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bushfire&natural  
**HAZARDS**CRC

# Understanding future bushfire risk and how to manage it

**Professor Holger Maier**



The making of a riskier future: How our decisions are shaping future disaster risk

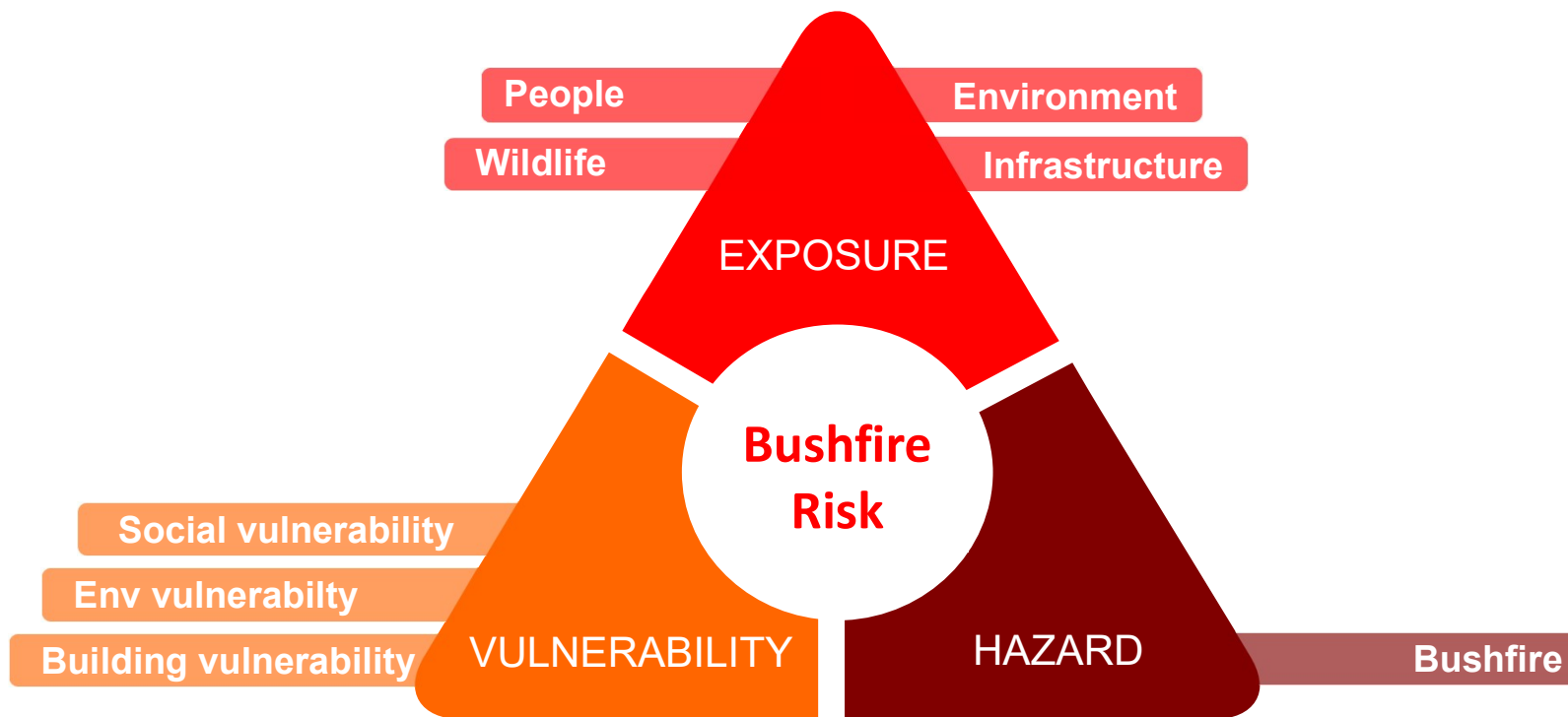
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Tomorrow's risk is being built today. We must therefore move away from risk assessments that show risk at a single point in the present and move instead towards risk assessments that can guide decision makers towards a resilient future.

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Global Facility for Disaster Reduction and Recovery (2016) The making of a riskier future: How our decisions are shaping future disaster risk.







