



bushfire&natural  
**HAZARDS**CRC

# MAPPING AND UNDERSTANDING BUSHFIRE AND NATURAL HAZARD VULNERABILITY AND RISKS AT THE INSTITUTIONAL SCALE

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An Australian Government Initiative



# THE TEAM

## Researchers

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- John Symons VU
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- Bruce Rasmussen VU
- Centre for eResearch and Digital Innovation, Federation University

## End Users

- Greg Christopher EMV Vic
- Pauline Cole DCSI SA
- Liam Fogarty DEPI Vic
- Chris Irvine SES Tas
- Ed Pikusa SAFECOM SA
- Patrick Schell, RFS NSW
- Caroline Thompson AEMI/AG

# OBJECTIVE AND INITIAL OUTCOMES

To develop a framework for understanding the ownership of risks from bushfires and natural hazards at the institutional level in order to improve risk governance through a range of measures, including investment strategies, resilience and risk mitigation.

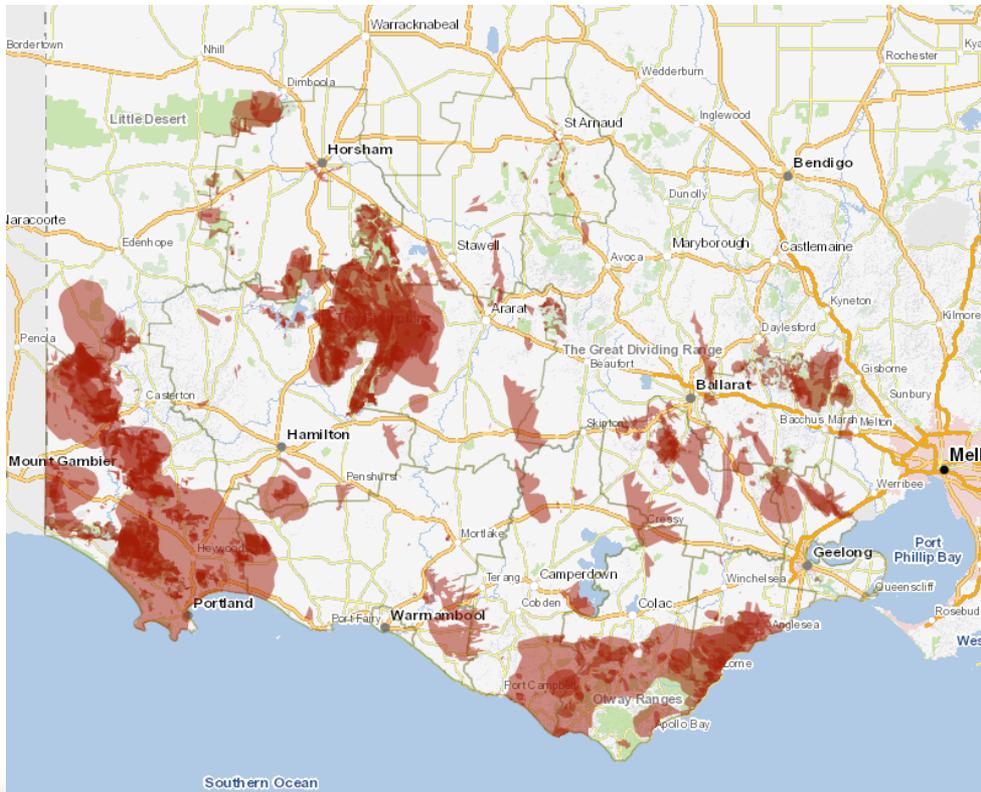
The initial outcome will be the development of a 'broad brush-stroke' national picture of vulnerability and values at risk to bushfire and natural hazards at geographic and institutional scales

