction is difficult for extreme rainfall falling over a very specific location, and within a very specific time window. Therefore, we have minimal ability to predict flood.

It is clear we still have a lot to learn about extreme rain. Based on the current science it is difficult to state confidently that, overall, extreme rainfall in NSW and across Australia will increase in intensity or frequency as a result of climate change. To determine the cause of the extreme rainfall events and subsequent flooding, formal scientific process with hypotheses, experimentation, analyses and interpretation is required. This work requires investment in NSW’s and, more generally, Australia’s research capacity and is critical to improving our ability to imagine and predict what may happen in the future, and to enable effective mitigation and adaptation measures in response to changing climate risks.

That said, there is clear evidence of rain intensifying at daily and sub-daily scales. Observations show that the intensity of short duration, or hourly, extreme rainfall events has increased – and as the climate warms, heavy rainfall events are expected to continue to become more intense, with subsequent implications for flash flooding. Though extended prediction of extreme rainfall is challenging, the flow of water through a catchment can be modelled. This means we should have a rough idea of different sized floods and their severity if they were to occur – and the ability to anticipate, prepare and respond to flood events effectively.

Floods and other disasters will always be challenging. That is why it is essential that Government commit to enhancing NSW’s disaster readiness. Stronger, more permanent governance and administrative mechanisms are required to ensure emergency management and disaster readiness is fostered by rule, rather than by exception. The Government should look to establish permanent emergency management leadership and decision making in the form of a permanent State Emergency Management Operations Coordinator (SEOCON) to assist in protecting life and building community confidence. This role is required to improve implementation of emergency management arrangements across the full suite of emergencies, including floods. NSW also needs a permanent reconstruction agency which begins the reconstruction process as the disaster strikes and thus works to ameliorate community devastation. Better still, it will also provide education and infrastructure before a disaster strikes to minimise its harm.

These strengthened disaster governance structures must be supported by appropriate teams, systems and tools, including a Cost Benefit Analysis Framework developed from the preliminary work undertaken by NSW Treasury.

Critically, the 2022 floods must become the catalyst for change in the way Government and community consider floods and floodplains. Where flood management activities, including land use planning and emergency response, are currently defined by a ‘static’ flood planning level, we need to recognise that this line is changing seasonally and generationally.

Planning for floods must incorporate new methods for understanding how future climate risks may influence rainfall extremes and flooding in high-risk catchments (which themselves are subject to constant change by way of new development or changing land uses), while explicitly reflecting
uncertainty. NSW must become a leader in applying new methods that reflect the rapid advances in climate change science, as they become available.

The Inquiry notes attempts have been made to adopt a risk-based approach to floodplain planning, the framework for which has been modified following flood several times over the last 70 years. However, the need for land developments to house a growing population has unintentionally yet perversely embedded a ‘rinse and repeat’ approach to floodplain planning — with too much already built, being built or planned to be built in areas exposed to flood risk. This tension between development and safety particularly affects those who cannot afford to live in suburbs out of the floodplain. As a result, the 2022 floods disproportionately affected the most vulnerable.

A successful planning system should ensure that flood risk management goes hand-in-hand with the economic and social aspirations of the community, particularly the provision of more affordable housing located close to good facilities such as railway stations, schools and medical centres. Critically, it must underpin the relocation or safe rebuilding of homes and communities which have been devastated or are likely to be devastated by catastrophic floods. New buildings must be out of harm’s way and made more resilient to the impacts of floods and other extreme weather events.

There needs to be a reset in the way we consider and manage our floodplains. NSW’s floodplains must be recognised as an asset, rather than a nuisance that needs to be contained. With appropriate strategic land use planning, and a return of the floodplain to public ownership over time, we can unlock the value of floodplains whilst ensuring they are safely enjoyed to their full social, environmental, cultural and economic potential.

There also needs to be a cultural shift in the way our first responders and combat agencies prepare for and respond to flood. Despite well established and sound emergency management arrangements being in place across the state, the 2022 flood events exposed significant capability gaps within the agencies responsible to deliver under these arrangements. This was particularly evident with respect to the operational response, such as flood rescues. Frontline resourcing, capability, coordination and cohesion must be improved through enhanced training and by activating all available resources early — before a disaster escalates.

Despite (or because of) these capability gaps, community-led flood rescues, particularly in the Northern Rivers region, worked extremely well under the circumstances. Without such rescues, there would have been significantly higher loss of life, and the Inquiry commends these community efforts. Government needs to harness, celebrate and empower safe and coordinated community-led initiatives, not only for rescues but also for evacuation support and the provision of services including first aid and charitable donations.

Enhanced and more resilient essential services are needed. Many telecommunications services were disrupted for extended periods. These disruptions must be minimised to ensure the community can access the information it needs to make appropriate decisions, and to improve combat agency flood response capability — especially in regional areas. This includes moving critical infrastructure off the floodplain, improving power backup arrangements and delivering a consolidated state disaster app for mobile devices.

Significant investment is required in the knowledge resources and intelligence used to support flood management, including rain and river gauges and weather radar. It is essential that government at all levels — local, state and national — collaborate to provide more accurate and complete data for flood threat identification, warnings and catchment-wide modelling systems. The more accurate and timely the information, the more time there is for response mobilisation (such as warnings, evacuations and deployment of emergency services), and the safer the community is.

Messaging before and during a flood must draw on real-time rainfall and flood data and intelligence. Messaging must be clear and consistent across the whole of government to ensure that people understand risk in all its dimensions, including vulnerability, capacity, exposure and hazard characteristics, and to empower them to make better decisions in a disaster, particularly around early evacuation.
We know more needs to be done when evacuations are required to ensure that the community, especially the more vulnerable, are appropriately looked after. During the early 2022 floods, the transition from response to recovery was hampered by a lack of understanding, amongst both community and government stakeholders, about agency roles and responsibilities. To improve the community’s experience during the immediate disaster recovery phase, grant processes must be efficient without needlessly retraumatising people, and evacuation and recovery centres co-located where possible.

Further, to drive recovery in the first 100 days after a disaster, a more streamlined and agile response from Government is required, supported by clear transition initiatives in moving from immediate to longer-term recovery phases.

Some of the recommendations included in this report are for immediate action; other actions should commence now but will take some time to complete. Each recommendation in this report aims to help NSW improve its governance structures, administrative tools, systems, knowledge resources and processes so that we can improve the ways in which we plan and prepare for, respond to and recover from floods. Many of the Inquiry’s recommendations reflect the many unknowns which require further research and analysis.

In the face of inevitable future disaster, be it flood, fire or earthquake, NSW must do more to adapt to changing conditions in order to withstand and rapidly recover from disruption due to disaster.

Success relies on implementation of this report’s recommendations, though the Inquiry notes that full implementation will not and cannot be the panacea for all disasters and should not engender complacency. Enhanced disaster preparedness will not mean the emergency management response required is any less complicated.

What the recommendations will do is provide next steps to build a proactive sustained focus on preparedness and resilience, with the intent to reduce risk to life and property, and to make future disasters (as best as is possible) less challenging and expensive to prepare for, respond to and recover from.

Disasters by their very nature will always be difficult, and we cannot predict or model our way out of them. We can ensure our emergency management processes embed the requirement for continual learning and improvement for the next disaster response.

Report structure and overview

The report of the NSW Flood Inquiry is structured in 3 volumes. Volume One is this summary report which provides an overview of the 2022 flood events, including the impact to community and community views of such. It outlines the key messages of the Inquiry and provides the Inquiry’s complete findings and recommendations.

Volume Two contains the body of the report and includes 8 chapters:

- Chapter 1 provides an overview of the Inquiry, the consultation process and submissions analysis
- Chapter 2 addresses the causes and contributing factors which led to the 2022 flood events. It includes a summary of the rainfall and flooding that occurred across the state. It notes that there is still a lot to learn about these weather phenomena, which creates the opportunity for NSW to be a major centre of flood and other natural disaster research, development and technology advancement
- Chapter 3 examines the operational response. It provides an overview of NSW’s current legislative framework and emergency management arrangements, and the actions of local, state, interstate and national agencies in responding to the 2022 flood events. It looks at how information was provided to the public, the experience of evacuation, and the impact to
essential services. This chapter also discusses the transition from incident response to recovery, and what is needed to support people in times of crisis

- Chapter 4 examines emergency preparedness, including the resourcing of emergency management by NSW and local governments. It includes analysis of NSW’s preparations for the 2022 floods, training, the role of community and what steps can be taken to effectively prepare for future floods

- Chapter 5 explores the importance of NSW getting a handle on risk. It discusses how risk may be understood, and how this understanding does, or does not, translate to action and effective decision-making at both an individual and community level and in broader government policymaking. It includes Inquiry observations on people’s understanding of flood risk with a particular focus on anticipation before the event, response to flood warning and alert information during the event, and attitudes to relocation in known, high-risk areas following the event

- Chapter 6 details Inquiry learnings from consultations with, and research into, various established reconstruction authorities. It discusses the common challenges faced by reconstruction authorities, but also why they are seemingly effective mechanisms to get people back on their feet

- Chapter 7 looks specifically at preparation of the natural and built environment in living with flood. It outlines best practice floodplain planning at a conceptual level, provides an overview of the development of floodplain planning in NSW, outlining progress towards greater consistency with best practice principles, and then examines areas of challenge and opportunity across the NSW planning system to achieve best practice. It goes on to discuss broader matters required to achieve cost-effective flood mitigation, including impacts to and preparation of housing, caravan parks and mobile homes. It covers protection of roads and other essential services infrastructure, and also looks at the potential implications of flood for landscapes and ecosystems, seeking to learn from traditional Indigenous land management practices

- Chapter 8 then sets out how implementing the Inquiry’s recommendations will make a difference in ensuring NSW is prepared for future floods and other natural disasters.

Volume Three includes works commissioned by the Inquiry to support and inform Volume Two. It includes a paper on the background and causes of the extreme rainfall and flooding in NSW in 2022 prepared by the ARC Centre of Excellence for Climate Extremes, and a summary of a preliminary Cost Benefit Analysis Framework prepared by NSW Treasury, which can and should be finalised and utilised to estimate the investment required in managing flood, and to enable the fast allocation of funding based on detailed and rapid analysis of flood modification, mitigation, preparation and response options. It also contains a piece on restoring the environment from Bundjalung man, Mr Oliver Costello, and a summary of social, search & submission analytics completed by League of Scholars.