**HIGH  
AWARENESS**

**LOW  
AWARENESS**



**HAZARD**

**HIGH  
AWARENESS**

**EXPOSURE**

**LOW  
AWARENESS**

**VULNERABILITY**

**COMMUNITY  
VALUES**



**FUTURE RISK**

- CLIMATE CHANGE

- POPULATION GROWTH
- ECONOMIC DEVELOPMENT

- LOWER VOLUNTEER RATES
- AGEING POPULATION



**FUTURE RISK**

**MITIGATION**

- CLIMATE CHANGE

- FUEL LOAD REDUCTION

- POPULATION GROWTH
- ECONOMIC DEVELOPMENT

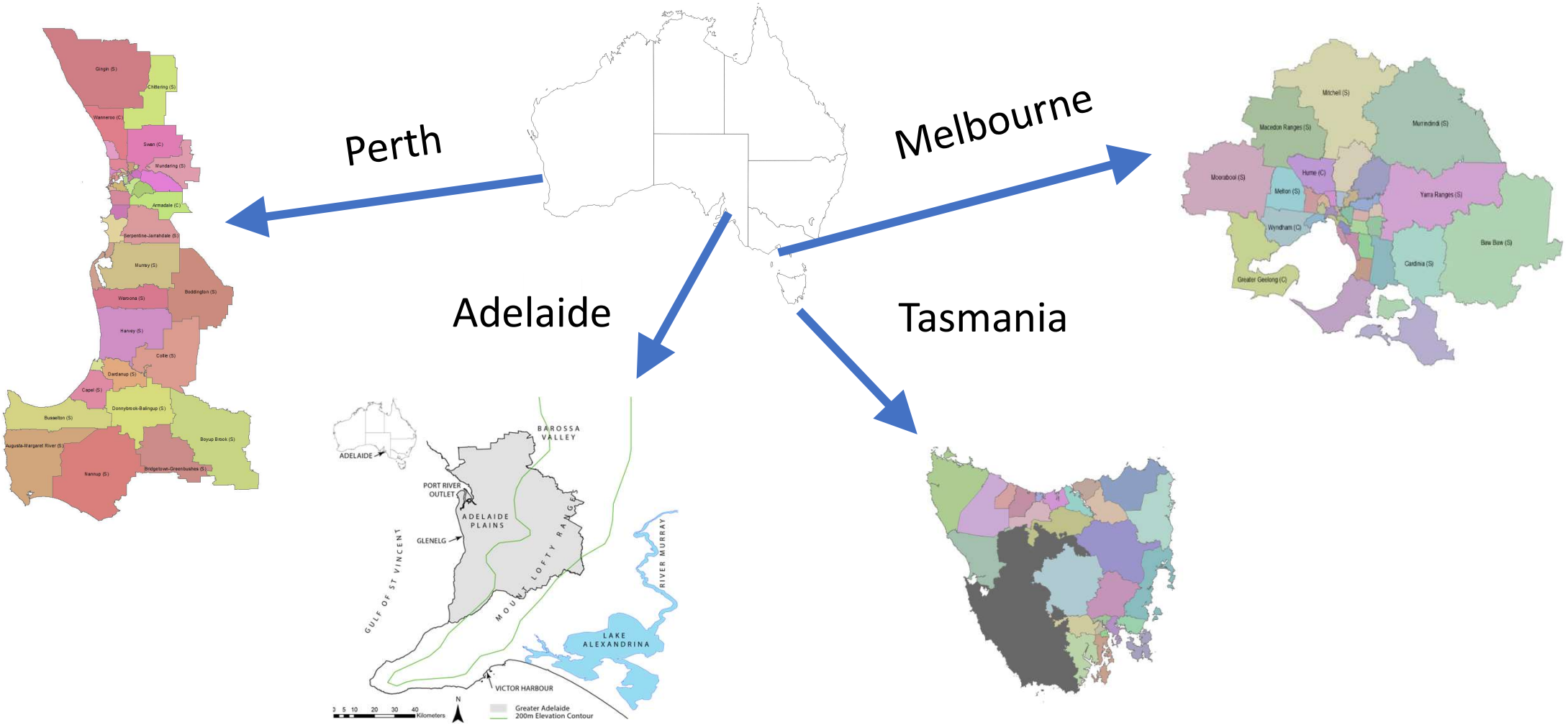
- SPATIAL PLANNING

- LOWER VOLUNTEER RATES
- AGEING POPULATION

- BUILDING CODES
- COMMUNITY EDUCATION