# OUTPUTS TO DATE

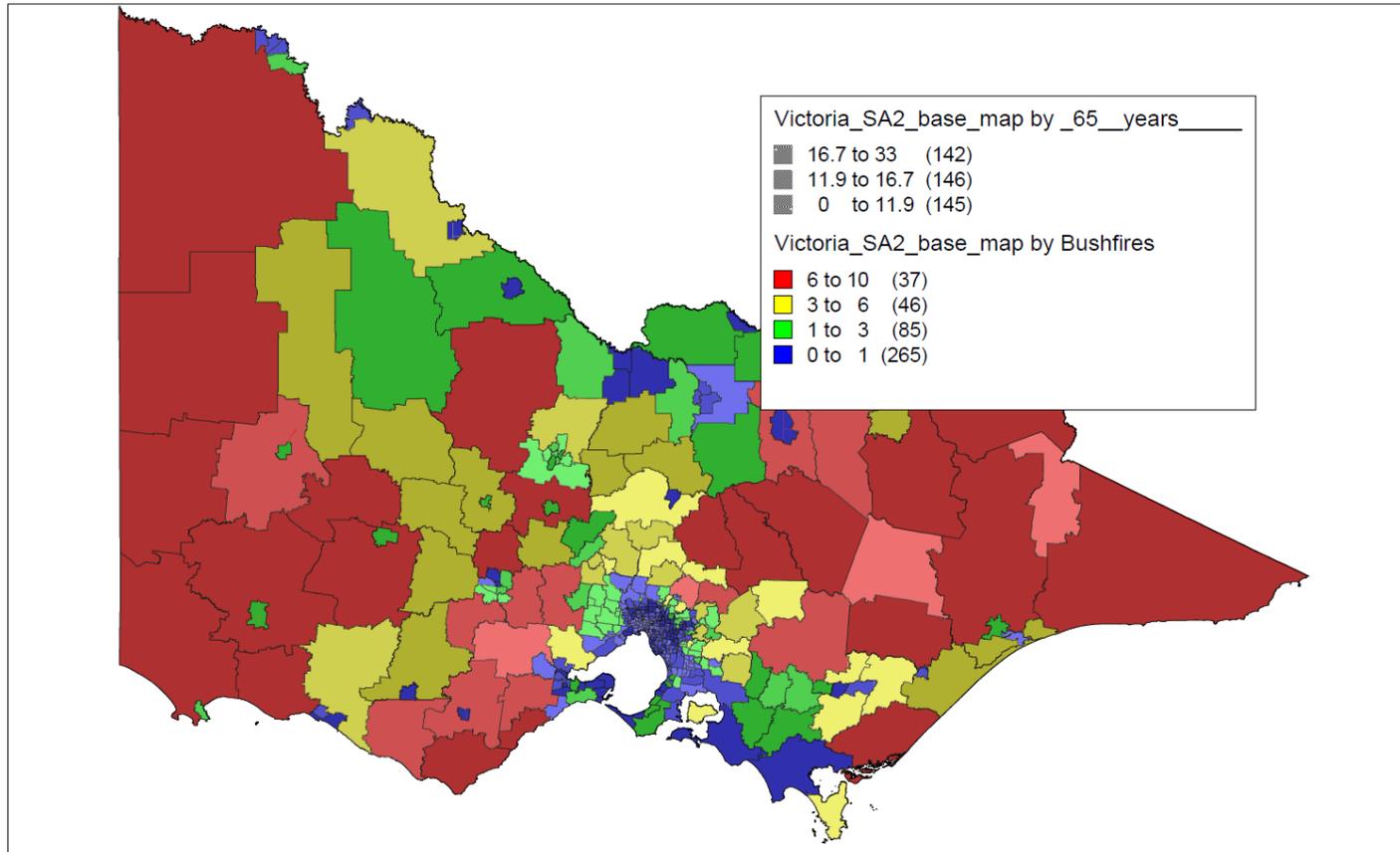
- 1.5 Develop assessment criteria for values at risk ✓
- 1.8 Delivery of data gap analysis ✓
- 1.11 Develop draft 'Values at Risk' map *very preliminary*
- 2.2 Research Paper 1 "Institutional framework for values" suitable for publication submitted *final draft for review complete*
- 2.4 Finalisation of draft 'Values at Risk' map *Mid May*
- 2.5 Delivery of draft 'Values at Risk' map *Late May*
- 2.6 Desk-top review of materials for risk ownership ✓
- 2.7 Workshop planning *underway*

