

INTEGRATED URBAN PLANNING FOR NATURAL HAZARD MITIGATION

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BACKGROUND: EXPOSURE TO NATURAL HAZARDS

Cities and regions are becoming increasingly exposed and are creating **new patterns of intensive risk**; at the same time, poorly planned and managed urban development has **generated new hazards and extensive risk**



URBAN PLANNING AND NATURAL HAZARDS

1. Urban Planning already allows/prevents/ modifies many risks...

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2. Need to improve Urban Planning

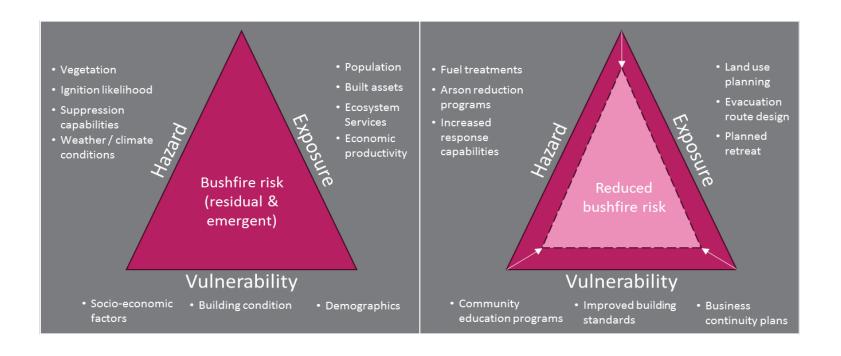
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- 3. Improve Urban Planning's *Integration* with:
- Emergency Management
- Other Relevant Agencies & Processes
- The Public



URBAN PLANNING & THE BUILT ENVIRONMENT

Advantageous arrangement of the physical features, activities and connections between element of settlements and natural systems to achieve desired outcomes and to avoid problems (Hall, 2007).



URBAN PLANNING: BUILT ENVIRONMENT OUTCOMES

- 1. avoidance of exposure to hazards;
- 2. reduction of hazard, or exposure to it *in situ;*
- 3. reduction of vulnerability or increase in resistance *in situ;*
- 4. improvement of response;
- 5. improvement of recovery

PLANNING'S POTENTIAL: PROCESS

Urban planning can:

- examine and assess future scenarios (including DSS)
- integrate spatial understandings of hazards with built environment improvements
- modify activities and use of land
- avoid, reduce and remediate
- integrate and coordinate
- develop and apply new tools
- account for human behaviour, physical, social, economic, and ecological matters...

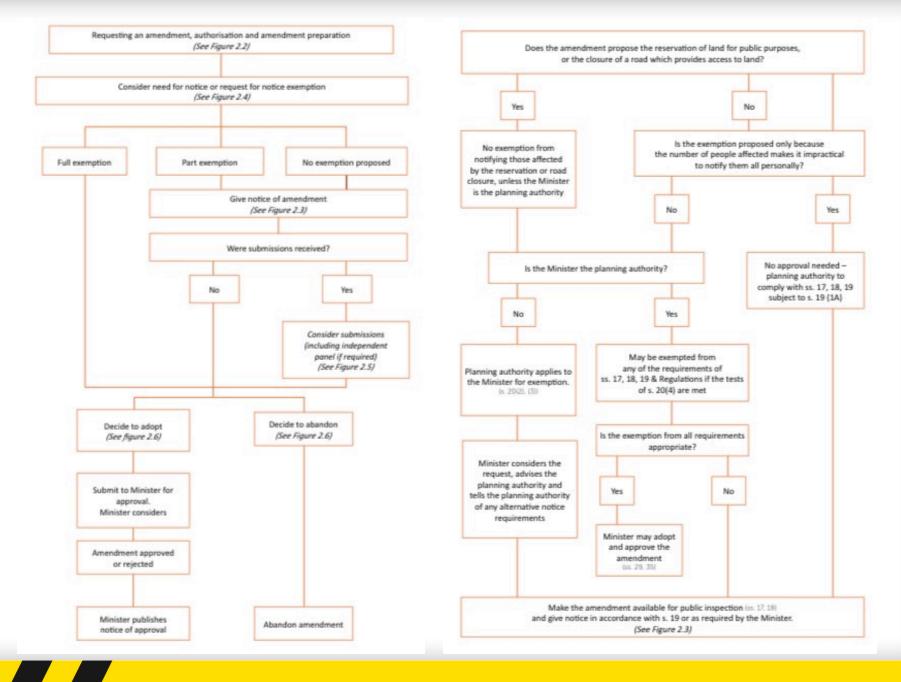


Figure 2: Planning Process Flowchart

Pre-planning

- GAA or other planning authorities provides advance notice to state agencies and service providers.
- Project management plan is put in place this will refine timeframes, resourcing and budget depending on the complexity of the Precinct Structure Plan
- A gap analysis of previous background technical studies is undertaken.
- Background technical studies that require additional time for completion are commenced.
- Initial 'vision setting' workshops may be held.

