HAZARD NOTE

bushfire&natural HAZARDSCRC

**ISSUE 107** OCTOBER 2021

**TOPICS IN THIS EDITION** | MITIGATION | PLANNING | RISK MANAGEMENT

# OPPORTUNITIES FOR ENHANCED DISASTER RISK REDUCTION IN URBAN PLANNING IN VICTORIA

**Above:** THIS RESEARCH ASSESSED THE COMPREHENSIVENESS OF VICTORIA'S URBAN PLANNING FOR DISASTER RISK REDUCTION AND IDENTIFIED OPPORTUNITIES FOR IMPROVED PLANNING ACROSS THE STATE. PHOTO: DAVID BRUCE, BUSHFIRE AND NATURAL HAZARDS CRC.

## ABOUT THIS PROJECT

This *Hazard Note* reports on key findings from an aspect of the *Urban planning for natural hazard mitigation* project. This part of the project conducted a multi-hazard review of the comprehensiveness of urban planning in Victoria in relation to natural hazards and disaster risk reduction.

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## SUMMARY

Urban and land use planning is increasingly recognised as a key mechanism to manage natural hazard risks. However, planning systems are complex and multi-faceted, seeking to achieve diverse and sometimes contradictory goals across large geographic areas. The lack of an integrated and comprehensive approach can negatively impact natural hazard risk management when seeking to achieve such diverse goals through multiple mechanisms.

This project assessed the comprehensiveness of Victoria's urban planning for disaster risk reduction by applying a set of diagnostic tools developed by the research team as part of the larger *Urban planning for natural hazard mitigation* project. Researchers analysed key documents and processes, with a focus on the Planning and Environment Act (1987) and the Victoria Planning Provisions.

Findings highlight that urban planning in Victoria is highly comprehensive in many of its mechanisms dealing with specific natural hazards such as bushfire and flood, particularly in relation to new settlements, but is limited in reducing existing settlements' risks. Hazards such as heatwave were identified as largely absent from consideration, offering significant opportunities for further reducing risk. This includes the possibility to prioritise and integrate treatments across hazards and to better balance the coverage of prevention, preparedness, response and recovery. Researchers also highlighted opportunities to standardise terminology and to embed risk assessment to inform decision making.

The implication of these findings is that improvements can be made to enhance the resilience of existing and future settlements in Victoria. These changes are an opportunity for urban planners to mitigate existing natural hazard risks, and to avoid projected and emerging risks in the future.

## BACKGROUND

The critical role that urban and land use planning can play in processes targeting disaster risk reduction has been highlighted over time. From an emergency management perspective, risk management should be integrated across different opportunities to act in relation to disaster events, namely, before, during and after disasters, or across disaster prevention, preparedness, response and recovery[1].

However, despite considerable advances in addressing specific hazards, there are several dynamic challenges ahead. While seeking broad economic, social and environmental objectives, urban planning systems are also required to manage a wide array of other concerns, such as aesthetic, heritage, transport, parking, access, recreational and land management matters. Anthropogenic climate change adds a layer of complexity and calls for the consideration of multi-hazard approaches that can address the consequences of more frequent, intense and cascading hazards.

## BUSHFIRE AND NATURAL HAZARDS CRC RESEARCH

This project assessed how comprehensively Victorian urban planning systems manage natural hazard risk, using the diagnostic toolkit developed as part of the larger *Urban planning for natural hazard mitigation* project (see March and Nogueira de Moraes 2020 in Further Reading). This research applied the toolkit to Victoria's planning systems, focusing on questions of integration and procedural integrity across natural hazards to develop new directions for change and improvement.

Researchers used qualitative policy analysis and risk assessment approaches, as well as secondary quantitative methods as appropriate. The research compared actual processes, treatments and systems used to manage multiple natural hazards in Victoria and compared these with ideal approaches and outcomes. This allowed for a critical review of urban planning and related systems that identified shortcomings and opportunities for change.

