



QUEENSLAND 2023 STATE DISASTER RISK REPORT

Executive Summary



2023



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Acknowledgements

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For further information on the Queensland 2023 State Disaster Risk Report, please contact hazard.risk@qfes.qld.gov.au

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Foreword from Queensland Fire and Emergency Services

Living in Australia's most disaster impacted state means that Queenslanders are no strangers to disaster risks. With the influence of climate change, disasters are becoming more extreme and complex, with concurrent hazards becoming more common. Our communities, the infrastructure on which they depend and the environment around them are increasingly exposed to a range of hazards that can result in potentially devastating impacts.

Disaster events are becoming more expensive, due to our growing population and the increased frequency and severity of events as a result of climate change. The February and March 2022 South East Queensland flood event is now the costliest disaster in Australia's history, and we will continue to see this number increase into the future.

Ensuring we have a comprehensive understanding of the hazards which affect us ensures we are better prepared for the next event. This understanding also informs the vast array of mitigation work we do, to reduce the risk to our communities, supporting the priorities within the Sendai Framework for Disaster Risk Reduction 2015-2030.

The 2023 State Disaster Risk Report is an update to the 2021/22 State Disaster Risk Report, providing a reassessment of the hazard priorities at the State and regional level, along with updates to the flood, bushfire, and critical infrastructure failure sections.



The Honourable Mark Ryan MP
*Minister for Police and Corrective Services and
Minister for Fire and Emergency Services*



Mr Greg Leach, Commissioner
Queensland Fire and Emergency Services

The update to the report has been a collaborative effort, driven by a range of factors, including the February and March 2022 South East Queensland Flood event, the completed implementation of the new Australian Fire Danger Rating System, and the undertaking of a statewide risk assessment of select critical infrastructure with key industry stakeholders.

The information contained within the State Disaster Risk Report can help to inform more detailed, place-based local and district risk assessments and disaster management plans. These assessments and plans can guide decision making before, during and after an event to help reduce impacts of disasters on our communities, our infrastructure and environment.

All Queenslanders are affected by disaster risk in some way. We encourage all Queenslanders to consider the valuable information in this report to help them better understand and manage the disaster risks applicable to their interests and responsibilities.

We thank all stakeholders for their ongoing contributions to disaster risk management and for their contributions to this 2023 State Disaster Risk Report.



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Overview

Introduction

Under the Queensland State Disaster Management Plan (QSDMP), Queensland Fire and Emergency Services (QFES) has responsibility for State-wide assessment of disaster risk.¹ However, due to a review by the Inspector-General of Emergency Management (IGEM) in early 2023, the lead for state-level risk function will transition to the Queensland Reconstruction Authority by June 2024.²

The requirement was initially driven through the Australia-New Zealand Emergency Management Committee (ANZEMC) where all Australian jurisdictions agreed to produce State level risk assessments by 30 June 2017. This requirement resulted in the 2017 State Natural Hazard Risk Assessment (SNHRA)³ which assessed risk for seven in-scope natural hazards, deemed the most significant to Queensland at the time of publication.

It is intended that updates to the State Disaster Risk Report occur periodically, as hazards and risks are better understood, and as new information becomes available. The 2021/22 State Disaster Risk Report (SDRR) extended the scope of hazards to ten, along with two additional compound or cascading events, and further information on climate change.

As with the 2017 SNHRA, the 2021/22 SDRR ranks hazards at the State level, and additionally provides advice on the prioritisation of hazards at the regional planning and local government level. These rankings or prioritisations are provided as guidance and advice, and they may assist decision makers at different levels to inform disaster risk management efforts.

The information available to stakeholders across Queensland varies considerably. The intent of this report therefore is to provide a consistent, state-wide assessment, and to assist those areas with limited information. Given the complexities in understanding hazard risk at the local level, the rankings at this level are not included in the 2023 SDRR.

This update is being driven by:

- Recommendation 1 from the IGEM South East Queensland Rainfall and Flooding February to March 2022 Review which called for a review and update to the State Disaster Risk Report to include the re-evaluation of the risks of flooding by all types;
- The advances in bushfire systems and data which at the time of writing the 2021/22 State Disaster Risk Report, were not available; and
- The extensive engagement during 2022 and 2023 with the energy, water, transport and telecommunications sectors to develop a state-wide assessment of disaster risk to critical infrastructure, and to contribute to Queensland's response to the Royal Commission into National Natural Disaster Arrangements.

Acknowledging these drivers, the main differences from the 2021/22 version are:

- qualitative assessment of flood and bushfire risk and subsequent re-assessment of the ranking of hazards at the regional planning level,
- removal of the ranking of hazards at the local government level reflecting feedback from the 2021/22 SDRR,
- updates to hazard chapters beyond flood and bushfire to reflect recent events or published reports, this will result in little substantive change in these chapters between the 2023 and 2021/22 version.

This report continues to improve Queensland's understanding of disaster risk and provides information for all entities with disaster management responsibilities to support decision making. As with the 21/22 SDRR and the 2017 SNHRA, the 2023 SDRR uses the Queensland Emergency Risk Management Framework (QERMF) to assess the risks.

The intent of the State Disaster Risk Report is to provide a foundational level of information for risk assessments undertaken by the Local and District Disaster Management Groups (LDMGs/DDMGs) and other entities within Queensland's disaster management arrangements.

These assessments can inform the development of risk-based disaster management plans across all levels of Queensland's disaster management arrangements.

The State Disaster Risk Report also provides guidance on climate change and its relation to disaster risk in Queensland.