Preparing the Precinct Structure Plan



- · Vision established for the new community and precinct.
- Background technical reports completed and implications analysed.
- Input received from council, state agencies, land-owners, developers and other service and infrastructure providers.
- Precinct structure plan document prepared.
- Precinct infrastructure plan, native vegetation precinct plan and cultural heritage management plan (where required) prepared.

Approval of Precinct Structure Plan and Planning Scheme Amendment

- Planning scheme amendment prepared and exhibited including schedules to the Urban Growth Zone and native vegetation precinct plan.
- · Submissions received and considered; may lead to changes to the exhibited plan.
- Independent panel considers submissions, if required.
- · Precinct structure plan finalised.
- Precinct structure plan approved by the Minister for Planning and incorporated into the local planning scheme.
- Native vegetation precinct plan approved by the Minister for the Environment and incorporated into the local planning scheme.
- Cultural heritage management plan approved by Registered Aboriginal Parties or Aboriginal Affairs Victoria.

Planning Permit Applications



- Planning permit applications lodged with the relevant authority for approval. (Note: The Planning and Environment Act 1987 allows planning permit applications to be prepared and approved concurrently with a precinct structure plan and planning scheme amendment.)
- Permit application is exempt from further public notice, decision and review rights as set out in clause 37.07-13.
- Planning permit is issued with conditions related to the specific development.

个18-24 months —

Camino III 6-7

PLANNING'S CHALLENGES: PROCESS

- Existing settlement patterns
- Governance disconnects
- Multi-tier & Multi agency
- Competing demands
- Strong urban population growth
- Incomplete or unused data
- Tendency to continuing existing approaches
- Lack of understanding between EM and Planning personnel.
- Dynamic, changeable risks
- A lack of learning and translation from past events
- Bureaucracy, democracy and politics.



ISSUES AND DIRECTIONS

	Agenda, Projects	Law, Policy & Regulation	Vision	Designs, Masterplan	Strategic
Overall assessment and example	Financial allocations to fund projects or actions, Eg mapping and research to identify flood risk	Zones, overlays and Buildings Codes	Evidence based development of overall agreed principles and approaches	Detailed design of a settlement's road patterns to achieve community resilience	Development & implementatic n of an overall risk assessment & management program that brings about ongoing improvement and change
Avoidance of exposure to hazards					
Reduction of hazard impacts or exposure in situ					
In situ reduction or increased resistance in situ					
Improve response					
Improve recovery					

Emergency Management	Emergency Management Manual Victoria	Urban Planning Planning and Environment Act	
Lineigency Management	Littergency Wallagement Wallact Victoria		
mergency Management Act 2013 DELWP's Standing on Committees		(1987)	
SCRC's Strategic Action Plan	Victorian Planning Provisions		
State Emergency Response Plan	Flood Overlays	Non risk Objectives of the Act:	
State Emergency Relief and Recovery Plan	Plan Melbourne		
State Relief & Recovery Coordination Plans	Referral and Panel Decision Processes		
Regional Relief & Recovery Plan	Guidelines for Interstate Assistance (Community	Externalities	
Municipal Emergency Management	Recovery) 2015	Vic Roads Major Projects	
Plans (for all Municipalities)		Infrastructure Victoria	
Victorian Emergency Animal Welfare Plan		Describing County	
State Health Emergency Response Plan		Population Growth Economic Fluctuations	
State Health Elliergency Response Flan	\	Climate Change	

AUSTRALIAN INQUIRIES INTO NATURAL HAZARD EVENTS

Recommendations relating to urban planning for natural hazard mitigation (2009-2017)

Alan March¹, Leonardo Nogueira de Moraes¹, Graeme Riddell², Stephen Dovers³, Janet Stanley¹, Hedwig van Delden^{2,4}, Ruth Beilin¹, Holger Maier²

