

TASDRA 2022

Tasmanian Disaster Risk Assessment

SUMMARY





Understanding disaster risks for a more disaster resilient state

The 2022 Tasmanian Disaster Risk Assessment (TASDRA) supports better understanding of the disaster risks that could impact Tasmania to:

- identify ways to prevent such disasters from happening
- explore current arrangements for such disaster events
- suggest potential disaster risk reduction (DRR) measures that build on current arrangements.

Some insights gained are relevant to specific hazards and others to many disaster scenarios.

Reducing disaster risks increases Tasmanians' collective resilience in the face of future disasters in line with the [Tasmanian Disaster Resilience Strategy](#). The TASDRA project brought together expertise and many different insights to update and extend the 2016 [Tasmanian State Natural Disaster Risk Assessment \(TSNDRA\)](#).

TASDRA explores a series of quick-onset disaster scenarios that could happen in Tasmania. The scenarios are unlikely to happen exactly as described but are examples of possible events. By addressing risks raised by these scenarios, Tasmania can reduce the risks and prepare for other disasters.

Risk as the intersection of hazard, exposure and vulnerability, Adapted from the [United Nations Office for Disaster Risk Reduction \(UNDRR\)](#)

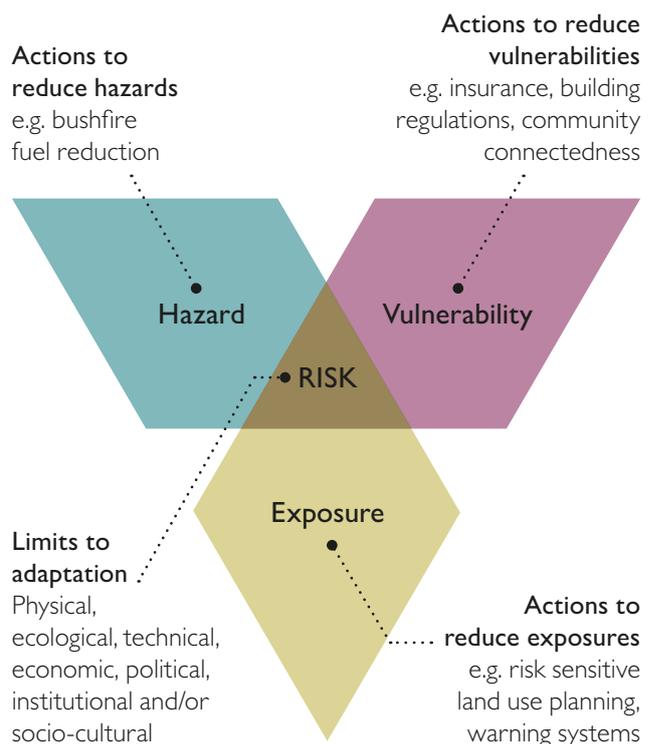


Exploring the systemic nature of risk in Tasmania

Most people think of hazards first when considering disasters. Hazards only become a risk if people are exposed to them and are vulnerable to their impacts. Risk is the intersection of hazards, exposures and vulnerability. Disaster resilience is about reducing vulnerability so Tasmanians are:

- less exposed to hazards
- can adapt to or cope with hazards when they occur.

Exploring the likelihood and consequences of all three dimensions of risk helps us to understand the systemic nature of risk. Understanding how risks interconnect can help us to identify ways to reduce them.



TASDRA scope includes a three-dimensional view of risk in Tasmania

1. Hazards covered by TASDRA	2. Consequences /exposures	3. Vulnerabilities (capabilities)
<ul style="list-style-type: none"> • Tsunami • Bushfire, heatwave, smoke • Storm, coastal storm surge, flood, landslide, dam failure, oil spill • Respiratory pandemic • Biosecurity • Transport/ hazardous materials (HAZMAT) • Structural collapse • Cyber-threats 	<ul style="list-style-type: none"> • People's health, safety and wellbeing • Economic • Environmental • Core functions • Community and culture 	<ul style="list-style-type: none"> • Continuity of supply, access to information and services • Placement and quality of buildings and other assets • Risk ownership and transfer • Governance and collaboration • Individual and community capabilities

TASDRA 2022 does not include:

- chronic stressors that can increase the likelihood and consequences of disaster events, such as climate change, soil erosion, ecosystem damage and longer-term public health issues such as obesity
- periodic, slow-onset stressors, such as drought
- hazards that do not typically impact on Tasmania, such as volcanos, volcanic ash clouds or cyclones
- threats or hazards assessed nationally, such as:
 - space debris and solar storms
 - terrorism/intentional violence, war or other geopolitical threats
 - national level supply chain issues, such as finance, fuel supply, or medical supplies
- economic, socio-political or financial stressors, except as potential consequences
- earthquake as Geoscience Australia was concurrently mapping Tasmania's earthquake hazards.