The State Disaster Risk Report is published in four parts across two reports:

1. **Executive Summary**, which provides a summary of the report for policy and decision makers.
2. The **The 2023 State Disaster Risk Report**:
 - a. **Section A – Disaster risk management in Queensland 2022 – 2060**, details how disaster risk is assessed and managed in Queensland, major events that have occurred since 2022, traditional and longstanding Indigenous applications of disaster risk management, and how climate change will influence disaster risk between now and the later part of the century.
 - b. **Section B – State disaster risk assessment**, contains hazard specific risk assessments and risk analysis, and provides an overall view of risk for the State.
 - c. **Section C – Risk prioritisation**, provides a prioritisation of hazard risks for Queensland’s planning regions and for the State overall.

Background

The State Disaster Risk Report is a requirement for QFES under the Queensland State Disaster Management Plan.¹

This report has been developed in consultation with Subject Matter Experts (SMEs) specifically concerning flood and bushfire management from Queensland Government, the Bureau of Meteorology, Local Government Association Queensland and critical infrastructure stakeholders. This approach compliments the extensive and broader engagements that informed the previous 21/22 SDRR, which included stakeholders across local government, state and federal government and providers of essential services. Additionally, the report has been significantly influenced by the feedback received after the publication of the 21/22 SDRR, which led to the removal of local government prioritization for a more streamlined narrative.

Queensland

Overview

Queensland is the most disaster-prone state in Australia, and the most impacted financially by disasters.

The February and March 2022 South East Queensland flood event resulted in \$1.36 billion in claims and \$630 million in uninsured losses.⁴ The Insurance Council of Australia (ICA) reported that the event which impacted Queensland, as well as northern New South Wales, was Australia’s costliest flood ever. Across both states, the event is estimated to have cost \$3.35 billion in insured losses. Following more flooding in May, the ICA reported a rise in the cost of the severe flooding to \$4.3 billion. This insured loss is almost double that of the 2011 Brisbane flood which resulted in insured losses of \$2.3 billion.⁵

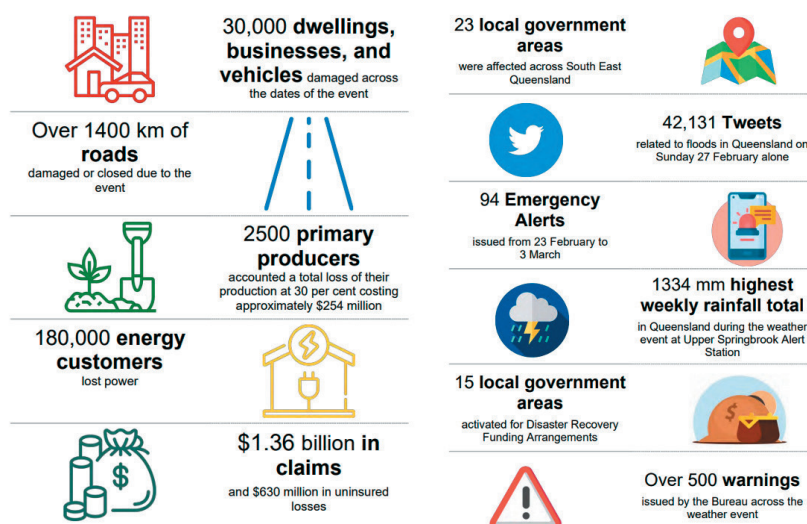


Figure 1. Summary of key impacts of the February and March 2022 flood event in South East Queensland. Source: IGEM

These losses are not new to Queensland, but the scale is growing due to higher costs in personal and commercial property, the increased cost of materials and a challenging supply chain environment. The Climate Council calculates that Queensland has suffered over \$30 billion in losses due to disasters between 1970 to 2019.⁶ Likewise, the Australian Business Roundtable for Disaster Resilience and Safer Communities (ABR) projected escalating disaster costs under all future climate scenarios. Under a high emissions scenario (RCP8.5), the total economic cost of natural disasters in Queensland between 2020 and 2060 is estimated to reach \$530 billion, which is nearly 40% of total national costs.⁷

The Climate Council assessed the insurability of Australia's most at-risk electorates and discovered that around one in every 25 properties across Australia will be considered 'high risk' and uninsurable by 2030. Five of the 10 most at-risk electorates are within Queensland, with approximately 6.5% of Queensland's properties will be considered uninsurable by 2023.⁸

The intangible costs of disasters to Queensland – that is, the costs arising from the impact of disasters on health and wellbeing, education, and employment – are also significant. A case study of the 2010-11 Queensland floods found that the tangible cost was \$6.7 billion, while the intangible costs were \$7.4 billion.⁹

Academic literature and government reports consistently raise the ongoing benefits to investing in disaster risk reduction.^{10–14} Mechler found that, on average, a sample of 39 disaster risk reduction studies identified a cost-benefit ratio of 1:3.7. That is, for every dollar spent, \$3.70 was returned in benefits from the risk reduction activities. The full table per hazard is as follows:

Hazard	Cost : benefit ratio (\$)
Flood (riverine and coastal)	1:4.6
Wind (tropical and extratropical)	1:2.6
Earthquake	1:3
Drought	1:2.2
Landslide and avalanche	1:1.5
Average	1:3.7