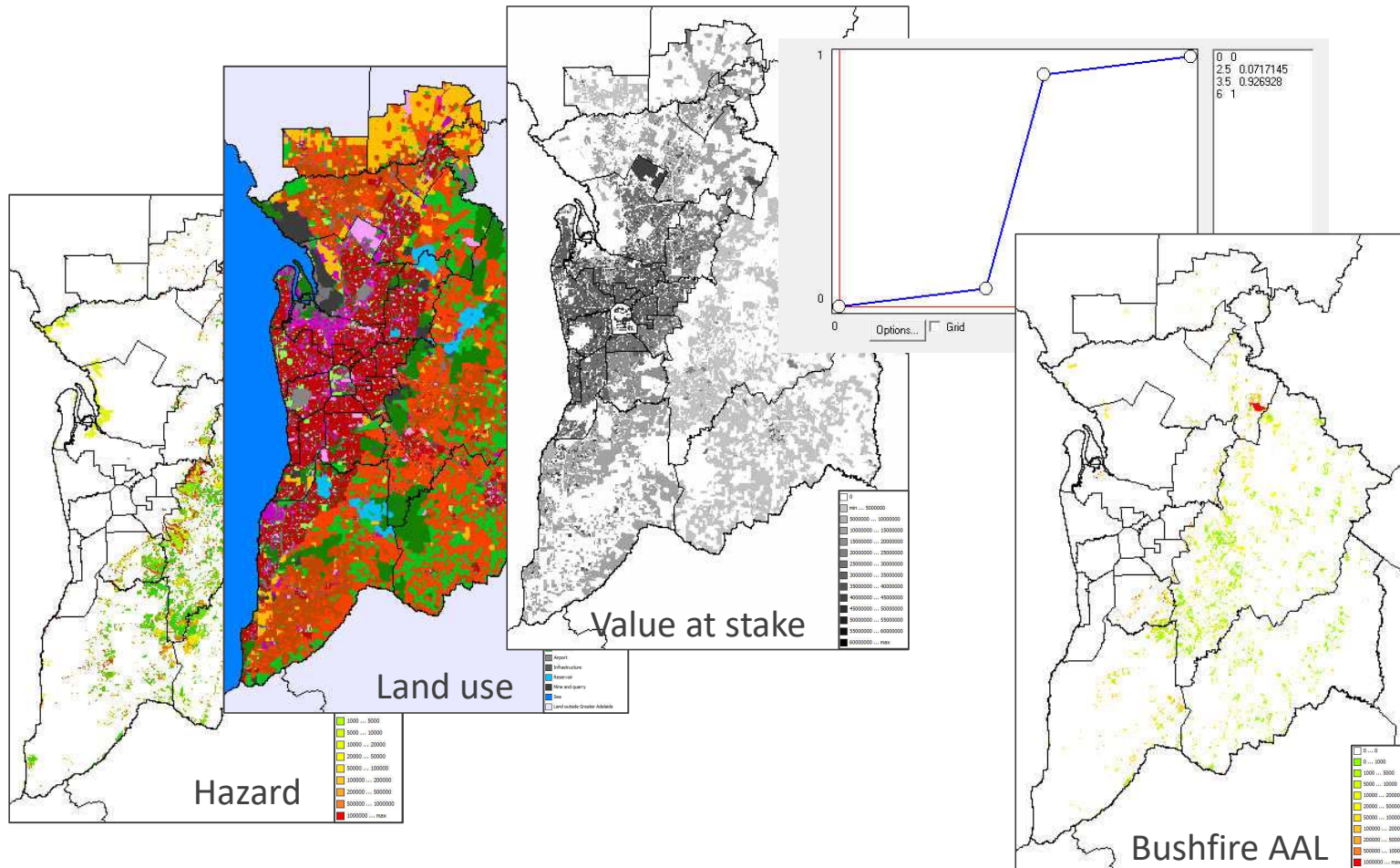


# Unified Natural Hazard Risk Mitigation Exploratory Decision support system (UNHaRMED)

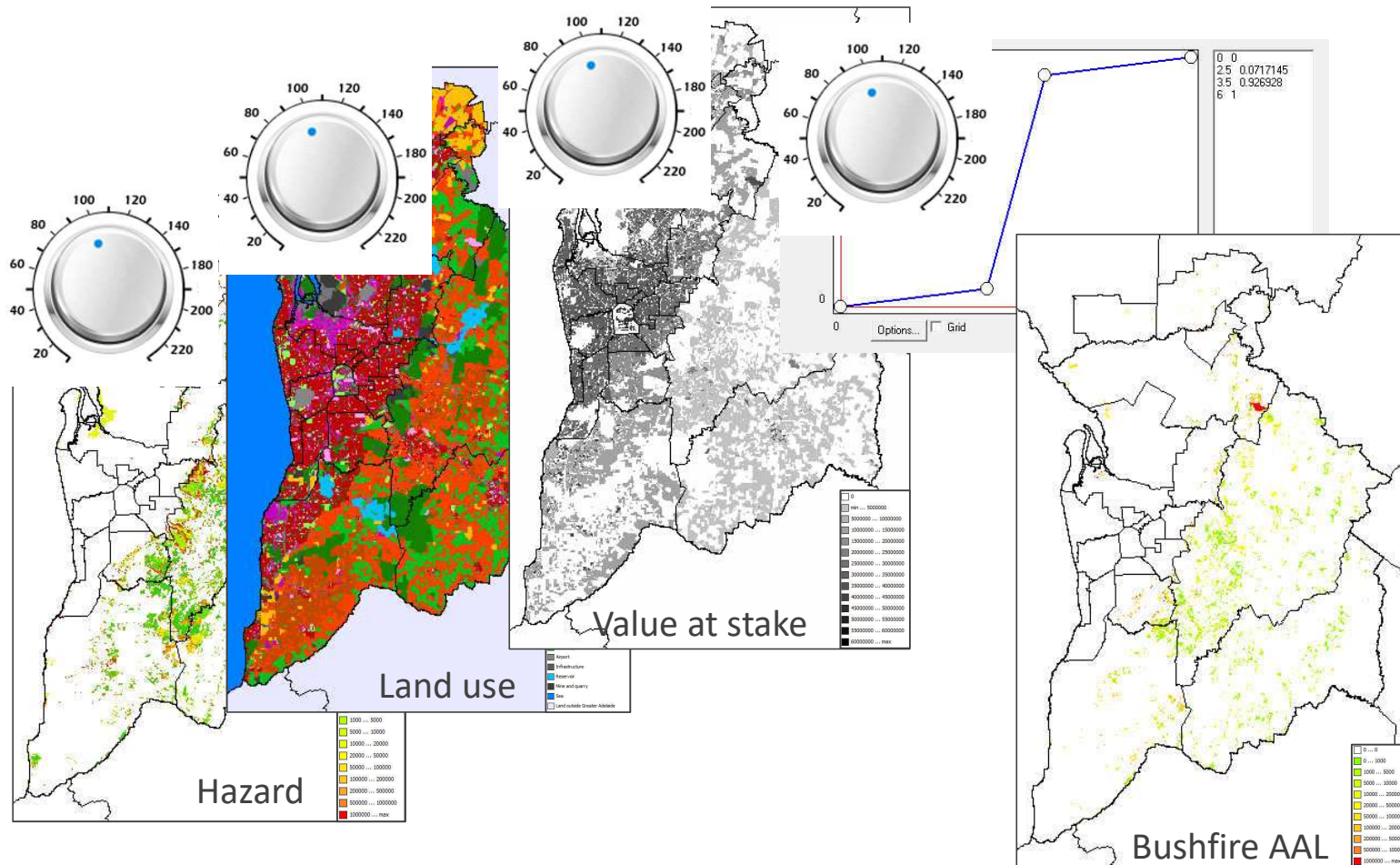




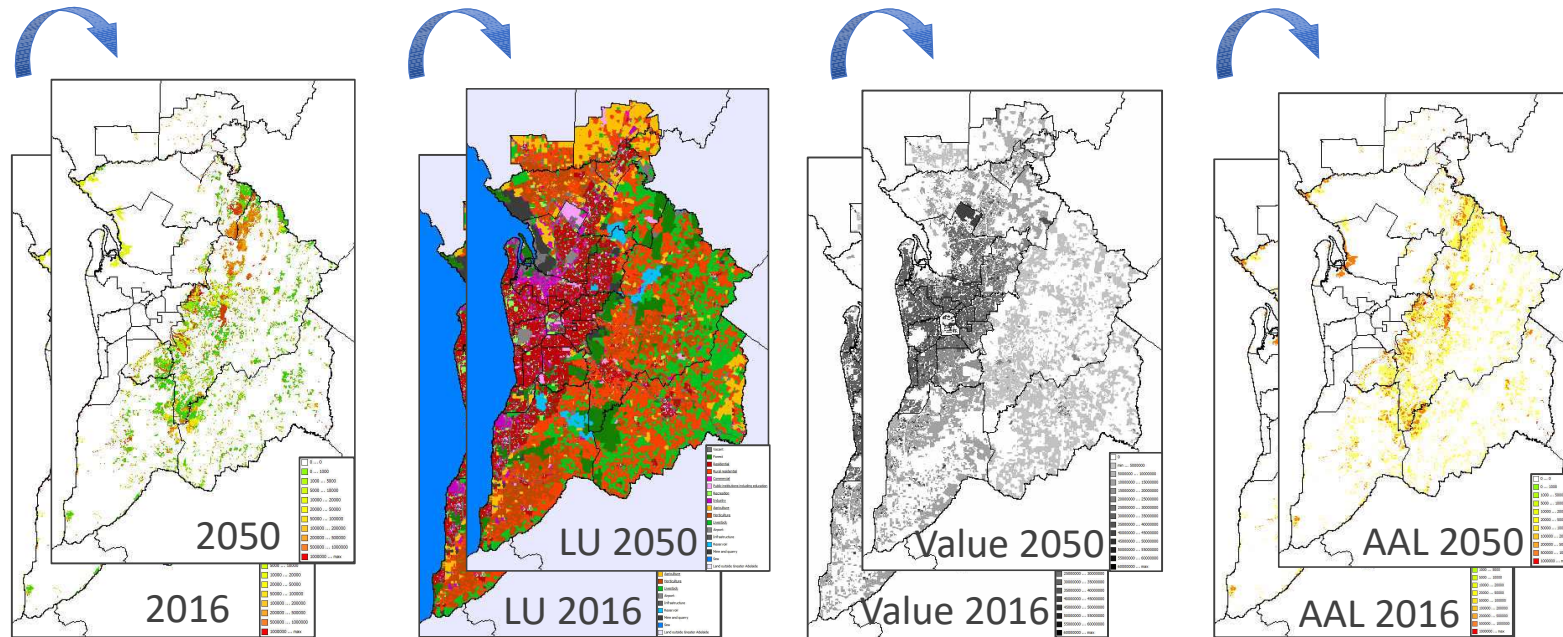
# Bushfire risk modelling



# Bushfire risk