



Office of the
Inspector-General of
Emergency Management

**North and Far North Queensland
Tropical Low and Associated Flooding
(29 January – 28 February) – Event Report**



**Queensland
Government**

Document details

Security classification	OFFICIAL-Public	Review date	14 October 2025
Author	Office of the Inspector-General of Emergency Management	Authority	Inspector-General of Emergency Management
Version control	V1.0	ISSN	2204-969X

Information security

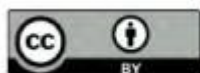
This document has been classified using the Queensland Government Information Security Classification Framework (QGISCF) as OFFICIAL-Public and will be managed according to the requirements to the QGISCF.

Contact for enquiries

Name: Office of the Inspector-General of Emergency Management
Phone: (07) 3029 8813
Email: igem.info@igem.qld.gov.au
Web: www.igem.qld.gov.au
Postal address: PO Box 12068 George Street
BRISBANE QLD 4003

© State of Queensland (Inspector-General of Emergency Management) 2025 is licensed under CC BY 4.0

The Queensland Government, acting through the IGEM, supports and encourages the dissemination and exchange of publicly funded information and endorses the use of Creative Commons. All IGEM material in this document — except any material protected by a trademark, and unless otherwise noted — is licensed under a Creative Commons Attribution 4.0 license.



IGEM has undertaken reasonable enquiries to identify material owned by third parties and secure permission for its reproduction. Permission may need to be obtained from third parties to re-use their material.

Written requests relating to the copyright in this document should be addressed to:

Intellectual Property
Coordinator C/O QPS
Legal Unit, Legal
Division

Queensland Police Service GPO Box
1440 Brisbane 4001

Phone: 07 3364 3958

Email: copyright@police.qld.gov.au

Disclaimer

To the extent possible under applicable law, the material in this document is supplied as-is and as-available and makes no representations or warranties of any kind whether express, implied, statutory, or otherwise. This includes, without limitation, warranties of title, merchantability, fitness for a particular purpose, non-infringement, absence of latent or other defects, accuracy, or the presence or absence of errors, whether or not known or discoverable. Where disclaimers of warranties are not allowed in full or in part, this disclaimer may not apply.

To the extent possible under applicable law, neither the Queensland Government or the Inspector-General of Emergency Management (IGEM) will be liable to you on any legal ground (including, without limitation, negligence) or otherwise for any direct, special, indirect, incidental, consequential, punitive, exemplary, or other losses, costs, expenses, or damages arising out of the use of the material in this document. Where a limitation of liability is not allowed in full or in part, this limitation may not apply.

Content disclaimer

The Office of the Inspector-General of Emergency Management has reviewed all relevant documentation and evidence provided by state agencies and other entities, the community, and sourced from media and other public reports. This review report is based on the information that has been supplied to the Office of the Inspector-General of Emergency Management as of 14 October 2025 and does not consider any other material that has not been provided or sighted by the Office of the Inspector-General of Emergency Management. It is therefore possible that some inconsistencies may be present despite the best efforts of the Office of the Inspector-General of Emergency Management to validate and align the raw data utilised throughout this report.

Cover image credit: Queensland Fire Department

Ref No: 2025/9672

14 October 2025

The Honourable Dan Purdie MP
Minister for Police and Emergency Services
PO Box 15195
City East Queensland 4002



Inspector-General of
Emergency Management

Dear Minister

In accordance with the Government endorsed terms of reference dated 22 May 2025, I present the following reports:

- 2025 Significant Weather Events Summary Report
- North and Far North Queensland Tropical Low and Associated flooding (29 January – 28 February 2025) Event Report
- Tropical Cyclone Alfred and Associated Severe Weather (1 March – 16 March 2025) Event Report
- Western Queensland Surface Trough and Associated Flooding (21 March – 19 May 2025) Event Report

These reports detail the impacts of three major and distinct weather systems that affected 73 of the 77 local government areas and one town authority representing 95.5% of the state. The impact of the events included the displacement and isolation of residents, prolonged periods of power and telecommunications loss, extensive damage to homes, businesses and significant livestock losses.

The three weather events were unique and complex, affecting communities in different ways and requiring tailored responses. The individual event reports provide detailed insights into the nature of these impacts and the challenges faced. The 2025 Significant Weather Events Summary Report provides a whole of state perspective on the three events, highlighting compounding and cascading impacts on both the disaster management sector and the Queensland community. It also identifies commonalities across the events to support a holistic understanding of their collective impact.

The production of these reports has been a collaborative effort across Queensland's disaster management sector, reflecting both preparedness and response activities. This process enabled a deeper understanding of operational strengths, challenges and opportunities in managing widespread and compounding disasters. Community members contributed and shared their experiences through public submissions and attendance at community forums.

I recognise the commitment and hard work at all levels across Queensland, and I extend my sincere thanks to councils, state agencies, volunteers, emergency services personnel and disaster management practitioners, their dedication and service were crucial in responding to these events.

I acknowledge the work being undertaken to recover from the impact of these events is ongoing and will be for some time. The commitment of the entities and people is tireless, and I acknowledge everyone involved.

To the community members who supported one another during these challenging events, thank you. Your resilience, compassion, and unwavering commitment to helping others is deeply appreciated. You should be proud of your efforts, which will inspire and strengthen Queensland's response in the future.

Yours sincerely

Alistair Dawson APM

Inspector-General of Emergency Management

Level 26, 111 George St
PO Box 12068, George Street
Brisbane Qld 4003
Telephone +61 7 3029 8813

Acknowledgement of Country

The Office of the Inspector-General of Emergency Management acknowledges Aboriginal peoples and Torres Strait Islander peoples as the Traditional Owners and Custodians of this Country. We recognise their connection to land, sea and community. We pay our respects to them, their cultures and to their elders past and present.

Acknowledgements

The Office of the Inspector-General of Emergency Management extends our sincere thanks to all who contributed to the reviews of the significant weather events that impacted Queensland between January and May 2025.

The scale of these events was extensive, impacting 73 of the 77 local government areas (LGAs) and one town authority. The impact across Queensland was widespread, with numerous local government areas affected by distinct weather events. Specifically:

- North and Far North Queensland Tropical Low and Associated flooding (29 January – 28 February 2025) Event – impacting 40 LGAs
- Tropical Cyclone Alfred and Associated Severe Weather (1 March – 16 March 2025) Event – impacting 18 LGAs
- Western Queensland Surface Trough and Associated Flooding (21 March – 19 May 2025) Event – impacting 41 LGAs.

Notably, 19 LGAs were impacted by both the North and Western Queensland events, and 7 LGAs experienced effects from both TC Alfred and the Western Queensland Floods. These overlapping impacts created compounding challenges, stretching local resources and increasing emotional, social, and economic pressures on communities already in recovery.

We acknowledge the many community members who shared their experiences through our community forums, written submissions, and personal conversations. Your courage in sharing deeply personal and often confronting stories has provided invaluable insight into the real and lasting impacts of these events.

We thank the staff of Articulous, Australian Red Cross, and the Department of Communities for their support at community forums, helping create safe and inclusive spaces for dialogue.

Our gratitude also extends to local, state, federal, and non-government stakeholders who provided timely information and participated in interviews with thoughtfulness, care, and a genuine commitment to the review process.

To the emergency management practitioners and volunteers – your dedication and unwavering commitment, event after event, is to be commended. Your work remains the backbone of Queensland's disaster response and recovery.

Finally, we acknowledge the staff of the Office of the IGEM, along with seconded and contracted personnel, whose integrity, empathy, and rigour ensured the reviews were conducted to the highest standard.

Thank you to everyone who contributed. Your voices, insights and efforts have helped shape a stronger, more resilient Queensland, one that learns and continues to improve its preparedness, response, and recovery for future events.

Alistair Dawson APM
Inspector-General of Emergency Management

Table of Contents

Document details	2
Acknowledgement of Country	5
Acknowledgements	6
Figures and tables	9
Executive summary	10
Key themes.....	10
<i>Infrastructure vulnerability</i>	<i>10</i>
<i>Impacts on supply chain.....</i>	<i>10</i>
<i>Telecommunications and power outages</i>	<i>11</i>
<i>Flood warning limitations.....</i>	<i>11</i>
<i>Community resilience and preparedness.....</i>	<i>11</i>
<i>The future</i>	<i>12</i>
North and Far North Queensland Tropical Low and Associated Flooding Event Report.....	14
How to read this report.....	14
Timeline of events	16
Methodology	16
Lines of inquiry	17
Timeline of weather warnings and information.....	18
Overview.....	19
Ollera Creek – keeping the Bruce Highway connected	20
Community consultation	22
Mayor and councillor meetings	22
Community forums	22
Public submissions	23
Community insights	23
<i>Preparedness and resilience.....</i>	<i>23</i>
<i>Resilience.....</i>	<i>24</i>
<i>Warnings and public information</i>	<i>25</i>
Good practice example - Inclusive evacuation	26
Telecommunications	26
Drainage and vegetation management	27
Evacuation and response	27
Isolation	28
Other sentiment	28
Bureau of Meteorology	28
Weather forecasting – Bureau’s observations network.....	30
Bureau flood warning service assessment.....	30
Forecast limitations or constraints	32
The Bureau in previous IGEM reviews	32
Flood warning infrastructure	33
Damaged flood warning assets	33
Flood cameras: enhancing situational awareness	34

The way forward.....	34
Public information and warnings.....	36
Australian Warning System	37
Emergency Alerts	37
Communication during events	37
Inclusive emergency preparedness information	39
Good practice – Burdekin Rail Bus.....	40
Electricity	41
Telecommunications	42
Interconnectivity of electricity and telecommunications	44
Business continuity planning and offline messaging.....	45
Fuel	46
Supply chain	47
Supply chain responsibilities	47
Cairns supply plan	48
Disruption to transport corridors.....	48
Emergency resupply via air and sea	48
Retail operations and demand	49
Remote and regional challenges	49
Sector and industry impacts	50
Fodder	50
Aviation	51
Logistics support for emergency personnel.....	51
Weather impacting aviation operations	51
Community resilience.....	51
Key drivers of community resilience	51
<i>Social connections and local networks.....</i>	<i>52</i>
<i>Preparedness and adaptability.....</i>	<i>52</i>
<i>Self-reliance in rural and remote areas</i>	<i>52</i>
<i>Volunteerism and community leadership.....</i>	<i>52</i>
<i>Learning from past events.....</i>	<i>52</i>
<i>Inclusive and tailored engagement.....</i>	<i>53</i>
Enhancing resilience	53
<i>Prepare for the unprecedented</i>	<i>53</i>
<i>Strengthen local leadership and volunteerism</i>	<i>53</i>
<i>Shared responsibility.....</i>	<i>53</i>
Conclusion	54
Appendix A.....	56
Terms of Reference	56
Functions of the Office	56
Guiding principles and methodology	56
Scope	57
Out of Scope	57
Deliverables and timeframe	58
Appendix B.....	59
Insights	59

Appendix C	63
Glossary of abbreviations	63
Appendix D	65
References	65
<i>Legislation</i>	65
<i>Other materials</i>	66

Figures and tables

Table 1: The targets for all Bureau performance indicator	30
Table 2: Number of Bureau products issued during the North Queensland Floods	32
Table 3: Number of sites agreed for Bureau flood gauge acquisition	36
Figure 1: Timeline of DRFA-activated events.	16
Figure 2: Timeline of weather warnings and information	18
Figure 3: State road closures during North Queensland Floods	21
Figure 4: Number of sites per catchment identified for acquisition as part of FWIN	36

Executive summary

Between 29 January and 28 February 2025, North and Far North Queensland experienced one of the most severe and prolonged flooding events in Queensland history, triggered by an intense tropical low system. This event formed part of a broader series of disasters in 2025 that collectively impacted 95 per cent of Queensland, and following similarly widespread events in 2024 and 2022. The scale, speed and duration of the rainfall, exceeding historical records in multiple locations, led to extensive flash and riverine flooding, causing significant disruption to communities, infrastructure, and essential services.

The Office of the Inspector-General of Emergency Management (the Office) undertook this review to assess preparedness and response activities of entities with the Standard for Disaster Management in Queensland, identifying good practices, and to identify opportunities for continuous improvement. The review was informed by community forums, public submissions, and engagement with local governments and agencies.

Key themes

Infrastructure vulnerability

The North Queensland Floods caused widespread and prolonged disruption to critical infrastructure across the region. More than 7885 kilometres of roads were closed or had restricted access, including 165 state-controlled roads. This severely impacting mobility, emergency response, and supply chain continuity. Key transport corridors such as the Bruce Highway – Queensland's primary north-south arterial route – were cut at multiple locations, including Seymour River and Plantation Creek. The failure of the Ed Kratzmann Bridge at Ollera Creek, which links Townsville and Ingham, effectively severed access to Far North Queensland for several days.

Rail infrastructure also sustained significant damage, with closures to both the north coast and Mount Isa lines, further compounding isolation and delaying freight movement across Queensland. These disruptions had cascading effects on the delivery of essential goods, medical supplies, and emergency services, particularly to Far North Queensland and those remote and regional communities across north and northwest Queensland.

The event highlighted the vulnerability of Queensland's transport infrastructure to extreme weather events and underscored the need for resilient design, redundancy planning, and rapid restoration capabilities.

Impacts on supply chain

As noted, the North Queensland Floods severely disrupted critical supply chains across the region, with major road and rail closures – including multiple sections of the Bruce Highway and the North Coast and Mount Isa rail lines – cutting off access to communities and halting freight movement. Inland detours were unavailable, and while emergency air and maritime operations were activated, they were unable to meet demand. Air freight was constrained by limited capacity and regulatory restrictions, while maritime transport faced logistical challenges. Retail networks, typically holding only a few days of stock, experienced rapid depletion, leading to shortages of food, fuel, and medical supplies. Panic buying and delayed resupply further strained local resources, especially in remote and regional areas.

The event exposed a reliance on single transport corridors and the lack of scalable contingency arrangements. Local businesses played a vital role in maintaining access to essential goods, but

many faced sustainability challenges under prolonged isolation. Fuel shortages affected generator operations, compromising cold storage and payment systems.

Coordinated efforts to deliver supplies to Cairns and surrounding areas helped reduce impacts. There is an opportunity to explore and enhance effectiveness of response through pre-approved, multi-modal strategies developed and exercised prior to high-risk weather seasons.

Telecommunications and power outages

Extended outages of telecommunications and electricity during the North Queensland Floods significantly disrupted emergency response operations, coordination across agencies, and the dissemination of critical public information. The loss of power – affecting more than 33,000 households and businesses – was compounded by damage to substations, including the de-energisation of the Ingham Substation for safety reasons. These outages persisted for days in some areas, severely limiting access to essential services and isolating communities.

Telecommunications infrastructure, already precarious in remote and regional areas, was further compromised by flood damage, power loss, and limited redundancy. The failure of back-up systems, such as battery-powered towers and generators, led to complete communication blackouts in several locations. Communities reported being unable to contact emergency services, receive warnings, or access updates, which heightened distress and risk during the event.

The interdependence between power and telecommunications systems was a critical vulnerability. Without power, mobile networks, internet services, and the Government Wireless Network (GWN) were rendered inoperative, impeding the ability of Local Disaster Management Groups (LDMGs), emergency services, and state agencies to coordinate response efforts and maintain situational awareness.

To address these risks, business continuity planning – across all entities and businesses – should include offline communication strategies, scalable fuel resupply arrangements for generators, and pre-season education to prepare communities for extended outages. Strengthening these systems will safeguard public safety and ensure effective disaster management in increasingly complex and prolonged hazard environments.

Flood warning limitations

A large number of flood gauges in impacted areas are manual read only, requiring emergency services personnel or community members to physically observe and report readings. This reliance on manual processes delayed the dissemination of accurate flood intelligence and hindered timely decision making. In several instances, delays in publishing manually collected data led to discrepancies between local observations and official dashboards, eroding community trust and confidence in disaster information systems.

Compounding the issue, several gauge assets were damaged and experienced outages, further limiting situational awareness and forecasting capability.