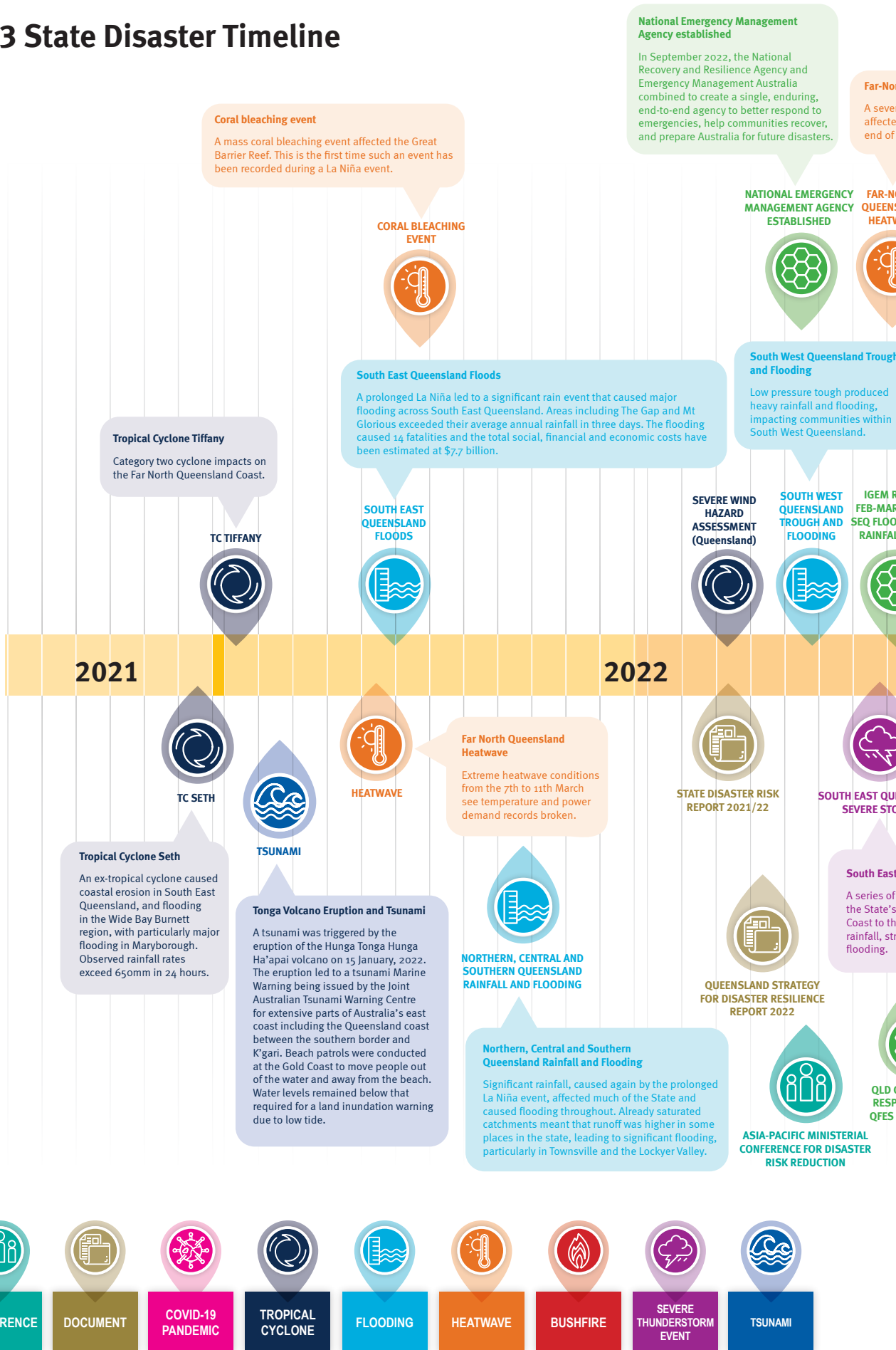
Table 1: Cost-benefit ratio of disaster risk reduction for different hazards.¹²

The table shows us that overall, the benefits of investing in disaster risk reduction consistently outweighs the cost of investment.

As such, establishing and promoting a robust disaster hazard and risk mitigation model which helps to prevent the effects of disasters is a priority of the Queensland Government.