## RESEARCH FINDINGS

This research found that Victorian planning is highly comprehensive when dealing with natural hazards. This is in some ways unsurprising considering the attention paid to dealing with past events such as the 2009 and 2019/20 bushfires.

Bushfire and (to a lesser extent) flood risk reduction treatments are generally comprehensive and effective when applied to new settlements. However, several opportunities were identified to improve effectiveness, not just for bushfire and flood but across multiple hazards:

**Using consistency and comprehensiveness terminology**

Planning systems rely on clarity of meaning and focused use of regulation and discretionary decision making to guide settlements and change. In Victorian planning, key terms that relate to risk and natural hazards are used inconsistently or substituted with less appropriate terms, being unclear or absent from some aspects of the planning system.

1 The Australian Institute of Disaster Resilience's Handbook on Australian Emergency Management Arrangements recognises PPRR as the four phases of the Australian approach to emergency management, acknowledging "some jurisdictions are redefining PPRR to the three phases of 'before', 'during' and 'after' the emergency" (2019, p. 5).

Photo: David Bruce, Bushfire and Natural Hazards CRC

**Deploying risk reduction as a fundamental objective**

Urban planning systems are challenged with resolving multiple, often competing, priorities and objectives. The Planning and Environment Act (1987) provides some overarching directions but does not include fundamental mandatory requirements, tests or standards regarding consideration or treatment of natural hazard risks. Deploying disaster risk reduction as a fundamental planning objective could ensure comprehensive consideration of risk across multi-hazards in strategic and statutory planning decision making.

**Maximising the potential of strategic planning**

Strategic action is the process by which long-term goals are achieved through adjustment and change over time to integrate and coordinate actions. Strategic planning for risk can be strengthened and supported by a hierarchy of policy and decision criteria to guide regional and local

**Figure 1:** URBAN PLANNING AND DISASTER RISK REDUCTION WERE ASSESSED AND INTEGRATED USING DIAGNOSTIC TOOLS RELEVANT TO EACH HAZARD TYPE. GRAPHIC: MARCH AND NOGUEIRA DE MORAES 2020.

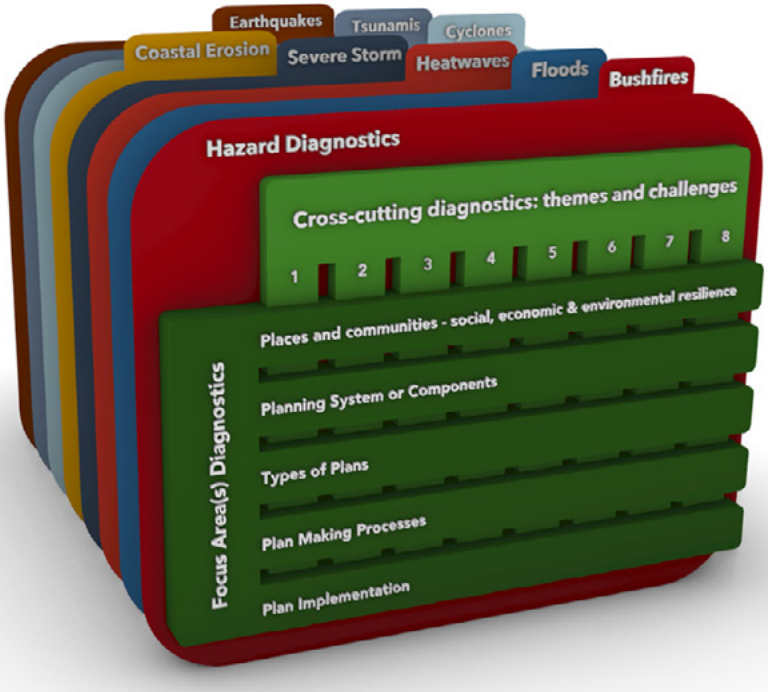


Photo: David Bruce, Bushfire and Natural Hazards CRC

## END-USER STATEMENT

Land use planning continues to be one of the best tools for long term reduction of disaster risk, particularly for geographic hazards including bushfire, riverine and coastal flooding, and storms. This project has worked closely with end users to try and reconcile the complexity and variety of natural hazards, and how land use planning systems can be used to mitigate their effects. This diagnostic tool seeks to provide guidance on the planning system features needed to achieve disaster risk reduction or other strategic objectives. I commend the project team for their ability to complete this project in challenging times and hope through continued end user support that this framework is able to be effectively used nationally.