Community resilience and preparedness

Many communities demonstrated commendable levels of local leadership, social cohesion, and proactive planning, particularly those with prior experience of severe weather events such as Tropical Cyclone Yasi. Residents reported undertaking seasonal preparedness activities, including stockpiling supplies, maintaining emergency kits, and establishing informal communication networks such as community text chains and social media groups.

However, the scale, speed, and intensity of the flooding far exceeded historical norms and community expectations. Despite high levels of perceived readiness, many residents found themselves unprepared for the magnitude of the event. Public submissions and forum feedback consistently highlighted that even long-term locals were overwhelmed by the rapid onset and severity of the flooding, with some describing the experience as unprecedented and traumatic.

As identified by the Standard for Disaster Management – this report reinforces the imperative for a cultural shift toward shared responsibility – where individuals, households, and communities actively understand their risks, prepare for disasters, and plan for recovery as part of a resilient disaster management system. The better prepared a community is, the faster and more effectively it can recover. Recent history demonstrates that Queenslanders should now learn to live with disaster as a recurring reality, requiring adaptive planning, resilient infrastructure, and inclusive engagement.

Future preparedness strategies – to ensure communities are equipped to respond to events that exceed historical experience – should encourage targeted education campaigns, reinforcing the importance of shared responsibility in disaster preparedness and response. This includes building community skills and knowledge to better understand local hazards, develop household emergency plans for extended periods, participating in community preparedness initiatives, and fostering local networks that can be mobilised during crises.

Tragically, two lives were lost in the far north and Queensland Health reports that 36 people have since died from melioidosis (as at 22 September 2025), a soil borne disease exposed when floodwaters receded.

The future

The disaster events that unfolded across Queensland in 2025 starkly illustrate the increasing complexity of cascading, compounding, and concurrent events which now shape the nature of contemporary disasters.

The compounding nature of these events was evident as communities already recovering from previous disasters faced new ones, intensifying social, economic, and environmental stress. Cascading effects emerged as damage to critical infrastructure – such as roads, power, and communications – disrupted emergency response and recovery operations, creating knock-on effects across sectors. The complexity of managing these successive events required coordinated, multi-agency responses and adaptive strategies that could address simultaneous risks across vast geographic areas.

These back-to-back, statewide disasters underscore the pressing need for integrated, forward-looking disaster risk reduction approaches that account for the systemic vulnerabilities and interdependencies shaping Queensland's resilience landscape.

Strengthening local leadership, investing in resilient infrastructure, and embedding community-led solutions into formal disaster management frameworks will be crucial to enhancing Queensland's overall disaster resilience for the future.

Having regard to the scale, frequency, and complexity of recent disaster events, there is a need to foster a culture of shared responsibility and proactive preparedness across Queensland communities.

Queenslanders should now turn their minds to the changing shape, impact and magnitude of disasters as a part of everyday life, recognising that being aware of local risks, preparing for those

risks, and planning accordingly are essential steps in an evolving process. The path forward should be shaped by evidence, guided by collaboration and grounded in the lived experiences of those most affected.

The better prepared individuals and communities are, the quicker and more effectively they can recover.

North and Far North Queensland Tropical Low and Associated Flooding Event Report

How to read this report

The North and Far North Queensland Tropical Low and Associated Flooding 29 January – 28 February, 2025 Event Report (event report) is one of four reports written arising from the three significant weather events in the first half of 2025. The reports are written in line with the terms of reference and the additional reports are described as follows:

- Tropical Cyclone Alfred and Associated Severe Weather (1 March – 16 March)
- The Western Queensland Surface Trough and Associated Flooding (21 March – 19 May)
- 2025 Significant Weather Events Summary Report.

The three event-related reports are supported by a Summary Report, the purpose of which is to provide a whole-of-state summary of the three events, the impact on the disaster management sector and the Queensland community. The Summary Report will also provide an analysis of any commonalities between the three events.

The Summary Report also discusses the cascading and compounding impact of the three events on the disaster management sector, and reflects upon the changing face of disasters, and how strategic level planning in response to complex and potentially catastrophic crises can be achieved as identified in the Crisis Appreciation and Strategic Planning (CASP) Guidebook.¹

The purpose of this review is to provide the disaster management sector in Queensland with an opportunity to reflect on preparedness and response activities undertaken by agencies tasked with keeping Queenslanders safe in disasters. The scope of the review is limited to Queensland and the response in this state. However, Australian Government agencies which regulate or provide services to the Queensland Government and local governments and are integral to the disaster management system were also invited to provide a submission on their roles. We thank all entities for taking the time to provide a submission to inform this event report.

Complicated vs complex

What's the difference between complicated and complex?

Complicated problems originate from causes that can be individually distinguished. They can be addressed piece-by-piece—for each input to the system there is a proportionate output. The relevant systems can be controlled and the problems they present admit permanent solutions.

On the other hand, **complex** problems result from networks of multiple interacting causes that cannot be individually distinguished. They cannot be addressed in a piecemeal way, and they are such that small inputs may result in disproportionate effects. The problems they present cannot be solved once and forever but need to be systematically managed.

Source: Roberto Poli, author of Working with the Future: Ideas and Tools to Govern Uncertainty (CASP, 2024, p. 10).

¹ Crisis Appreciation and Strategic Planning Guidebook, National Emergency Management Agency, Australian Government, 2024, p. 10

The review also provided the community the opportunity for their views and experiences of the events to be heard and to reflect on the performance of Queensland's disaster management arrangements. Thank you to the community for engaging with the process, whether it was through a written submission or attendance at one of the community forums. This feedback has informed the evaluation of the effectiveness of the disaster management arrangements and has helped inform this event report.

While this event report can be read as a stand-alone document, the additional event reports and summary report provide a picture of the significant weather events that impacted the state during the first half of 2025. Together these documents provide an understanding of:

- Preseason planning activities
- Integration of preparedness and response activities between all levels of government
- Opportunities to enhance community resilience
- Communication systems and connectivity of communities
- Provision of information to make informed decisions at both planning and response phases.

While each of the three events experienced in 2025 is unique and had specific impacts on each community, there are shared experiences which provide invaluable insights to government agencies, businesses, not-for-profit organisations and individuals on how to better manage their responses to disasters.

Recommendations:

A full list of recommendations is contained in the Summary Report.

Where recommendations are endorsed by government in full or in part, the Office's Monitoring, Evaluation and Reporting (MER) process will use the Summary Report to support assurance activities.

It is noted that individual event reports will only include recommendations relevant to the specific issues addressed, and therefore may not reflect the full suite of recommendations.

Timeline of events

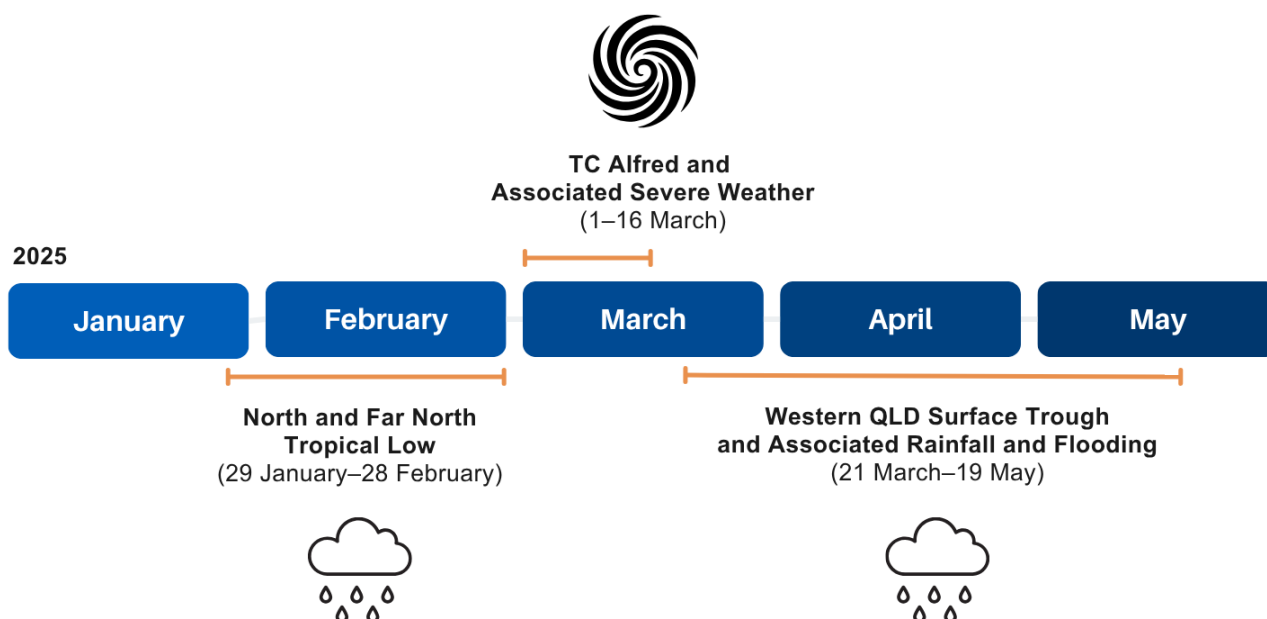


Figure 1: An overview of the Disaster Recovery Funding Arrangements (DRFA)-activated events. Response activities may have started before DRFA activation and continued after the activation period ended.

Methodology

In undertaking the review, consideration was given to the intent of the Queensland Disaster Management 2016 Strategic Policy Statement, and analysis was aligned to the Standard for Disaster Management in Queensland (the Disaster Management Standard) and terms of reference. The methodology outlines the minimum requirements for Office of the Inspector-General of Emergency Management (the Office) reviews.

The review was conducted according to Queensland's Disaster Management Arrangements (QDMA) doctrine as it existed for the period of the three events in the first half of 2025.

This report contains observations, insights and recommendations from North Queensland Floods, as described below.

- **Observation:** a record of a noteworthy fact or occurrence that someone has heard, seen, noticed, or experienced as an opportunity for improvement or an example of good practice and shared with the review.
- **Insight:** A deduction drawn from the evidence collected (observations), which needs to be further considered. An insight defines the issue, not the solution.
- **Recommendation:** A proposed course of achievable action to either reinforce good practice or address an area identified for improvement.

Monitoring the implementation of accepted recommendations occurs through the Office's monitoring, evaluation and reporting program, discussed later in the report.

Lines of inquiry

From the terms of reference (Appendix A), the Office developed three lines of inquiry in relation to the three reviews:

1. **Pre-season planning activities**
Including Pre-season planning activities undertaken by entities
2. **Integration of preparedness and response activities including information and data needs**
Including a) Integration of preparedness and response activities between all levels of government; and b) Provision of information and data to inform and support planning decisions in the preparation and response phases.
3. **Opportunities to enhance community resilience including communications for the community to stay connected**
Including a) Opportunities to enhance community resilience to better prepare for, and respond to future disasters; and b) Ensuring effective communications systems to enable the community to take necessary actions and to ensure connectedness within the community and with response entities

The data collection and analysis activities of the review were prioritised and coordinated through these lines of inquiry. Throughout the review process, it became clear that many of the issues raised were complex and overlapped across multiple lines of inquiry. In such instances, efforts have been made to acknowledge the overlap while including the discussion in the most relevant section or sections of the report.

Other reviews and reports

The reviews also considered other relevant available reviews and reports, such as:

- *Australia's National Climate Risk Assessment*, Australian Climate Service, Australian Government, 2025
- *From storm to study: Insights on resilience from Tropical Cyclone Alfred*, prepared by Dr Geoff Boughton, Dr David Henderson, and Dr Bruce Harper from James Cook University for Natural Hazards Research Australia, 6 May 2025
- *Brisbane City Council Tropical Cyclone Alfred Review*, prepared by The Hon Paul de Jersey for Brisbane City Council, 12 May 2025
- *Social media analytics to explore community experiences of Tropical Cyclone Alfred*, prepared by Julian Marx, Farnaz Pirasteh, and Rashika Bahl from The University of Melbourne for Natural Hazards Research Australia, 10 May 2025
- *Australian Transport Safety Bureau (ATSB) report AO-2025-016*

Timeline of weather warnings and information

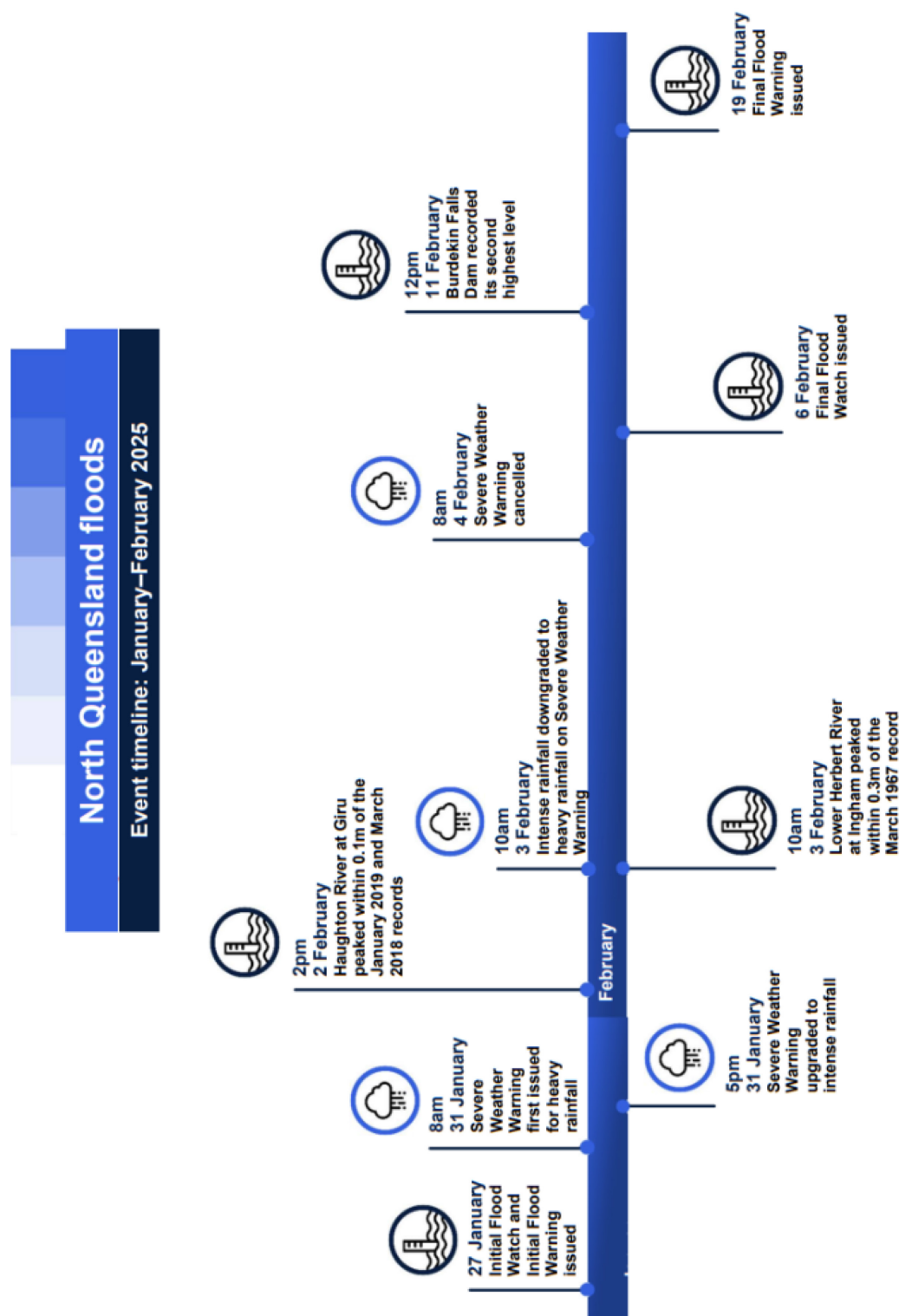


Figure 2: Timeline of Bureau actions for the North Queensland Floods.
Source: Bureau of Meteorology.

Overview

“It is no longer suitable to assess disaster risk at an individual hazard level, without taking account other possible natural hazards and broader societal pressures that impact of resilience.”