2022-2023 State Disaster Timeline



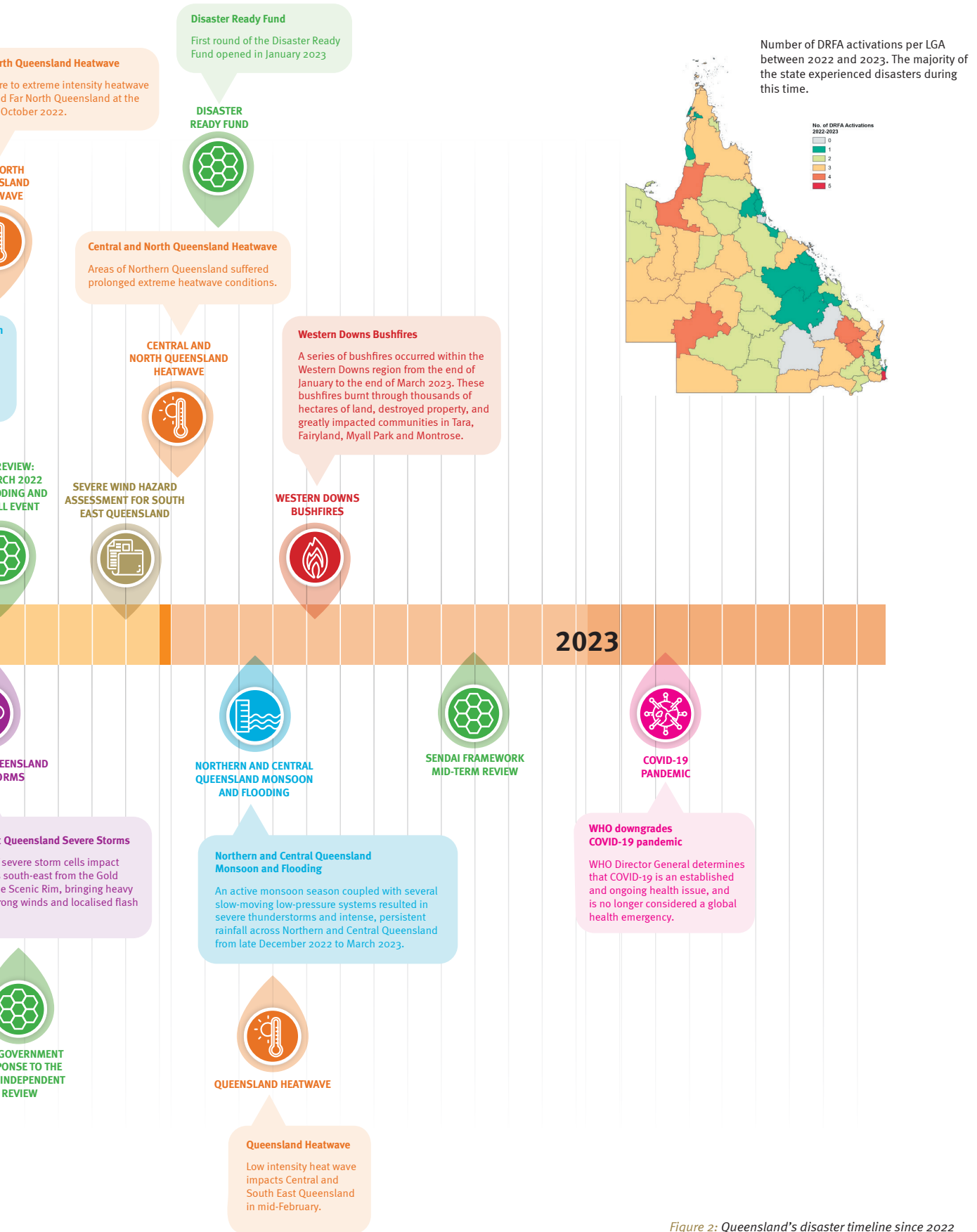


Figure 2: Queensland's disaster timeline since 2022 showing the number, frequency, type and location of events.



Indigenous perspectives

Current disaster management practices in use in Queensland have evolved in the context of two centuries of European colonisation. Meanwhile, the presence of Aboriginal and Torres Strait Islander peoples in Queensland extends back over 60,000 years.¹⁵ The emergence of disaster management practices over these millennia – given a much longer and more varied experience of natural hazards – can help to highlight how these risks have been mitigated in the past.

Many First Nation groups' vocabularies did not have a phrase or word for now what is widely called 'disaster management' or 'disaster risk reduction'. This term has only been associated with First Nations practices recently because of the bearing of traditional knowledge on contemporary practices such as land management, coverage of natural hazard disaster events via digital media and the increasing role that Indigenous local governments play in disaster risk management in collaboration with other local and State authorities.

Traditional Lore in Queensland included complex land management skills which were attuned to an in-depth knowledge of weather patterns and cycles dating back to and linked with previous natural occurring events like volcanic activity and major sea level rise tens to hundreds of thousands of years ago. This understanding of all biota enabled Indigenous peoples' practices to overlap and complement Queensland plant and animal species' reproduction, movement and migration. These practices promoted food security for both Indigenous populations and endemic wildlife.

Disaster risk management has been an important aspect of life for the First Nations peoples in Queensland for many millennia and continues to be today.

Projections

In the report, disaster risk and climate risk are treated equivalently, instead of climate change being treated as a driver of increased disaster risk. Climate change refers to any significant change in climate variables lasting for several decades or longer (such as temperature, rainfall or wind patterns). It is different from weather, which is short-term and variable. Climate change is attributed to several natural and human-induced factors.^{16–18}

Climate modelling work indicates that climate change is likely to have transformative impacts across Queensland's disaster management arrangements, with impacts relevant across varied industries, demographics and ecosystems. The Queensland climate is highly variable and climate change is already impacting the economy, environment, and society. Average temperatures across the State are 1.4°C higher than they were 100 years ago,¹⁷ with shifts beyond natural variability resulting in exposure to increased disaster risks.

The Queensland high-resolution climate projection data have been modelled using both Representative Concentration Pathway 4.5 and Representative Concentration Pathway 8.5 as these are considered realistic upper and lower emissions trajectories that are useful for estimating future climate risks. It has been found that the trend in global emissions has followed Representative Concentration Pathway 8.5 most closely for the past decade, and this appears to be the most likely scenario until 2050, even with recent efforts at mitigation.¹⁹

The report finds that long-term changes in Queensland's climate will change the number and severity of hazard events towards the end of the century. These projections are important for disaster risk management both in coming years, but also for disaster risk reduction today. Some significant impacts for each of the regions in the report are summarised in Table 2.