# VALUES AT RISK MAP

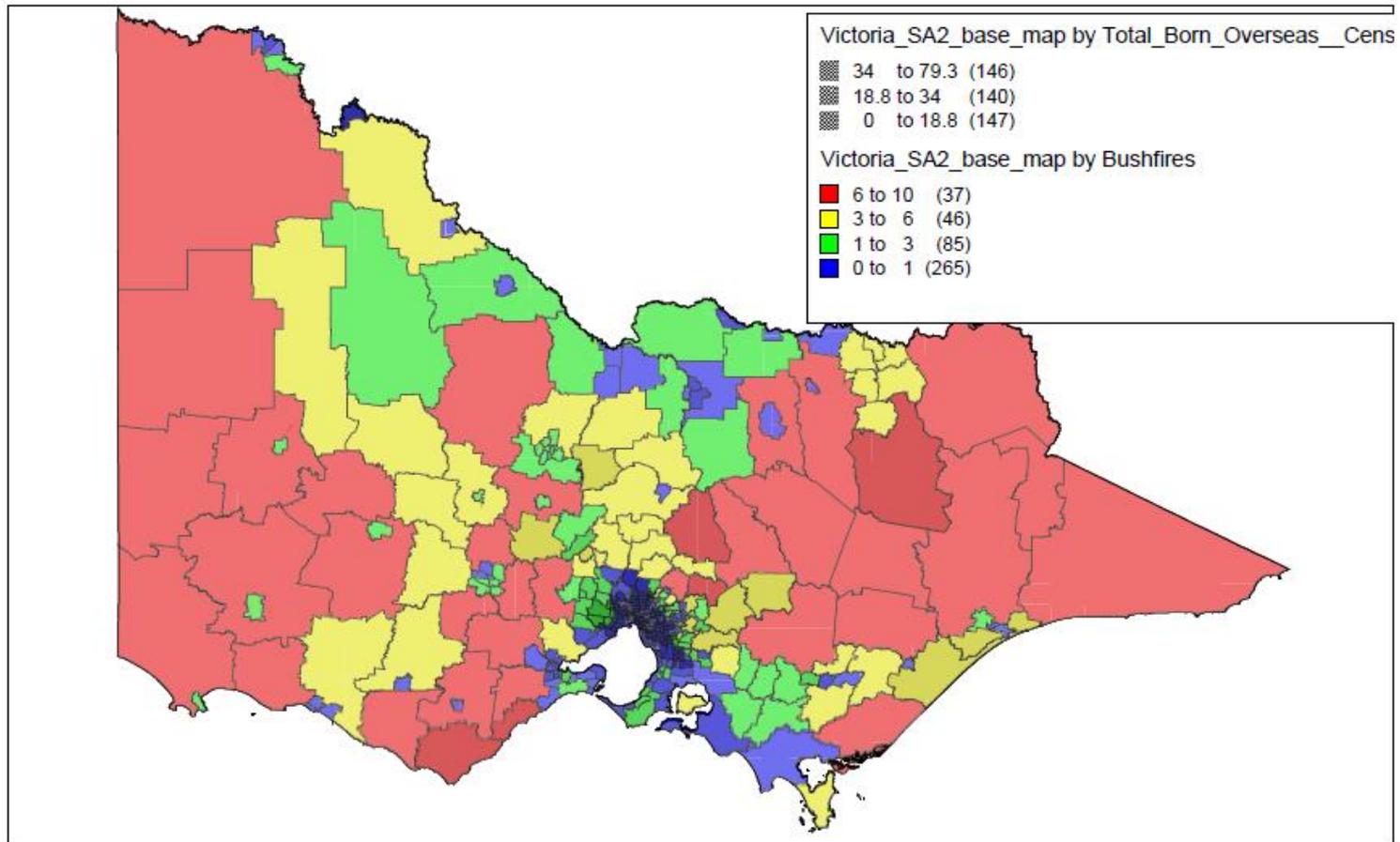
Agreement with the Centre for eResearch and Digital Innovation (CeRDI) at Federation University to collaborate on map close to being finalised