Royal Commission into National Natural Disasters Report²

Heavy rainfall and flooding are common in North Queensland during the wet season. According to the Bureau of Meteorology (Bureau), the floods of January-February 2025 delivered rainfall unlike any seen in Australia since records began. The severity of this event took many by surprise, with several areas breaking their daily or multi-day rain records. Some places recorded 200–700 millimetres of rain in a single day, with others recording more than 1000 millimetres in a week. This record-breaking monsoon event continued for several weeks into late February.

The persistent rain quickly led to flash and riverine flooding. The Bureau of Meteorology (Bureau) put major flood warnings in place, first for the region’s catchments – including Haughton, Herbert and Upper Burdekin rivers – and then further west for the Flinders and Western rivers. The Herbert River peaked at 14.93 metres, isolating several lower Herbert communities of Hinchinbrook Shire for two weeks.

This flooding caused widespread damage to homes, businesses, transport, critical infrastructure, community facilities, sport and recreation facilities, and primary production. Some households were displaced from their communities and evacuated to other locations through temporary emergency accommodation arrangements.

For local agriculture and aquaculture producers, the impact of the disaster was near catastrophic. The impact of damage to primary industry is estimated at more than \$816 million, with crops in Townsville, Burdekin, Cassowary Coast and Hinchinbrook local government areas severely affected. Many primary producers reported extensive damage to pastures, infrastructure and machinery.

Damage to road, rail, bridges, floodways and other public infrastructure, including water and sewerage systems, was also widespread, disrupting supply routes and critical and essential transport, such as emergency services.

During the event, 7885 kilometres of roads were closed or had restricted access, including 165 state-controlled roads (see Figure 2). Flood disrupted sections of the Bruce Highway, such as at Seymour River and Plantation Creek. Part of the Ed Kratzmann Bridge at Ollera Creek – linking Townsville and Ingham – eroded and washed away. The North Coast and Mount Isa rail lines were temporarily closed due to track damage.

Residents and businesses struggled with access and supply issues caused by this road damage, and extended power outages. The Ingham Substation was de-energised for public safety as floodwater rose, and 33,000 households and businesses were without power for almost a week.

² Royal Commission into National Natural Disaster Arrangements Report, Australian Government, 2020, p. 69

As well as power outages, businesses and essential services were affected by isolation and damage. School closures numbered 113 and 100 early childhood centres closed, as did health services and small businesses vital to North Queensland communities.

While cyclones and monsoon events are typical of a north Queensland wet season, the February floods year broke daily or multi-day rain records. The Australian Climate Service released Australia's National Climate Risk Assessment in September which highlighted several key findings relevant to this review. Notably, the report confirms that Australia will continue to experience more intense and extreme climate hazards³. In its State of the Climate Report 2024, the Bureau and Commonwealth Scientific and Industrial Research Organisation (CSIRO) found wet season rainfall in northern Australia has increased by approximately 20% since 1994⁴.

Ollera Creek – keeping the Bruce Highway connected

The Bruce Highway is the major arterial road running along or near coastal towns of Queensland, connecting most of the state.

In the February floods, 2149mm of rainfall was recorded at Mutarnee in the first 12 days of February, 1500mm of which fell in the first three days. This caused flash flooding, and the speed of the water was such it scoured the Ed Kratzmann Bridge abutment. As a result, approaches at Ollera Creek fell into floodwaters on 2 February – effectively cutting off the Far North just north of Townsville.



The Department of Transport and Main

Roads (TMR) prioritised emergency works, inspecting the bridge on 3 February, and two days after that commencing work with the assistance of the Australian Defence Force to build a temporary bridge, which opened on 6 February.

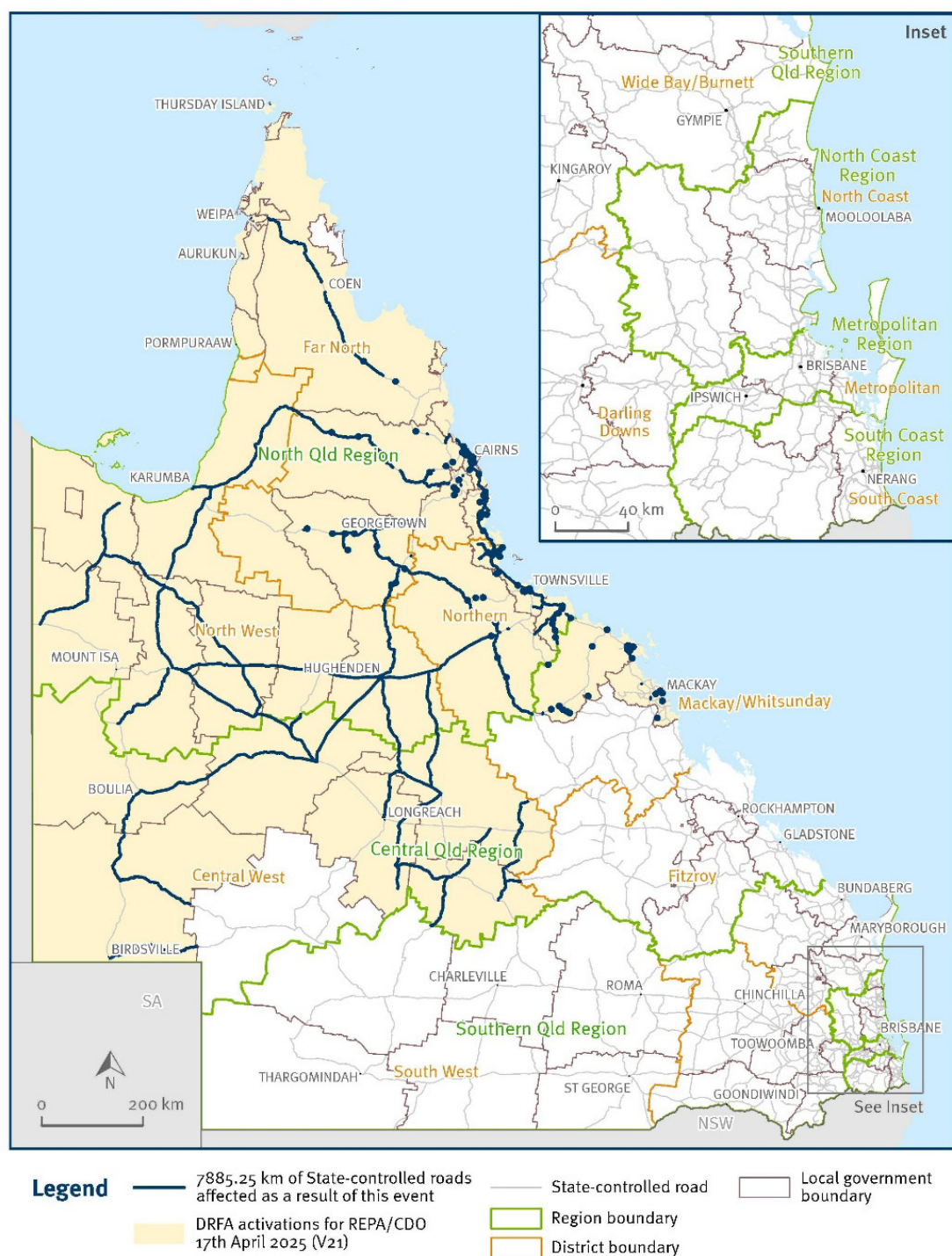
Initially the temporary bridge was for emergency vehicles only and had significant speed restrictions. It was open to traffic only during the day, in order that repair works could be undertaken at night.

By 10 February, the bridge was reopened to heavy vehicles at reduced speeds, and after additional works, opened to general traffic on 7 February. By early April, speed limits were back to 100km/hr.

³ Australia's National Climate Risk Assessment Report, Australian Climate Service, 2025, p. iii

⁴ State of the Climate 2024, Bureau of Meteorology and CSIRO, Australian Government, p. 8

North and Far North Tropical Low (commencing 29 January 2025)



Spatial Systems 30/04/2025

Figure 3: State road closures during North Queensland Floods
Source: Department of Transport and Main Roads

Community consultation

To gain insights from the community of the North Queensland Floods, the Office invited public submissions, conducted community forums and met with mayors and local councillors.

Community forums and meetings with mayors and local councillors were targeted at local governments most impacted by the floods.

Mayor and councillor meetings

To gain direct insights of community experiences and perspectives, targeted engagement meetings were held with mayors and local councillors representing the affected Local Government Areas (LGAs). These meetings provided an opportunity to understand the unique challenges and strengths within each community as well as to identify good practices and areas for improvement in the operationalisation of disaster management arrangements.

Six meetings were held with Cassowary Coast Regional Council, Palm Island Aboriginal Council, Townsville City Council, Hinchinbrook Shire Council, Charters Towers Regional Council, and Yarrabah Aboriginal Shire Council.

These discussions yielded valuable information on community impacts, local response efforts and opportunities to enhance coordination and effectiveness across the disaster management system.

Community forums

Community forums provide an opportunity for community members from impacted areas to participate in a structured engagement session hosted by the Office.

The primary purpose of the forum is to connect directly with community members affected by the disaster event, to hear and document their lived experiences, perspectives, ideas, and suggestions. These first-hand accounts offer valuable insights into the social and operational impacts of the event.

The information gathered through these forums assists the Office in developing a deeper understanding of how the event affected the community and the delivery of the QDMA. This informs future improvements in relation to disaster preparedness and response.

On Wednesday 20 August, the Inspector-General of Emergency Management (IGEM) and staff travelled to Cardwell and held a community forum. Thank you to the Cassowary Coast Regional Council for their advice and assistance in organising the event. We also acknowledge and thank local governments for their advice not to proceed with a community forum in areas where they held concerns about potential impacts on community recovery. Seeking their local knowledge and understanding of community dynamics are a critical process used in determining the appropriateness of a forum, ensuring that engagement activities support and do not hinder recovery efforts.

The Cardwell forum was attended by 25 members of the community and two council representatives who were local residents. The forum was an opportunity for disaster-affected community members to tell their stories and express their views in a safe and respectful environment.

Participants were invited to share how the North Queensland Floods impacted them as individuals and as a community.

Participants also shared experiences and insights about:

- Community preparedness and the activities undertaken ahead of the disaster event
- How effectively government communicated and shared information with communities and how consistent and timely this communication was
- Community outcomes and resilience, including local strengths and solutions and how communities can be supported before and during disaster events.

For more information about how the Office promotes these forums, refer to the Summary Report.

“So glad to see this happening. I completed the written review and submitted feeling it was very involved and feared some people may not be able share their story.”

Community member from North Queensland

Public submissions

The Office sought public submissions to hear directly from individuals, communities, and local organisations about their experiences of the event. The public shared their feedback by either:

- completing an online form from the IGEM website which had prompts to help them prepare their submission
- downloading the form and completing offline and emailing this to the Office, or
- emailing their submission directly.

Individuals were also welcome to attach supporting materials, such as photos, videos or documents, to provide further context to their submission.

A total of 21 public submissions were received by the Office for the North Queensland Floods. Public submissions were open from 13 June to 27 August 2025.

Community insights

The following themes were identified from the community forum and public submissions and reflect community sentiment about the North Queensland Floods.

Preparedness and resilience

“I have lived in FNQ for 8 years, my prep and knowledge of wet season is more than adequate and ready for extreme events.”

Community member from North Queensland

At the forum attendees consistently commented that they are well prepared for cyclones and flooding in general, particularly following experiences with Tropical Cyclone Yasi in 2011. Being prepared prior to the event was also repeated in public submissions.

“In the 12 months leading up to the 2024/25 disaster season, my family and I remained highly aware of the natural hazards in our area, particularly the risk of being cut off from Townsville or Ingham due to flooding or road accidents. As long-

term locals in the Mutarnee/Crystal Creek region, we routinely stock up on supplies ahead of the wet season.”

Community member from North Queensland

Forum attendees spoke of the community text chains and community pages on social media platforms and how they used them to share local information.

While many believed they were prepared, the scale and speed of the event exceeded expectations. At the forum, attendees consistently reported that no one was truly prepared for what unfolded, including long term residents who had never experienced flooding of that magnitude.

This sentiment was echoed in public submissions, reflecting the unprecedented nature of the event and the limitations of existing preparedness measures.

“I was aware that there had been floods in the town in the past, we were totally unprepared for the severity and speed of the flooding.”

Community member from North Queensland

One community member shared the profound impact of the event on themselves and their husband, describing how floodwaters reached one metre throughout their home. On the night of the disaster, they were in ‘survival mode’. In the aftermath, having lost their belongings and no longer feeling safe in their own home, they expressed deep concern about facing the next wet season.

“We moved tools and possessions upstairs into the house thinking they would be safe. How wrong we were.”

Community member from North Queensland

Resilience

North Queensland communities believe themselves to be resilient. This theme was consistently reflected in public submissions, the community forum and the mayor and councillor meetings.

Submissions provided numerous examples of communities working together, supporting one another and demonstrating local leadership in response and recovery efforts.

“To strengthen shared responsibility for future disaster preparedness, our community is fundraising to install an emergency generator at the Crystal Creek Hall. This will ensure we can operate independently if external support, like the Ingham disaster team, is unavailable again.”

Community member from North Queensland

While many North Queensland communities demonstrated strong resilience, advice received also highlighted that, in some areas, community preparedness was limited. In particular, some residents were unaware of their local disaster risks, and there were reports of high expectations placed on councils to lead response and recovery efforts without corresponding levels of community readiness.

It was noted that self-responsibility is essential, especially where community members choose to live in remote or hazard-prone areas. These communities should be supported to build resilience but also encouraged to take proactive steps to prepare and respond independently when needed.

Warnings and public information

Community feedback received at the forum and through public submissions highlighted mixed experiences with public information and warnings. Many attendees commented that the media coverage prior to the event was 'overly dramatic', which led some locals to dismiss warnings and become complacent. When the event unfolded, some evacuation warnings were received too late – after floodwaters had already risen – limiting their effectiveness.

“Evacuation text from the council came when we were already flooded with nowhere to go.”

Community member from North Queensland

Concerns were also raised about the lack of targeted warnings for tourists, visitors and truck drivers combined with perceived inconsistencies in weather forecasts. Attendees reported frustration with the forecasts provided by the Bureau, that predicted extensive rainfall on the days where there was little rainfall and vice versa. Limited ABC radio updates were noted, though this may have been due to the poor reception and intermittent access. Attendees advised they would have liked specific and accurate warnings that could have helped them better prepare.

“Community knows how to prepare but with little to no warning you weren’t prepared for scale and quickness of event.”

Community member from North Queensland

Despite the challenges, there was recognition of good practice. In one mayoral-councillor meeting, high traffic to their local disaster dashboard was reported, and some public submissions praised the information provided by the Bureau, ABC radio and television media.

This feedback highlights the need for accurate, timely and audience-specific warnings, supported by multi-channel communication strategies that include both digital and offline options.

Good practice example - Inclusive evacuation

On 1 February 2025, the Townsville LDMG issued evacuation orders for residents of six low-lying suburbs, anticipating intense rainfall leading to dangerous flash flooding⁵.

The evacuation was initially scheduled to take place the following morning. Due to easing rainfall, the evacuation time was extended, providing additional time to prepare the community.

Shortly after the evacuation announcement, Townsville City Council began receiving calls from residents in the evacuation zone who were unable to self-evacuate due to mobility issues and/or lack of transport. The LDMG developed a transport plan using council staff as drivers and an SES-provided bus to get residents out.

Emergency services door-knocked throughout the evacuation zone and as word spread about the transport assistance, further requests for support were received.

Once out, the Local Disaster Coordination Centre recognised the evacuation centres were not suitable for the complex needs of individuals. In the past, individuals with high needs were often dropped at evacuation centres or hospitals without appropriate triage.

Townsville LDMG, Townsville Hospital and Health Service and Department of Housing deployed liaison officers to determine where residents were best suited to go: an evacuation centre, temporary accommodation, or hospital care.

The liaison officers remained at the forward command post at Reid Park and conducted triage from that location. Triageing residents before they turned up at evacuation centres and sending them to appropriate accommodation vastly improved the evacuation centre management.

Townsville LDMG are working to formalise this model within the broader evacuation centre.

Telecommunications

"Telephone and internet communication in our community is patchy at the best of times but during times of cyclone and flooding is non-existent."