Importantly, Volume Three includes 3 case studies: one on emergency management during the 2022 flood events in Lismore, one on flooding and land use planning in Lismore, and one on flooding in the Hawkesbury-Nepean Valley. The case studies present important options, insights and considerations which add context to this report and should be referenced when implementing the report’s recommendations.
Terms of reference
Terms of Reference

1. The Inquiry is to consider and report to the Premier on the following matters:
   a. the causes of, and factors contributing to, the frequency, intensity, timing and location of floods in NSW in the 2022 catastrophic flood event, including consideration of any role of weather, climate change, and human activity;
   b. the preparation and planning by agencies, government, other entities and the community for floods in NSW, including the accuracy and timing of weather forecasts, current laws, emergency management plans, practices and mitigation strategies, their application and effect;
   c. responses to floods, particularly measures to protect life, property and the environment, including:
      i. immediate management, including the issuing and response to public warnings;
      ii. resourcing, coordination and deployment, including with respect to the Australian Defence Force; and
      iii. equipment and communication systems;
   d. the transition from incident response to recovery, including the roles, structure and procedures of agencies, government, other entities and the community;
   e. recovery from floods, including:
      i. immediate housing, clean-up, financial support and community engagement measures; and
      ii. longer-term community rebuilding support; and
   f. any other matters that the inquiry deems appropriate in relation to floods.

2. And to make recommendations arising from the Inquiry as considered appropriate, including on:
   a. safety of all emergency service personnel and community first responders;
   b. preparation and planning for future flood threats and risks;
   c. use of flood gauges and other warning structures and/or strategies for improved flood prediction;
   d. impact on essential services, including electricity supply, water supply and telecommunications;
   e. land use planning and management and building standards, including:
      i. the instruments, policies and programs applying to existing development in flood prone locations across NSW; and
      ii. the instruments, policies and programs applying to proposed future developments in flood prone locations across NSW;
   f. appropriate action to adapt to future flood risks to communities and ecosystems;
   g. coordination and collaboration between the NSW Government and the Australian Government;
   h. coordination and collaboration by the NSW Government with other state and territory governments and local governments; and
   i. public communication and advice systems and strategies.
Findings and recommendations
Findings and Recommendations

A. Findings – causation

- NSW is flood prone and has a lot of people living in the floodplain. Floods will continue to be a major risk for NSW.
- It is incredibly challenging to identify trends and patterns in flood events due to complexities in pinpointing the causes of, and interplay between, the various factors that lead to flood. Based on the current science, it is difficult to state confidently that, overall, extreme flood events in NSW and across Australia will increase in intensity or frequency as a result of climate change. Springs and summers as wet as 2021–2022 are rare and are likely to remain so in the future.
- However, there is clear evidence of the tropics expanding towards the poles, in addition to rain intensifying at daily and sub-daily scales. Observations show that the intensity of short duration, or hourly, extreme rainfall events has increased. As the climate warms, heavy rainfall events are expected to continue to become more intense with consequent increased chances of flash flooding. There will also be increased coastal inundation from sea-level rise.

B. Findings – knowledge resources to support flood management

- The design of the current rain and river gauge network is not fit for purpose. There are issues around gauge location, ownership and maintenance, and there is a lack of leadership and coordination of the gauge network. The river gauge network covering NSW needs to be significantly enhanced and appropriately maintained, preferably under leadership from the Bureau of Meteorology.
- NSW has strong capabilities and systems in sensor research and technologies but needs to harness this further to provide more flood monitoring information and warning systems, especially for flash flooding.
- Radar coverage over NSW requires upgrading to improve gaps in the existing network, and enhanced redundancy to ensure reliability of forecast and warning services is available for at-risk catchments, particularly in cases of radar outages in the lead up to and during floods.

1. Recommendation – knowledge resources to support flood management

That, to provide more accurate and complete data for flood threat identification, warning and modelling systems, Government through the proposed new NSW Reconstruction Authority (NSWRA) work with the Australian Government to:

- improve the rain and river gauge network by:
  - implementing the Bureau’s proposed New Policy Proposal for rain and river gauges in NSW
— working to transfer ownership and maintenance responsibility for as many of the river and rain gauges as possible in NSW to the Bureau of Meteorology
— upgrading and ensuring there is a maintenance program across NSW for those gauges that remain in state and local government ownership

- upgrade radar capability in NSW to ensure overlapping coverage and some redundancy, through upgrades to existing fixed radars, and investment in new fixed and mobile radars.

Also that the Government through the NSWRA:
- ensure that all relevant state entities and local councils implement the Bureau flash flooding guidelines for all watercourses for which they have flood warning responsibility, drawing on the state’s significant expertise in remote sensing to implement effective monitoring and warning systems that send warnings to all residents and businesses in affected areas
- make real-time flood warnings and information – both raw information from gauges and processed information from models – available publicly via a smartphone app (ideally part of a state disaster information app) that also allows citizens to provide information during a flood to help authorities and community. This information could include flood imagery and local knowledge observations in the lead into, during, and immediately after flood events.

2. Recommendation – climate and weather research
That, to enable effective mitigation and adaptation measures in response to changing climate risks, Government establish NSW as a world centre of disaster research and technology development. This should include:
- maintaining and enhancing climate and weather research capability in NSW through establishing a long-term research funding network/partnership (the NSW Climate Extremes Network – NCEN – modelled on other successful research networks such as NSSN) with the state’s universities, coordinated and led through the ARC Centre of Excellence in Climate Extremes (with funding renewed based on performance every 5 years) to ensure leading-edge climate change research and modelling capabilities are available to government agencies and NSW businesses and communities. The funding will enable NCEN to hire researchers and build training programs for students and researchers to enrich the research environment, and the impact of the research in decision making within NSW
- commissioning further research and technology development (through NCEN working as appropriate with the Bureau of Meteorology, Natural Hazards Research Australia, CSIRO and research organisations worldwide, as well as the ARC Centre of Excellence in Climate Extremes) to understand the weather patterns conducive to extreme rainfall (including more detailed rainfall event attribution studies) with a view to increasing rainfall forecasting accuracy in time and location.
C. Findings – operational response

- The NSW State Emergency Services (SES) failed to use many of the resources that were available to it through direct assistance or by other agencies.

- The SES failed to adhere to current emergency management arrangements as outlined in the NSW State Rescue Policy and Emergency Management Plan (EMPLAN).

- The lack of appropriate training and exercising across all combat and relevant government agencies meant some did not understand their roles and responsibilities under the emergency management arrangements, and this affected the protection of life and property in the flood response.

- In previous disasters, the Government and community have turned to senior police to take a lead role in disaster management regardless of the combat agency.

- Appointment of a full time State Emergency Management Operations Coordinator (SEOCON) as a fifth Deputy Commissioner of Police was most recently trialled in 2021 during the COVID-19 pandemic, with Deputy Commissioner Gary Worboys providing leadership and decision making that assisted in protecting life and building community confidence. The Inquiry finds this can work to significantly improve implementation of emergency management arrangements across the full suite of emergencies, including floods.

3. Recommendation – permanent SEOCON

That, to improve NSW’s ability to prepare for and respond to floods and other disasters, Government establish a new Deputy Commissioner of NSW Police Force to take on permanently the SEOCON role. This role, in addition to current SEOCON functions, would be responsible for:

- chairing the State Emergency Management Committee (SEMC)
- facilitating collaborative risk management and compliance activities working with local and regional emergency management committees, communities, local government, state government agencies, particularly the proposed NSWRA, and the Australian Government
- working with relevant state government agencies to improve their operational readiness and preparedness for emergencies including, but not limited to, training, education, and ensuring proactive understanding of the location and condition of assets available to the combat agency in the event of an emergency, rather than this information being sought during an emergency, with agencies being required to report on implementation and progress through the SEMC
- ownership of a state capability framework to ensure combat agencies can resource a catastrophic event (so, for example, that during a flood emergency SES deploys all available assets, not just assets owned by SES)
- leading training standards across combat agencies, local government, NGOs and essential service providers
- establishing funded permanent emergency management police positions (at sergeant or senior sergeant level) focussed on local
emergency management service delivery for the SEOCON across all 27 police districts in regional NSW, and the 3 police metropolitan regions in Sydney, with priority given to identified high risk-catchments

- supporting existing interstate connectivity
- State Emergency Recovery Controller (SERCON) responsibilities, which could be delegated to a recovery coordinator/s as deemed appropriate
- leading the proposed new agency, Recovery NSW.

That, to support the Deputy Police Commissioner, SEOCON, a full-time secretariat office led by a Deputy Secretary for Emergency Management be established within, though functionally separate from, NSW Police to drive policy development and implementation. This office should be well-trained to ensure the effective chairing of, and secretariat support for, the SEMC.

D. Findings – flood rescue

- The Inquiry found that flood rescue in the 2022 flood events was not conducted in line with the current NSW State Rescue Policy.
- The SES did not have the operational ability to coordinate multiple flood rescues.
- The Inquiry found that SES members and their deployment system (Beacon) was overwhelmed during the flood events of February and March 2022. The Inquiry heard evidence that Beacon systems were purportedly turned off or ignored by overwhelmed local SES because of the extraordinary number of calls for service, and that in one location up to 3,000 calls for service were never actioned by the SES.
- The Inquiry also heard calls directed from Triple Zero (000) to SES were not taken and often went through to a recorded voice message.
- The Inquiry found there was no redundancy built in for this number of calls for service. Other full-time agencies have redundancy built in for large number of calls, including Fire and Rescue NSW, Rural Fire Service and NSW Police Force.
- All other types of rescues under the State Rescue Policy – General Land Rescue, Industrial Domestic Rescue, Land Search and Rescue, and Marine Rescue – are coordinated by the rescue coordinator, being the NSW Police Force. This is well trained for and exercised, and culturally accepted as an all-agency approach focussed on saving lives.
- It is anomalous that flood rescue is treated differently. The Inquiry found no compelling reasoning for this type of rescue to operate differently to other forms of rescue.
- The Inquiry also found that NSW does not have enough people trained in flood rescue. In part, this forced the community to step up and fill the gaps.