# PEOPLE 65+ AND HISTORICAL BUSHFIRES



# PEOPLE BORN OVERSEAS AND HISTORICAL BUSHFIRES



# RISK OWNERSHIP

1. Whoever owns the assets owns the risk (economics)
2. person or entity with the accountability and authority to manage a risk (ISO 31000)

Strategic risk management before and after events

# SCOPE

## **Institutions:**

Federal, state/territory and local government, business and industry and civil society.

## **Values**

Built, social and environment assets and infrastructure.

## **Hazards:**

Fire, Flood, Severe storm (includes wind and hail), Cyclones, Heatwave.

# VALUES FRAMEWORK FOR ASSET CLUSTERS

Cluster	Characteristics	Major values
<b>Built assets &amp; infrastructure</b>	Hard assets (e.g., housing, business, roads, communications, energy and water infrastructure)	Economic (production, monetary) Intrinsic (heritage)
<b>Social assets &amp; infrastructure</b>	Soft assets (e.g., health, education, social connectedness, wealth and knowledge, clubs, religious groups)	Economic (production, monetary, livelihoods) Welfare (individual, community, cultural) Intrinsic (human security)
<b>Natural assets &amp; infrastructure</b>	The natural environment, sometimes modified (ecosystems, biodiversity, atmosphere, land and water)	Economic (monetary) Ecological health (production, resilience) Intrinsic (existence)

# MAJOR ECONOMIC GROUPS IN USE

- 1) Market-dominated methods
- 2) Welfare-based methods & community valuation
- 3) Ecological & environmental economics

# WHOSE RISK IS IT ANYWAY? DESKTOP REVIEW OF INSTITUTIONAL OWNERSHIP OF RISK ASSOCIATED WITH NATURAL HAZARDS AND DISASTERS