modelling



# Changes over time



Climate change driving hazard frequency and extent

Socio-economic development driving land use change

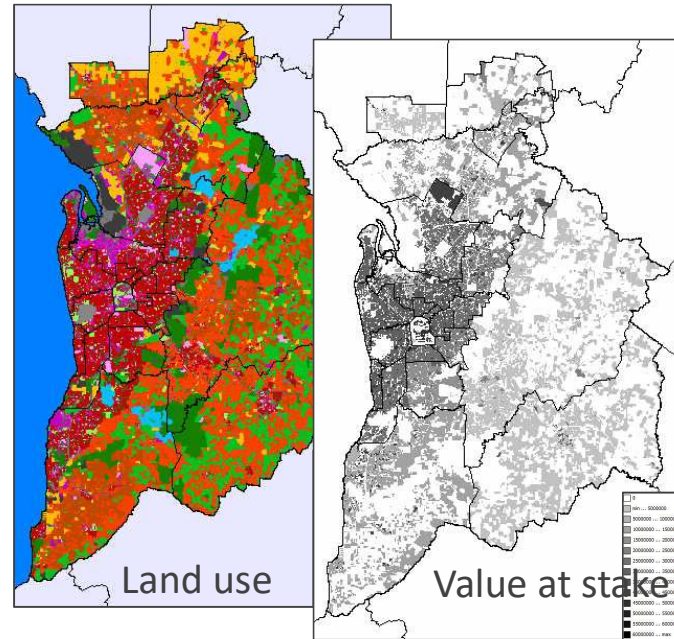
Urban renewal and urban expansion

Increased hazard and exposure leading to increased risk