The TASDRA scenarios provide insights into the potential disaster risks Tasmanians face.

Climate change and disaster risks in Tasmania

Climate change influences the frequency, intensity, or duration of many weather-related hazards considered in TASDRA. Recorded extreme weather events have increased worldwide by 90% over the past 20 years.

Tasmania's average temperature is expected to increase at least 1.5°C by 2050. The Intergovernmental Panel on Climate Change (IPCC) suggests there are likely to be more increases. This may involve about a 3°C temperature rise after 2050. Increased temperatures bring more and longer heatwave events.

Due to evaporation and less rainfall, soil and vegetation will likely be drier. There will likely be more lightning strikes. Some areas may be at risk of bushfires for the first time in thousands of years.

Tasmania is likely to have less annual rainfall in future, with fewer westerly, rain-bearing fronts. In Tasmania, east-coast low events typically carry the damaging, high-intensity rainfalls that cause severe flooding. Current modelling does not show these patterns increasing or decreasing.

Sea level is expected to rise by 0.8-1.0 m by 2100, exposing some low-lying human and industrial settlements. A 1-in-100-year coastal inundation event is likely to occur almost every year by 2100.

The changing climate may mean biosecurity incursions of species which previously could not have survived in Tasmania.

Scenario (hazards)	Most significant insights
<p>East Coast tsunami A tsunami originating from an earthquake south of New Zealand impacts the East Coast.</p>	<p>Although an extremely rare event, a major tsunami could cause deaths and damage due to the short warning time and exposure of coastal communities. We cannot prevent tsunamis and so need to prepare to mitigate consequences. This scenario provides insights for other disasters with limited time for warnings. It shows disaster risk assessment should not only focus on specific hazards but on exposures and vulnerabilities across hazards.</p>
<p>‘Black January’ Dry lightning ignites fires during a drought. Heatwave conditions make the fires difficult to control. Thick smoke extends across the State.</p>	<p>Tasmania is likely to face catastrophic level bushfire events in coming years. An event such as ‘Black January’ has a 1:20-50-year likelihood but could become more common due to climate change. There are many measures in place to mitigate bushfires, but they still remain a risk. This scenario highlights the importance of community involvement in reducing risks and being prepared.</p> <p>A bushfire can damage assets and the environment. However, heatwave and smoke exposure are likely to cause more deaths and illness. Heat and smoke have the most impact on the very young and old, those with underlying health concerns, and those less able to access shelter.</p>
<p>East Coast Low An East Coast low produces a severe storm, coastal storm surge, flooding including debris flow, and causes a landslide, dam failure and an oil spill in northern Tasmania.</p>	<p>An East Coast low can create a storm causing catastrophic disruption and damage due to cascading consequences. For example, flooding can lead to a dam failure, leading to further flooding. This scenario shows how hazards can interconnect. Consequences can be due to more than one hazard.</p> <p>Tasmania often has storms resulting in floods and other hazards. The State has well-developed response arrangements but the scenario highlights that regular cross-sector exercises help build capabilities. Weather and flood forecasting and communications across agencies and to the public are key. Community awareness of responsibilities and knowledge of what to do in such events remain a concern. This scenario highlights land use planning’s role in reducing disaster risks.</p>
<p>Respiratory pandemic COVID-19 is under control but a new respiratory disease emerges in Tasmania.</p>	<p>TASDRA assesses the risk of future pandemics beyond COVID-19. The Department of Health assesses respiratory disease as the most likely to cause a pandemic or epidemic in Tasmania. Public health and other measures used with COVID-19 can reduce risks of future respiratory pandemics. There would be further considerations if the disease was zoonotic (passed between animals and humans).</p>