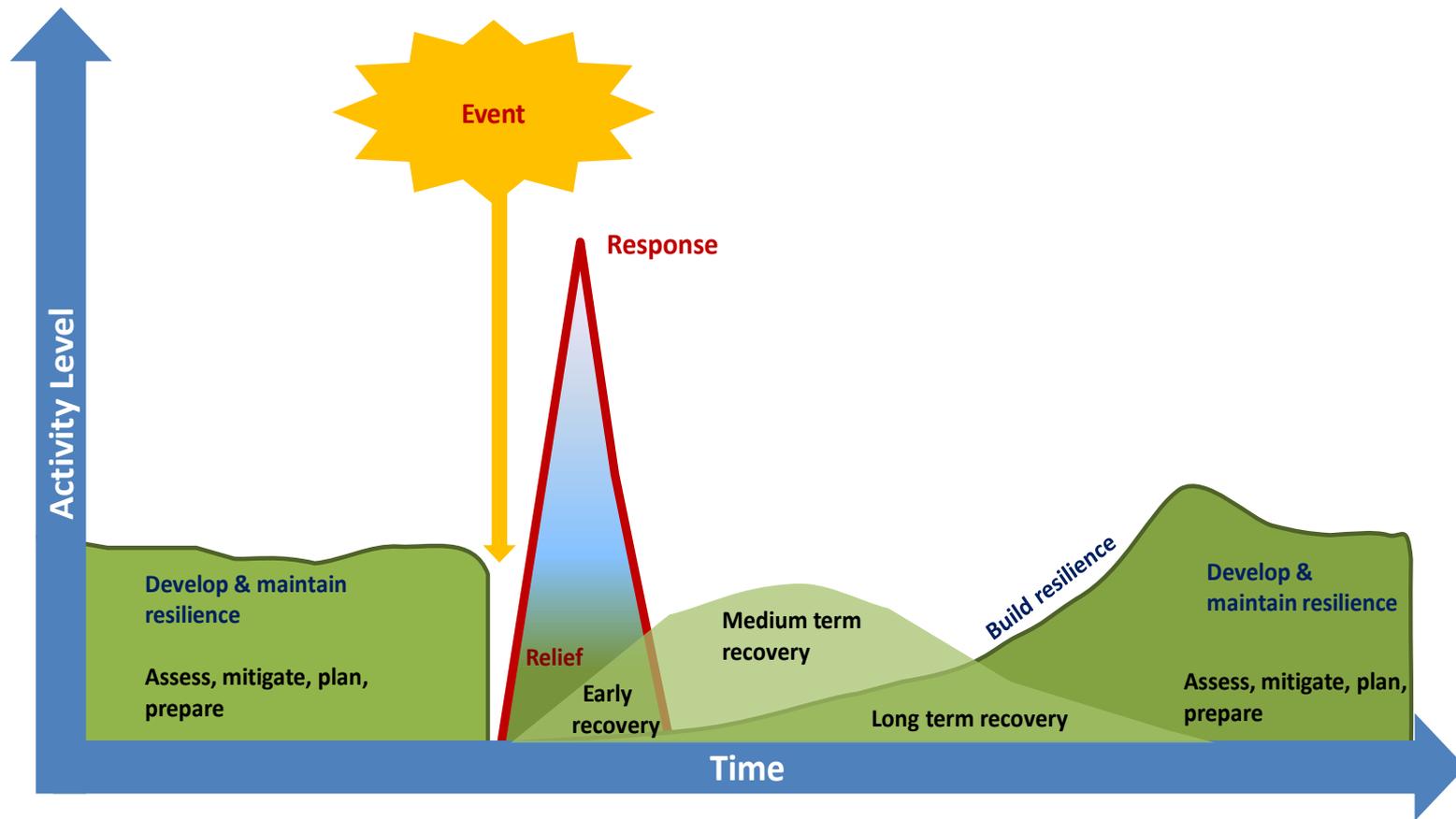
# SCOPE

Risk allocation through:

- Funding and finance.
- Accountability and management.

Using publically available documents only.