4. Recommendation – flood rescue capability

That, to help improve the protection of life across NSW in flood events:

- the NSW State Rescue Board enforce adherence with current functions
for flood rescue as specified in its current NSW State Rescue Policy

- the NSW State Rescue Board commences a review into flood rescue to bring it into line with all other rescues. All other rescues are currently coordinated through Triple Zero VKG NSW Police in an agreement with all other emergency services agencies. The Inquiry heard from the heads of combat agencies and aligning unions on this matter and found a consensus that the coordination of and response to flood rescue must change. The Inquiry acknowledges that this will necessitate implementation activities for a number of agencies.

- aviation rescue is coordinated, in line with all other types of rescue, by NSW Rescue Coordinator (RAO), acknowledging RFS will maintain an Air Desk for firefighting activities.

- the Flood Inquiry Secretariat remain in place to:
  - conduct an independent audit of NSW rescue capability across the state to inform which agency is best placed to respond to individual flood rescue requests.
  - facilitate the transition from Resilience NSW to Recovery NSW. This scope of work could take up to 12 months.

Further, to support effective flood rescue capabilities, appropriate training facilities are required. Accordingly, the Inquiry would support the NSW Cabinet Expenditure Review Committee:

- considering the NSW Marine Rescue bid to enhance the Cronulla Marine Rescue Centre to include a Flood Rescue Operational Centre.

- approving funding for a NSW state multi agency ‘Flood Rescue Training Academy’ in a regional location to support and enhance the multi-agency response needed for large scale events.

E. Findings – Resilience NSW and recovery

- The Inquiry notes that many Resilience NSW staff were dedicated and did their best in trying circumstances.

- However, during the 2022 flood events Resilience NSW did not perform as intended, primarily due to the size and scope of its remit.

- The Inquiry notes that a majority of submissions which mentioned Resilience NSW and the role it played in the 2022 floods were critical of it.

- The main criticisms were directed at Resilience NSW’s slowness and unresponsiveness in respect of evacuation and recovery centres, clean up, restoring essential services and issuing of grant funding to affected communities and businesses, all of which exacerbated the stresses resulting from the disaster.

- Resilience NSW is the lead agency tasked with maintenance and implementation of the NSW Recovery Plan. It is clear there was inadequate focus on the agency’s ‘on the ground’ operational response in helping people in need, delivering grants, leading the clean-up and restoring access to essential services. There was a widespread view of a failure in leadership and planning by Resilience NSW.
The Inquiry found that Resilience NSW caused confusion in emergency management arrangements during the operational response and recovery. This stemmed from its lack of preparedness and inadequate engagement and communication about its role and functions.

This was exposed in the evidence the Inquiry heard about the confusion and chaos at evacuation centres, where basic welfare support and other services were not available. In particular, the Inquiry heard that decision making at evacuation centres was often unclear, due to a blurring of the roles of Resilience NSW and the Department of Communities and Justice. Other performance issues included inadequate engagement and communication, and breaches of confidentiality which increased the stress of an already traumatic situation for affected people.

The performance of Resilience NSW raised particular concerns at the local council level. The Inquiry found that, faced with inadequate performance by Resilience NSW, local council staff stepped in to fill the gap, taking on more tasks in the evacuation and recovery centres, with many staff volunteering and working through the nights. Many councils felt that poor understanding of the agency’s remit confused processes and delayed recovery times.

The Inquiry found that Resilience NSW’s approach to recovery centres was slow and often inconsistent. Among other things, there was a delay in establishing mobile recovery centres, which were crucial for smaller communities. Both large and community-based not-for-profit organisations raised these issues.

Funding from Resilience NSW for smaller community-based organisations was also slow and unresponsive, causing financial strain for businesses and reduced services to people in need.

5. Recommendation – Resilience NSW and recovery

That, in order to enhance NSW disaster preparedness, response and recovery, and meet the needs of the people of NSW prior to, during and after a disaster, and provide clarity on agency roles and responsibilities, Resilience NSW be reshaped to ‘Recovery NSW’. The new agency will be more streamlined and agile to drive recovery in the first 100 days post disaster. To achieve this, Resilience NSW’s functions should be reallocated as follows:

- disaster preparedness and support, and disaster emergency management policy and service delivery to the newly created Deputy Commissioner of Police responsible for the SEOCON [Recovery NSW]
- community engagement and public education on disaster risk and preparations to DCS/NSWRA
- disaster recovery and renewal management and coordination to the newly created NSWRA
- evacuation centre management and coordination to the Department of Communities and Justice (DCJ), which includes support for self-styled community evacuation centres. Many of DCJ’s current functions deal with people in crisis, therefore the Inquiry finds it best placed to perform the role of evacuation centre lead. The Inquiry notes the importance of a police or security presence in evacuation centres, particularly in the
early days of the establishment of the evacuation centres
- welfare services functional area (WELFAC) to the DCJ
- grants administration to the Department of Customer Service (DCS)/Service NSW for immediate relief and the NSWRA for longer term recovery and reconstruction.

There should also be a renewed focus on agency, local and state government training.

F. Findings – community led initiatives
- The Inquiry acknowledges all the efforts of all NSW citizens who helped defend their communities and recognises the important contribution they made in responding to and recovering from the 2022 flood season. Those efforts are a testament to the incredible resilience and strength of communities across NSW who were threatened by floods and storms.
- The Inquiry notes volunteers today increasingly have competing demands that affect their availability and ability to participate in emergency response activities. Indicative of this is declining recruitment and retention rates and a decline in the number of active volunteer members, particularly for the SES.
- Greater expectations and demands are being placed on volunteers as disaster seasons become longer and more intense. The Inquiry heard that formal volunteerism is declining, and instead more informal, spontaneous networks are developing prior to, during and after a disaster.
- The Inquiry found that during disasters, particularly when Government capability is exceeded, community was often more effective at saving community than Government.
- During the 2022 flood events, multiple communities, especially in the Northern Rivers, felt abandoned by Government. Communities want to feel supported by Government, but do not want government to run or interfere in community led initiatives that work well.
- The Inquiry found that, if properly supported through grant initiatives by Government, community can be an effective ‘first responder’ in disasters. This grant funding could support the establishment and management of evacuation and recovery centres, delivery of psychological first aid and other initiatives to help protect life and property. Ongoing training opportunities must be part of this initiative.
- While Government has a role in sustaining a community response to a disaster, it should also aim for, wherever possible, transitioning from a community to an agency response.
- This Inquiry was told that for Indigenous people, the act of evacuating can be particularly distressing due to the intergenerational trauma of forced removal from family and Country. This was further amplified for some by the presence of security at evacuation centres.
- Indigenous communities understand cultural safety, know each other, and are embedded in networks. An Indigenous first responder program
would help address the needs of Indigenous people in disasters, including when evacuating and in the design and management of evacuation centres.

- To assist in the Indigenous first responder program, Aboriginal Community Liaison Officers (ACLOs) should be involved in emergency management arrangements. ACLOs work closely with Indigenous communities, Aboriginal community organisations and other service providers in their day-to-day activities. The ACLO encourages positive working relationships and partnerships between the NSW Police Force and Aboriginal people as well as promoting an awareness of Indigenous issues to Police.

6. Recommendation – the Community First Responders Program

That, to better coordinate community efforts to save life and property during a disaster, Government create a ‘Community First Responders Program’, funding appropriate community equipment and training, particularly in high-risk catchments along the east coast of NSW. This training would be delivered by combat and/or other appropriate government agencies. This program could support and empower community led initiatives such as disaster response, evacuation centres and the provision of services such as psychological first aid.

To plan for volunteerism into the future, the State Emergency Management Committee (SEMC) commission a review of volunteerism in NSW, acknowledging it is essential to the state’s emergency response to protect life and property. This review needs to recommend a way forward for emergency volunteer agencies to respond to declining formal volunteerism and to make better use of Community First Responders.

Further, to ensure Indigenous communities are included in emergency planning and preparation, emergency management processes incorporate the needs of Indigenous communities including for evacuation procedures and centres by:

- developing an Indigenous first responders program working with Aboriginal communities in flood affected regions to understand what is needed, and resourcing this program appropriately, and
- ensuring Aboriginal Community Liaison Officers (ACLO) form part of the Local Emergency Management Committees and are present at evacuation centres during a disaster to better serve Indigenous communities.

G. Findings – public warnings

- NSW Government must have clear, consistent and effective messaging prior to and during a disaster to ensure all community members understand the risk in all its dimensions including vulnerability, capacity, exposure and hazard characteristics.
- Effective messaging will empower the community to make better decisions in a disaster, particularly around early evacuation.
- During the 2019–20 bushfires and the COVID-19 pandemic, clear and
consistent messaging from Government was vital in reaching vulnerable and culturally and religiously diverse communities. This was achieved through strong Public Information Functional Area Coordination (PIFAC) performance driven by the Department of Customer Service (DCS) and its customer-facing operation Service NSW.

- Under current leadership, DCS has delivered a high level of service to the community and the Inquiry saw this same level of service play out during multiple disasters/emergencies.
- PIFAC should be delivered by the subject matter expert for public communication, DCS, which is also well placed to get the traction necessary for whole of government communications.