# Mitigation options

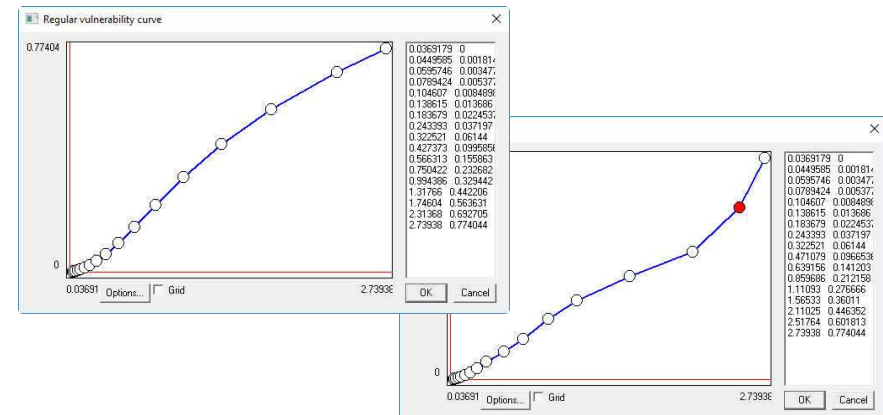
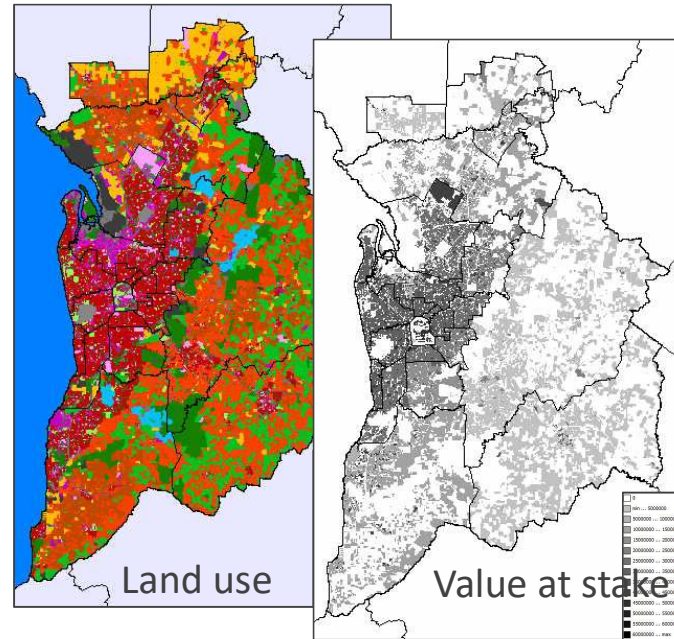
- **Spatial planning impacting on land use allocation**





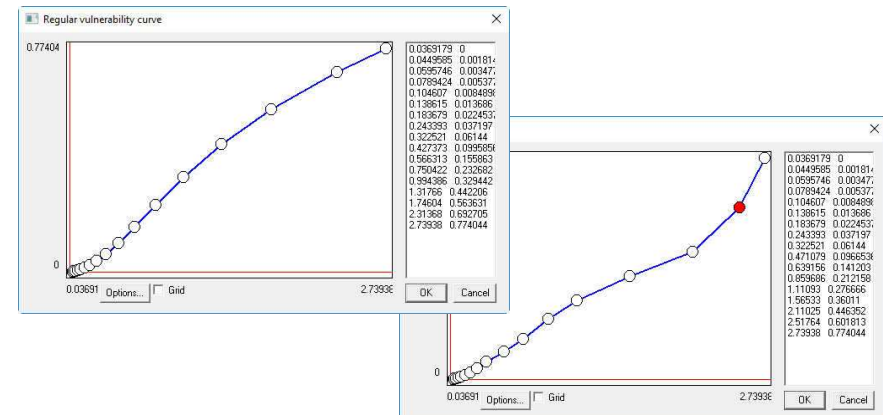
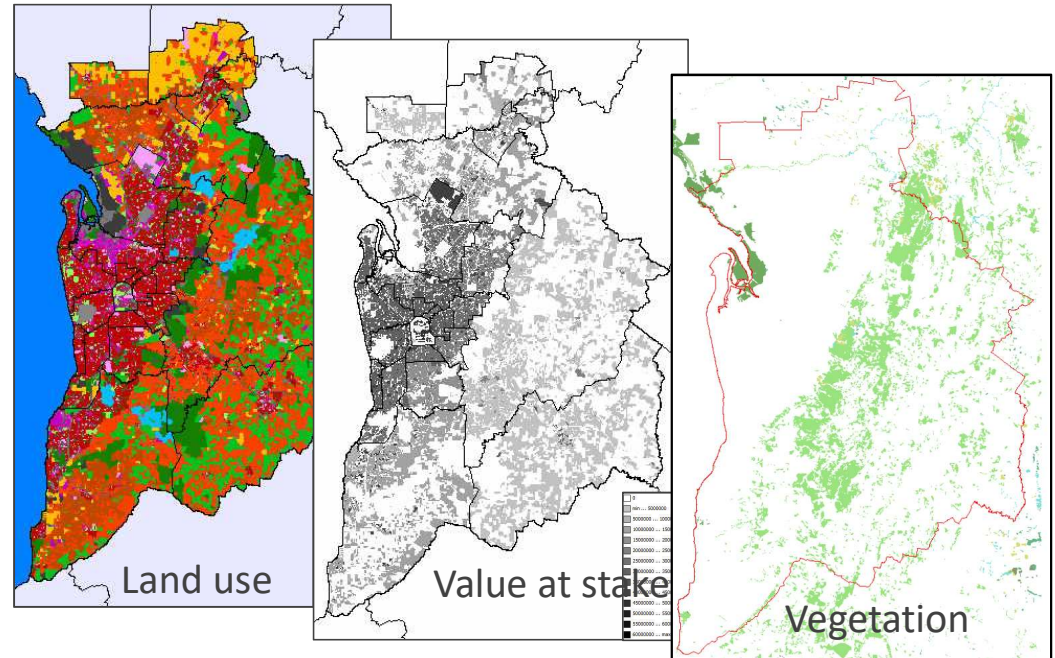
# Mitigation options

