

Strategic Guide to Planning for Natural Hazards in NSW – A Toolkit

Table 1. All tables should have a caption

| Author | Resource | Description | Location* |
|---|--|--|---|
| Natural Hazards Data | | | |
| Department of Planning Industry and Environment | ePlanning Spatial Viewer | The new Spatial Viewer is an enhanced digital mapping service that provides easy-to-use, information rich maps for every address and lot in NSW. This tool includes mapping for flood and bushfire risk as well as coastal risk where this has been mapped by Local Councils | https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address |
| NSW Government | Common Planning Assumptions datasets | The Common Planning Assumption datasets collates information gathered by multiple NSW Government agencies, and includes data on projected population growth, climate change impacts, and the risk of natural disasters such as bushfire, heatwaves and extreme rainfall. | https://www.treasury.nsw.gov.au/information-public-entities/common-planning-assumptions |
| Geoscience Australia | Community Safety | Geoscience Australia develops data and information for bushfire, earthquake, flood, severe wind, tsunamis, landslides, volcanoes, coastal erosion and blasts. | https://www.ga.gov.au/scientific-topics/community-safety |
| Adapt NSW | NSW and ACT Regional Climate Modelling (NARClIM) | NARClIM produces reliable climate projections at a regional scale to help decision makers plan for likely changes in climate in the NSW and ACT regions. | https://climatechange.environment.nsw.gov.au/Climate-projections-for-NSW/About-NARClIM |

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| NSW Fire & Rescue | Australian Natural Disasters Impacts Framework Project | <p>The purpose of this Project is to help improve the quality, availability and management of data across the PPRR spectrum to:</p> <ul style="list-style-type: none"> • facilitate informed discussion and decision making by governments and the community • support policy development, planning and accountability across the emergency management sector <p>The Pilot Impacts Portal is a web accessible user interface that provides a single point of reference to a collection of national data items describing historical fire emergency and natural disaster events and their associated impacts.</p> | <p>https://www.fire.nsw.gov.au/page.php?id=914</p> <p>IN PROGRESS</p> |
| NSW Rural Fire Service | Bush fire prone land mapping tool | <p>The bush fire prone land online mapping tool was created using NSW Local Council's bush fire prone maps, and is designed to identify properties designated as bush fire prone.</p> | <p>https://www.rfs.nsw.gov.au/plan-and-prepare/building-in-a-bush-fire-area/planning-for-bush-fire-protection/bush-fire-prone-land/check-bfpl</p> |
| NSW State Emergency Service | Tsunami Evacuation Map | <p>NSW SES has released new maps showing evacuation areas in the event of a land-threat tsunami.</p> <p>While the likelihood of a land-threat tsunami on the east coast of Australia is low, the maps show the areas where residents and workers would have to move to higher ground in the event of a land-threat tsunami.</p> <p>There is no record of a land-threat tsunami in Australia since European settlement.</p> | <p>https://www.ses.nsw.gov.au/resources-folder/tsunami-evacuation-map/</p> |

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| NSW State Emergency Service | NSW Flood Data Portal | The portal is a joint project between NSW SES and DPIE to improve the sharing of key flood data within government and to other stakeholders. The portal includes over 1500 datasets with flood studies of regions throughout NSW. | https://floodata.ses.nsw.gov.au/ |
| Bureau of Meteorology | Climate Data | <ul style="list-style-type: none"> • Climate and weather extremes monitoring of temperature and rainfall • Maps of average as well as more extreme conditions. • Daily and monthly statistics, historical weather observations, rainfall, temperature and solar tables, graphs and data. | http://www.bom.gov.au/nsw/?ref=hdr |
| Bushfire and Natural Hazards Cooperative Research Centre | Mapping bushfire hazards and impacts Annual Report 2018-2019 | The Bushfire and Natural Hazards CRC publishes an annual report mapping bushfire hazards and impacts. The report aims to provide a comprehensive characterisation of fire risks in Australia. | https://www.bnhcrc.com.au/publications/biblio/bnh-5928 |
| Insurance Council of Australia | Insurance Based Disaster Recovery website | The Insurance Council of Australia's site on disasters and recovery contains a range of data on natural hazards, including information on current disaster events and historical catastrophe data. The site also includes publications such as recovery factsheets and the Council's position on issues such as mitigation funding. | https://disasters.org.au/# |
| Department of Primary Industries | Combined Drought Indicator | <p>The Combined Drought Indicator (CDI) to track all phases of drought onset and recovery: Non Drought, Recovering, Drought Affected, Drought, Intense Drought.</p> <p>The CDI combines meteorological, hydrological and agronomic definitions of drought using indexes for rainfall (RI), soil water (SWI) and plant growth (PGI), and a fourth index, drought direction (DDI), to account for direction of change.</p> | https://edis.dpi.nsw.gov.au/ |