**Ed Pikusa, lead end-user, former Manager Policy and Reporting, Department for Environment and Water, South Australia**

planning, including scenario testing, and applied consistently across all hazards.

**Prioritising across the disaster cycle**

The disaster cycle is a shorthand description of the phases through which disasters occur, typically following prevention, preparedness, response and recovery. Gains could be made by taking comprehensive action across the broad range of potential disaster cycles, including proactive actions and policies relating to recovery prior to disasters.

**Prioritising preferred treatments**

Depending on circumstances, it is generally understood that certain risk reduction treatments are preferable to others in terms of effectiveness, cost and socio-political challenge. Prioritising preferred treatments in this order will make actions more effective:

1. avoidance of exposure or separation due to hazard
2. reduction of hazard
3. reduction of vulnerability to hazard
4. preparedness for, and facilitation of, appropriate response
5. preparedness for, and facilitation of, appropriate recovery.

**Acknowledging vulnerability**

A key driver of vulnerability is the characteristics of human populations. However, the Victoria Planning Provisions and associated documents typically focus on infrastructural attributes, such as building design. Assessing and improving existing and likely future vulnerability of populations can improve risk profiles.

**Attending to underlying change drivers**

There is a need to fully acknowledge the range of change drivers in settlements, such as population growth, climate change, socio-economic factors and infrastructure resilience, to reduce natural hazard risks.

## HOW COULD THE RESEARCH BE USED?

While it is clear that risk management is the responsibility of multiple stakeholders, there are a number of opportunities that revolve around changes to the Planning and Environment Act (1987) and Victoria Planning Provisions. Researchers suggest that:

- a roadmap be developed to comprehensively integrate disaster risk reduction across all relevant natural hazards into the Act, the Provisions and associated documentation.
- a Planning Practice Note be developed to address integration of disaster risk reduction across all relevant natural hazards as part of plan making and administration. This Planning Practice Note should be frequently updated.

Researchers also developed a discussion paper (see March and Nogueira de Moraes 2021 in Further Reading) that includes ten recommendations that can be used to guide the integration of multi-hazard disaster risk reduction into decision making and land use planning in Victoria.

## FUTURE DIRECTIONS

There is potential to expand the application of the diagnostic tool to other Australian states and territories, through assessment of their own planning systems, using the same criteria that applied in the Victorian case.

## FURTHER READING

March A, Legacy C, Warren-Myers G & Nogueira de Moraes L (2021) Heatwave and building codes in New South Wales: issues and prospects, report, Bushfire and Natural Hazards CRC, available at www.bnhcrc.com.au/publications/biblio/bnh-8012.

March A & Nogueira de Moraes L (2020) Integrated urban planning for natural hazard mitigation, final report, Bushfire and Natural Hazards CRC, available at www.bnhcrc.com.au/publications/biblio/bnh-7738.

March A & Nogueira de Moraes L (2021) Multi-hazard review of the comprehensiveness of Victorian urban planning for disaster risk reduction, utilisation project final report, Bushfire and Natural Hazards CRC, available at www.bnhcrc.com.au/publications/biblio/bnh-8203.

March A, Nogueira de Moraes L & Stanley J (2020) Dimensions of risk justice and resilience: mapping urban planning's role between individual versus collective rights, book chapter in *Natural hazards and disaster justice: challenges for Australia and its neighbours*, Lukasiewicz A & Baldwin C (editors), Palgrave MacMillan.

The Bushfire and Natural Hazards CRC is a national research centre funded by the Australian Government Cooperative Research Centre Program. It was formed in 2013 for an eight-year program to undertake end-user focused research for Australia and New Zealand.