- **Spatial planning impacting on land use allocation**
- **Changing building codes leading to more resilient buildings**



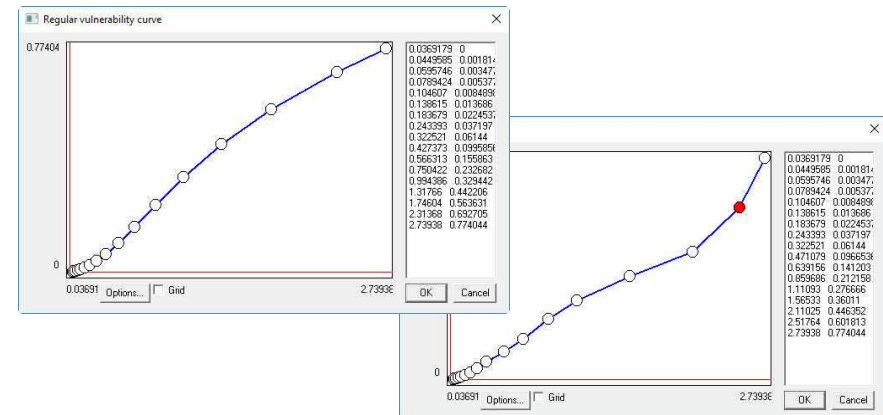
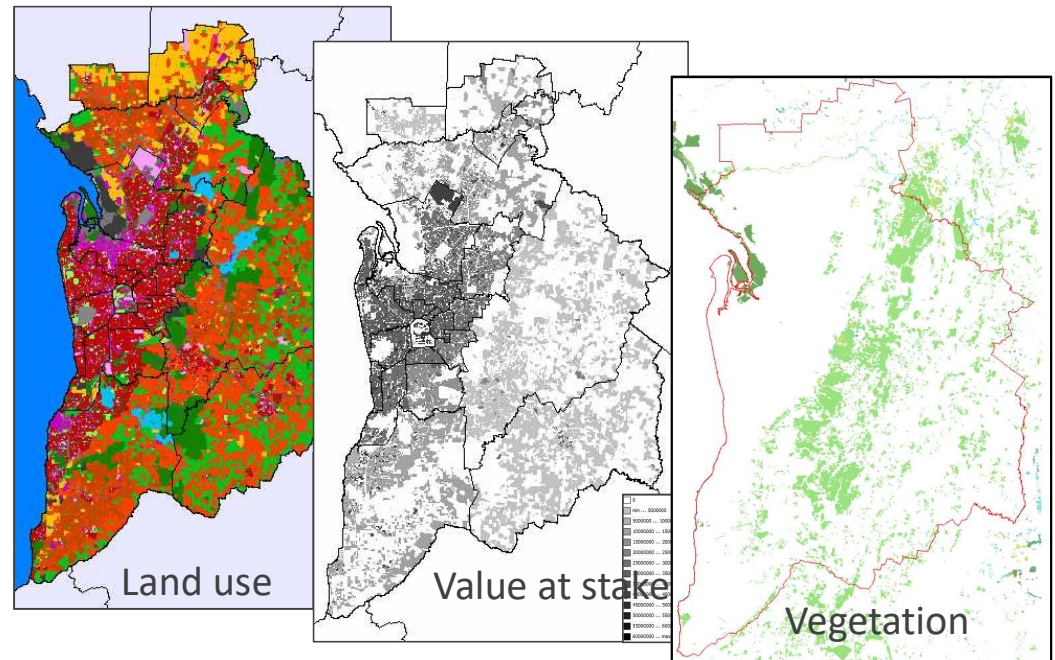
# Mitigation options

- **Spatial planning impacting on land use allocation**
- **Changing building codes leading to more resilient buildings**
- **Fuel load reduction impacting the extent and magnitude of the hazard**