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| Natural Hazards Management Guidance | | | |
| Planning Institute Australia | National Land Use Planning Guidelines | These Guidelines are intended to provide the context, process frameworks and tools for how to integrate natural hazard risk reduction and resilience into land use planning practice. They aim to outline national-level best practice guidance for planners grappling with natural hazard resilience and disaster preparedness. | https://www.planning.org.au/documents/item/7804 - refer Appendix E Planning for Resilience Checklist |
| UN Office for Disaster Risk Reduction | Sendai Framework for Disaster Risk Reduction 2015-2030 | <p>The Sendai Framework for Disaster Risk Reduction 2015-2030 outlines seven clear targets and four priorities for action to prevent new and reduce existing disaster risks:</p> <ul style="list-style-type: none"> (i) Understanding disaster risk; (ii) Strengthening disaster risk governance to manage disaster risk; (iii) Investing in disaster reduction for resilience and; (iv) Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction. <p>It aims to achieve the substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries over the next 15 years.</p> | https://www.unisdr.org/we/inform/publications/43291 |
| Council of Australian Governments | National Strategy for Disaster Resilience | Released in 2011, Australia's National Strategy for Disaster Resilience (NSDR) acknowledges the increasing severity and regularity of disasters in Australia and the need for a coordinated, cooperative national effort to enhance Australia's capacity to withstand and recover from emergencies and disasters. | https://knowledge.aidr.org.au/resources/national-strategy-for-disaster-resilience/ |

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| Emergency Management Australia | National Strategy for Disaster Resilience Community Engagement Framework | incorporates a model that details principles and approaches of community engagement in the emergency management context. | https://www.emergency.nsw.gov.au/Documents/publications/National-Strategy-for-Disaster-Resilience-Community-Engagement-Framework.pdf |
| Bushfire Natural Hazards Cooperative Research Centre | | <p>The Bushfire and Natural Hazard CRC is conducting coordinated and interdisciplinary research effort in hazards, including bushfires, flood, storm, cyclone, heatwave, earthquake and tsunamis.</p> <p>The centre draws together all of Australia and New Zealand's fire and emergency service authorities with the leading experts across a range of scientific fields to explore the causes, consequences and mitigation of natural disasters. Research partners include universities, the Bureau of Meteorology and Geoscience Australia, and several international research organisations. This combined effort is helping to build disaster resilient communities across Australia</p> | https://www.bnhcrc.com.au/ |
| AdaptNSW | Climate Projections and Adaptation Resources | The AdaptNSW website seeks to support the community in understanding and adapting to climate change in New South Wales. The site includes an interactive map of climate projections, information about projected impacts, and resources to guide climate change adaptation initiatives. | https://climatechange.environment.nsw.gov.au/ |
| NSW State Emergency Services | Managing Flood Risk Through | This SES publication provides guidance on land use planning in flood prone areas. The guide includes information about identifying and reducing risk, planning for evacuation, the impacts of flooding and reducing risk through land use planning. | https://www.ses.nsw.gov.au/media/2248/land_use_guidelines.pdf |