Scenario (hazards)	Most significant insights
Biosecurity Example incursions occur in the State: Foot and mouth disease Avian influenza Mediterranean fruit fly Shellfish biotoxin Didemnum vexillum	Tasmania's isolation has protected the State from many biosecurity incursions. However, incursions that can lead to major or catastrophic consequences are likely. Prevention measures and early detection are key. Response actions can be costly and take a long time.
Maritime incident in a port A vessel grounds in the mouth of the Mersey River and closes the Port of Devonport.	This scenario shows how safety regulations and practices reduce risk. Shipping is highly regulated. Lead agency responsibilities are complex in such a scenario, highlighting the need for regular cross-sector exercises. Such a scenario would be unlikely to put people's lives at risk but could impact the welfare of large animals on the vessel. This scenario explores the implications of a port becoming blocked. Generally, there are contingencies in place for such an event.
Remote transport / HAZMAT incident A bus crashes with a vehicle carrying hazardous materials in a remote location.	Such complex incidents require regular cross-agency and cross-sector exercises to identify detailed areas of concern. Response resources would be drawn from around the State. Current regulations and associated work practices for transporting HAZMAT are key to reducing risks.
Structural collapse A legacy historic building collapses in a central business district.	While there are national concerns surrounding building standards, Tasmania's building regulations reduce risks more than in many other states. However, in some cases it can be difficult to enforce fire safety regulations.
Major cyber outage The State experiences prolonged internet and telephone outages	Cyber risks threaten organisations worldwide. Utility providers, such as those in the telecommunications sector, mitigate most of these threats through their risk management practices. However, cyber outages can still occur and cause damaging consequences. Organisations and individuals need to be prepared. This assessment highlights the importance of business continuity and contingency planning.

All hazard frameworks and arrangements for disaster events in Tasmania

The *Emergency Management Act 2006* provides for a suite of policy functions and powers. Other legislation covering specific areas is noted in the full T ASDRA report.

The *Tasmanian Disaster Resilience Strategy 2020-2025* provides a vision of a more disaster resilient Tasmania and paths towards that vision.

Tasmanian Emergency Management Arrangements (TEMA) outline a consistent, flexible and scalable approach for all types of disaster events in line with national principles. TEMA outlines responsibilities for:

- specific types of emergency events
- supporting functions that can cross many events, for example relief and recovery arrangements.

While everybody has a part to play in reducing disaster risks, TEMA outlines key coordinating State Government responsibilities. The State Emergency Management Committee (SEMC) oversees policies and capabilities to reduce disaster risks in Tasmania.

Please refer to the TEMA for further details. A suite of specific measures described in the full T ASDRA report supplement these generic, all-hazard arrangements.

The following table shows which TASDRA scenarios would probably have moderate, major or catastrophic consequences, and the likelihood of such a scenario occurring in a person's maximum lifetime (100 years).

TASDRA scenario likelihood and consequence summary			
Likelihood	Consequence (exposures)		
	Moderate	Major	Catastrophic
Almost every year			
Very high – 1:1-9 years	East Coast Low – Landslide/ rockfall (slope failure)	Black January – Heatwave East Coast Low – Severe storm Coastal storm surge	Major Cyber Outage
High – 10:99 years	East Coast Low – Dam failure (Class C agricultural dam) East Coast Low – Oil spill Marine accident in a port	Black January – Smoke exposure Traffic incident/HAZMAT Structural failure legacy building Biosecurity – Mediterranean fruit fly, Shellfish biotoxin	Black January – Combined hazards, bushfire East Coast Low – Combined hazards, flooding Respiratory pandemic Biosecurity – Foot and mouth disease, Avian influenza, Didermnum vexillum
Moderate – 1:100-999 years >0.1 – 1% AEP)			
Low – 1:1K-9,999 years			
Very low – 1:>10K years			East Coast tsunami

TASDRA identifies issues that, if addressed, can reduce systemic vulnerabilities across hazards. Most states face similar issues and TASDRA leverages off national work on [Profiling Australia's Vulnerability](#).