Community member from North Queensland

Community feedback during the forum, public submissions, and council meetings highlighted persistent telecommunications challenges across the region. Participants stated that, in their opinion, poor infrastructure, compounded by power outages, severely impacted connectivity during and after the event. Many commented they were unable to contact emergency services, family members or neighbours – adding to the trauma and isolation experienced.

⁵ <https://www.townsville.qld.gov.au/about-council/news-and-publications/media-releases/2025/february/residents-in-cluden,-hermit-park,-idalia,-oonoonba,-railway-estate-and-rosslea-must-prepare-to-leave>

While technologies such as satellite devices were acknowledged as useful, they are dependent on power, limiting their effectiveness during extended outages. A lack of telecommunication redundancies was a recurring concern, particularly in remote and flood-prone areas.

“On the Monday, approximately 22 hours after the power went out, the battery back-up died in the communications tower. This changed everything – our vulnerable people without transport, no longer had access to call anyone, Triple Zero wasn’t connecting so was useless for the most part.”

Community member from North Queensland

Given the region’s connectivity limitations, forum participants suggested that battery-operated two-way radios for State Emergency Services (SES) and community volunteers could provide a reliable back up communication method. This would support local emergency response communication and ensure critical messages could be delivered within the community even when conventional systems fail.

Drainage and vegetation management

Concerns were expressed regarding drainage issues, linked to insufficient vegetation management or lack of clearing. Public submissions expressed frustration with perceived inaction by council on a regional drainage study, which some community members believed contributed to the severity of the flooding.

“We are questioning (and being ignored) why this study was not acted upon by our council and why for many years it has been shelved and ignored.”

Community member from North Queensland

These concerns point to the importance of integrated land and water management where vegetation control, drainage infrastructure, and flood mitigation planning are coordinated to reduce risk and improve community resilience.

To help manage expectations and improve community understanding of efforts in this regard, councils are encouraged to regularly engage with its residents regarding planned and completed works programs through a clear communications plan.

However, it is important to recognise that disaster resilience is a shared responsibility between government, communities and individuals. In some cases, the scale and intensity of events may simply overwhelm existing infrastructure, regardless of the prior planning or mitigation efforts.

These situations highlight the need for ongoing investment in risk reduction while also fostering realistic expectations about what infrastructure can withstand during extreme events and the role community can take in planning, preparation and response.

Evacuation and response

Attendees at the forum recognised that there was strong support from local businesses and organisations during the event but noted gaps in formal response and recovery coordination (the

latter of which is not included in the terms of reference). Some community members reported having no knowledge of evacuation centres or relief locations and were forced to seek help in dangerous conditions as floodwaters rose.

Concerns were raised about the suitability and location of evacuation centres that were stood up, as well as the lack of clear, timely information to guide community members, including tourists, visitors, new residents and transport operators. These issues were echoed in public submissions and discussions with mayors and councillors.

"The evacuation centre when we got there was a mess. There were no beds (we slept on the floor for the first 2 nights the only food was what was donated by locals, the generators ran out of fuel all the time and not everybody knew how to operate the closed electrical system. Food, bedding, fuel for the generators and some way of letting everybody know what was happening would be great."

Community member

Community feedback reflects the value in exercising shorter lead-in time to ensure open and better prepared public information which is ready to circulate, and locally tailored provision planning to ensure communities are accommodated at short notice.

Isolation

Participants at the forum expressed frustration about towns being 'cut off' and isolated during flood events. They reported that during the flood event, more than 30 trucks and truck drivers were stranded due to the flooding, placing considerable strain on the community's already limited resources. The issue of isolation caused by road closures was a recurring concern raised during meetings with mayors and councillors.

There was a strong call to improve critical infrastructure, including raising bridges, enhancing road flood resilience, and maintaining levees to better withstand future events.

Other sentiment

Additional concerns raised in the community forum and stakeholder meetings have also been captured:

- The aging population is impacting on the availability and sustainability of volunteer numbers.
- National Disability Insurance Scheme (NDIS) and My Aged Care providers faced challenges accessing clients during disaster events, highlighting the need for improved service redundancies.
- Community members experiencing financial hardship reported difficulties accessing disaster-related funding and support.

Bureau of Meteorology

The Bureau is Australia's national agency for weather, climate, oceans and water. Its comprehensive suite of products and services supports informed decision making by governments, emergency services, industry and the community. They offer a wide range of observations,

forecasts, warnings, analyses and advice, covering various aspects of Australia's atmosphere, water, ocean and space environments.

The *Meteorology Act 1955* (Cth) Sections 6(1) and (2)⁶ outlines the Bureau's functions, including issuing warnings for gales, storms and other weather conditions that may endanger life or property, as well as conditions likely to lead to floods or bushfires.

The roles and responsibilities of governments in delivering forecasts and warnings to the Australian community are specified in the Intergovernmental Agreement (IGA) on the provision of Bureau of Meteorology Hazard Services to the states and territories.⁷ Under the IGA, the Bureau's responsibilities include, but are not limited to:

- Issuing warnings for gales, storms and other weather conditions likely to endanger life or property.
- The issue of warnings of weather conditions likely to give rise to floods.
- The issue of warnings of riverine flooding where riverine flooding is defined as any flooding where the rain-to-flood delay time is relatively high, typically more than six hours, but excludes
- flooding caused by elevated sea levels, storm surge, flash floods, failure of manmade infrastructure and urban overland flow.

The IGA also states that warning services for flash flooding are the responsibility of state and local governments where flash flooding is defined as any flooding of short duration with a relatively high peak discharge in which the interval between the observable causative event and the flood is less than 6 hours.

The State Disaster Management Plan identifies the Bureau's role is to collect, coordinate and distribute environmental observation data in support of advice, community warnings and briefings. The role also includes providing seasonal climate outlooks for forward planning. The Bureau is an external representative on the Queensland Disaster Management Committee (QDMC) and an invitee of the State Disaster Coordination Group (SDCG)⁸. A senior Bureau forecaster is permanently based at the State Disaster Coordination Centre (SDCC)⁹. The embedded meteorologist supports state-level operational response and works with the SDCC to ensure the effective dissemination and use of weather, flood and climate information. Significant warnings from the Bureau are a trigger, but not the only trigger, for the Stand Up activation level of the SDCC¹⁰.

Good practice

'Know your weather. Know your risk' is the Bureau's annual public safety campaign. Its overarching goal is to inform communities about severe weather and how it could affect them, giving them confidence to act when they need to. In 2024, the campaign ran from 9 September 2024 to 13 October 2024.

Source: Bureau of Meteorology

⁶ *Meteorology Act 1955* (Cth) s6

⁷ Intergovernmental Agreement on the Provision of Bureau of Meteorology Hazard Services to the States and Territories, Council of Australian Governments, 2017

⁸ Queensland Interim State Disaster Management Plan 2024-25, p. 48

⁹ Queensland Interim State Disaster Management Plan 2024-25, p. 23

¹⁰ Queensland Interim State Disaster Management Plan 2024-25, p. 58

Weather forecasting – Bureau's observations network

Information based on observations is available as data feeds through the Bureau's real time data and climate data services. The real time observation network includes radars, automatic weather stations, rainfall and river level gauges. Access to live observations and satellite imagery is available on the Bureau's website and via the BOM Weather app.

Bureau flood warning service assessment

The Bureau uses three performance indicators for its flood warning service:

- Timeliness: percentage of flood watch and flood warning products issued on time, i.e. before or at the stated next issue time.
- Lead time: percentage of river level forecasts that met or exceeded the target lead time. The lead time is the advance notice (time) ahead of exceedance of a specific river height trigger.
- Target lead time and the corresponding trigger height are defined in the Service Level Specification (SLS) for each forecast location.¹¹
- Peak accuracy: percentage of predicted flood peaks that were within a specified water level range (as per the SLS) of the observed peak, typically $\pm 0.3\text{m}$.

"It was noted a significant number of flood gauges in impacted areas still required manual reading. This is an identified vulnerability with emergency services workers and other members of the community required to manually read the gauges and report the observations to the SDCC. The lack of automation had a negative impact on planning and response operations during the event, particularly when assessing the time before floodwaters would peak."

State government agency

Table 1: Flood warning verification measures associated with North Queensland floods

Flood warning verification measures associated with North Queensland Floods		
Performance indicator	Actual Performance (%)	Target (%)
Lead time	81	70
Peak accuracy	71	70
Timeliness	99	97

During the North Queensland Floods, the Bureau often lacked access to critical local thresholds, such as evacuation triggers. The Bureau reported in its submission to the Office that the Greenvale

¹¹ Service Level Specification for Flood Forecasting and Warning Services for Queensland – Version 3.6, Bureau of Meteorology, 2024

Radar sustained lightning damage on 11 January 2025 and data from this radar was unavailable for the North Queensland floods.

Further data from a relevant Bureau-owned automatic river level gauge on the Little Bohle River was unavailable during the event, and a 'considerable number of third party-owned flood gauges experienced outages during the event'.

Improvements to the flood warning network are planned or already underway through the Flood Warning Infrastructure Network (FWIN) project, and this is covered later in the report.

In its submission the Bureau provided a detailed account of rainfall during the North Queensland Floods, advising:

“(it was) particularly intense along the coastal region from Ayr to Cairns. The heaviest falls occurred between 1 and 3 February, with daily rainfalls over 200mm across the Tropical North Coast and Tablelands, and Herbert and Lower Burdekin districts.

Paluma Ivy Cottage (upper Burdekin catchment) recorded 722mm and 745mm on 2 and 3 February respectively. This is the first known instance in Australia of two consecutive days of measured rainfall totals over 700mm”.

The Bureau also said in its submission:

- The rainfall was the highest wet season on record in some areas around Townsville to Ingham.
- Several sites had the highest summer daily rainfall on record or highest total summer rainfall on record.
- It was a prolonged rainfall event which exacerbated impacts from floodwaters in the region.

In addition to the tailored briefings and online products the Bureau's services to the emergency management sector include forecast and warning products, standard and supplementary briefings to emergency management agencies, and 24-hour phone access to meteorologists and hydrologists for specialist support and interpretation of data, and forecast and warning products.

The North Queensland Floods highlighted the necessity for increased efficiencies in the provision of briefing services. For example:

- alignment and consolidation of briefings to groups with common needs
- an improved, shared process for briefing requests
- visibility of briefing schedule across the QDMA.

The Bureau advised that leading up to and during the North Queensland Floods, the following forecasts, warnings, briefings and media responses were issued:

Table 2: Number of products issued during the North Queensland Floods

Number of products by type issued during the North Queensland Floods	
Warning type	Total
Severe weather warnings	25
Severe thunderstorm warnings	34
Flood watches	11
Flood warnings	273
Briefings to emergency management sector via QDMA	478
Media inquiries	283
Social media posts	167

Insight: Local disaster management groups having clear understanding of the Bureau’s role, responsibilities and capabilities could improve preparedness, manage expectations, support more effective local planning and decision-making during events.

Forecast limitations or constraints

The Office received a submission from a council regarding their concerns that the Bureau’s ability to provide accurate flood forecasts, constrained by the lack of upstream weather stations and monitoring infrastructure along key river systems. In some areas, councils need to rely on local information and informal observations – such as flow rate at river height markers – to estimate likely flood heights. Whilst valuable, this approach limits the lead time available for preparation and response.

Decision makers experienced additional challenges when rainfall patterns deviated from historical events, as occurred in one community that was impacted by both the North and Western Queensland Floods events, with one mayor saying, “The first one hit us from the eastern side of the Burdekin River catchment, we didn’t have much inundation in town.” However, the areas of Hidden Valley, Paluma and Hervey’s Range were most impacted by the event in northern Queensland. “In the second event (The Western Queensland Floods) the rain pattern had changed and it came from the western side and came from a different direction” and impacted the transport routes.

The Bureau in previous IGEM reviews

Previous reviews conducted by the Office including the Severe Weather Season Review Report 1 2023-24¹² have highlighted the limitations faced by the Bureau in providing comprehensive warnings about actual rainfall levels experienced during major events. This review noted that

¹² 2023–24 Severe Weather Season Review, Inspector-General Emergency Management, 2024, p. 43

without the ability to access accurate and timely rainfall data, local decision makers were often left without the necessary information to plan and respond appropriately.

Flood warning infrastructure

Flood warning infrastructure plays a critical role in protecting Queensland communities by providing the intelligence needed to anticipate, prepare for, and respond to flood events.

This and past reviews heard concerns from entities that the flood gauge network in regional, rural, and remote areas is insufficient, with blind spots in the network. These blind spots reduce the accuracy of flood forecasting, which has had an impact on community and agency preparedness, and the ability of decision makers to issue warnings and plan timely evacuations. This has impacted the community's confidence in the disaster management agencies.

The issue is compounded in the many areas where gauges are read manually rather than automated. The Office was advised that in some case there were delays in the Bureau publishing data from manually read gauges. One Local Disaster Management Group who experienced this said it caused several issues around providing information and warnings to their community. This was because councils cannot contradict the Bureau by publishing manual readings before the Bureau.

This example highlights the interdependent nature of disaster information systems. Local governments rely on data custodians to validate and publish gauge readings before they can be reflected on community-facing dashboards. Any delays in these processes create downstream challenges for timely public communication, potentially affecting community confidence.

Did you know?

Queensland has more than 3300 rainfall and river gauges. These inform statewide flood warnings and forecasts. Flood warning assets are owned and operated by more than 60 groups, including state and local government, the private sector, and the Bureau of Meteorology.

"We were asking the community to refer to the disaster dashboard, which was using incorrect Bureau readings. The community lost confidence in the information coming from the LDMG, as the website had incorrect information. This has now caused long-term reputational damage to the LDMG in the community, which will be challenging to rectify for future disaster events."

Queensland councillor

Damaged flood warning assets

Frequent compounding and cascading disasters subject the network to constant wear and tear on the equipment. This is compounded by the expanse of the flood gauge network along with the remoteness of the assets. It means when equipment is damaged or faulty, it can be difficult to repair or replace quickly. This adds a degree of complexity in regard to the accuracy and reliability of the information to inform the Bureau, the disaster management system and communities. At present, there does not appear to be a quick fix solution to this conundrum.

“The number of river height flood monitoring sensors that were not working limited the data available for planning and response”.

In the North Queensland Floods, weather radars, flood gauges, and telemetry systems that were damaged in earlier events had not been able to be repaired in time.

Flood cameras: enhancing situational awareness

There is growing recognition that in addition to flood gauges, that there is value in flood cameras on main roads bring to enhance real-time situational awareness and public safety. Local governments have emphasised that cameras positioned across catchments and along major transport routes provide critical visual confirmation of flood conditions, supporting both operational decision making and public confidence in warnings.

Supporting and growing this capability aligns with the Queensland Strategy for Disaster Resilience’s (QSDR) emphasis on improving access to real-time information (Strategic Commitment C1.2) and ensuring investment is aligned with local and regional needs (Objective 4), as well as the Interim State Disaster Management Plan’s (Interim SDMP) focus on predictive capabilities and situational awareness to support coordinated response.

Insight: Complementary flood monitoring assets such as flood markers and flood cameras can contribute to the accuracy, timeliness and resilience of flood warning intelligence.

The way forward

The Queensland Strategy for Disaster Resilience (QSDR) emphasises the need to transform systems to make them more resilient, especially in the face of systemic disaster risk driven by a changing climate and increasing hazard intensity. Ensuring infrastructure is designed and maintained to withstand future conditions is essential to safeguarding communities.

These examples reinforce the need for redundancy in flood warning infrastructure, such as back-up telemetry systems, satellite-based monitoring, or manual cross-validation systems to ensure continuity of operations when primary systems fail. These measures should be embedded and trained within broader business continuity frameworks, as outlined in the Interim Queensland Prevention, Preparedness, Response and Recovery Management Guideline 2024-25 (DM Guideline)¹³, to ensure that critical functions can continue during disruptions.

This aligns with the principles of evidence-based decision making, situational awareness, and continuous improvement outlined in the Standard and supports strategic commitments in the QSDR and operational guidance in the Interim SDMP.

It has also been highlighted that physical flood markers play a valuable role in supporting community understanding of flood risk, particularly in high-tourist areas. In such contexts, visible markers provide a tangible reference point, helping people visualise what flood heights mean in that town.