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| | Planning Opportunities | | |
| Department of Planning, Industry and Environment | Floodplain Development Manual | <p>The Floodplain Development Manual supports the Flood Prone Land Policy in its aim to reduce the impact of flooding and flood liability on owners and occupiers of flood-prone property, and to reduce public and private losses.</p> <p>The Manual is a guide to the management of flood liable land and assists councils with developing and implementing local floodplain risk management plans.</p> | https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Water/Floodplains/floodplain-development-manual.pdf |
| Australian Centre of Excellence for Local Government | Climate Adaptation Manual for Local Government: Embedding Resilience to Climate Change | A two-volume manual to assist local government authorities across Australia to embed climate resilience in local government structures and activities. The manual seeks to help Council's entrench climate risk planning and resilience into everyday operations and to complement local efforts to reduce greenhouse gas emissions. | https://opus.lib.uts.edu.au/handle/10453/42120 |
| AdaptNSW | Minimising the impacts of extreme heat: A guide for local government | Provides information on risk to water and air quality, food safety and infrastructure networks, as well as preparing for extreme heat events, examines approaches for minimising impacts and clarifies roles and responsibilities in relation to extreme heat events in NSW. | https://climatechange.environment.nsw.gov.au/Adapting-to-climate-change/Local-government/Resources-and-information |
| AdaptNSW | Adapting to climate | Provides guidance on strategies to integrate green, permeable and reflective surfaces into urban environments to mitigate higher temperatures associated with climate change. | https://climatechange.environment.nsw.gov.au/Adapting |

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| | change – Green Cover | | -to-climate-change/Green-Cover |
| CoastAdapt | Planning approaches and instruments for adaptation | One of ten information manuals forming part of a coastal climate risk management tool in support of coastal managers adapting to climate change and sea-level rise. Written for a non-specialist audience. | https://coastadapt.com.au/sites/default/files/information-manual/IM05_Planning_instruments.pdf |
| NSW Rural Fire Service | Planning for Bushfire Protection 2019 | Provides development standards for designing and building on bush fire prone land in New South Wales, including strategic planning and bushfire protection methods. | https://www.rfs.nsw.gov.au/_data/assets/pdf_file/0005/174272/Planning-for-Bush-Fire-Protection-2019.pdf |
| Engineers Australia | Climate Change Adaptation Guidelines in Coastal Management and Planning | Directed at local government engineers and managers whose area of responsibility includes a section of the Australian coastline. It is designed to assist in making appropriate decisions in managing coastal development problems subject to climate variability and change including when to call for additional expert advice. | https://www.engineersaustralia.org.au/sites/default/files/content-files/2016-12/climate_change_adaptation_guidelines.pdf |
| Risk Assessment Guidance | | | |
| International Organization for Standardization | ISO 3100 Risk Management and Guidelines | Provides principles, framework and a process for managing risk. It can be used by any organization regardless of its size, activity or sector. | https://www.iso.org/iso-31000-risk-management.html |

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| | | Using ISO 31000 can help organizations increase the likelihood of achieving objectives, improve the identification of opportunities and threats and effectively allocate and use resources for risk treatment. | |
| Australian Institute for Disaster Resilience | National Emergency Risk Assessment Guidelines Handbook | <p>Understanding and reducing risk, and communicating with and educating the community about risks, are key drivers for action under the National Strategy for Disaster Resilience. The nationally consistent approach to risk assessment and prioritisation embodied in the National Emergency Risk Assessment Guidelines (NERAG) support the implementation of the strategy.</p> <p>NERAG provides a contextualised, emergency-related risk assessment method consistent with the Australian Standard AS/NZS ISO 31000:2009 Risk management – principles and guidelines.</p> | https://knowledge.aidr.org.au/resources/handbook-10-national-emergency-risk-assessment-guidelines/ |
| Office of Emergency Management | NSW Emergency Risk Management Framework | <p>Effectively managing emergency risk requires an integrated and all-hazards approach. The State Emergency Management Committee (SEMC) recently developed the Emergency Risk Management Framework (pdf) to address gaps and disparities across the emergency management sector and improve decision-making, with a focus on disaster mitigation.</p> <p>The Framework ensures that ERM in NSW is integrated, systematic, and efficient. Importantly, it builds on, and leverages the strengths of current hazard-specific risk management approaches to improve the understanding, prioritisation, effectiveness and efficiency of emergency risk management in NSW.</p> | https://www.emergency.nsw.gov.au/Pages/publications/guidelines-legislation-policies/emergency-risk-management/emergency-risk-management.aspx |
| UN Office for Disaster Risk Reduction | Words into Action guidelines: National | These guidelines are intended to motivate and guide countries in establishing a national system for understanding disaster risk, and to implement holistic assessments that provide an understanding of the many different dimensions of disaster risk. The guidelines were produced in support of the Sendai Framework for Disaster Risk Reduction 2015-2030. | https://www.unisdr.org/we/inform/publications/52828 |