# THE PROCESS



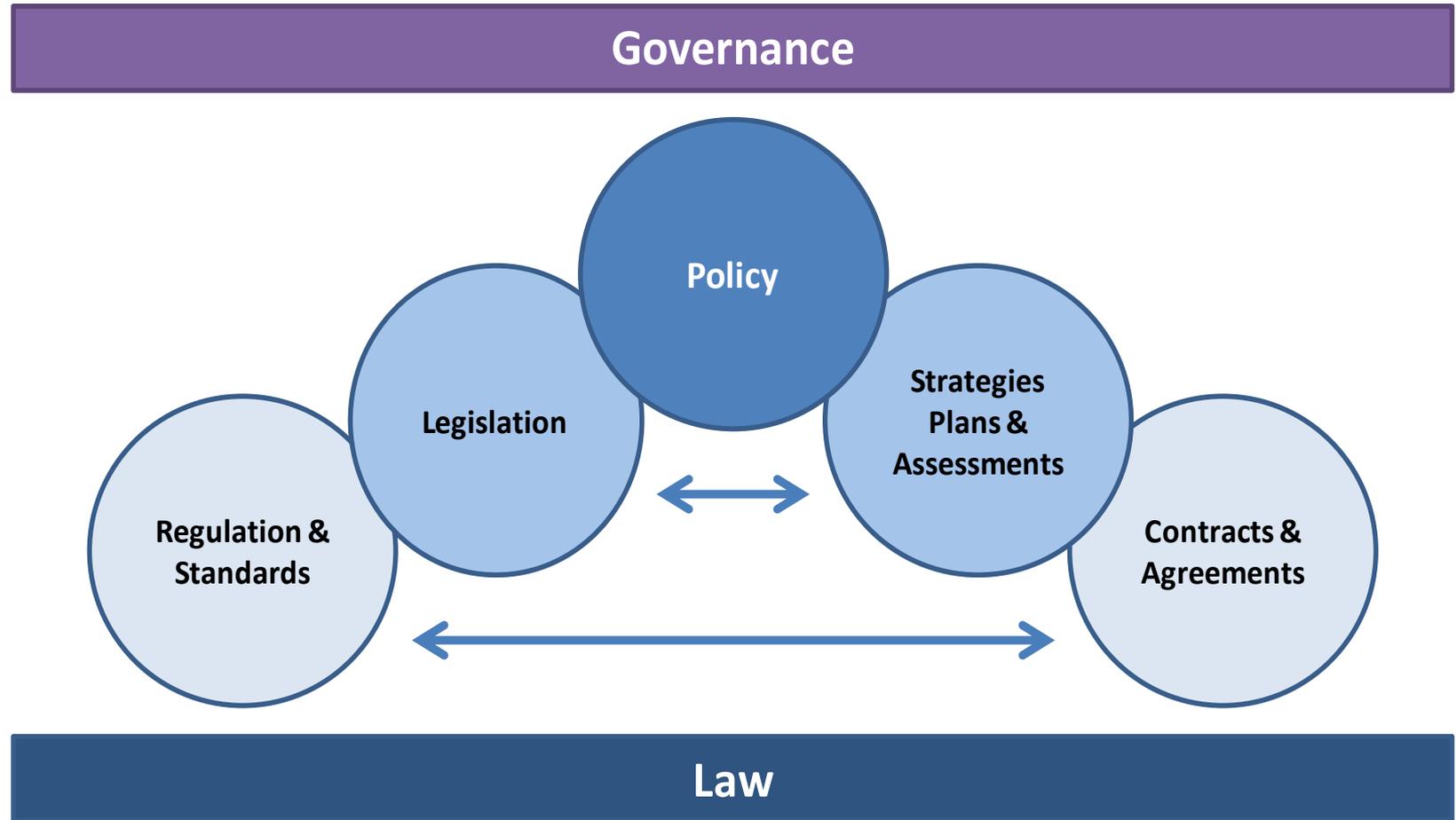
Activity integrating natural hazard risk management tasks across time scales.

Adapted from ([AEMI, 2011 p29](#))

# WHAT RISKS?

External risk examples	Internal risk examples
Natural hazards; e.g., Fire, flood, extreme events, cyclones and heatwaves	Unclear communication
Lack of resilience in the surrounding natural, social and economic systems	Different levels of risk perception and awareness within institutions
Lack of clear accountability/responsibility in other institutions/organisations who are co-participants	Governance – lack of clear accountability/responsibility within the organisation
Abrupt changes in exposure via changing demography, economy or environment	Lack of adequate resources, capacity, organisational flexibility