¹³ Interim Queensland Prevention, Preparedness, Response and Recovery Disaster Management Guideline 2024-25, Emergency Management and Coordination Command, Queensland Police Service, 2024

Beyond their operational value, flood markers also serve as important educational and cultural assets. They help embed lived history into community, bridging understanding between long-term residents and new residents or visitors who may be unfamiliar with local flood behaviour.

When simple flood markers are paired with clear and trusted communication channels from responsible entities, flood markers become a useful reference point for community knowledge and response.

Significant investment is currently underway to strengthen Queensland's flood warning capabilities, including the \$236 million National Flood Warning Infrastructure Network Program (NFWINP) led by the Bureau¹⁴ and the \$7 million Emergency Response Fund FWIN program, funded by the Australian Government and led by the QRA.¹⁵ These programs aim to strengthen the network and significantly improve data availability across the state.

However, diversifying the types of infrastructure used, such as cameras and satellite telemetry, can help support and improve the flood warning infrastructure network in Queensland.

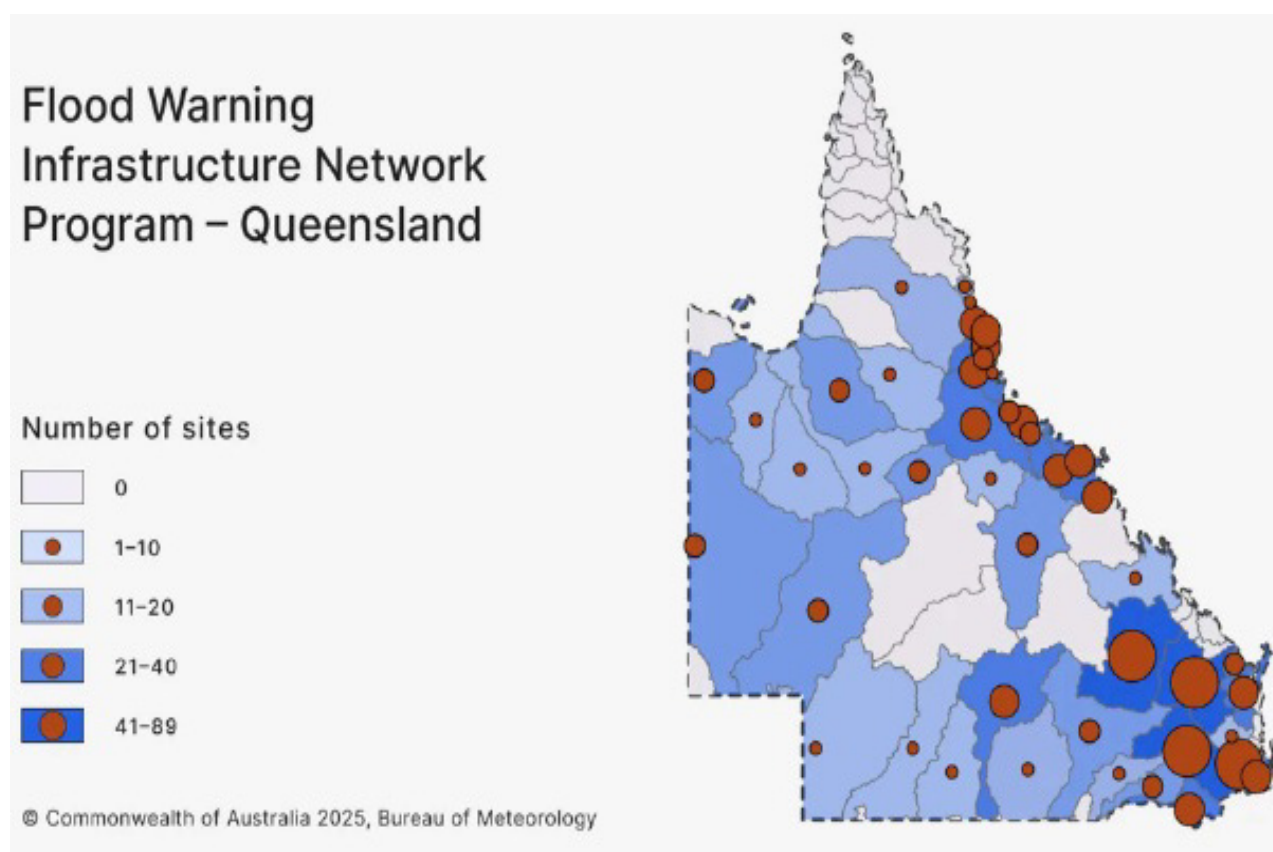


Figure 4: Number of sites per catchment identified for acquisition as part of FWIN.

¹⁴ <https://www.qld.gov.au/emergency/dealing-disasters/disaster-types/flood/for-councils-and-flood-practitioners/flood-warning-infrastructure-resources/bureau-of-meteorologys-flood-warning-infrastructure-network-fwin-program>

¹⁵ <https://www.qra.qld.gov.au/ERF/ERF-FWIN-program-2021-22>

Table 3: Number of sites agreed for acquisition (as at July 2025)

Number of sites agreed for acquisition (as at July 2025)	
Catchment	Number of sites agreed for acquisition
Herbert	30
Ross-Bohle and Black	44
Haughton	16
Mulgrave-Russel	21
Johnstone	23
Tully-Murray	18
Don and Proserpine	21
Pioneer	25

Public information and warnings

“A warning provides point-in-time information about a hazard that is impacting or is expected to impact communities. It describes the impact and expected consequences for communities and includes advice on what people should do.”¹⁶

Australian Institute of Disaster Resilience Public Information and Warnings Handbook

“Public information is information provided to the public immediately before, during and after an emergency to reduce the potential impact of an emergency or hazard.”¹⁷

Queensland Warnings Manual

Under Queensland’s Disaster Management Arrangements and outlined in the Queensland Warnings Manual, local governments are responsible for issuing community-focused warnings for severe weather (including severe storms with dangerous cells), flooding, cyclone, and storm tide. Councils can request warning support from their QPS Emergency Management Coordinator (EMC) and the

¹⁶ Australian Disaster Resilience Handbook Collection: Public Information and Warnings, National Recovery and Resilience Agency & Australian Institute for Disaster Resilience, 2021

¹⁷ Queensland Warnings Manual, Queensland Police Service, 2024, p. 8

QPS SDCC Watch Desk. During SDCC activations the QPS Public Information and Warnings Unit provides surge capacity.¹⁸

The Queensland Fire Department (QFD) is responsible for all fire warnings and Queensland Health is responsible for extreme heatwave warnings.

A warning is only issued when some form of protective action is needed. If not, it is public information.

Australian Warning System

All community-focused warnings in Queensland follow the Australian Warning System (AWS) framework. It was implemented in Queensland in November 2023. The AWS framework helps community members understand the hazard, their risk level for that hazard at that point in time, and what they need to do to be safe, regardless of where they are in the country. It has been applied across all hazards and across most warning distribution methods.

More information on the AWS can be found in the Summary Report or by visiting the QFD website.

Emergency Alerts

EAs are a distribution method of warnings used with other platforms to get urgent community warnings and information out.

EAs can be sent via text message to mobile phones, or a recorded voice message to landlines. Text messages can be sent based on service address or geo-located to mobile phones in an area.

EAs are requested by council, or QFD for significant fires, and are sent by the QPS SDCC Watch Desk.

The EA system is a national system, and EAs can be sent based on a triaged approach, which can impact the timing of an EA delivery. For example, a life-threatening situation over a large area in South Australia (like a fast and dangerous bushfire) can take precedence over a lower risk event in New South Wales (like a slow riverine flood). This can sometimes cause a 'bottleneck' and cause delays in when the EA is received by community members.

NEMA advised the EA system will be replaced with the National Messaging System (NMS), which aims to address the speed and geographic accuracy of EAs. The NMS will be fully implemented and available for use by states and territories in time for the 2026/27 Higher Risk Weather Season, commencing 1 October 2026.

Communication during events

Communities impacted by the North Queensland Floods reported they were caught off guard by the sheer volume of rain that fell over a short time period, overwhelming drainage systems as well as creek and river systems.

Primary agencies responsible for issuing community-focused warnings in Queensland

Severe weather, flood, cyclone and storm tide: Local governments, Maritime Safety Queensland

Bushfires: Queensland Fire Department

Extreme heatwaves: Queensland Health

¹⁸ Queensland Warnings Manual, Queensland Police Service, 2024, p. 8

Local governments and residents considered themselves well prepared for a traditional wet season and 'normal' flooding but reported the intensity and speed of the rainfall far exceeded expectations. This resulted in flash flooding and record-breaking flood heights, challenging existing preparedness measures and response capabilities.

"We've lived in the tropics for 40 years – been through Cat 4 and 5 cyclones – but we've seen nothing like this. We've never flooded (into the house) before."

Member of the public

During the North Queensland Floods, the heaviest rainfall occurred late at night, leaving councils with little opportunity to issue timely warnings to their communities. This lack of lead time contributed to residents being 'taken by surprise' with some attributing the issue to inadequate weather forecasting for their region. However, and as mentioned in the Bureau section, the Greenvale radar near Townsville sustained lightning damage in January, and this potentially reduced the Bureau's ability to provide accurate and timely forecasts.

"We had a conversation with BoM at 10pm and they said more rain was coming but we'd be right, but I was woken up in the middle of the night because a person in the community had water in the house and was being rescued."

North Queensland council mayor

When it comes to AWS warnings, immediate publication is not always possible for fast-onset events, such as severe storms, flash flooding, and some bushfires because of the speed and unpredictability of these hazards. This is especially true for smaller councils, during weekends, and overnight.

Across Queensland, communities consistently reported relying heavily on their mobile phones to stay informed, maintain contact with family and call for help before, during and after disaster events. It is important to note that satellite devices do not receive Emergency Alerts, limiting their effectiveness in critical moments.

Agencies and councils also rely heavily on telecommunications to disseminate information. One North Queensland council mayor said, "We were putting messages out but we didn't know that nobody could hear us because the phones were down". This highlights the vulnerability of communication systems during disasters and the need for more resilient and redundant channels to ensure vital information reaches those who need it.

A common theme identified across all events is the over-reliance on technology to issue public information and warnings, with limited evidence of 'offline business continuity plan' options for communicating when power and phones are disrupted. This gap is concerning given the increasing likelihood of more complex and prolonged disaster events which may result in extended outages of phone and power services.

Pre-season planning on how to inform and warn communities without access to power or mobile networks is essential. Pre-season education about where to access offline information – such as

designated community noticeboards, local radio stations, or physical information hubs – is critical, particularly for regional and remote communities where phone coverage is often unreliable.

Agencies self-activated in response to the information they received via informal communication channels, with QPS, SES and QFD fire and swift-water rescue crews responding prior to formal coordination.

Inclusive emergency preparedness information

Accessible warning and public information, including preparedness information, remains inconsistent. Past reviews (e.g. the South East Queensland Rainfall and Flooding Review¹⁹) noted that messages were overly technical, sometimes inconsistent and failed to reach culturally and linguistically diverse (CALD) and First Nations communities.

A new project is underway to provide preparedness information in languages other than English through the Get Ready Queensland program. The Get Ready Queensland team (which is part of QRA), is producing a series of natural hazard information videos and 'Easy Read' resources for CALD communities and people with low literacy skills. There will be a toolkit for government and NGOs on how to use and adapt the resources for their communities.

"These inclusive and accessible resources are being developed for use across Australia and will focus on seven natural hazards: bushfires, floods, cyclones, storms, heatwaves, earthquakes and tsunamis. The resources will be translated into Arabic, Cantonese, Dari, Korean, Mandarin, Punjabi, Thai, and Vietnamese." – Get Ready Queensland

¹⁹ South East Queensland Rainfall and Flooding February to March 2022 Review, Inspector-General Emergency Management, 2022

Good practice – Burdekin Rail Bus

Although Ayr and Home Hill are divided by the Burdekin River, the two towns are communities with a great interdependency on each other. When Plantation Creek flooded, and both road connections were cut, the Burdekin LDMG quickly accepted an offer from Queensland Rail to use a rail bus to maintain critical movement between the towns. It would be a way for essential workers to do their jobs and for people receiving dialysis or other treatments for serious illnesses in Townsville to get to that treatment.



The offer from Queensland Rail was received on Monday night, and by 3pm Tuesday the first rail bus trip was underway, thanks to rapid coordination and implementation of safety and comfort measures on both sides of the bridge.

Although the bus could carry 12 passengers and complete approximately 2.5 trips an hour. Priority was given to emergency and essential workers, people needing medical treatment, then teachers and other critical personnel. Initially passengers were grouped, but colour-coded labelling system was quickly introduced to streamline identification and boarding.

Operating from 7am to around 7-8pm daily, the service was shared between two drivers across morning and afternoon shifts.

The Burdekin LDMG estimates that between Tuesday 3pm through to Friday 12pm, around 900 people took the temporary rail bus to reach essential destinations or provide critical services.

This initiative demonstrated exceptional coordination and adaptability. The swift action and collaborative effort in maintaining community connectivity during a time of crisis is a strong example of effective local leadership, cross agency cooperation and innovative problem solving under pressure – a model that reflects the QDMA and may inform future strategies.

Electricity

The Critical Infrastructure Disaster Risk Assessment Report 2024 identifies the electricity network a vital service but one that is vulnerable in disaster events and equally can pose risk to community safety.²⁰

It is acknowledged that power companies are well-prepared and resourced ahead of forecast disaster events to restore connections as soon as it's possible and safe to do so. The work undertaken by power companies in Queensland to prepare for these events and their staffs' dedication to reconnecting communities during natural disaster events is significant and includes:

- pre-deploying a significant number of staff and valuable assets where needed based on forecasting and intelligence,
- bringing in surge capacity staff from other states, and working long hours in difficult conditions,
- ongoing rolling updates and improvements to make infrastructure more resilient, and
- expanding the use of remote-start permanent generators in key locations.

Power companies work in partnership with LDMGs and agencies on pre-season planning, participating in multi-agency disaster exercises, and attending state and district-level disaster management group meetings. They also carry out ongoing rolling maintenance and upgrades of their assets.

Queensland's energy providers report that they operate an ongoing asset inspection and maintenance program on the network to prepare for the severe weather season which complies with the *Electrical Safety Act 2002* (Qld) and the Electrical Safety Code of Practice 2020 – Works.²¹

Maintaining a resilient power network of this magnitude, over vastly different and some difficult landscapes, and in a complex disaster environment, is challenging. Landslips, bushfires, and lightning strikes happen, and record-breaking flood heights also challenge the network.

Both power companies and local governments reported that vegetation management, which is essential for network maintenance, is a difficult and sometimes complex issue.

Community members at the community forum mirrored this sentiment, voicing frustration that a 'lack of adequate tree maintenance for many years' and 'a bare minimum model' exacerbated damage to the power network far beyond what would have happened if vegetation did not interfere with power infrastructure, including powerlines.

Did you know?

Electricity is supplied to most Queensland customers via an electricity distribution system, which connects the high-voltage system to homes and businesses.

The state's electricity distribution networks are extensive, with a total line length of about 232,000km.

Energy Queensland is the largest power company in the state with 2.3 million consumers.

Ergon Energy operates in rural and regional Queensland. Its network covers more than 1 million km² with:

- 178,000km of powerlines and underground cables
- 1 million power poles.

Powerlink manages the state's high-voltage powerlines. Its transmission network runs 1700 kilometres from Cairns to the New South Wales border. It comprises 15,449 circuit kilometres of transmission lines and 152 substations.

²⁰ Queensland Critical Infrastructure Disaster Risk Assessment, Queensland Fire and Emergency Services, 2024, p. 36

²¹ Electrical Safety Code of Practice 2020 – Works, Electrical Safety Office, 2020

Community also understood there have been some cases where critical substations need to be pre-emptively shut down for community safety to protect the asset, and allow faster restoration of the sub-station when safe to do so. One local government expressed frustration that a substation prone to water inundation was closed pre-emptively, and that when they lost power, they lost communications.

Communities reported that they expect to lose power during significant weather events. Those with more lived experience were prepared with resilience measures in place, such as generators, spare fuel, batteries, torches, candles, tinned food, and gas barbecues or camp stoves for cooking. However, it was the significant length of time without power that some households struggled with.