¹The University of Melbourne, ²The University of Adelaide, ³Australian National University ⁴Research Institute for Knowledge Systems,

Urban planning: historical changes integrating bushfire risk management in Victoria

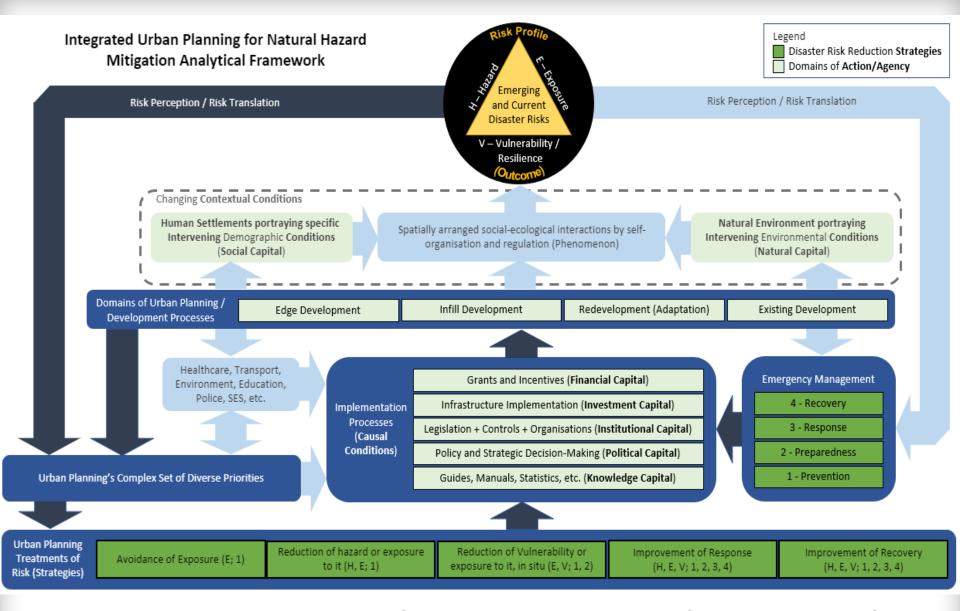
Constanza Gonzalez-Mathiesen^{1, 2}, Professor Alan March¹, Justin Leonard³, Mark Holland⁴ and Raphaele Blanchi³

- University of Melbourne and Australia and Bushfire Natural Hazards Cooperative Research Centre, Melbourne, Victoria.
- 2. Universidad del Desarrollo, Concepción, Chile.
- 3. CSIRO, Melbourne, Victoria .
- 4. Country Fire Authority, Melbourne, Victoria.

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Issues and Opportunities

- 1. Integration of planning and risk assessment processes
- 2. The need for **shared forums** at appropriate levels and sequencing improvements
- 3. Use of a wider range of planning tools.
- 4. Planning actions across the whole range of PRR / PPRR.
- **5. Terminology** inconsistency
- 6. Major and fast track "extraordinary" processes?
- 7. Uncoordinated funding allocation for projects
- 8. Long term risk assessment and strategic forward planning
- 9. A need for ideals and **best practice approaches** in urban planning acknowledging risk
- 10. Uncertainty regarding municipalities' role
- 11. Lack of attention to equity and diverse social capabilities
- 12. Exclusion of transport and infrastructure
- 13. Political and ministerial executive control of urban planning
- **14. "Ignored" hazards**: heatwave, landslip, storm, food security, and environmental crisis.
- 15. Higher **density** and high rise settlements
- **16. Legacy** risks
- 17. Improved education



Opportunities: Targeted Processes; Hazards; Case Studies

PROJECT TEAM

Prof. Alan March - University of Melbourne – Melbourne School of Design. (Project Lead, Integration of Urban Planning and Disaster Risk Reduction)

Prof. Holger Maier (Risk Management, Modelling & Decision Support) *University of Adelaide*

Prof. Stephen Dovers (Disaster Governance and Policy) Australian National University

Prof. Ruth Beilin (Resilience in changing communities, landscapes and disaster)

Adjunct A/Professor Hedwig van Delden (Natural Resources and Risk Management, Modelling and Decision Support) University of Adelaide,

Prof. Janet Stanley (Integrated Planning, Disaster Management and Arson, Transport and Social Exclusion) *University of Melbourne*

Dr Graeme Riddell (Researcher Spatial Systems and Engineering) University of Adelaide

Dr Leonardo Nogueira de Moraes – Research Fellow