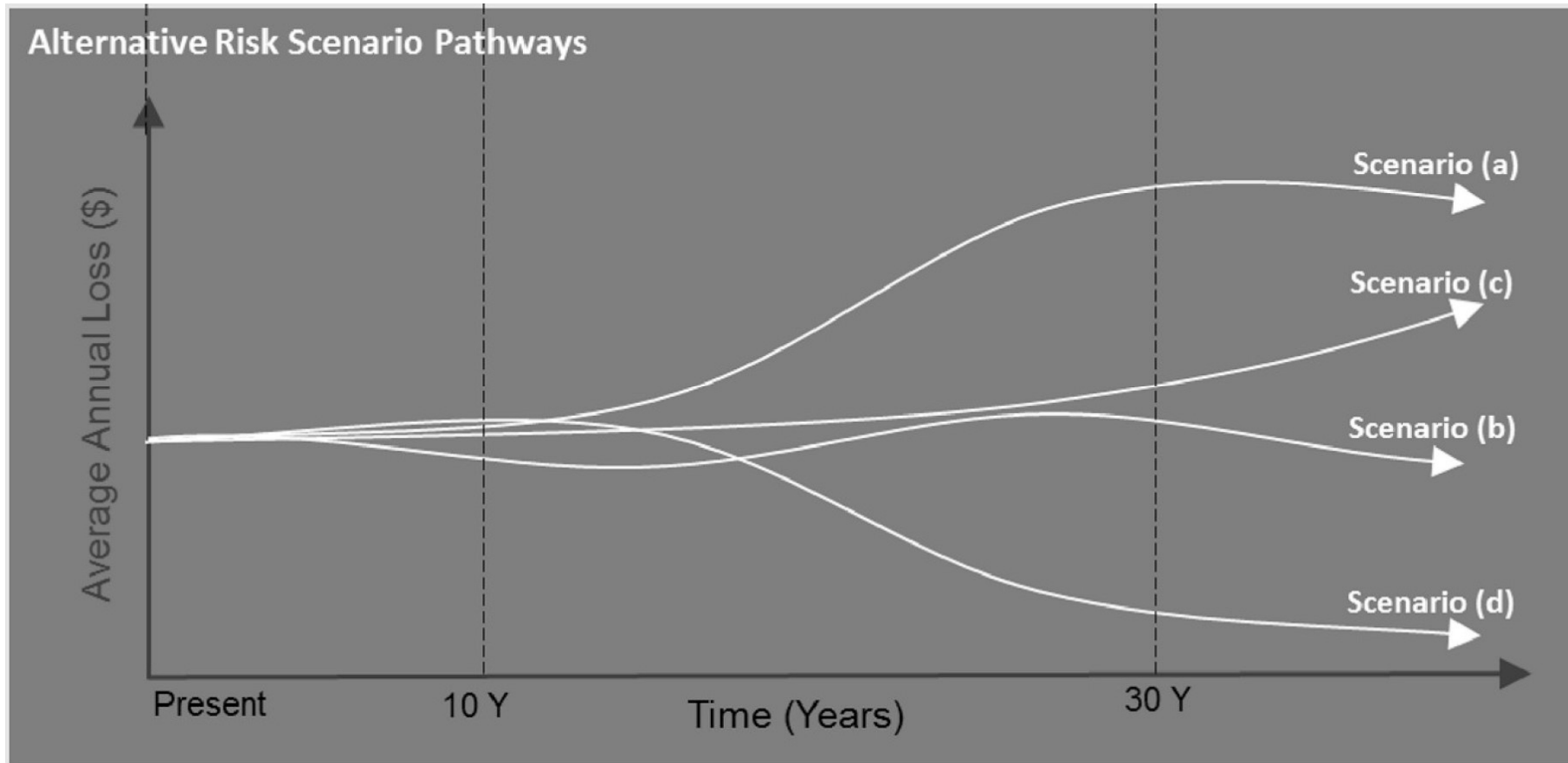


# Mitigation options

- **Spatial planning impacting on land use allocation**
- **Changing building codes leading to more resilient buildings**
- **Fuel load reduction impacting the extent and magnitude of the hazard**
- **Education and awareness reducing ignition potential and vulnerability**



# Changes over time



Riddell G.A., van Delden H., Maier H.R., Zecchin A.C. (2019) [Exploratory scenario analysis for disaster risk reduction: Considering alternative pathways in disaster risk assessment](#), *International Journal of Disaster Risk Reduction*, **39**, 101230, DOI:10.1016/j.ijdr.2019.101230.



**We can assess how risk will change and what risk reduction portfolios are most effective in different plausible future worlds using a “policy wind tunnel”**



# Take-Home Message

- We need to think about more than fire when managing bushfire risk
- We need to take a long-term view on risk reduction, with a greater focus on mitigation
- We need to be more strategic and less reactive
- We need to consider all options in a rational, integrated fashion to make evidence-based decisions



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