“Between 31 January and 11 February, 33,000 customers lost power across the local government areas of Hinchinbrook, Townsville, Cassowary Coast, Burdekin, and Charters Towers. By 11 February, 100% of customers who could reconnect safely had been reconnected.”

Energy distributor

Building resilience and shifting community expectations about power restoration would also support LDMG and agency efforts to deliver public information in offline formats during power and telecommunication outages.

Telecommunications

The *Telecommunications Act 1997* (Cth) establishes a regulatory framework for the telecommunications industry in Australia promoting efficiency, competition and accessibility of services. Sections 313²² and 344²³ place obligations on carriers and carriage service providers to provide reasonable assistance to authorities during emergencies. The two sections spell out obligations to telecommunications carriers to support disaster planning, to ensure continuity of communication services in a disaster, maintain network survivability, and manage outages.

The *Security of Critical Infrastructure Act 2018*²⁴ also places obligations on telecommunications entities to protect their assets from all hazards.

Major telecommunication providers reported that they were well prepared ahead of the season, adequately staffed, resourced and practiced in responding and reconnecting communities following natural disaster events. These providers emphasised that restoration efforts are swift and effective when access is possible and safe .

Telecommunication companies also engage in pre-season multi-agency planning, working with providers and other critical partners to share information, update emergency contacts and ensure communication channels remain open and functional.

²² *Telecommunications Act 1997* (Cth), s313

²³ *Telecommunications Act 1997* (Cth), s314

²⁴ *Security of Critical Infrastructure Act 2018* (Cth)

Despite these efforts, loss of telecommunications – including phone, internet services, and the Government Wireless Network (GWN) – was a significant challenge for communities, local governments and disaster management agencies. In many cases, lack of communications was directly linked to loss of power. These outages were caused by a variety of disaster related scenarios including water inundation of electrical infrastructure and substations, felled trees bringing down power lines, wind damage to towers and poles, flooding or debris preventing access for repair crews.

The widespread loss of communications presented a significant challenge – not only for LDMGs but the entire disaster management sector. The inability to access mobile networks, internet services and the GWN severely impacted the ability of agencies and communities to operationalise disaster plans, issue timely warnings and respond to calls for assistance.

For LDMGs the communication breakdown hindered efforts to gather local intelligence, coordinate with partner agencies and inform communities about unfolding risks. However, the impact extended well beyond local coordination. State level agencies, emergency services and community organisations were similarly constrained, with disrupted communications affecting strategic decision making, resource deployment and situation awareness.

The overnight onset and rapid escalation of events further exacerbated these challenges, leaving communities isolated and struggling to respond in real time.

Further access constraints significantly impacted the speed and effectiveness of telecommunications reconnection efforts. Restoration was often delayed due to limited access to damaged sites. In seeking to carry out repair works and restore services, the safety of service provider personnel is paramount. Sites need to be assessed, weather conditions understood and the extent of the damage needs to be identified. These factors all need to be addressed prior to deploying appropriately skilled staff to the site with the relevant parts to carry out repairs.

This highlights a vulnerability in Queensland's disaster resilience. There is a need for resilient, redundant and interoperable communication systems that can withstand prolonged outages and support coordinated response efforts across all levels of the QMDA.

“The shutdown of mobile and internet services, which resulted from the power outage, created a complete communications blackout. This breakdown severely limited the ability of emergency services, local authorities, and residents to coordinate, report incidents, or seek assistance. The lack of reliable communications not only delayed response efforts but also increased risk to the public and made it extremely difficult to distribute critical information. Strengthening telecommunications resilience in regional areas must be a key focus of future disaster management improvements.”

State member of parliament

Community members in some locations reported that they could not call Triple Zero (000), receive warnings or Emergency Alerts, or find information, despite many councils in the early hours of the morning moving to respond to the rapid, dynamic flooding. As one council member said, “A town where nobody has power, gets no info, and zero phone reception in a flood, is just a disaster waiting to happen.”

When you lose power, you lose comms. We didn't know nobody could hear us. We used CB radios, and Starlink got us through. That's how we found out nobody could hear us.

Far North Queensland councillor

Telecommunications providers advised that loss of power beyond 24 hours was a key driver of service disruption.

"We work with emergency authorities to get facilitated access, to be escorted in (a badly impacted area). If it's a major site that has priority over others, we let the Local Disaster Management Group and District Disaster Management Group know, and we get priority access to those sites."

Telecommunication company

Insight: Communities increasingly rely on telecommunications to remain connected and access disaster related information.

Satellite devices are becoming increasingly more common among local government and emergency service agencies in regional and rural areas where mobile phone coverage is sporadic or not available. Several local governments across the state have also invested in placing satellite devices at community facilities to better support their displaced community members during disasters.

However, while satellite devices make communication possible when telecommunications are down, satellite devices are not able to receive Emergency Alerts. It is acknowledged that the National Emergency Management Agency (NEMA) is aware of this.

Interconnectivity of electricity and telecommunications

Power and telecommunications are both critical for disaster response and recovery, yet they operate under different priorities, constraints and safety considerations. While both sectors aim to restore services quickly and as safely as possible, their restoration pathways are shaped by factors such as prioritisation of preservation of life, extent of infrastructure damage, accessibility, workforce safety and population impacts. The restoration priorities between these two critical infrastructure providers are not always aligned. Whilst power companies offer support where possible, decisions about operations are made after considering all relevant factors.

Telecommunications providers reported that loss of power beyond 24 hours was a key driver of service disruption. Conversely, concerns were raised about the over-reliance on power providers as a redundancy strategy within the telecommunications sector. This approach does not reflect the future disaster risk environment of high impact, low probability events. Strengthening the resilience of telecommunications infrastructure— across metropolitan, regional and remote areas – should be a priority.

“It is [this company’s] broad experience that power companies – across Australia – do not prioritise the restoration of telecommunications facilities at the level that is expected by communities. This can lead to inefficient deployment of resources, longer restoration times and poorer outcomes for customers and communities that are now more reliant than ever on mobile devices to provide safety information.”

Telecommunications company

Business continuity planning and offline messaging

Batteries and generators are a well-used and established business continuity strategy for telecommunications companies when mains power is lost. One telecommunications company alone has more than 200 permanent fixed generator sites in Queensland in high priority locations (servicing sites with large numbers of dependencies or network-criticality), as well as sites that are difficult to access due to isolation during weather events. In addition, there are a significant number of mobile generators that move into areas before a large forecast natural disaster.

During the North Queensland Floods, many places in Queensland were without power for several days or weeks, and these generators were not sufficient to maintain services. Some generators that ran out of fuel could not be refueled because of access and safety issues, as mentioned earlier.

“As batteries and fuel ran out, many couldn’t access updates.”

Community member from North Queensland

However, it is understood that at least one telecommunications company is working with several LDMGs in Queensland to identify local and appropriately trained resources who can be authorised to attend sites to maintain continuity of service.

“(It’s an) Agreement with local government authorities because they can get there quicker than I can. We’re prioritising areas in higher risk areas. The work will continue and will take a good couple of years to roll out and finalise.”

Telecommunications company

Recognising the importance of safety, operational protocols, and the multitude of priorities across these sectors, the value is in continuing to develop collaborative arrangements that enable safe and timely access to critical infrastructure during disaster events. Such approaches would enhance continuity of essential services while respecting the operational boundaries and responsibilities of each provider.

The extended loss of telecommunications also signifies the importance of entities providing public information across multiple platforms – including ‘offline’ options – as part of standard business practice. Printed materials such as newsletters, flyers and community noticeboards can play a vital role when digital systems are unavailable.

Those responsible for public information and warnings should ensure offline communication channels are included within their business continuity planning, and that staff are trained and exercised in using them. This approach supports more inclusive and resilient communication, particularly in high risk or isolated communities.

Improved pre-season community preparedness messaging should also include being ready to lose phone and internet for several days as standard and education about where and how to find offline information in their area. This starts to set the expectation that telecommunications, including the internet, may be lost for extended periods of time during natural disaster events and communities need to plan for options to stay informed. The Get Ready Queensland webpage “Have a plan and Pack a Kit” is a good place to start²⁵.

Fuel

When mains power fails, generators are a common backup to maintain essential services. However, their effectiveness depends on reliable access to fuel – either through sufficient on-site storage or the ability to procure and transport additional supplies. Planning should be scalable to ensure that entities not only have fuel reserves but also the means to access and the logistical arrangements to refuel generators during extended outages. This is critical to maintaining continuity of operations in disaster events.

During the North Queensland Floods, fuel resupply was a significant challenge – primarily due to power outages lasting longer than anticipated. Stored fuel supplies were quickly exhausted as many individuals and organisations relying on generator power were not prepared for extended isolated or prolonged outages.

Without operational generators, critical infrastructure ceased to function, including, but limited to, sewerage systems, petrol stations, payments by credit card, reticulated water supply, airports and telecommunications. These challenges resulted in heightened feelings of isolation and distress among community members, with notable impacts on their mental health.

“After the back-up batteries went flat and the generators ran out of fuel, communications were extremely limited. At times, it felt as though people interstate had more accurate information about our local situation than we did.”
North Queensland community member

It should be noted that communities who shared their fuel with others to keep other generators running reported a higher level of resilience.

It is apparent that fuel-powered generators are the main back-up system for when mains power is lost. If these can't be refueled, there is no second-level redundancy. One disaster district is planning to develop a district-level fuel prioritisation plan and keep a register of indicative fuel needs to support essential services for extended time without power. These processes would help ensure

²⁵ Get Ready QLD – Protect what's most important: Pack a kit (Council Hub), Get Ready Queensland, Queensland Reconstruction Authority, 2022

continuity of essential services running on generators for long periods of time. This and similar approaches should be encouraged.

Supply chain

When isolation occurs, resupply operations may be required to ensure that essential goods remain available to communities impacted by disaster. Resupply, as defined in the DM Guideline as “a response from the Queensland Government to ensure that essential goods remain available through the normal retail arrangements, but the high cost of transport is not passed on to the retailer or consumer.”²⁶

There are three types of resupply operations undertaken in Queensland:

- resupply of isolated communities
- isolated rural property resupply
- resupply of stranded persons.

The roles and responsibilities for the resupply of essential goods are outlined in the Queensland Resupply Manual, as well as the escalation process for local governments to request assistance from the District Disaster Management Group (DDMG) and the State Disaster Coordination Group (SDCG) if required.

The Queensland Resupply Manual outlines that local governments consider developing a resupply procedure for the LGA. A number of resupply subplans are available on local government websites (examples of such plans can be seen on the local government websites of Murweh, Burdekin, North Burnett, Quilpie, Townsville, Charters Towers, Southern Downs, Fraser Coast). The Office has been advised that North Queensland local governments are currently working with their DDMG to review and develop local resupply plans.

Supply chain responsibilities

Within the Interim SDMP, the QPS, in partnership with LDMGs, has the role of resupplying essential goods to isolated communities, properties and individuals. The Department of Primary Industries (DPI) is identified as assisting with the ongoing supply of fresh food as an essential service and to provide advice on agriculture supply chains.²⁷

The Department of Agriculture and Fisheries Disaster Management Plan 2024 identifies the Agriculture Coordination Group and specifically the subgroup, Agriculture Disaster Taskforce, assists with “event specific problem solving and sharing of intelligence to ensure clear and consistent key message delivery before, during and as required throughout response and recovery phases of a disaster impacting agricultural supply chains.”²⁸

The Emergency Relief Working Group (ERWG), a subcommittee to the SDCG and the State Recovery and Resilience Group (SRRG), can be activated to “manage complex, diverse and or challenging relief needs to preserve life requiring immediate multi-agency coordination and collaboration during disaster events.” The ERWG can call on government agencies, NGOs, industry representatives and essential service providers who have expertise to deliver relief activities as

²⁶ Interim Queensland Prevention, Preparedness, Response and Recovery Disaster Management Guideline 2024-25, Emergency Management and Coordination Command, Queensland Police Service, 2024, p. 50

²⁷ Interim Queensland Prevention, Preparedness, Response and Recovery Disaster Management Guideline 2024-25, Emergency Management and Coordination Command, Queensland Police Service, 2024, p. 58

²⁸ DAF Disaster Management Plan 2024, Department of Agriculture and Fisheries, 2024

required when it is necessary to preserve life. The ERWG was not required to be utilised during this event.

The Economic Functional Recovery and Resilience Group (Economic FRRG), a subgroup to the SRRG, provides advice on the economic impacts of disaster events and information sharing for local government and industry needs in responding to events.²⁹

The Economic FRRG can activate the Essential Goods Supply Committee (EGSC) for business and industry representatives to raise concerns about supply chain disruptions. The EGSC is chaired by the Director-General, State Development, Infrastructure and Planning and can work alongside the QPS and local governments to support emergency resupply to isolated communities, if State assistance is required.

Cairns supply plan

During the North Queensland Floods, the SDCG established a cross-agency working group to develop the Cairns Supply Plan. Under this plan, DSDIP was tasked to address concerns regarding low food supply in grocery stores in Cairns. This included coordinating with grocery suppliers and an air freight provider to transport essential goods from Brisbane to Cairns. It was reported that the working group was effective in investigating transportation options and responding to emerging freight route issues as flooding continued. This included the temporary reopening of Ed Kratzmann Bridge at Ollera Creek and prioritisation of heavy vehicles carrying essential goods.

Entities reported that there were significant benefits of formally establishing a dedicated working group to coordinate briefings for the food supply chain during disaster events. Such a group can facilitate a structured and consistent platform for the exchange of information between government entities and essential goods providers, enhancing situation awareness and supporting a more coordinated and efficient response across the sector.

Disruption to transport corridors

The biggest disruption in the north as a result of the North Queensland Floods, was damage and flooding to the Bruce Highway which was cut at multiple locations, including the Seymour River (Hinchinbrook region) and Plantation Creek (Burdekin region). As already mentioned in this review, this had a significant impact on supply chains as inland routes were also closed, leaving no viable detour options for heavy freight.

Rail outages also contributed to supply chain impacts. To maintain supply flow, tailored weather forecasts were requested to identify short travel windows for road freight prioritisation, and controlled heavy-vehicle convoys moved essential goods before conditions worsened. The Port of Townsville was prioritised for freight continuity, with rail inspections and reopening commencing as soon as conditions allowed.

Emergency resupply via air and sea

With major road and rail corridors cut, emergency air and maritime operations became critical to maintaining the supply of essential goods. The SDCC established a dedicated working group to coordinate these efforts.

²⁹ <https://www.gra.qld.gov.au/economic-FRRG>

DSDIP advised that the Economic FRRG “supported the SDCG by facilitating emergency resupply of essential foods to Cairns via air freight, including the coordination of nine charter flights in response to declining food stock levels in grocery stores raised through the Queensland Disaster Management Committee (QDMC)” and “supported the Cairns Supply Plan”.

Despite these efforts, the scale of demand exceeded capacity. Approximately 40 pallets of goods were flown into Cairns daily, compared with normal volumes of over 1000 pallets per day.³⁰ Air freight operations were further constrained by domestic screening requirements and dangerous goods restrictions, including lithium batteries, fuels and cleaning products, which required repeated approvals from the Commonwealth Department of Home Affairs and manual reconfiguration of loads.

Maritime alternatives were also activated, with a tug and barge transporting refrigerated containers from Gladstone to Cairns and additional barges moving produce between Townsville and Cairns during Bruce Highway closures. Maritime Safety Queensland imposed and lifted port movement restrictions and issued risk-based exemptions where required to enable maritime transport of essential goods.

Feedback from local governments highlighted the need for pre-approved arrangements and scalable multi-modal strategies to address large-scale isolation. Reliance on ad hoc air and sea operations was insufficient to fully meet community needs during this event.

Retail operations and demand

Retail distribution networks typically hold only two to three days of stock, making them highly sensitive to prolonged transport disruptions. To reduce pressure on supply chains, the Cairns DDMG coordinated public messaging about supply to discourage panic buying, with purchase restrictions applied. One LGA experienced significant shortages early on due to previous flooding, with residents relying on local butchers and bakeries for essential goods when supermarket stock was depleted. In another LGA, the need to feed deployed personnel placed pressure on local resources, with local governments recommending that agencies bring their own provisions when required.