Region	Significant impacts
Cape York	<ul style="list-style-type: none"> Significant decrease in summer rainfall for 2020-40 and 2040-60, and in autumn for 2040-60 Increases in temperatures are below State averages for both periods (2020-40 and 2040-60) Significantly lower than State average Forest Fire Danger Index (FFDI) through to 2056-66, though rising relative to earlier decades Some impacts of sea level rise on coastal areas
Central Queensland	<ul style="list-style-type: none"> Significantly higher than average autumn rainfall in 2040-60 Lower than average increases in annual temperatures in 2040-60, and higher than average summer maximum temperature increases in 2020-40
Central West	<ul style="list-style-type: none"> Significantly higher than average annual temperature increases in both periods (2020-40 and 2040-60) Significantly higher number of spring hot days for both periods (2020-40 and 2040-60) Substantial increase in decadal FFDI towards 2056-66, greatly above the State average
Darling Downs	<ul style="list-style-type: none"> Lower than average increase in hot days for both periods (2020-40 and 2040-60) Significantly lower than average increases in summer and autumn temperature, but significantly higher than average temperature increases in winter and spring Substantial increase in decadal FFDI towards 2056-66, though still slightly below the State average
Far North Queensland	<ul style="list-style-type: none"> Significantly lower summer rainfall for both periods (2020-40 and 2040-60) Lower maximum, minimum, and mean temperature increases than the State average for both periods (2020-40 and 2040-60) Significant impacts of sea level rise on coastal areas
Gulf of Carpentaria	<ul style="list-style-type: none"> Large increase in hot days than average for both periods (2020-40 and 2040-60) Significantly higher spring rainfall in 2020-40 and 2040-60 and autumn rainfall in 2040-60 Significantly higher than average spring temperature increases in 2020-40, and significantly lower than average increases in spring and summer temperatures in 2040-60 Substantial increase in decadal FFDI towards 2056-66, greatly above the State average
Mackay, Isaac and Whitsunday	<ul style="list-style-type: none"> Larger decrease than average in spring rainfall for 2040-60 Lower than average spring and autumn temperature increase for both periods (2020-40 and 2040-60) Significant impacts of sea level rise on coastal areas
Maranoa-Balonne	<ul style="list-style-type: none"> Significantly lower than average autumn and summer temperature increase in 2020-40 Significantly higher than average winter and spring temperature increases in both periods (2020-40 and 2040-60) Substantial increase in decadal FFDI towards 2056-66, though still not greatly above the State average
North Queensland	<ul style="list-style-type: none"> Highly significant increase in summer and autumn maximum temperatures in 2040-60 Lower than average increase in winter and spring temperatures for both periods (2020-40 and 2040-60)
North West	<ul style="list-style-type: none"> Significantly higher than average increases in average summer and autumn temperatures in 2040-60 Significant increase in spring rainfall for both periods (2020-40 and 2040-60), and for summer and autumn in 2040-60
South East	<ul style="list-style-type: none"> Significant increase in number of hot days for all seasons for both periods (2020-40 and 2040-60) Lower than average temperature increases for 2020-40 Significantly lower spring and autumn rainfall for both periods (2020-40 and 2040-60) but significantly higher summer and winter rainfall for both periods (2020-40 and 2040-60) Significantly lower than average FFDI through to 2056-66 though rising relative to earlier decades Significant impacts of sea level rise on coastal areas
South West	<ul style="list-style-type: none"> Significantly higher increases for temperatures and hot days for all seasons for both periods (2020-40 and 2040-60) Lower winter rainfall for both periods (2020-40 and 2040-60) Significantly higher decadal FFDI than the State average, increasing towards 2056-66
Wide Bay Burnett	<ul style="list-style-type: none"> Significantly fewer hot days for all seasons and all periods (2020-40 and 2040-60) Lower than average temperature increases for 2020-40 Significantly lower than average FFDI through to 2056-66, though rising relative to earlier decades Significant impacts of sea level rise on coastal areas

Table 2: Regional overview of projected impacts to Queensland to 2060, assuming RCP8.5.



Responding to a changing climate requires action to reduce the negative impacts of climate change, and to take advantage of emerging opportunities. Climate adaptation involves going above and beyond traditional preparedness for climate variation, natural hazards and disaster events. It requires developing a comprehensive understanding of how a changing climate will affect Queensland, our regions and our communities, and actively working to reduce our exposure to climate risks while capturing new opportunities. Successful adaptation to climate change is a proactive and long-term process.

Hazard prioritisation is an important aspect in climate change-related disaster risk reduction. As climate change alters normal weather patterns, the risk posed by each hazard to a given area will change. This change is unlikely to be significant year-on-year, or across each five-year period, but over the decades and towards the end of this century, the likelihood of a given hazard is likely to substantially change. Sustainable development reduces both the risk posed by disasters and the impacts of climate change. It is important therefore to consider mitigation activities in a broader and future-focused context.

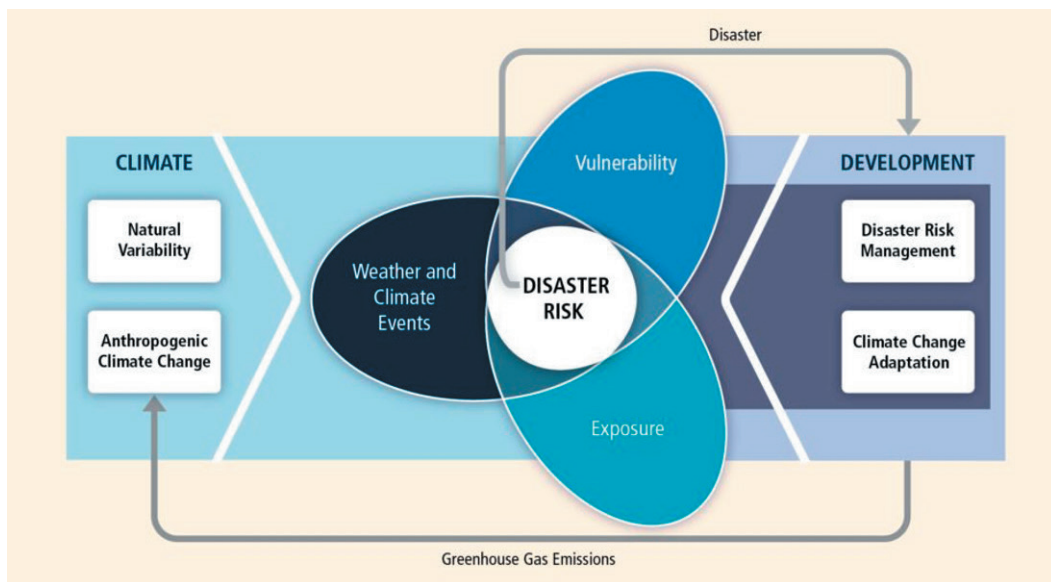


Figure 3: The relation of disaster risk, development, and climate change. Source: IPCC.