Cross-scenario/hazard key areas of vulnerability/capability to reduce risk				
Continuity of supply and access to information/ services	Placement and quality of buildings and other assets	Risk ownership and other assets	Governance and collaboration	Individual and community capabilities
Supply chain resilience and protection of significant assets	Strategic land use planning policies	Private and public ownership of risk	Collaborative decision-making structures	Community engagement
Information and communications	Building regulations	Risk reduction/ risk transfer	Agile and integrated plans and planning	Support for people at increased risk
Community capacity to cope with disruption	Legacy land use and building decisions	Risk information access and awareness	Cross agency/ sector exercises and other learning loops	Animal welfare in disasters

Supporting collaborative and integrated disaster risk reduction



Reducing disaster risks in Tasmania needs integrated actions by communities, sectors and governments. While state governments have lead roles, the Tasmanian Government works with others to reduce risks.

TASDRA is guided by and helps implement international, national and state frameworks

United Nation's [Sendai Framework for Disaster Risk Reduction](#)

[National Disaster Risk Reduction Framework \(NDRRF\)](#)

[Tasmanian Disaster Resilience Strategy \(2020-2025\)](#)

[Tasmanian Emergency Management Arrangements \(Issue 1 2019\) \(TEMA\)](#)

National and International guidance on risk assessment, such as the [Global Risk Assessment Framework](#), [National Emergency Risk Assessment Guidelines](#) and national [Systemic Disaster Risk Handbook](#)

[Tasmanian Government's State Emergency Management Committee's \(SEMC\) priorities 2020](#)

The [Premier's Economic and Social Recovery Advisory Council's \(PESRAC\)](#) recommendation on strategic risk management focusing on high consequence risks to Tasmanian communities

Building on current measures to inform disaster risk reduction

TASDRA supports evidence-based decisions to improve disaster resilience in Tasmania, as well as a proactive approach to managing disaster risks. Tasmania has many existing measures to reduce disaster risks. TASDRA identifies potential further measures that build on them. Unfolding disasters grab headlines and attention. There is a significant risk that a lack of newsworthy stories about disaster risk reduction measures means that existing measures are ignored, discontinued or under-resourced.

Reducing risks involves adaptive and collaborative learning across sectors, communities and governments. While disaster resilience and risk reduction are everybody's business, the Tasmanian Government is a primary coordination point and collaborates with other levels of government, sectors and communities. The Tasmanian Government has a role in sharing information so all parties can work together to reduce risks. TASDRA informs an all-hazards state-level Disaster Risk Treatment Register and local government risk management. Those managing disaster risk on behalf of Tasmanian communities should refer to the TASDRA report. TASDRA does not provide public advice on reducing risks but informs its development.

Disaster resilience is everybody's business. All of us need to consider the disaster risks we may face, starting with some key questions: **What can't we do without? What do we need to protect?**

These questions drive risk assessment. Individual and collective values shape the answers. Values are often in tension. There must be trade-offs. People's values and risk tolerance in times of stability may change during disasters. Risks that are not mitigated must be accepted. We need to be explicit about:

- the choices made to reduce or accept risk
- the degree to which we are comfortable living with risk
- the competing priorities and values that drive those decisions.

Tasmanians' collective values drive the State's tolerance for risk.

1. What is it we value and want to protect?

Local government – What does the community rely on and value most?	What can't organisations do without?	What do individuals and families need to survive and what do they not want to lose?
Community safety and wellbeing? Critical infrastructure and services? Significant local industry assets/ employment/markets? Local natural values? Irreplaceable cultural, heritage and natural assets? Community connectedness?	Staff and their capabilities? Buildings and other physical assets? Customer-base/markets? Reputation and connections? Intellectual property and data assets? Systems and key processes? Financial assets? Key supply chains?	The safety and wellbeing of family members? Pets or other valued animals? Home and other physical assets? Employment and/or financial assets? Tasmania's natural environment? Community connections?

2. Which hazards could most impact those values? How are those values exposed to hazards?

3. What makes you, your organisation or your community vulnerable to disasters? What can you do to reduce those vulnerabilities to increase resilience? How could you reduce exposure to hazards?

Looking for guidance on reducing the disaster risks affecting you or your organisation?

www.Tasalert.gov.au Get ready resources, Risk Ready to identify hazards impacting your property

Business Tasmania's guidance on managing risk and preparing for emergencies www.business.tas.gov.au/manage_a_business/risk_management

Disaster Risk Education Tasmania disasterresiliencetas.com.au/

Red Cross RediPlan and other resources www.redcross.org.au/prepare



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