Improved business continuity planning is needed to address supply chain disruptions where there are secondary and third impact effects. For example, in the North Queensland Floods, disruption went beyond a first impact to remote communities but beyond to larger centres. This required the SDCC to coordinate with suppliers to maintain resupply to larger, local governments in Far North Queensland.

Remote and regional challenges

Remote and island communities experienced significant challenges when supply chains were disrupted. Isolation was compounded by secondary impacts through power outages, which created difficulties in maintaining cold storage for food and medicines.

Communities in Cape York and the Torres Strait were particularly vulnerable as they are heavily reliant on maritime services for essential goods. When primary freight routes were cut, these

³⁰ Estimates Hearing Transcript: State Development, Infrastructure and Planning; Industrial Relations, Wednesday, 30 July 2025, Queensland Parliament, 2025, p. 36

communities faced extended delays in resupply. This prompted calls for strengthened local supply solutions and the establishment of satellite distribution centres to improve continuity during future events.

Local observations highlighted that while some communities demonstrated strong preparedness, others faced critical gaps. Burdekin communities, including Giru, Groper Creek, Rita Island, Wunjunga and Jerona, were described as resilient, maintaining their own stocks of food, water and medication. Independent retailers, such as Atherton IGA, were able to maintain supply longer than major chains, but this was not sustainable under prolonged isolation.

Increased demand from people travelling from coastal areas placed additional pressure on limited stock. Similarly, Coles Mareeba sourced a generator to maintain operations, but stock levels remained limited due to ongoing freight disruptions.

Furthermore, this event indicated that resupply planning often focused on major supermarket chains, leaving smaller businesses that provide essential goods to aged care and health facilities without adequate support. This potentially created secondary impact risks for vulnerable populations during extended isolation.

This underlines the importance of business continuity plans (that are exercised and scalable) as well as accessing the QRA website which contains a significant amount of valuable information, for example Get Ready Queensland and Regional Resilience Strategies to name two.

Feedback also highlighted the need for improved communication and transparency between retailers and LDMGs. Limited information on stock availability and delivery schedules created uncertainty for communities and complicated local planning efforts.

Sector and industry impacts

Supply chain disruptions had significant consequences for primary industries and freight operators. The QRA reported that extended closures of key routes prevented cattle movements from agistment properties, leaving producers unable to move stock for sale for months. This resulted in severe cash flow stress and financial hardship.

Producers also faced loss of income and increased transport costs when alternate routes were required. For example, the closure of the Palmerston Highway forced diversions through longer western routes, reducing business for small townships, adding approximately \$30 per pallet, increasing freight costs by an estimated 15 per cent. Similar pressures occurred during the Bruce Highway closure when no viable alternative route was available.

Freight operators experienced major operational and financial impacts. Trucks were stranded south of Townsville during the Ed Kratzmann Bridge closure, resulting in significant revenue losses. Some operators were forced to secure emergency finance to maintain operations and retain staff until transport resumed.

These impacts highlight the vulnerability of industries that rely on supply chain networks and the cascading economic effects of disruption to critical freight corridors.

Fodder

During the North Queensland Floods, the coordination of fodder drops for the Flinders LDMG was supported by the deployment of a DPI officer. The Agriculture Disaster Taskforce encouraged

industry bodies to share the Disaster Impact Survey with their members to assist in assessing the scale of the impact of the flood.

DPI received 38 disaster impact assessments indicating stranded cattle in the Flinders region, and later submitted 64 surveys relating to livestock, with 46,000 head of stock counted. Messaging was finalised to direct producers to local councils for fodder access, and guidance was provided on humane euthanasia and carcass disposal. Fodder support was included in Category C recovery packages.

This fodder drop was timely, in that it prepared agencies such as DPI to respond to the need for fodder supply to flood-affected communities in the west. For more information, refer to the Summary Report or the Western Queensland Floods Event Report.

Aviation

The Summary Report provides a comprehensive review of the regulatory framework around aviation in disaster management.

Logistics support for emergency personnel

In the North Queensland floods, QFD aircraft assisted with transportation of swift water rescue crews and SES flood boat personnel to flooded areas.

Weather impacting aviation operations

Energy Queensland helicopters were unable to conduct patrols of high voltage lines due to poor weather conditions.

Community resilience

North Queensland experienced extensive flooding that devastated communities, disrupted essential services, and tested the resilience of residents. North Queensland residents have long been recognised for their resilience, underpinned by strong social connections and a culture of coming together in the tough times.

However, the North Queensland Floods were unprecedented in scale and impact. Communities across the region, including coastal towns and rural areas, faced widespread inundation, with water levels exceeding historical records. The damage to infrastructure, homes, and livelihoods in some areas was immense, and the isolation of some communities due to damaged roads and bridges compounded the challenges.

One of the most significant disruptions occurred when the Ed Kratzmann Bridge at Ollera Creek north of Townsville was damaged by floodwaters, severing critical food and fuel supply chains. Residents in affected areas reported feeling unprepared for the scale of the disaster.

Despite these challenges, the floods also revealed the strength and adaptability of North Queensland communities (as seen with the Burdekin Rail Bus), with many residents stepping up to support one another during the crisis.

Key drivers of community resilience

The North Queensland Floods revealed the depth and diversity of resilience across regional and remote communities. Despite the scale of the disaster, many communities demonstrated remarkable

capacity to respond, adapt, and recover. Several key drivers of resilience emerged from the experience:

Social connections and local networks

Strong social ties were a critical factor in the region's ability to respond to and recover from the floods. Neighbours supported each other by sharing resources, providing emotional support, and assisting with clean-up efforts. For example, in one rural community, residents relied on their local hall, which was equipped with a generator, to provide a safe space for those without power.

Strengthening social capital through community events, local engagement programs, and neighbourhood networks can significantly enhance disaster readiness and recovery. Councils and LDMGs should invest in initiatives that foster trust and collaboration at the local level.

Preparedness and adaptability

While many residents had prepared for typical severe weather, the scale of the North Queensland Floods revealed gaps in preparedness for events of this magnitude. Communities that had invested in emergency kits, generators, and localised response plans were better able to manage with the immediate impacts of the disaster.

Preparedness strategies should evolve to include worst-case scenarios. Local governments should promote scenario-based planning, support household readiness campaigns, and encourage adaptive thinking through community education and drills.

Self-reliance in rural and remote areas

Rural and remote communities in North Queensland demonstrated high levels of self-reliance. This mindset enabled these communities to adapt quickly to the challenges posed by the floods.

Disaster management frameworks should recognise and support the self-reliant nature of remote communities by providing flexible resources, decentralised decision making, and tools that empower local action.

Volunteerism and community leadership

The role of volunteers was pivotal during the flood event. Local disaster management teams and spontaneous volunteers worked tirelessly to support affected residents.

For example, community leaders coordinated efforts to distribute food and water to isolated areas, showcasing the importance of local leadership in disaster response. Their actions filled critical gaps and strengthened community cohesion.

Learning from past events

North Queensland's history of severe weather events has fostered a culture of resilience. The Office heard the community forum about long-term residents sharing their experiences and knowledge, helping to prepare newer community members for the challenges of the floods. This intergenerational knowledge transfer proved invaluable in building community resilience.

Consideration of how generational knowledge could be retained and transferred should be embedded into community education programs. Councils may facilitate this through storytelling initiatives, peer-led workshops, and local resilience forums that capture and share lived experience.

Inclusive and tailored engagement

Inclusive approaches to disaster management ensured that people at higher risk, including people with disabilities and the seniors, were supported during the floods. Tailored engagement strategies can further enhance resilience in diverse communities across North Queensland.

Disaster planning should be inclusive by design. This includes co-designing solutions with community representatives, using culturally appropriate communication methods, and ensuring accessibility of services and information for all residents.

Enhancing resilience

Prepare for the unprecedented

The North Queensland Floods underscored the need for communities to prepare for disasters beyond their lived experience. Many residents were unprepared for the scale and complexity of the event, which exceeded historical norms.

Insight: Communities plan and prepare for what they know. Communities now need to think about preparing for the type of events they have yet to experience.

Local governments and emergency services should adopt scenario-based planning that includes low-probability, high-consequence events. Messaging to the community should encourage planning for worst-case scenarios, including updating public education materials, conducting community drills, and integrating climate projections into risk assessments to ensure preparedness is future-focused and adaptive.

Insight: Communities and entities should plan for three days of self sufficiency, in line with advice already provided in the QRA's Get Ready Queensland program³¹.

Recommendation (4)

The Inspector-General of Emergency Management recommends that the Queensland Reconstruction Authority lead a multi-agency discussion on the appropriate duration of community self-sufficiency in the context of emerging disaster risks.

Strengthen local leadership and volunteerism

Where mentioned, the role of local leaders and volunteers during the flood was effective, as they were able to mobilise quickly and respond effectively. This is a key factor in community resilience. Building local capacity requires structured support, including regular training, simulation exercises, and formal recognition of volunteer roles. Community leaders should be integrated into local disaster response plans. Strategic partnerships with NGOs and community organisations can further expand reach and capability.

Shared responsibility

The Standard emphasises the principle of shared responsibility, recognising that effective disaster preparedness and response is not solely the domain of government agencies—it requires active participation from individuals, households, and communities. North Queensland Floods reinforced

³¹ Get Ready QLD – Protect what's most important: Pack a kit (Council Hub), Get Ready Queensland, Queensland Reconstruction Authority, 2022

the importance of this approach, as many residents found themselves needing to act quickly and independently in the face of rapidly changing conditions.

To strengthen resilience, communities and individuals need to be aware of their role in disasters, particularly in the preparedness and response phases. This includes understanding local risks, preparing emergency kits, developing household plans, and staying informed through trusted sources. When individuals take ownership of their preparedness, they not only reduce their own vulnerability but also contribute to the overall strength and adaptability of their community.

The North Queensland Floods were a stark reminder of the increasing frequency and severity of extreme weather events. While the floods caused significant damage and disruption, they also highlighted the resilience of North Queensland communities and the importance of community-driven solutions. By strengthening social connections, investing in preparedness, and embedding resilience into disaster management, North Queensland can emerge stronger and better equipped to face future challenges.

Conclusion

The North Queensland Floods presented significant challenges to Queensland's disaster management arrangements, testing its capacity to respond to events of unprecedented scale and complexity. Despite these challenges, the QDMA demonstrated the value of the principles of a locally led, regionally co-ordinated and state and commonwealth supported approach to managing disasters in Queensland. This framework reflects a scalable, flexible and cross agency approach, ensuring that responses are tailored to the severity and complexity of each event whilst also maintaining strong coordination across all levels of government and community.

The collective efforts of government agencies, local governments, non-government organisations, volunteers, and communities showcased the resilience and dedication of all involved. Under immense pressure, all stakeholders worked tirelessly and collaboratively to deliver the best possible outcomes.

While the QDMA has proven its value, it is acknowledged that the system is undergoing a period of adjustment. Queensland has been subject to major disaster events in 2022, 2023–24, and 2025. These events have placed sustained pressure on Queensland's disaster management system. The Office has undertaken a number of reviews and made a suite of recommendations aimed at enhancing the QDMA, improving resilience and operational effectiveness.

In undertaking this review, regard has been had to the recommendations from previous IGEM reviews in 2022, 2023 and 2024–25. It is evident that the QDMA is undergoing a period of transition with adjustments still being embedded across the sector. This transition will take time, but those changes and the small but meaningful enhancements identified in this review reflect a shift towards more adaptive, integrated, and future-focused approaches to disaster preparedness and response, informed by lessons learned and evolving risk landscapes. These enhancements are essential to ensure the system continues to evolve and improve. The focus remains on continuous improvement, with a commitment to refining processes, improving doctrine, strengthening coordination, and enhancing community resilience through a shared responsibility.

Looking ahead, the lessons to be learned from this event by all aspects of the system, coupled with the insights from the recently released National Climate Risk Assessment, will guide future

preparedness and response efforts. The QDMA will continue to adapt to the changing nature of disasters, ensuring Queensland is ready to face future challenges with confidence and capability. By building on the progress made and fostering a culture of learning and collaboration, Queensland's disaster management system will remain a cornerstone of community safety and resilience.

This review reaffirms the importance of ongoing reflection, adaptation, and preparation to meet the needs of a dynamic and evolving risk environment. Together, we will continue to strengthen our disaster management arrangements and ensure Queenslanders are well-prepared for whatever lies ahead.

Appendix A

Terms of Reference

Terms of Reference for the reviews of:

- North Queensland Floods (late January to early February 2025)
- Tropical Cyclone Alfred's impact on South-East Queensland (late February to early March 2025)
- The Western Queensland Floods (late March to early April).

Functions of the Office

The Office of the Inspector-General of Emergency Management (IGEM) is to provide the Queensland Government and the community with assurance of the State's disaster management arrangements.

Section 16C of the *Disaster Management Act 2003* outlines the following functions for the office of the Inspector-General of Emergency Management, including:

- to regularly review and assess the effectiveness of disaster management by the State, including the State disaster management plan and its implementation;
- to regularly review and assess the effectiveness of disaster management by district groups and local groups, including district and local disaster management plans;
- to regularly review and assess cooperation between entities responsible for disaster management in the State, including whether the disaster management systems and procedures employed by those entities are compatible and consistent;
- to review, assess and report on performance by entities responsible for disaster management in the State against the disaster management standards;
- to identify opportunities for cooperative partnerships to improve disaster management outcomes;
- to report to, and advise, the Minister about issues relating to the functions above; and
- to make all necessary inquiries to fulfil the functions above.

Guiding principles and methodology

The Reviews will be guided by the following principles:

- The Standard for Disaster Management (the standard) establishes the outcomes to be achieved for all entities involved in disaster management. It consists of Shared Responsibilities, Outcomes, Accountabilities, and Indicators. The standard focuses on outcomes rather than setting a minimum standard that must be met.
- As described by the standard, the focus is on outcomes, the standard provides the parameters within which disaster management should be conducted across Queensland, without being prescriptive about how it should be done.
- The standard is to be used by all entities in Queensland with a responsibility to contribute to disaster management. This includes those with legislated roles, as well as entities acting on behalf of or under an arrangement with those that do.

- The term 'entity' is defined in the *Acts Interpretation Act 1954*, at Schedule 1 Meaning of commonly used words and expressions. It determines that an entity includes both a person and an unincorporated body. Consistent with the *Disaster Management Act 2003*, the standard uses the term entity to describe those with roles or responsibilities in disaster management in Queensland. This includes all tiers of government, non-government organisations, not-for-profit organisations, disaster management groups, and others with legislated roles in disaster management.

In conducting the Reviews, the Office will engage with:

- relevant entities impacted by these events where DRFA has been activated,
- any other entities providing critical infrastructure support in the preparation and response phase,
- relevant entities engaged in preparation and response activities,
- industry,
- community,
- relevant disaster management doctrine, and
- other relevant reviews previously conducted, or which may have commenced, relevant to this review.

The Reviews will be guided and informed by consideration of various sources of evidence, not limited to submissions (written or oral), interviews, official reports, data, case studies, public consultation and the views of experts.

Scope

For the associated events, the IGEM will deliver a separate report, for each identified event. The reports will identify enhancements and good practices to inform and ensure continuous improvement of Queensland's Disaster Management Arrangements (QDMA).

In relation to the associated events, the reports will focus on the following:

- pre-season planning activities undertaken by entities,
- integration of preparedness and response activities between all levels of government,
- opportunities to enhance community resilience to better prepare for, and respond to future disasters,
- ensuring effective communications systems to enable the community to take necessary actions and to ensure connectedness within the community and with response entities,
- provision of information and data to inform and support planning decisions in the preparation and response phases, and
- any other matters that the IGEM considers necessary related to preparation and response.

Out of Scope

These reviews will not consider matters relating to:

- activities solely related to recovery,
- areas outside of the event areas previously identified,

- land use planning, and
- building design, codes and construction.

Deliverables and timeframe

The review reports will include an analysis of the preparedness and response related to each event. Based on the evidence, the reports may include identified good practice as well as recommendations for improvements in the QDMA and opportunities for strengthening future preparedness and response mechanisms.