7. **Recommendation – PIFAC function**

That, to ensure the community can better understand the threat of flood, storm and tsunami activity, the Department of Customer Service (DCS) be made accountable for PIFAC in all emergencies. This will improve access to clear, reliable and consistent messaging prior to and during emergencies. This transfers the PIFAC role from NSW Police Force to Service NSW. Under this PIFAC function, DCS would be responsible for:

- proactively assessing community sentiment and working with agencies to effectively disseminate key disaster information to all communities including vulnerable, culturally, linguistically, and religiously diverse communities
- coordinating clear, consistent, reliable messaging from all government agencies, especially during a disaster
- working with the SEMC, the Bureau of Meteorology, the new NSWRA and SEOCON to provide public statements evaluating the likely risk of flooding and the effectiveness of planning and preparation for the upcoming season. This should be based on sophisticated monitoring of key risk factors and signals for extreme flood events. It should form the basis for clear public communication about these risks on a regional basis and the actions that the Government proposes in preparation
- working with the NSWRA and SEOCON to deliver a single communication tool for riverine floods, flash floods and dam warnings which uses all available inputs (such as information from the Bureau, real-time river and rain observations data and citizen science data) and provides an assessment of antecedent conditions (such as saturated catchments, soil moisture and water storage capacity). This information should be available to communities and individuals in real-time, on live warning signs in town centres (using satellite connections so they are not reliant on local telecommunications infrastructure)
- recognising that community will revert to social media platforms to self-organise when government is unable to respond, the NSW Government should also consider how to work with social media companies and online communities to ensure consistent messaging during an emergency. This may include directing individual users to Government platforms for updated information.
8. Recommendation – NSW disaster app

That, to improve community confidence in government messaging and warnings, the SEOCON and DCS develop a single ‘NSW disaster app’. This:

- will consolidate individual agencies warning apps
- have a simple interface that is accessible via mobile devices
- provide real time flood warnings and information, both raw information from gauges and processed information from publicly available models
- allow citizens to provide information during a flood to help authorities and community, including flood imagery and local knowledge observations in the lead into, during and immediately after flood events.

Further, the SEOCON and DCS develop a single impact assessment tool accessible by DCS/Service NSW to expedite grants for and insurance claims on homes and businesses.

H. Findings – impact to essential services

- The loss of power during the flood events was significant in terms of scale, duration and its compounding effect on other services including telecommunication, sewerage system plants and water supply systems.
- Similar to the 2019–20 bushfires, the loss of telecommunications services caused the most distress to communities because it affected their ability to request flood rescues, communicate with family and friends, provide warnings and access post-emergency information.
- National roaming agreements in emergency events should be implemented to help maintain a level of telecommunications coverage for affected communities when there is reduced coverage due to telecommunication asset damage.
- Attendance of essential service personnel at local emergency management committees was varied across the state, and when there was poor attendance, this hampered emergency arrangements during the 2022 floods.

9. Recommendation – impact to essential services

That, to minimise disruption to essential services, including outages which compromise basic communication coverage, and to ensure access to safe water supply and power during flood events, Government work directly or together with the Australian and other state governments and/or their relevant power and telecommunications regulatory, policy and market bodies to:

- ensure there are sufficient redundancy options known and made available (for example, backup diesel generators, deployed temporary telecommunications facilities, etc.) to supply power to essential telecommunication infrastructure, alternative telecommunications infrastructure and water treatment facilities
- ensure that the telecommunication entities, electricity network
providers and water treatment managers are using up to the minute, whole of catchment models to inform business continuity planning in the event of flooding

- facilitate cross carrier roaming arrangements between carriers and the public for basic text, voice and data during the period of emergency in areas directly affected by flood
- ensure all essential services are mandatory members of the Emergency Management Committees at state, regional and local levels
- ensure the state understands essential services redundancies and what emergency redundancy options are available from Australian Government agencies
- ensure, given the heavy reliance on essential services by community and government during a disaster, essential services loss, redundancy and build back better principles are exercised through emergency management committee processes annually.

10. Recommendation – transition initiatives

That, to improve the community’s experience during immediate disaster recovery phase, Government through the SEOCON, NSWRA, DCS/Service NSW and other state agencies as required provide greater support (financial, health [including mental health], temporary accommodation, administrative and other support services) to affected communities by:

- minimising the number of times a person is required to relive their trauma by providing evidence or narrative of their disaster impact (for the purposes of accessing relief and support services). This includes consistent and effective referral pathways and follow up mechanisms
- looking at information sharing arrangements with the Australian Government to streamline grant identification and delivery
- partnering with affected communities and individuals to navigate and access support as soon as possible during or immediately following disaster events
- where possible, merging evacuation and recovery centres for the first 30 days post disaster. Where co location is not possible, DCS/Service NSW must have a representative present at both evacuation and recovery centres.

The Inquiry notes that clear transition initiatives are required dependent on the phase of recovery and lead agency associated – for example, the transition between the SEOCON (including DCS/Service NSW) in the immediate recovery phase to the NSWRA for the longer-term recovery. Functions that may require transition include, but are not limited to, administering grants and funding, and managing infrastructure and housing projects.
I. Findings – emergency management planning and preparation

- The Inquiry found that NSW needs improved governance arrangements to drive a cohesive, whole of government approach to disaster preparedness, planning and emergency management.
- The Civil Contingencies Committee (COBRA) in the United Kingdom provides a great example of a high-level coordination and decision-making committee ready for activation in the event of major emergencies. The committee is a mixture of Ministers, officials and agency personnel from departments closely involved in emergency management. This structure seems to work well to boost, encourage and facilitate action.

11. Recommendation – Task Force Hawk

That, to ensure disaster readiness, Government establish a high-level Government standing committee, Task Force ‘Hawk’, comprising key Cabinet Ministers, Secretaries and Commissioners that meets, trains and exercises to ensure Government is prepared to respond to any emergency. Task Force ‘Hawk’ should resonate with the community in difficult times to ensure the highest level of confidence in Government’s response.

Further, to improve the preparation for and timely response to disasters, and to ensure the emergency management systems and plans are fit for purpose, effective and appropriate, within 12 months Government, via the SEOCON, ensure all emergency management processes and plans have been updated and implemented.

J. Findings – flood training and accreditation

- The SES is a volunteer-based organisation made up of approximately 300 salaried staff, with only 27 of these staff in full-time operational roles. At best, it has limited capacity, operational command and training facilities or organisational capability to plan, prepare and respond to large scale disasters and emergencies.
- The $132.7 million given to the SES in the 2022–23 budget is a welcome first step to boost its capability and improve operational performance.
- There are existing models of shared services for volunteer agencies that have enhanced operational performance through improved training and exercising. For example, the Rural Fire Service (RFS) is the current registered training organisation (RTO) for the Volunteer Rescue Association (VRA). Fire and Rescue NSW (FRNSW) is responsible for the receipt of fire and emergency calls and related information for RFS via the Triple Zero (000) network. There has been no loss of agency identity or mandate under these shared service arrangements.
- The maturity of the RFS as an emergency management agency has evolved in large part through its response to previous findings of Coronial Inquests, Royal Commissions and other inquiries. The RFS now has a mature, all hazards approach to emergency management, is a professionalised volunteer agency with over 79,000 volunteer
members, and has a highly capable corporate support function with a strong ethos around training and exercising. Merging RFS and SES corporate services provides an opportunity to professionalise the SES and improve operational performance through enhanced training and exercising capability.

- If this recommendation is implemented, corporate services functions could be partly run out of Wollongong, the existing SES headquarters, with SES operational functions run out of the current Homebush site that houses RFS, SEOCON and Resilience NSW. This will consolidate many of the volunteer agencies in a single operational location for the proposed Task Force ‘Hawk’ (Recommendation 11).

12. Recommendation – SES and RFS back-office merger

That, to help protect life and property across NSW in storm and flood events, and to improve resourcing and NSW State Emergency Service (SES) frontline capability, Government implement, before the next storm season, a merger of the SES and NSW Rural Fire Services (RFS) back-office and corporate service functions, while maintaining their separate legislative identity, brand, uniform and volunteer membership. This ‘joined-up’ RFS/SES corporate support structure would be under the command of the RFS given its corporate and operational maturity and would be responsible for:

- placing risk at the centre of all decision making and planning for catastrophic disasters
- establishing a dedicated intelligence unit that synthesises the wealth of intelligence available to inform critical decision making, particularly for flash flooding
- establishing a planning unit to help better prepare communities, NSW combat and other agencies, and local governments about upcoming flood and storm seasons
- establishing a full-time SES position for each high-risk catchment to ensure flood identification, response assets and supporting infrastructure is serviced, operational and ready to deploy
- designing and implementing a workforce plan to identify any capacity and capability gaps in frontline emergency staff, now and into the future
- improving the hiring standards of frontline full-time staff in operational decision-making positions
- improving the support, training and retention of both frontline staff and volunteers
- improving media protocols and identifying a designated media spokesperson during a disaster

The newly merged model should be reviewed in 12 months’ time by the SEMC.
K. Finding – compound mental health studies

Despite the many studies which examine the mental health effects of natural disaster, very few have explored the impact of compound events, or the effects of consecutive disasters on individual or community mental health and resilience.

13. Recommendation – compound mental health studies

That, to inform Government policies and programs for mental health and disasters, Government commission a longitudinal study on the effect of consecutive disasters on community mental health.

L. Findings – flood risk management at all levels

- Broad community memory of disaster is negligible, though sympathy at the time of the event is significant. Collective amnesia in the long tail following a disaster event promotes inertia and inhibits decisive and necessary action in preparing for, responding to, recovering from and building resilience against future events.
- Individuals, community and Government need to prepare and invest in disaster management proactively not reactively – and be as disaster ready as possible in an environment of uncertainty (knowing that disasters will recur but not when, where or how). And decision-makers need to accommodate the complexity of human behaviour.
- Government must promote personal agency and capacity through consistent communications and education to create more resilient communities, and to enable better flood (and other disaster) risk management at all levels (individual, community and government). Effective risk management should be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure, hazard characteristics and the environment, and should be used to inform decision making across all phases of disaster management, including risk assessment, prevention, mitigation, preparedness and response.


That, to build disaster resilience in future generations as floods and other natural disasters are a fact of Australian life, the Department of Education should design, implement and deliver an evidence-based, targeted education campaign (like sun exposure) in schools (new disaster curriculum).
M. Finding – permanent reconstruction agency

NSW is at significant risk of yet more major disasters. These will be challenging and expensive to prevent and to respond to. The state would benefit from having a permanent reconstruction agency which begins the reconstruction process as the disaster strikes and thus works to ameliorate community devastation and, better still, provides education and infrastructure before a disaster strikes that minimises the harm from a disaster.