Approach

Scope

This report is an update to the 2021/22 State Disaster Risk Report, with major updates to the Flooding, Bushfire and Critical Infrastructure Failure sections, and re-evaluation of the rankings at both the state and regional plan areas (Section C). The report continues to build on other State hazard assessments such as the 2019 State Heatwave Assessment, 2019 State Earthquake Risk Assessment and the 2022 Severe Wind Hazard Assessment.

Hazards are ranked to provide guidance and advice to stakeholders to assist in prioritising disaster risk management activities. This ranking does not provide a quantitative measure of risk, such assessments require detailed hazard assessments which typically require high resolution data. Acknowledging the complexities in understanding hazards at the local level, the 2023 update provides advice and guidance at the State and Regional Planning level only. Regardless of the ranking of the hazard, each hazard has the potential to result in severe or catastrophic impacts.

The hazards assessed within this report are not exhaustive – the updated hazard list to support monitoring and reviewing the implementation of the Sendai Framework for Disaster Risk Reduction identifies 302 hazards in total, although not all are relevant to Queensland.



Figure 4: State-level disaster risk assessments produced by QFES. Source: QFES.

How to read the assessments

Each hazard assessment has a consistent format, to maximise their usefulness in preparing risk assessments at the local and district levels. Each assessment has been designed to link to the development of appropriate scenarios and calculation of risk under the Queensland Emergency Risk Management Framework or QERMF (see Section A for more details). The sections of each risk assessment, as well as some guidance about how to interpret their contents, is given below.

1. Understanding the hazard

This section provides a general overview of the hazard and scope of the assessment, contextualising both the history and projections or future occurrence of the hazard.

The **definition** of the hazard used for the assessment draws on definitions used by other Queensland and Commonwealth government agencies. Hazard ratings provide guidance on the scale and severity of hazards to support scenario-based risk assessments. **Hazard ratings** are provided for the ten hazards (tropical cyclones, flooding, thunderstorm, heatwave, bushfire, earthquake, tsunami, pandemic, biosecurity, and chemical, biological and radiological incident) and not the cascading and compounding events (infrastructure failure and mass casualty incident). Cascading and compounding events generally have a broader scope and more varied causes than the other hazards identified here. They arise from systems of interrelated parts, which makes them difficult to assign hazard ratings to reliably.

The Projections section in each assessment provides guidance on climate projections for the hazard, where possible.

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2. Management of the hazard

An overview of key hazard management functions and entities. Potential **Triggers** for the activation of response arrangements are identified where practical for each hazard. Identifying these triggers, and linking these to relevant preparation and response activities within disaster management plans can help to ensure timely activation of support and resources across all levels of Queensland's disaster management arrangements, as outlined in the [Queensland Disaster Management Guideline](#).

A high level overview of the roles and responsibilities of primary and supporting entities is provided.

Considerations for disaster management groups

These breakout boxes are provided to prompt discussion within disaster management groups and to help identify considerations for appropriate risk-based planning.

They are not intended to be prescriptive or exhaustive.

3. Scenario

These boxes contain scenario examples that can be tailored for use in hazard assessments at the local and district levels. These scenarios can also provide a basis for an exercise to validate the assessment of risk and local capability. They have been produced in consultation with subject matter experts.

4. Impacts

An overview of potential impacts for each hazard across a range of exposed elements. Impact descriptions are clustered into the following categories, representing aspects of the built, social, economic and natural environments:

- Essential infrastructure
- Transport
- Community
- Health and wellbeing
- Business and economy
- Natural environment

These are high-level, and reflect the experience of LDMGs and DDMGs, the guidance of subject matter experts, and findings of academic research. They are designed to act as a prompt for assessing local and district level exposure and vulnerability. Impacts can also be spatially mapped for communities across Queensland to provide a more explicit overview of hazard exposure and vulnerability.

5. Supporting information

Additional reference information and links for each hazard. This includes the relevant State and Commonwealth plans and procedures for each hazard, as well as technical guidance.

6. Risk summary

A summary of the risks associated with the hazard, including:

- impact
- mitigating factors
- potential impacts across the areas of essential infrastructure, transport, community, health, economy and the natural environment.



Findings

Hazard prioritisation

The risk assessments provided in the report are used as a basis for analysing the risks, and in particular in identifying how salient certain hazards are for Queensland.

For those hazards first assessed in the 2017 State Natural Hazard Risk Assessment, we have seen shifts in their prioritisation, along with the emergence of new hazards. There have also been some shifts in the prioritisation of hazards at the Regional Plan area since the 2021/22 State Disaster Risk Report, due to the revision of the bushfire risk assessment.

The prioritisation of all hazards resulted from a mixed methods approach that used quantitative and qualitative understandings of disaster risk across the State to rank them in their importance to each of the Queensland regions, and then to the State as a whole.

Qualitative and quantitative analysis in risk prioritisation was appropriate for two key reasons:

1. Successful disaster risk management relies on not just a technical understanding of hazards but also practice-based knowledge that arises from past experiences and shared learnings. Hazard prioritisation, then, should use both kinds of knowledge.
2. Reliable quantitative information, such as data, was available for some hazards but not all. Where reliable data was not available – for example, the severe thunderstorm hazard – this was supplemented by qualitative information.

While these priorities represent the relative importance of hazards for each region, the prioritisations do not imply that any hazard is unimportant. The hazards detailed in this report are all significant to disaster risk in the State: they represent the most prominent hazards in the Queensland context.

In 2020, the United Nations Office for Disaster Risk Reduction compiled a globally representative list of potential hazards that contains 302 hazards. This demonstrates that even hazards that are relatively low in this prioritisation are extremely important to the Queensland context, and the risks they pose require assessment and subsequent management.