Before finalising the review reports, the IGEM will consult with relevant entities on draft findings and recommendations.

The three reports will be delivered to the Minister for Police and Emergency Services by Tuesday 14 October 2025 for consideration of tabling in Cabinet.

Appendix B

Insights

Insight	Location
Community safety may be enhanced with increased understanding and communication between disaster management groups and the Bureau regarding the relationship between Bureau warnings and planned disaster response triggers. The solution lies in strengthening collaboration and information-sharing across jurisdictions and between levels of disaster management groups.	Summary Report, p. 24
Complementary flood monitoring assets such as flood markers and flood cameras can contribute to the accuracy, timeliness and resilience of flood warning intelligence.	Summary Report, p. 31 North Queensland Floods Event Report, p. 34 Western Queensland Floods Event Report, p. 33
Improving vegetation management around electricity infrastructure assets may improve access to, and the resilience of the network.	Summary Report, p. 33 Tropical Cyclone Alfred Event Report, p. 55
Communities plan and prepare for what they know. Communities now need to think about preparing for the type of events they have yet to experience.	Summary Report, p. 34 North Queensland Floods Event Report, p. 53 Tropical Cyclone Alfred Event Report, p. 63
Disaster management entities should have resilient business continuity plans that account for communication disruptions.	Summary Report, p. 37
All entities with warning responsibilities should include offline messaging as part of their business continuity planning.	Summary Report, p. 39
It is not always possible to issue local, community-focused warnings for some events. If community warnings are issued, they may not be seen by all members of the community. There is a shared responsibility between entities and the community to understand local risks and be informed and prepared.	Summary Report, p. 44

There is an opportunity for coastal councils in Southeast Queensland to adopt storm tide evacuation zones as per the Evacuation Manual, which many northern, coastal local governments have adopted.	Summary Report, p. 48 Tropical Cyclone Alfred Event Report, p. 43
Information about the potential inundation of the storm tide should be obtained from the responsible LDMGs who have the data and modelling capabilities.	Summary Report, p. 49 Tropical Cyclone Alfred Event Report, p. 44
Planning for an imminent tropical cyclone event should include a shared understanding of the risk appetite of the relevant disaster management groups that support locally led disaster response operations.	Summary Report, p. 49 Tropical Cyclone Alfred Event Report, p. 44
Greater awareness of the services offered by storm tide advisors could be promoted to assist coastal disaster management groups.	Summary Report, p. 50 Tropical Cyclone Alfred Event Report, p. 45
The terminology 'storm tide' and 'storm surge' are used inconsistently in doctrine, public information and by disaster management practitioners.	Summary Report, p. 50 Tropical Cyclone Alfred Event Report, p. 45
Evacuation sub-plans should include clear activation triggers, shelter options available, communication strategies to inform the community of the risks and request clear courses of action.	Summary Report, p. 52
Shelter personnel should be appropriately trained, available, and well-practiced within fit-for-purpose facilities with a considered business continuity plan.	Summary Report, p. 53 Tropical Cyclone Alfred Event Report, p. 48
When preparing evacuation sub-plans, consideration should be given to evacuation arrangements for persons external to their LGA and include communication strategies for informing the community of the evacuation stages.	Summary Report, p. 54
Proactive fatigue management planning supports staff wellbeing and helps sustain continuity of operations.	Summary Report, p. 57
Strengthening the professional capability and mobility of council officers to support the LGAQ's C2C program within Queensland's disaster management arrangements may	Summary Report, p. 58

effectively assist disaster-impacted councils and their communities.	
There is an opportunity to better use personnel experienced in specific types of disasters in future such events.	Summary Report, p. 59
Use of common systems between local governments promotes information sharing and situational awareness.	Summary Report, p. 59
Systems that are interoperable enable information sharing and decision making between entities.	Summary Report, p. 60
There is a need to work towards interoperability between all systems to enable sharing of a common operation picture.	Summary Report, p. 60
Use of liaison officers is an effective strategy to support inter-agency information sharing and situational awareness.	Summary Report, p. 62
Having an established reporting protocol and a workforce planning strategy may assist to plan for requests for information.	Summary Report, p. 62
Clear reporting requirements between all levels of the QDMA supports improved information sharing and situational awareness.	Summary Report, p. 62
Entities which provide critical services in disasters should have business continuity plans integrated with disaster management plans.	Summary Report, p. 63 Tropical Cyclone Alfred Event Report, p. 50
Business continuity plans and disaster management plans need to outline redundancies and contingencies to deal with widespread or prolonged, critical infrastructure disruptions.	Summary Report, p. 64
Any shortcomings of business continuity planning by service providers may place undue pressure on hospitals and the disaster management systems.	Summary Report, p. 66
Disruption to Queensland's limited freight corridors constrains the movement of goods, heightens supply chain vulnerability and complicates prioritisation decisions during periods when transport capacity is reduced.	Summary Report, p. 67
Local Disaster Management Plans should include supply chain continuity for communities at risk of being isolated, including defined triggers for resupply when supply routes are compromised.	Summary Report, p. 69

Clarity in roles and responsibilities in fodder provision decreases the risk of parallel effort, delays and supports timeliness of tasking and delivery.	Summary Report, p. 70 Western Queensland Floods Event Report, p. 39
Improved guidance in key doctrine and establishment of clear roles and responsibilities for entities deploying aviation resources pre-season would strengthen communication, improve coordination, and enhance operational efficiency.	Summary Report, p. 73 Western Queensland Floods Event Report, p. 41
Strengthening aviation capability nationally for an all-hazards approach would be beneficial to Queensland.	Summary Report, p. 78
Queenslanders are resilient, but this review process has indicated this can be relative to where they live, and their interdependencies with infrastructure and systems.	Summary Report, p. 81
Research shows connected communities are more resilient.	Summary Report, p. 81
Local disaster management groups having clear understanding of the Bureau's role, responsibilities and capabilities could improve preparedness, manage expectations, support more effective local planning and decision making during events.	North Queensland Floods Event Report, p. 32
Communities increasingly rely on telecommunications to remain connected and access disaster related information.	North Queensland Floods Event Report, p. 44 Tropical Cyclone Alfred Event Report, p. 59
Communities and entities should plan for three days of self sufficiency, in line with advice already provided in the QRA's Get Ready Queensland program.	North Queensland Floods Event Report, p. 53 Tropical Cyclone Alfred Event Report, p. 51
To help manage expectations and improve community understanding of flood mitigation efforts, councils are encouraged to regularly and clearly engage with its residents regarding planned and completed works programs.	Tropical Cyclone Alfred Event Report, p. 30
When preparing evacuation sub-plans local governments need to include clear triggers for the activation of shelter options, communication strategies informing the community of the risks, the requested courses of action, and shelter options available.	Tropical Cyclone Alfred Event Report, p. 47

Appendix C

Glossary of abbreviations

Term	Meaning
ABC	Australian Broadcasting Corporation
ARC	Australian Red Cross
AWS	Australian Warning System
Bureau	Bureau of Meteorology
CALD	Culturally and linguistically diverse
CASP	Crisis Appreciation and Strategic Planning (CASP) Guidebook
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DDMG	District Disaster Management Group
DFSDSCS	Department of Families, Seniors, Disability Services and Child Safety
DM Guideline	Interim Queensland Prevention, Preparedness, Response and Recovery Disaster Management Guideline 2024-25
DPI	Department of Primary Industries
DRFA	Disaster Recovery Funding Arrangements
EAs	Emergency Alerts
ERWG	Emergency Relief Working Group
Evacuation Manual	Evacuation: Responsibilities, Arrangements and Management Manual
FWIN	Flood Warning Infrastructure Network
GWN	Government Wireless Network
IGA	Intergovernmental agreement, Bureau of Meteorology
IGEM	Inspector-General of Emergency Management
Interim SDMP	Interim State Disaster Management Plan 2024-25
LDMG	Local Disaster Management Group
LGA	Local Government Area
NFWINP	National Flood Warning Infrastructure Network Program
NMS	National Messaging System
Office	Office of the Inspector-General of Emergency Management
QDMA	Queensland Disaster Management Arrangements
QDMC	Queensland Disaster Management Committee
QFD	Queensland Fire Department
QPS	Queensland Police Service
QPS PIWU	Queensland Police Service, Public Information and Warnings Unit
QRA	Queensland Reconstruction Authority
QSDR	Queensland Strategy for Disaster Resilience
RFA	Request for Assistance

SDCC	State Disaster Coordination Centre
SDCG	State Disaster Coordination Group
SES	State Emergency Service
SLS	Service Level Specification for Flood Forecasting and Warning Services, Bureau of Meteorology
SRRG	State Recovery and Resilience Group
Standard	Standard for Disaster Management in Queensland
TC	Tropical Cyclone
TMR	Department of Transport and Main Roads

Appendix D

References

Legislation

Disaster Management Act 2003 (Qld)

Disaster Management Regulation 2014 (Qld)

Meteorology Act 1955 (Cth)

Public Safety Preservation Act 1986 (Qld)

Security of Critical Infrastructure Act 2018 (Cth)

Telecommunications Act 1997 (Cth)

Telecommunications (Data for Emergency Warning Systems) Instrument 2020 (Cth)

Telecommunications (Emergency Management Persons and Emergency Laws) Instrument 2024 (Cth)

Other materials

- Australian Climate Service, 2025, Australia's National Climate Risk Assessment, <https://climateservice.maps.arcgis.com/sharing/rest/content/items/9d4850b2d64d47e28407c04681b0eeca/data>
- Binskin, M., Bennett, A., Macintosh, A., 2020, Royal Commission into National Natural Disaster Arrangements Report, <https://www.royalcommission.gov.au/system/files/2020-12/Royal%20Commission%20into%20National%20Natural%20Disaster%20Arrangements%20-%20Report%20%20%5Baccessible%5D.pdf>
- Bureau of Meteorology, 2024, Service Level Specification for Flood Forecasting and Warning Services for Queensland, https://www.bom.gov.au/qld/flood/brochures/QLD_SLS_current.pdf
- Bureau of Meteorology, 2024, Bureau of Meteorology's Flood Warning Infrastructure Network (FWIN) Program, <https://www.qld.gov.au/emergency/dealing-disasters/disaster-types/flood/for-councils-and-flood-practitioners/flood-warning-infrastructure-resources/bureau-of-meteorologys-flood-warning-infrastructure-network-fwin-program>
- Bureau of Meteorology, Commonwealth Scientific and Industrial Research Organisation, 2024, State of the Climate Report, <https://www.bom.gov.au/state-of-the-climate/2024/documents/2024-state-of-the-climate.pdf>
- Council of Australian Governments, 2017, Intergovernmental Agreement on the Provision of Bureau of Meteorology Hazard Services to the States and Territories, federation.gov.au, <https://federation.gov.au/sites/default/files/about/agreements/Intergovernmental%20Agreement%20on%20Provision%20of%20Bureau%20of%20Meteorology%20Hazard%20Services%20to%20the%20States%20and%20Territories%20-%202023%20March%202017.pdf>
- Department of Agriculture and Fisheries, 2024, 8 March, DAF Disaster Management Plan 2024, <https://www.publications.qld.gov.au/ckan-publications-attachments-prod/resources/7acd82cb-16af-4086-a022-d0063df1a843/daf-disaster-management-plan-2023-24.pdf?ETag=7f8b26e98ed43f75b4ba43fa5537c123>
- Electrical Safety Office, 2020, Electrical Safety Code of Practice 2020, https://www.worksafe.qld.gov.au/data/assets/pdf_file/0019/18343/es-code-of-practice-works.pdf
- Emergency Management and Coordination Command, 2024, Interim Queensland Prevention, Preparedness, Response and Recovery Disaster Management Guideline 2024-25, Queensland Police Service, https://www.disaster.qld.gov.au/data/assets/pdf_file/0032/359465/Interim-QPPRR-Guideline-2024-25.pdf

Inspector-General of Emergency Management, 2021, Standard for Disaster Management in Queensland, <https://www.igem.qld.gov.au/sites/default/files/2021-07/Standard%20for%20Disaster%20Management%20in%20Queensland%202.1.1.pdf>

Local Government, Small Business and Customer Service Committee, 2025, Inquiry into Volunteering in Queensland, Report No. 4, Queensland Parliament Committees, <https://www.parliament.qld.gov.au/Work-of-the-Assembly/Tabled-Papers/docs/5825t1274/5825t1274.pdf>

National Emergency Management Agency, 2024, Crisis Appreciation Strategic Planning Guidebook 2024, <https://www.homeaffairs.gov.au/emergency/files/casp-guidebook.pdf>

National Recovery and Resilience Agency, 2021, Public Information and Warnings Second Edition, Australian Institute for Disaster Resilience, https://knowledge.aidr.org.au/media/9104/aidr_handbookcollection_publicinfoandwarnings_2021.pdf

Office of the Inspector-General of Emergency Management, 2024-25 Severe Weather Season Review, https://www.igem.qld.gov.au/sites/default/files/2025-02/2023-24SevereWeatherSeasonReviewReport_v1.0_FINAL_OFFICIAL.pdf

Office of the Inspector-General of Emergency Management, South East Queensland Rainfall and Flooding February to March 2022 Review, https://www.igem.qld.gov.au/sites/default/files/2024-05/PROTECTED%20SEQ%20Rainfall%20and%20Flooding%20Reviewreduced_0.pdf

Queensland Disaster Management Committee, Interim State Disaster Management Plan 2025-25, https://www.disaster.qld.gov.au/_data/assets/pdf_file/0031/528448/Interim-Queensland-State-Disaster-Management-Plan-2024-25.pdf

Queensland Parliament, 2025, 30 July, Estimates – State Development, Infrastructure and Planning, Industrial Relations, https://documents.parliament.qld.gov.au/com/SDIWC-1AF9/C20252026-4826/2025_07_30_EstimatesSDC.pdf, p 36

Queensland Police Service, 2024, Evacuation: Responsibilities, Arrangements and Management Manual, Appendix 2 Development of Evacuation Zones, https://www.disaster.qld.gov.au/_data/assets/pdf_file/0029/339437/RG1276-Appendix2-Development-of-Evacuation-Zones.pdf

Queensland Police Service, 2024, Queensland Warnings Manual, https://www.disaster.qld.gov.au/_data/assets/pdf_file/0035/549539/queensland-warnings-manual-v.1-101224.pdf

Queensland Reconstruction Authority, 2024, Disaster Funding Activations, <https://www.qra.qld.gov.au/disaster-funding-activations>

Queensland Reconstruction Authority, 2024, Economic Functional Recovery and Resilience Group,
<https://www.gra.qld.gov.au/economic-FRRG>

Queensland Reconstruction Authority, 2024, Queensland Disaster Funding Guidelines,
https://www.gra.qld.gov.au/sites/default/files/2024-12/WEB_QDFG_V3_December_2024.pdf

Queensland Reconstruction Authority, 2025, Get Ready Queensland,
https://www.getready.qld.gov.au/sites/default/files/2022-08/53022%20Get%20Ready%20QLD%20-%20Protect%20Whats%20Most%20Important%208pp%209_PackAKit%20%28Council%20Hub%29.pdf

Queensland Reconstruction Authority, 2022, Emergency Response Fund FWIN Program (2021-22),
<https://www.gra.qld.gov.au/ERF/ERF-FWIN-program-2021-22>

Queensland Reconstruction Authority, 2025, Queensland's Strategy for Disaster Resilience,
<https://www.gra.qld.gov.au/qsdr>

Townsville City Council, 2025, Residents in Cluden, Hermit Park, Idalia, Oonoonba, Railway Estate and Rosslea must prepare to leave, <https://www.townsville.qld.gov.au/about-council/news-and-publications/media-releases/2025/february/residents-in-cluden,-hermit-park,-idalia,-oonoonba,-railway-estate-and-rosslea-must-prepare-to-leave>

Ulubasoglu, M., Pullabhotla, H., Tong, L., Nicholas, A., The hidden power of community: Unveiling social capital's role in Australia's disaster resilience, Deakin Business School for Australian Red Cross and Centre for Disaster Resilience and Recovery,
<https://www.redcross.org.au/globalassets/cms/publications/2024-social-capital-report.pdf>