15. Recommendation – NSW Reconstruction Authority

That, to provide rapid and effective recovery from floods (and other disasters) and to provide maximum mitigation of the impacts of future floods (and other disasters), Government establish a permanent state-wide agency, the NSW Reconstruction Authority (NSWRA) dedicated to disaster recovery, reconstruction and preparedness. The NSWRA should:

- source and acquit reconstruction funding from state, Australian Government and philanthropic sources and ensure it is distributed and spent efficiently, effectively, and equitably to get the affected communities functioning again successfully in minimum time. A disaster-preparedness funding envelope should be a permanent feature of the state’s budget (NSW Adaptation Fund) with specific drawdown arrangements negotiated as soon as a disaster occurs
- work with appropriate agencies to ensure disaster relief grants schemes are put into place quickly and ensure rapid and effective distribution of disaster relief grants
- be the clear lead agency responsible for managing and coordinating Government’s program of housing and infrastructure renewal and recovery within disaster-affected communities, with a focus on working with community, business, state and local government partners (particularly planning, infrastructure, water and roads agencies and utilities) to deliver best practice and rapid effective expenditure of public reconstruction funds. For this it should be given appropriate authority to accelerate or override planning arrangements (in particular, local government planning, environmental and land management controls, provisions and regulations) in affected and high-risk areas and, as necessary, compulsorily acquire or subdivide land
- ensure there is appropriate project management, monitoring, evaluation and reporting of recovery implementation and associated civil engineering and public works at both a state and local level
- develop effective information flow and consultation mechanisms which ensure a clear voice in crisis but also a broader engagement process during the rebuilding phase, so all those affected in a disaster are supported, consulted and informed throughout the recovery and reconstruction process
- in line with the Government’s vision to build a more disaster-robust state, be the state’s lead agency responsible for disaster prevention. In this role, NSWRA would work collaboratively with key stakeholders (at risk communities, local government and the private, research and philanthropic sectors) to improve risk reduction and disaster adaptation
particularly in high-risk areas. In particular, it should work with disaster-prone communities, local government and agencies across state government to develop a State Disaster Mitigation Plan and scope, source funding for and lead special disaster-prevention and mitigation projects identified in that Plan

- contribute to Government’s objectives for the community – creating jobs, homes and a strong economy, especially in the regions, protecting the environment and building safe, caring and connected communities by:
  - administering funding under disaster recovery funding arrangements and assisting local governments to achieve value for money outcomes in their reconstruction programs
  - providing advice and support to local governments to maximise the effectiveness of their disaster preparedness and reconstruction programs
  - coordinating disaster recovery activities that help communities recover from disasters and build their preparedness for future events.

Further, it is recommended that the NSW Reconstruction Authority be established and function under dedicated legislation [the NSW Disaster Reconstruction Act] that is modelled on the Queensland Reconstruction Authority Act. This legislation should include that:

- the Authority be allocated to a senior portfolio to maximise its convening power and its ability to respond rapidly when disaster strikes
- its CEO be a statutory appointment and be supported by an Advisory Board (maximum 7 members) comprising community, government and industry leaders with appropriate expertise and experience related to disaster response
- Special Projects be formal constructs with appropriate links to all other relevant agencies
- transition provisions transfer the activities and assets of the Northern Rivers Reconstruction Corporation with immediate effect.

16. Recommendation – cost benefit framework

That, to enable a more systematic prioritisation of investment options in risk mitigation before, during and immediately following a natural disaster event, Government adopt and utilise a Disaster Cost Benefit Framework. This Framework will enable Government to estimate the investment required for any given disaster, starting with flood events, and will enable the fast allocation of funding based on detailed and rapid analysis of flood and property modification, mitigation, preparation, response and finance related options including:

- flood modification measures/flood defence (including dams/ water management; levees; waterway or floodplain modifications; etc)
- property modification measures/flood risk mitigation (including land filling; flood proofing; house raising; optimum zoning; removal of
development (buy back schemes/relocation))

- response modification measures/flood preparation (including flood warnings; upgrading evacuation routes; evacuation planning; emergency response and education programs; flood data collection and sharing; etc)
- finance related options (including building standard reforms; restructure and reduction of stamp duty; direct subsidies; government reinsurance pools; etc)

The Framework should build on the preliminary version developed by NSW Treasury and provided to this Inquiry. To support this Framework, Government should also use the NSW Adaptation Fund that can be drawn on during or immediately following a flood event.

N. Finding – landholders can access information on previous disasters

Most landholders seem to have little idea if their property is at risk of disaster or has ever been affected previously by disaster. Given that house purchase is often an individual or family’s single biggest personal investment, it is important that they understand this risk before purchase.

17. Recommendation – landholders can access information on previous disasters

That, to ensure there is a single source of ground truth to prepare for and respond to emergencies, and to provide people with a better understanding of their individual property and community risk exposure, an online visualisation tool be developed to display, for all land parcels (land titles) in NSW, the extent of known disasters that have affected each piece of land in NSW in the past. This information should be made available through the Planning Portal and, particularly in light of climate change, the data involved should be revised and updated at least every two years and after each major natural disaster.

O. Findings – risk-based approach to calculating flood planning level

- Most landholders using the 1% AEP for calculation of the flood planning level for planning purposes in NSW is not adequate, especially in the light of changing rainfall patterns including the intensification of intra-day rainfall, with the consequent risk of greater flash flooding.
- To understand risk, especially for major flooding events, knowledge of floods at a catchment-wide scale is needed. Councils are generally not adequately resourced or organised to manage either whole-of-catchment models or high quality, risk-based flood planning level estimations. Responsibility for this matter needs to return to the State Government. Re-determining flood planning levels will be relatively straightforward in some cases with the result remaining close to the 1%
AEP but will need substantial adjustment in others depending on local rainfall intensities, catchment shape and other risk factors.

18. Recommendation – risk-based approach to calculating flood planning level

That, to take account of greater knowledge of climate change, Government reinforce its adoption of a risk-based approach to calculating the flood planning level for planning purposes and, through the NSWRA, immediately start a process of revising all flood planning level calculations in the state’s high-risk catchments. Flood planning level re-determinations for all high-risk catchments should be completed within 3 years. These revised flood planning levels will need to be factored into all development applications (in-progress and new) in those high-risk catchments. The risk profile of high-risk catchments should be revisited at appropriate time intervals to check that levels are current. A review should take place if there has been a significant trigger event (i.e. changed rainfall, development) or at least every 5 years. As well as reviewing the flood planning level, this 5-yearly review should include reviewing any floodplain lease conditions and adjusting them as necessary in the light of better knowledge of climate change impacts. In working out a tolerable, risk-based flood planning level, consideration should be given to the PMF, 1% AEP, 0.02% AEP, existing development, approved but not yet constructed developments, and existing and approved but not yet constructed evacuation routes.

In coordinating this flood planning level re-determination process, NSWRA should work closely with local councils, DPE, communities, state water authorities and state and national engineering and research organisations. In doing so, the NSWRA should also:

- extend and then maintain the DPE state-wide flood database and associated visualisation interface. This database, which should link to LandiQ, would support:
  - monitoring of the flood warning and sensing environment
  - monitoring of trends in rainfall activity and impacts, including timing, cause, extent and intensity
  - tracking trends and identifying patterns in associated weather and climate signals that contribute to severe floods
  - evaluation of the cost and effectiveness of risk mitigation efforts, including land preparation, planning use and management, to enable a better understanding of what works
  - simulation of extreme rainfall events and resultant flooding
  - identification of ‘at risk’ river and catchment systems for flash flooding
  - rapid and effective deployment of resources during a flash flood event
- act as the main coordination point for all NSW hydrological modelling, working with local government, other state agencies, universities, professional bodies (e.g. Engineers Australia) and the Australian Government (especially the Bureau of Meteorology and CSIRO) to improve future NSW flood risk assessment (and hence accuracy and
timeliness of flood prediction) by building more formal connections between the extensive existing physical hydrological modelling (done by various NSW agencies) with the Bureau’s meteorological and climatological research and riverine flood models

- support local councils to improve modelling of and ensure adequate and appropriate alarm systems for flash flooding.

P. Finding – disaster adaptation plans for all towns

Natural disasters will recur in NSW as we see more extreme climate. NSW will experience more extreme bushfires and larger and more dangerous floods. This means that certain regions and certain areas of cities and towns (notably floodplains associated with major rivers and the parts of cities that are bushfire prone) are increasingly dangerous places to live and will increasingly be a drain on the public purse as people who live there have to be evacuated repeatedly and then re-housed. Particularly good examples include the Hawkesbury-Nepean Valley in the Sydney region, and high-risk flood catchments in regional NSW – notably the Northern Rivers and the Hunter region. The flood risks of these areas are so significant that any further development just increases the burden on current and future communities, and a strategy is needed to adapt to this risk and minimise the number of people who live below the flood planning level.

19. Recommendation – disaster adaptation plans for all towns

That, to establish realistic expectations of safe spaces to live and deliver much needed housing quickly, Government through NSWRA working with local government:

- build a disaster adaptation plan for each city and town, with planning instruments discouraging (and in many cases forbidding) development in disaster-likely areas. These plans should be developed under the NSW Climate Change Adaptation Strategy. For towns at high risk, this should be completed within 3 years, with the rest of the state to be completed within 5 years. To develop these plans, it will be necessary to prioritise modelling of the impact of and evacuation possibilities from likely potential disasters as well as modelling the direct impact of the potential disasters themselves. For floods this can be done by continuing and broadening the flood modelling done in INSW to other high-risk catchments. This flood modelling activity should be moved to the NSWRA from the two groups it is currently with (INSW’s Hawkesbury-Nepean Valley Flood Risk Management Directorate and the Department of Planning and Environment’s Environment and Heritage Group)

- through NSWRA, working with local councils, complete the first sweep of plans including appropriate hazard maps (including but not limited to flood, fire and landslip) and link them to Strategic Plans and LEPs (updating as necessary). An accreditation process should be implemented so local councils with demonstrated capacity can seek
accreditation with the NSWRA to maintain their own disaster adaptation plans with oversight (spot audits) by NSWRA

- use the disaster adaptation plans including the disaster/evacuation modelling to resolve existing rezonings currently on hold especially for the North-West corridor of Sydney. Future residential development in the Hawkesbury-Nepean Valley should be increasingly discouraged in favour of rapid development near train stations and other facilities in flood-safe areas