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| | disaster risk assessment | | |
| Queensland Government | Queensland Emergency Risk Management Framework (QERMF) | The QERMF by the Queensland Disaster Management Committee as Queensland's approach to disaster risk management in 2017. The Framework provides a risk assessment methodology that can be used within disaster management planning at all levels of disaster management arrangements. | https://www.disaster.qld.gov.au/dmg/Prevention/Pages/3-5.aspx |
| Department of Planning, Industry and Environment | Guide to Climate Change Risk Assessment for Local Government | This guide offers practical guidance regarding conducting or revising a climate change risk assessment, including guidance on decision-making under conditions of uncertainty. | https://climatechange.environment.nsw.gov.au/Adapting-to-climate-change/Local-government/Identify-risks-and-vulnerability |
| Department of Planning, Industry and Environment | Regional Vulnerability Assessments (Enabling Regional Adaptation) | This project collects local knowledge in order to understand vulnerabilities on a regional scale, and includes a guide that sets out the steps involved in identifying climate change vulnerabilities. | https://climatechange.environment.nsw.gov.au/Adapting-to-climate-change/Regional-vulnerability-and-assessment |
| National Parks and Wildlife Service (NPWS) | Guidelines for Quantitative Risk to Life Calculations for Landslides | These guidelines outline the NPWS' approach to calculating the impact of landslides. Although the guidelines are specific to national parks, the guidance can be applied more broadly when managing the risk and impact of landslides. | https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Policy-and-law/quantitative-risk-life- |

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| | | | calculations-landslides-guidelines.pdf |
| Research and other reference material | | | |
| Arup International Development with the Rockefeller Foundation | City Resilience Framework | The City Resilience Framework aims to provide a lens through which the complexity of cities and the numerous factors that contribute to a city's resilience can be understood. The Framework focusses on a strategic methodology to enhance the performance of city systems in the face of multiple hazards, rather than traditional disaster risk management which focusses on single events. | https://assets.rockefellerfoundation.org/app/uploads/20140410162455/City-Resilience-Framework-2015.pdf |
| Australian Institute for Disaster Resilience | Australian Disaster Resilience Knowledge Hub | The Knowledge Hub provides a range of national resources for understanding disaster resilience, such as the Australian Journal of Emergency Management and a historical record of disaster events that have affected Australia. | https://knowledge.aidr.org.au/ |
| Risk Frontiers | Briefing Notes | Risk Frontiers is a private organisation providing risk management and catastrophe modelling and solutions. Whilst most information is only available to clients, a range of briefing notes are available on subjects such as catastrophe loss models, hailstorm, and flood. | https://riskfrontiers.com/insights/briefing-notes/ |
| NSW Health | Factsheets and resources | The NSW Health website contains a section dedicated to emergency preparedness, which may be a useful resource for incorporating public health into natural hazards planning. In addition, the site contains factsheets such as 'Major Evacuation Centres: Public Health Considerations'. | Emergency Preparedness: Natural disasters and severe weather: https://www.health.nsw.gov.au/emergency_preparednes |

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| | | | s/weather/Pages/default.aspx Major Evacuation Centres: Public Health Considerations: https://www1.health.nsw.gov.au/pds/Pages/doc.aspx?dn=GL2018_002 |
| 2009 Victorian Bushfires Royal Commission | Volume II: Fire Preparation, Response and Recovery: Planning and Building | The 'Planning and Building' section of the Victorian Bushfires Royal Commission's Report evaluates the function of the Victorian planning system and the system's performance in terms of resilience to natural hazards. The section also contains some reflection on the importance of strategic planning for natural hazard preparedness. | http://royalcommission.vic.gov.au/Commission-Reports/Final-Report/Volume-2/Chapters/Planning-and-Building.html |
| Adapt NSW | Impacts of climate change | This site collates information relating to the projected impacts of climate change on a wide range of natural hazards, including bushfire, East Coast Lows, floods and storms, extreme heat, and sea level rise. | https://climatechange.environment.nsw.gov.au/Impacts-of-climate-change |
| Adapt NSW | Towards a Resilient Sydney Adaption Review Paper 2014 | This paper, which forms part of the <i>Towards a Resilient Sydney</i> project, examines global examples to identify 'best practice' principles and actions for urban adaptation planning for climate change. | https://climatechange.environment.nsw.gov.au/Adapting-to-climate-change/Regional-vulnerability-and-assessment/Sydney |

*Correct as of 25 November 2020

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