State hazard prioritisation

The following table shows the hazard ranking at the State level.

Hazard	Overall Rank (State)
Flooding	1
Tropical cyclone	2
Bushfire	3
Severe thunderstorm	4
Heatwave	5
Pandemic	6
Biosecurity	7
Chemical, biological, radiological	8
Earthquake	9
Tsunami	10

Table 3: State level hazard prioritisation

Regional hazard prioritisation

The Regional Plan area hazard prioritisations are below in Table 4. There have been some minor changes to these rankings from the 2021/22 State Disaster Risk Report. This includes the reprioritisation of bushfire and severe thunderstorm in the Far North Queensland and Wide Bay Burnett Regional Plan areas, to bring bushfire above severe thunderstorm in these two regions. This change was made as a result of both quantitative analysis, and qualitative analysis, including consultation with subject matter experts.

Regional ranking	Hazard									
	Tropical cyclone	Flooding	Severe thunderstorm	Bushfire	Heatwave	Earthquake	Tsunami	Pandemic	Biosecurity	Chemical, biological, radiological
Cape York	1	3	6	2	4	9	8	7	5	10
Central Queensland	4	1	3	2	5	8	10	7	6	9
Central West	9	1	5	2	3	8	10	7	6	4
Darling Downs	9	1	3	2	4	8	10	5	6	7
Far North Queensland	1	2	4	3	7	10	9	5	6	8
Gulf of Carpentaria	1	2	4	3	6	9	10	8	7	5
Mackay, Isaac and Whitsunday	1	3	4	2	5	8	10	6	7	9
Maranoa-Balonne	8	1	3	2	4	7	10	5	6	9
North Queensland	1	2	4	3	5	10	9	7	6	8
North West	5	2	3	1	4	8	10	7	6	9
South East	6	1	2	3	4	9	10	5	7	8
South West	8	1	3	2	4	9	10	6	5	7
Wide Bay Burnett	6	1	3	2	4	9	10	5	7	8

Table 4: Prioritisation of hazard according to Queensland's planning regions.



The Local Government Areas which make up the Regional Plan areas are listed below in Table 5.

Regional Plan Area	Local Government Area	Regional Plan Area	Local Government Area
Cape York	Aurukun Shire	Mackay, Isaac and Whitsunday	Isaac Regional
	Cook Shire		Mackay Regional
	Hope Vale Aboriginal Shire		Whitsunday Regional
	Lockhart River Aboriginal Shire	Maranoa - Balonne	Balonne Shire
	Mapoon Aboriginal Shire		Maranoa Regional
	Napranum Aboriginal Shire	North Queensland	Burdekin Shire
	Northern Peninsula Area Regional		Charters Towers Regional
	Pormpuraaw Aboriginal Shire		Hinchinbrook Shire
	Torres Shire		Palm Island Aboriginal Shire
	Torres Strait Island Regional		Townsville City
	Weipa Town	North West	Cloncurry Shire
Central Queensland	Banana Shire		Flinders Shire
	Central Highlands Regional		McKinlay Shire
	Gladstone Regional		Mount Isa City
	Livingstone Shire		Richmond Shire
	Rockhampton Regional	South East	Brisbane City
	Woorabinda Aboriginal Shire		Gold Coast City
Central West	Barcardine Regional		Ipswich City
	Barcoo Shire		Lockyer Valley Regional
	Blackall Tambo Regional		Logan City
	Boulia Shire		Moreton Bay Regional
	Diamantina Shire		Noosa Shire
	Longreach Regional		Redland City
	Winton Shire		Scenic Rim Regional
Darling Downs	Goondiwindi Regional		Somerset Regional
	Southern Downs Regional		Sunshine Coast Regional
	Toowoomba Regional		South West
	Western Downs Regional	Murweh Shire	
Far North Queensland	Cairns Regional	Paroo Shire	
	Cassowary Coast Regional	Quilpie Shire	
	Douglas Shire	Wide Bay Burnett	Bundaberg Regional
	Mareeba Shire		Cherbourg Aboriginal Shire
	Tablelands Regional		Fraser Coast Regional
	Wujal Wujal Aboriginal Shire		Gympie Regional
	Yarrabah Aboriginal Shire		North Burnett Regional
Gulf of Carpentaria	Burke Shire		South Burnett Regional
	Carpentaria Shire		
	Croydon Shire		
	Doomadgee Aboriginal Shire		
	Etheridge Shire		
	Kowanyama Aboriginal Shire		
	Mornington Shire		

Table 5: identifies the Local Governments within each Regional Plan Area

Risk summary



1

Flooding

The 2023 State Disaster Risk Report has identified managing the risks associated with flooding as the highest priority for Queensland, particularly over the coming decade. Climate projections present a varied picture for the State for flood risk. However, given the proximity of population centres to rivers or creeks, flooding poses a serious risk to the State. The river basins and catchments of Queensland cover large geographic areas and pose many challenges with regards to logistics, access/resupply and evacuation if required.

Significant work has been done and continues to be undertaken in the identification and management of flood risk by local governments, the Queensland and Federal Governments. Previous risk assessments have nominated flooding as the most destructive natural hazard in Queensland with very significant disruption to business and damage to property and the environment, such as the recorded impacts during the flooding events of 2010/11 and 2022.



2

Tropical cyclone

This report has identified managing the risks associated with tropical cyclone as Queensland's second highest priority. This is a relative reduction from equal first in the 2017 State Natural Hazard Risk Assessment, due to a reduction in the frequency of TC events. TC is the most disruptive and damaging natural hazard for Queensland, with the potential to pose the most risk to life due to limitations to disaster operations during impact.