- use the disaster adaptation plans including the disaster/evacuation modelling and the options spelled out in the Northern Rivers case study to inform town planning, relocation options, buy backs and land swaps for the flood affected Northern Rivers region with the NSWRA (and in the lead up to the NSWRA’s creation, the Northern Rivers Reconstruction Corporation) urgently commencing a phased program to migrate people off the highest-risk areas of the Lismore floodplain, and other Northern Rivers floodplains, through a significantly expanded land swap and voluntary house purchase scheme, with priority given to our most vulnerable community members

- prioritise and incentivise new development in safe areas, noting this will often mean encouraging first home buyers to choose homes in appropriate density developments, including high-rise developments, through siting such new developments in locations with desirable attributes (near train stations, parkland, shopping centres, etc.) In this regard, Government should focus on redeveloping existing Government land in these locations

- for existing developments which are in disaster-likely areas, ensure evacuation routes are available and of sufficient capacity; the community is well-educated about the risks they face and how and when to evacuate; and any modifications of existing buildings are approved only if they maximally address the relevant risk (e.g. apartment buildings have the first few floors dedicated to parking so residents can shelter in place if necessary) noting that shelter in place only works if the flood waters come up and go down quickly, and if other essential services (water, electricity, sewerage, access to food and medical supplies, etc) are available

- using the Six Cities Region as an inspiration, consider developing another strategic city cluster in NSW, prioritising safety from fire and flood along with affordable housing; new industries offering well-paid employment; living within 30 minutes of the workplace; and offering access to education and training at all levels.
Q. Finding – floodplains as assets

At the moment, there is no coherent or principled approach to proactive, appropriate development of NSW floodplains. Practice to this point has created tensions between the urgent need for more housing and keeping people safe. There is pressure on developers to provide housing, and there is pressure on consent authorities to approve the development, whilst ensuring it is safe and appropriate to do so. Climate change, though not yet fully understood, is increasing this tension. The tension particularly affects those who can’t afford to live in suburbs out of the floodplain.

20. Recommendation – floodplains as assets

That, to establish the capacity and maximise the economic, social and environmental potential and consequently unlock the value of NSW floodplains, Government adopt the following guiding principles for floodplain management:

- treat floodplains as an asset, specialising in uses that are productive and minimise risk to life during major weather events. Such uses would include sporting and recreational activities, garden plots and community gardens, agriculture and forestry, renewable energy production, biodiversity offsets, parks and outdoor education activities. Government should progressively move floodplain ownership to Government leasehold with lessees using the land under appropriately specified conditions. The management of the process of conversion to leasehold would be a Special Project of the NSWRA but over time handing the floodplain asset over to management by another government agency. The NSRWA should prioritise rapid conversion to leasehold in cases where houses and businesses are in high-risk areas – this may be accomplished by land swaps or buy backs. In doing so Government achieves early wins for new uses. In other cases, the conversion should occur as a condition of development, of a type that is consistent with safe evacuation or safety in place in the case of flash flooding that recedes rapidly

- treat development of the floodplain in parallel with development of urban structures (houses, businesses and industry) that are built near to the edge of the floodplain. Examples of connection could include high-rise housing developments where apartment owners are granted automatic rights and access to community garden and community recreation facilities. Structures within the floodplain and surrounding development should be connected by a layer of sustainable transport

- favour letting watercourses largely flow naturally rather than implementing engineering barriers such as flood levees and mitigation schemes to stop floods

- communicate the intention to use planning arrangements that will lead to greater safety and community amenity as well as realising a significant state asset. This needs to be communicated in general to the people of NSW, but also to those particularly affected communities at the time of planning, rebuilding and construction.
R. Finding – simplify the planning system disaster provisions

- The new disaster adaptation plans and risk-based approaches to calculating flood planning levels will need to have a clear connection to the development assessment and infrastructure delivery process. It will be critical for new controls to create more resilient buildings to be enforced through development decisions, just as decisions to retreat from high-risk areas require support through public space and other infrastructure funding. Achieving these outcomes needs a clear line of sight between policy imperatives for disaster avoidance and adoption, the strategic plans that shape settlement decisions, and the operational decisions (like development assessment and spending) that achieve these outcomes. With multiple inputs to the preparation of local planning controls, the line of sight necessary to ensure effective adaptation and resilience to disasters can be obscured. Shifting the responsibility for flood risk management planning to the proposed NSWRA also raises the question of where the development controls for flooding should sit along with the policies that support the inclusion of disaster adaptation plans into strategic planning.
- The division of the planning system into two parts – strategic and development control – and its operation across two levels of government makes it at times challenging in relation to addressing flooding (and natural disasters more generally).

21. Recommendation – simplify the planning system disaster provisions

That, to simplify and improve the state planning processes especially when anticipating and recovering from a disaster, Government:

- ensure there is a clear line of sight directing councils and planning authorities to include disaster response and resilient settlement outcomes in long term strategic plans (Regional and District Plans as well as Local Strategic Planning Statements). This may require more prominence to be given to Planning for a more resilient NSW: A strategic guide to planning for natural hazards (Department of Planning, Industry and the Environment) as well as a clear link to the risk-based approach to hazard identification and the disaster adaptation plans
- ensure the NSWRA provides the necessary tools and advice to enable planning authorities to incorporate cumulative impacts of potential natural disasters into strategic plans. These tools should ensure the disaster adaptation plans can be given real effect in strategic plans for settlement and local planning controls
- ensure that Ministerial Directions on hazard and natural disasters (directions 4.1 and 4.6 inclusive) are updated to reflect the new risk-based approach to flood planning levels and deliver the disaster adaptation plans to the zoning process
- create specific flood planning provisions as a new chapter in the SEPP (Resilience and Hazards). These provisions would draw the existing flood planning clauses (5.21 and 5.22 in the standard instrument) up into the SEPP
- put the natural disaster clause (5.9 in the standard instrument) into a new chapter in the SEPP Resilience and Hazards, along with objectives
to assist councils to use the clause to build back to more resilient standards

• update planning guidance so that wherever possible community facilities, such as might be used for evacuation centres, are located above the probable maximum flood and essential services are located above the flood planning level

• ensure that the strategic land use frameworks and related controls permit new developments only in line with the evacuation capacity both individually and cumulatively

• ensure that the strategic land use frameworks enable higher density flood resilient precincts to locate more development at or above the PMF and use a higher flood planning level to avoid catastrophic costs from extreme flooding, as well as deliver cost-effective controls for individual structures.

S. Finding – housing and rehousing issues

Both metropolitan and regional NSW are in the grip of a housing crisis. House prices and rents rose significantly through the COVID ‘shutdown’, making it more difficult for many to find a place to live. While interest rate rises are easing house price pressures, the rental market remains extremely tight. Rents continue to escalate, and vacancy rates remain low - under 1% for many regions, including the Northern Rivers. The floods made uninhabitable or significantly damaged thousands of homes and forced thousands into emergency accommodation. There are still some 1300 in emergency housing across the Northern Rivers, more than four months after the floods. This is driving more demand for social, affordable and market rental housing and has worsened homelessness. Urgent action is needed to provide fit for purpose, resilient homes for the displaced or those who continue to reside on high-risk floodplains. This includes homes for Indigenous peoples which are respectful of culture and kinship.

22. Recommendation – relocating communities most at risk with good homes and amenities

That, to empower vulnerable people and communities to relocate, Government through the NSWRA:

• identify and prioritise those communities most at risk from future disasters, and for whom relocation may be appropriate or necessary

• leverage the work done through Government’s homes, cities, manufacturing and skills policies, to collaborate and work with these communities in examining, designing, building and installing affordable, attractive and insurable housing options (e.g. locally fabricated high quality modular homes, or utilising local builders to retrofit and/or relocate existing homes to safer ground) and to enable small housing developments with capacity to grow organically over time

• utilise best-practice policy for rapid urbanism and community-building to establish new settlements. This should include:

— an enquiry-by-design or charrette process led by the Government
Architect to ensure that new settlements reflect the aspirations and vernacular of the local community, whilst meeting the technical needs of establishing settlements and delivering infrastructure at low cost. This should also include considering how to repurpose floodplains for community use and benefit, i.e. recreation, sports and energy production as part of the process of returning land below the flood planning level to Government ownership. It should also consider the role of locally manufactured, well-designed and regulated modular housing solutions

— promoting a sense of community by ensuring appropriate amenity (e.g. schools, shops, and services) is available to relocating people and communities at the time of moving to their new settlements

— working with the financial and philanthropic sectors to investigate a special purpose fund to provide continuing support for these communities as they transit through re-establishment.

23. Recommendation – housing and development funding options

That, to empower vulnerable people and communities to avoid significant impacts from flood as well as drive broader investment in adaptation, Government through NSWRA:

- consider establishing a NSW Mitigation Fund as a form of secured finance as a lien on title, such as rates-based or utility-based financing, to allow the Government to harness private sector monies to deliver cost-effective flood-resilient retrofits for existing dwellings

- investigate whether trading mechanisms for development rights, renegotiation with developers with existing rights, or uplift value capture to fund buy-outs could reduce existing and anticipated development in areas of greatest flood risks, with an initial focus on the Northern Rivers region and the Hawkesbury-Nepean. In doing so, Government should:
  — ensure that tradeable rights facilitate the construction of additional homes in line with regional plans, in particular the Government’s six cities vision developed by the Greater Cities Commission
  — fund voluntary property purchases in identified locations through the issuing of tradeable development rights

- work with the insurance industry to ensure that works are undertaken such that they would improve access to lower cost insurance products, improving upon existing guidelines from voluntary house raising schemes

- ensure that local delivery partners provide a seamless consumer experience in a cost-effective manner, whilst meeting community expectations for consumer protection and responsible lending

- consider how the NSW Mitigation Fund mechanism can address other adaptation and mitigation opportunities such as improving flood-resilience for structures in areas of extreme risk and reducing emissions and bills whilst improving human health outcomes through energy efficient retrofits and home electrification.
24. Recommendation – housing, especially social housing

That, to ease housing stress in flood prone areas and ensure new development is resilient and community-centred, Government pursue a multi-pronged, decadal strategy through:

- ensuring flood-displaced residents in emergency housing who have no safe return to home options are re-homed in more permanent settlements where community can be re-established, and that emergency housing clusters do not take on de facto permanency
- providing authoritative advice on how to reclaim and restore flood-damaged houses affected by mould. This includes providing detailed advice on who is at risk from living in mould-infected houses (the immunocompromised and those with lung damage plus certain other groups) and what constitutes safe living conditions for this group
- ensuring building standards are adopted for build back after floods so that new housing stock is as flood proof and flood recoverable as possible
- investing additional state, Commonwealth and private sector monies to grow the stock of social and affordable housing
- accelerating investment by the community housing and private sectors in new social and affordable housing projects through a Government run co-contribution grant funding program
- planning for and encouraging collaborative public and private sector investment in innovative mixed-use developments in flood prone regional cities and towns that are built above ground level to be flood resilient, are centrally located, and increase housing diversity by providing smaller social, affordable and market dwellings
- the Government’s Expert Housing Advisory Panel providing advice on additional market interventions to improve rental affordability and ease vacancy shortages to reverse homelessness and take pressure off social housing waitlists
- fast-tracking the approval and servicing of new village developments beyond the current footprint of Lismore and other Northern Rivers towns on existing cleared agricultural land above the re-calculated flood planning level, ensuring all infrastructure including transport, retail, schools, public space and other community facilities are in situ prior to occupation
- fast-tracking planning approvals and the provision of enabling infrastructure to accelerate delivery of Aboriginal housing on Local Aboriginal Land Council land and lands owned by Native Title corporations that respects culture and kinship and supports stable accommodation pathways
- partnering with the development and community housing sectors to relocate flood prone social and affordable housing on the Hawkesbury-Nepean floodplain to new and attractive multi-use, medium density developments within the CBDs of Mount Druitt, Blacktown and other Western Sydney city centres
- under the leadership of the NSW Building Commissioner, developing a code for flood resilient, environmentally sustainable building that accounts for current and likely future supply chain disruptions and
extends to modular and manufactured homes

- working with the Greater Cities Commission and regional councils to ensure future local housing strategies factor in the need for natural disaster emergency housing and promote resilient housing systems
- encouraging financial institutions and insurance companies to use pricing structures to incentivise the construction of more safely situated and resilient buildings
- supporting building industry skills growth and making building material supply chains more robust to insulate the economy from future natural disaster and other exogenous shocks
- ensuring building industry occupational health and safety regulations are enforced in the flood-affected areas rebuilding programs.

T. Finding – caravan parks and manufactured home estates

Caravan parks and manufactured home estates have been developed in places that are appropriate for tourist purposes but are not always ideal locations for permanent residents. Under the current planning system, there are significant legacy risks which mean that many permanent residents, who are generally older and often infirm, are living at significant flood risk.

25. Recommendation – caravan parks and manufactured home estates

That, to ensure that permanent residents of caravan parks and mobile housing estates are protected from flood, Government:

- prohibit permanent residency in caravan parks and mobile housing estates situated below the risk-based flood planning level. Caravan parks for holiday makers could still be on the floodplain with the provision that, if a flood is imminent, they need to be evacuated
- address the issues raised in the 2015 Discussion Paper (Improving the regulation of manufactured homes, caravan parks, manufactured home estates and camping grounds).

U. Finding – roads and landslips

- Roads are critical in flood evacuations, but the recent floods have highlighted their vulnerability to flood damage and to being cut off by floodwaters and landslips, preventing entry and egress, and isolating communities from essential services.
- The cost of critical road maintenance and flood-damage repairs, particularly for key evacuation routes, is beyond the capacity of local government and private road owners.
- Road ownership is fragmented with evacuation routes established at the local level, and no coordinated and state-wide view.
- Future development must be informed by sound road evacuation modelling to ensure road capacity for population increases.
- Future road design must be more resilient to flood impacts, and must
V. Finding – environment

- Floods have positive and negative impacts on the environment.
- Moving to treating floodplains as assets means re-thinking environmental impacts from floods. Indigenous people can lead us all to understand the impacts of these changes and hazards and what needs to be done to restore and remediate Country.

27. Recommendation – environment

That, to maximise protection for the environment in and around floodplains, Government, working with local communities especially Indigenous communities, the NSWRA, other agencies and local councils ensure Indigenous voices are well heard in land use planning and natural resource management by:

- developing an Indigenous led cultural landscape restoration strategy for the Northern Rivers for nature-based flood mitigation and adaptation which would see large-scale native revegetation and wetland restoration across the Richmond River catchment, including the Tuckean swamp
- supporting Indigenous people to engage in cultural stewardship practices to build the resilience of people and Country, including the Jagun Alliance “Healing our River Country for Community and Landscape Resilience” proposal
- establishing a NSW Indigenous Natural Hazards Trust for research into and development of Aboriginal caring for Country and ‘green’ infrastructure to build back resilience in nature and community
- embedding Indigenous voices and representation in governance

26. Recommendation – roads

That, to improve the planning and protection of road infrastructure and to ensure communities, freight movers, combat agencies and emergency services have appropriate access and egress during and following a flood event, Government, through TfNSW and NSWRA and working with combat agencies and local and federal governments as needed, should:

- develop a state-wide road evacuation plan to establish a coordinated view of evacuation routes to ensure they are well-maintained and, particularly working with the Australian Government, ensure that funding is coordinated and prioritised to target upgrades where it is most needed to increase flood resilience. This plan should be informed by catchment-wide flood risk modelling
- identify and prioritise communities at high risk of flooding where access and egress will be affected (for example rural communities connected by a single road affected by landslips) to coordinate logistics options to sustain communities isolated as a result of flooding.

adequately consider the way transport infrastructure can affect the behaviour of floodwaters.
W. Finding – essential services and floodplain infrastructure

- Essential services disruption in the floods was exacerbated by critical infrastructure being situated in low-lying areas and consequently being flooded.
- Many hospitals, medical centres, nursing homes, aged care facilities and police stations are situated below the flood planning level. Several of these were affected in the recent floods.
- Some detrimental impacts of floods come from built structures which are supposed to provide flood mitigation not being maintained and consequently malfunctioning after heavy rain, making floods worse at a local level. Many are the responsibility of several agencies and are maintained by none.

28. Recommendation – essential services and floodplain infrastructure

That, to minimise disruption to essential services (power, communications, water, sewerage) and to ensure flood infrastructure is fully serviceable before flooding, Government ensure:

- essential services infrastructure (communications, water, power and sewerage) is situated as much as possible above the flood planning level. And to minimise disruption to medical services, aged care services and the police, Government ensure hospitals, medical centres, nursing homes, aged care facilities and police stations are situated above the probable maximum flood level
- floodplain infrastructure (drains, levees, flood gates) items are all assigned to an appropriate lead agency which has responsibility for ensuring they are fully maintained and functioning especially when floods are likely.
The 2022 floods: fundamental facts
The 2022 floods: fundamental facts

Following 2 years of well above average rainfall and intermittent flooding, an exceptional weather event in late February and early March 2022 delivered extreme multi-day rainfall and flooding to eastern NSW. Multi-day rainfall records were broken across north-east NSW, with multiple sites recording more than 1 metre of rainfall. In the north-east of NSW, the last week of February was the wettest week on record, and in the Hawkesbury-Nepean, 1-9 March was the catchment’s wettest 9-day period since records began.²

Major flood levels were reached in rivers across the region, including the Richmond River at Coraki and Woodburn on 28 February, and along the Hawkesbury-Nepean River at Menangle, Wallacia, North Richmond, Windsor, Sackville, Upper Colo, Wiseman’s Ferry and Lower Portland on 8 and 9 March. The Wilsons River at Lismore peaked at a record height of 14.4 metres at around 2 pm on 28 February. This peak was more than 2 metres above the previous record of 12.11 metres observed in both 1954 and 1974.

During this period, widespread major riverine flooding also occurred in the Tweed, Brunswick, Clarence, Lower Hunter, Paterson-Williams and Wollombi Creek catchments. Tragically, 9 lives were lost across the state in the February and March floods.⁸

As communities continued their recovery efforts from the February and March floods, heavy rainfall began to fall again from 27 June, leading to significant riverine and flash flooding. In many catchments, the July floods were higher than those experienced earlier in the year in March, with the greatest flood impacts experienced in the Greater Sydney, Illawarra, Central Coast and Hunter regions.⁹ In Greater Sydney, the Woronora River peaked at 2.08 metres, exceeding the 1988 flood level. In Windsor, the Hawkesbury River rose to its highest level since 1978 at 13.9 metres, exceeding the levels reached in March 2022 when the river peaked at 13.8, and in March 2021 when it reached 12.93 metres. In the Hunter, major flooding occurred at Bulga and Wollombi, exceeding the March 2022 levels.

In the July floods, more than 170 evacuation warnings and orders were issued, affecting over 110,000 people across the state.¹⁰ A total of 17 evacuation centres were established.¹¹

Thankfully, no lives were lost in the July 2022 floods.

Natural disaster declarations were made for 61 LGAs that experienced flooding in the first half of 2022, and 37 LGAs for flooding in July 2022.

Over 14,500 homes were damaged and over 5,000 rendered uninhabitable — more than the number of homes damaged and destroyed in the 2019–20 bushfires and the March 2021 floods. As at July 2022, there are close to 8,000 people in emergency accommodation. Nearly 8,500 personnel across the SES, RFS, ADF and other emergency services were deployed to assist in the floods — more than those deployed in the bushfires and floods in the preceding years.¹²

There has been high demand for support, mental health and wellbeing services following the floods. Since 28 February, the Northern NSW Local Health District Disaster Recovery team has

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9 Ibid.
10 Ibid
12 Ibid.
seen about 2,000 people. The main reasons for seeking support include distress about being displaced from home, being refused a grant application or having an insurance claim rejected. People have also reported distress due to the cumulative effect of previous disasters such as drought, bushfire, COVID-19 and floods. Across the same period, the Nepean Blue Mountains Local Health District reported that 114 people received psychological first aid, 30 received mental health interventions and 54 had been referred to the Disaster Recovery Centre.

These numbers only reflect people who have visited a NSW Health disaster recovery team or facility, and not the true number of those seeking help through other providers.

Close to $4 billion in government support has been committed by the NSW and Australian governments.

**Community response**

The 2022 floods had and continue to have a devastating impact on people and whole communities. Despite this devastation, some of the most powerful stories to emerge from the 2022 floods were those of citizen responses. The Inquiry heard that citizens played a crucial role in flood rescue and recovery, particularly in the Northern Rivers region. It heard countless stories of everyday people supporting friends, assisting neighbours and risking their lives and property to rescue strangers. These acts were so often heroic, altruistic and kind. They were also often a direct response to the absence of expected assistance from government authorities and emergency services. For example, Jali Local Aboriginal Land Council told the Inquiry of its role in leading the evacuation of about 200 people off Cabbage Tree Island in only 1.5 hours, using community resources including vans and tinnies.

The many citizens who volunteered and self-organised profoundly benefitted the wellbeing, health, and safety of those who were flood-affected and displaced. The Inquiry heard of many residents who travelled in and out of flood-affected towns to assist their neighbouring communities. Often known by names like ‘The Mud Army,’ hundreds of citizens worked daily to clear houses of mud and debris. Others cooked meals, attended wounds and saved domestic animals and livestock.

Early on, communities realised that government support was slow or unable to reach or fully service their communities, so they began to self-organise and establish ‘community hubs’. They were run by locals and provided essential services. They also gave many traumatised people a place to share mutual experiences and access support. Hubs became centres of activity as people attempted to salvage or clean out their houses; a place for volunteers to coordinate, sort through donations and distribute what they could to the community. With little to no telecommunications services available, they became pivotal places to give and receive information. Many became makeshift hospitals, shopping centres and miniature hardware/DIY warehouses. These hubs also helped feed hundreds of volunteers and residents who had no access to kitchens. Hubs quickly formed alliances with groups like local bowling clubs, rotary clubs or charities which provided centralised locations to put on barbecues, deliver pre-cooked meals or volunteer services.

When government support services arrived, they often linked up with community hubs as that was where people who needed assistance were going.

One of the biggest issues for flood-affected communities was a lack of telecommunications, particularly in remote communities. Surfing champion Mr Mick Fanning, alongside other citizens,

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14 Ibid.
15 Ibid.
16 Ibid.
managed to secure Starlink satellites donated by telecommunications companies to provide some community hubs and groups with access to the outside world.

In Lismore, groups including Resilient Lismore, the Koori Mail and 51 Wyrallah Road became a lifeline in a time of crisis for thousands of people. The Inquiry heard that organisations like Hawkesbury’s Helping Hands and Peppercorn played a similar role in the flood affected towns of the Hawkesbury-Nepean Valley.

In emergencies of significant scale, ‘self-organising’ in local communities is inevitable. Some residents and community organisations, initially self-funded or funded by philanthropic donations, called for government funding to enable them to continue to deliver improved services.

Without these community hubs, the flood response and recovery would have been much more difficult. Of particular importance is that, without community-led rescues, it is likely that more people would have died.
Community views
Community views

The 2022 flood events had a huge impact on individuals, families and entire communities across the east coast and parts of inland NSW. For many people, remembering their experiences and recounting their stories to the Inquiry about what happened during and immediately following the floods was traumatic and emotional.

However, there was a strong desire to share with the Inquiry those aspects of planning, preparedness, response and recovery that worked well, and those that did not. Many community members offered suggestions and ideas for how activities across each of these stages could be improved in future.

This section provides a snapshot of the community experience in response to the 2022 flood events and some of the ideas put forward. This experience is presented in accordance with consistent themes which emerged, and illustrated through quotes and photos received in submissions to the Inquiry.

Further information on community consultation is also included under section 1.1 in Volume Two of the Inquiry Report.

The Inquiry thanks all individuals who talked with or wrote to the Inquiry for their willingness to share their experiences. It acknowledges that doing so was not easy. Whilst the stories can be difficult both to tell and to hear, they are insightful, and the Inquiry hopes that their telling will help with the healing process.
The role of climate change and development

Many people commented on the factors they believe contributed to the impact and severity of the floods, including climate change, development on floodplains and poor drainage.

“Warming air temperatures mean increased rainfall, at least near the oceans. Thus, climate change is partly responsible. But the biggest factor… is unchecked and ill-planned development on the flood plain. The open areas have been built over and the low parts filled in.

David Lovejoy – community member

Other submissions also spoke about the impact of specific development including roads and motorways.

“The construction of the new Pacific Motorway and the lack of adequate drainage systems must be partially the cause of [the] unprecedented flooding.

Douglas Anderson – community member

Source: Suze McLeod, submission to the Inquiry
Accuracy of weather information and timeliness of evacuation orders

Many people said that the weather and rainfall information received was inaccurate and that warnings and orders from the State Emergency Service (SES) were inadequate. This resulted in people being unable to prepare their homes and businesses for flooding and impeded their ability to safely evacuate.

“Weather and flood forecasts were inaccurate, this contributed to the danger we all found ourselves in. SES were too late with evacuation orders, and we had no means to remove ourselves by the time they called evacuation.

Melanie Miller – community member

Emergency services resourcing and coordination

Many people stated that the SES was significantly under-resourced and under-prepared, which led to it being unresponsive and, ultimately, untrustworthy.

“At about 11.00 pm, a flood evacuation order was issued. The water was frightening and so too was the amount of rain. I have poor physical visibility and I rang SES straight away. I had just received the evacuation order and I had a place to go to. My friend would come and pick me up and my dog. The SES told me to stay where I was and they would pick me up. They didn’t come. It was extremely difficult and traumatising…At about 2.00 am, SES said that they wouldn’t come. I told the SES that they have put my life in danger and that a friend could have picked me up. The SES told me to get up as high as I can. They also told me that if I could walk out that I should. Water started to enter the ground floor of my home at about 3.00 am. I was abandoned…I was on the roof for a long time and I could not move. I could only sit tight. I resigned myself to being there for a very long time. No one had adequate time…I became aware of a noise around the back of my house. The back lane was like a river…I saw a guy in a red canoe pulling people out of the water…Red canoe man eventually took me from the roof…Thank you, Red Canoe Man and Tinnie Army.

Naomi Worrall – community member
Community rescues

Many people also praised the efforts of the community rescuers who saved thousands of lives.

“Unbeknown[sic] to me people were carrying out rescues with whatever floated, and community members responded with boards, jet skis, tinnies etc. The event was difficult given the isolation of every town from transport, communication, fuel, resources in general. So much of the rescue load was picked up by the community.

Duncan Fowler – community member

Personal accounts of the flood events

People also submitted their personal experiences of the floods to the Inquiry. Many of these accounts were very detailed and provided an insight into the actions people had taken in preparation of the floods, and their experiences in the lead up to the major flood event.

Source: Cassandra Gadsby, submission to the Inquiry
Stories were also told, detailing the extraordinary actions and decisions people had made to survive the floods. The Inquiry acknowledges the trauma and pain felt by many affected people and communities.

“Just like everyone remembers where they were when they heard about Princess Diana or 9/11, February 28 2022, will be forever one of those worst of times for the people of Lismore, etched into their memory of exactly where they were at the time.

On February 27, I was on edge like everyone else... While there was flash flooding already in backed-up drains around town, I remember the rain easing off and the birds starting to talk in the trees outside the office. I looked in the sky, and for a brief moment it was peaceful, the sky was not so dark. In that moment, I thought that everything would be fine.

Like many in Lismore, I felt like we had done enough. The CBD was quieter, business owners had done what they could to be prepared. I was impressed with the calmness and planning of the locals, after all they'd been there and done this so many times before.

Less than two hours after I thought it would be okay, the heavens began to open a deluge of water like I have never experienced in my life. Just outside of Lismore, the small village of Dunoon received over 770ml of rainfall in 24 hours – that’s more than what Melbourne usually receives in a year. We never stood a chance.

Michael Were – community member

We all knew we were on our own and had to save ourselves by that stage. We had a discussion about what we were going to do to survive. We came [up] with a plan to hoist everyone there including animals onto the shed roofs with the front-end loaders. My neighbour and I were sitting car next to car. We were vomiting constantly from anxiety and nerves. He kept driving around every hour to see how far the water was from us until eventually he stopped driving anywhere and admitted we were stuffed. He said we are gone not sure if we are going to make it out alive. We sat there listening to people screaming to be saved, animals screaming in fear. The noise all the horses and cows were making I will never forget. The sound of that water I will never forget. I ran[g] my kids and family told them all I loved [them] very much not knowing if I will ever see them again.

Eleesha Hughes – community member
Transitioning from response to recovery

People shared a range of experiences on the transition from response to recovery, with a common theme emerging that government processes were slow, and that community-led recovery efforts provided an important lifeline to struggling communities.

“The real difference has been made by grass roots community led initiatives. These initiatives have been vital in supporting people to navigate the clumsy and inadequate government response.”

Anonymous – community member

Source: Emily Green, submission to the Inquiry

People highlighted the sense of community camaraderie in the wake of the floods.
The community spirit, generosity and support was incredible, I have seen nothing like it in my life… It was locals housing friends, families, pets. It was locals buying food, goods, for the flood victims. Not only was it local community, untrained people that were doing the saving, support, cleaning, housing and volunteering, but they were using their own funds.

*Anonymous – community member*
Numerous submissions called for more support, including better mental health support, financial and recovery assistance.

"Transitioning from incident response to recovery would require mental health support to people as soon as possible. Many people are highly traumatised and after the incident need support by mental health professionals. The State and Federal government need to be on the ground earlier, talking with people and seeing first hand the devastation. The ADF arriving earlier to help with the clean up recovery would be beneficial. By the time they arrived at our place, we had done the hard physical work.

Kirsty Elks – community member"

Tracking recovery into the future

Many people provided feedback on how flood recovery is tracking and made suggestions on what should be done during this phase.

"We are not recovering. We are suffering. We are losing the will to do anything, too exhausted, too confused. We are stuck. Stuck between applying for gov help, insurance issues, wet weather, physical exhaustion, mental health issues & in our case, the council & the future of our street.

Leesa Hallahan – community member"

Many people expect recovery to go on for years, given the long wait time for grants and insurance and disaster payments which will support community members to recover and rebuild. People feel in limbo as they await to hear what will happen to their communities, particularly in the Northern Rivers.

"These community re-builds should be approached as an opportunity to build a positive future where people can recover. It needs a suite of residential options that the flood affected can choose from including land swaps, re-location to other regional towns, land buy-backs.

Heather Selwyn – community member"