The cascading and coincident effects of a tropical cyclone described in the risk profile can pose complex issues such as:

- damage from sustained high wind speeds
- rapid delivery of concentrated rainfall leading to flash flooding
- increased risk of storm surge creating higher risk of coastal inundation
- onset of riverine flooding due to prolonged and sustained deluges.

While Queensland is very well placed with regard to mitigation efforts, including the capability to prepare for, respond to and recover from tropical cyclones, the reasonably rapid onset and violence of tropical cyclones – over broad scale geography involving numerous local government areas and multiple disaster districts – can make the management of disaster operations challenging. This is particularly the case with large severe tropical cyclones such as Tropical Cyclone Yasi in 2011 and Tropical Cyclone Debbie in 2017. The impacts to Queensland's and indeed the national economy can be very significant, with long term recovery efforts required.



3

Bushfire

Bushfire is a frequently occurring event in Queensland generally well managed and often occurring in areas less densely populated. While this can reduce the risk to life there is still the potential for a range of significant economic impacts to Queensland agriculture, industry and tourism. Bushfire Prone Area mapping is used within land use planning and mitigation operations along with predictive analytics and fire weather forecasts to proactively manage this hazard before risks manifest. **This report identifies managing bushfire risk as Queensland's third priority.** This is an increase from the 2017 State Natural Hazard Risk Assessment, which

assessed bushfire as the fourth priority. This is due to a projected overall increase in fire weather conditions throughout the State.





4

Severe thunderstorm

Severe thunderstorms have historically been one of Queensland's most damaging natural hazards. The cascading and coincident effects of severe weather can pose complex issues such as:

- lightning strikes leading to bushfires
- rapid delivery of concentrated rainfall leading to flash flooding and riverine flooding
- damaging wind gusts and hail leading to significant damage to infrastructure
- storm surge causing erosion and localised flooding through coastal inundation.

The Australian Bureau of Meteorology provides weather forecast services and warning advice to Queensland. However, the unpredictable nature of the phenomenon can lead to short time frames for identifying and providing warnings of impact location and intensity or severity across multiple, dispersed communities.

As a result, when conditions are conducive to severe weather events, rapid onset can pose risk to life such as hazardous road conditions. Further, significant economic impacts can result from severe weather events destroying agriculture and damaging built up areas. **This report identifies managing the risks associated with severe thunderstorm events as the fourth highest priority for Queensland.**



5

Heatwave

Heatwaves, arguably due to their less violent, slower onset and less publicised nature, have only more recently begun to be recognised at a true level of risk. Climate projections indicate generally hotter conditions, with the Australian Bureau of Meteorology and Queensland Health working collaboratively on a Heatwave Service to align service response with weather forecasts.

Heatwaves have a broad range of potential health effects impacting mortality rates for vulnerable persons as well as potential impacts on essential services. Heatwaves are also one contributing factor, from a multi-hazard perspective, in the increased hazard of bushfire. **This report identifies managing the risks associated with heatwaves as the fifth highest priority for Queensland.**



6

Pandemic

Until the emergence of the COVID-19 Pandemic in 2020, epidemic and pandemic diseases were not considered high priority in Queensland. The severe impacts of COVID-19 have illustrated that pandemic preparedness is an important aspect of disaster risk reduction in Queensland. With greater global interconnectedness, and the importance of globally dependant industries to Queensland's economy, future pandemics will pose a significant risk for Queensland, and lessons from the most recent pandemic will assist in ensuring that Queensland is prepared. **Managing the risks associated with pandemics and epidemics is Queensland's sixth priority.**



7

Biosecurity emergency

Infectious plant or animal disease can have significant economic impacts, especially for parts of the State that have important agriculture industries. Like pandemics, the risk of biosecurity incursions increases as Queensland is more connected to global markets, which sees greater movement of products and people. **Managing the risks associated with infectious plant or animal diseases is Queensland's seventh priority.**



8

CBR incident

Chemical, biological and radiological events can have potentially catastrophic consequences but the risk in general of these events is uniformly low across Queensland. Strong regulations and obligations of companies to manage their own risk with respect to materials that can lead to CBR events means that the risk of an event is not considered significant. However, given that CBR materials are found throughout the State – particularly hazardous materials in urban areas – this poses a greater risk than rare natural hazards. **Therefore, managing the risks associated with CBR incidents is Queensland's eighth priority.**



9

Earthquake

Earthquakes are a frequently occurring phenomenon in Queensland with some geographic areas registering the strongest events to occur on the eastern seaboard in the past 150 years, most notably the Great Queensland Quake of 1918 at a magnitude of 6.05. However, the magnitude of most events is often less than 3.5 with the effects seldom felt. While not relevant to all of Queensland, some areas regularly experience onshore and near shore earthquakes with a magnitude greater than 5. The strongest earthquake to occur most recently was the offshore earthquake, north east of Bowen in August 2016, with a magnitude of 5.8.

An earthquake of this magnitude occurring within the vicinity of a built environment is likely to cause significant damage to structures, underground services and piping, with potential risk to life due to the collapse of structures. The accurate assessment of earthquake susceptibility is a highly specialised discipline. **Managing the risks associated with earthquakes is Queensland's ninth priority.**



10

Tsunami

Due to the low likelihood of tsunamigenic earthquakes around the Solomon Islands and New Zealand, the likelihood of an tsunami impacting Queensland is correspondingly low. However, because the coast is more densely populated than the State's interior – thereby exposing some larger population centres to risks posed by tsunami – the consequences of impact would be significant. There remains substantial uncertainty regarding submarine landslide tsunami potential in Queensland, with recent studies demonstrating a number of potential areas of concern in South East Queensland. **Managing the risks associated with tsunami is Queensland's tenth priority.**



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