# INSTRUMENTS



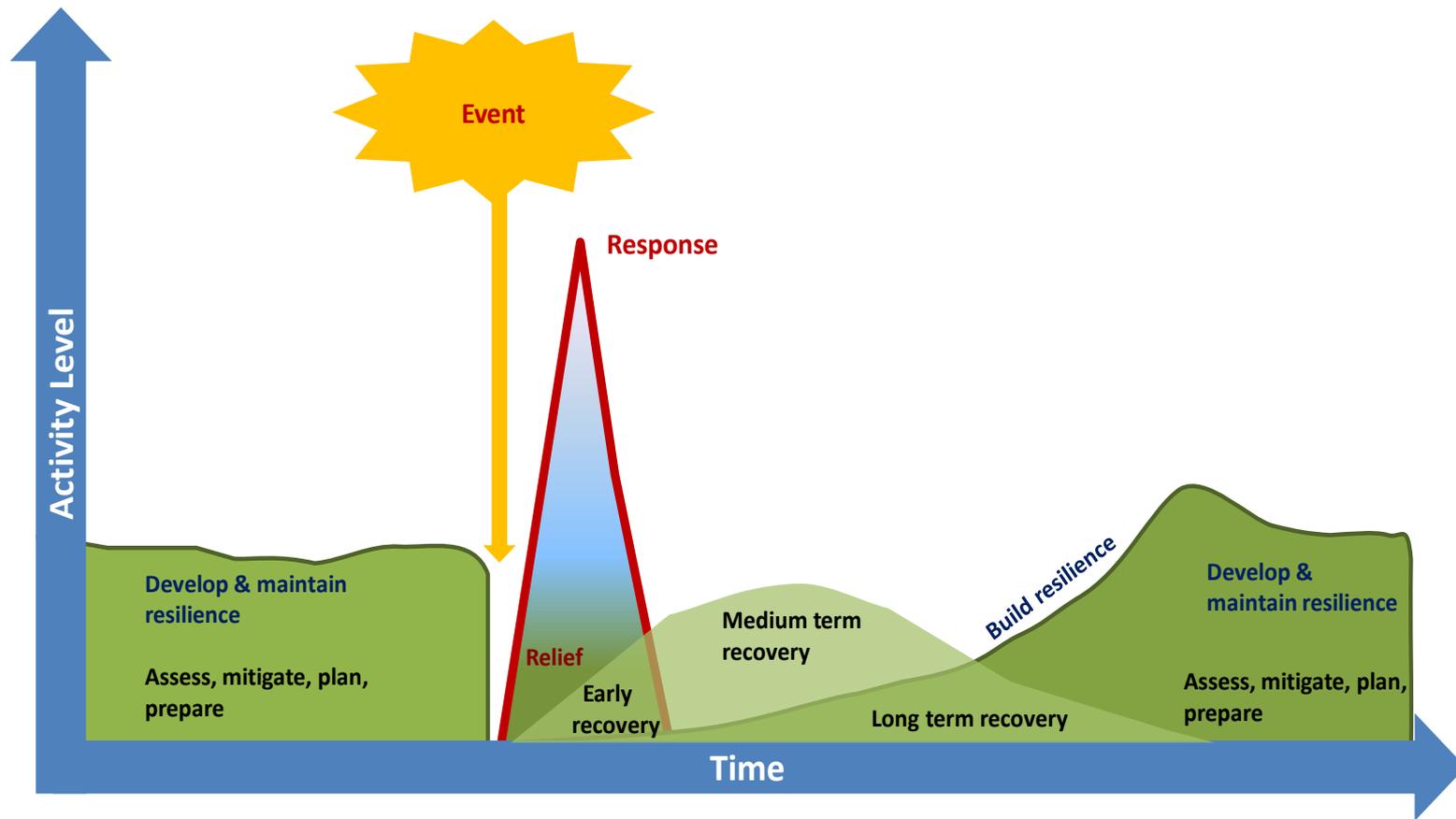
# CHALLENGES

- Lack of consistency and cohesion between the different value groups (social, environmental and built) in terms of evaluation mechanisms and agenda priority.
- Fluid operational and policy environments.
- The systemic and dynamic nature of both risks and their management.
- Variable interpretations of the risks and appropriate governance, particularly across areas of multiple ownership.
- Different ways of identifying risk ownership.

# WAYS RISK OWNERSHIP WAS ALLOCATED

- The risk management process (including natural hazard, emergency management and operational risk management).
- Ownership of the asset at risk.
- Hazard-based allocations of risk; e.g., bushfire or flood activities.
- Responsibility through legislation, policy and regulation.

# THE PROCESS



Activity integrating natural hazard risk management tasks across time scales.

Adapted from ([AEMI, 2011 p29](#))

## KEY FINDINGS

Built infrastructure and assets have the most complete coverage of risk ownership for values and risk.

Ownership is not well defined in the areas of resilience, long-term recovery, or for social and environmental assets. As a result there may be unacknowledged owners of risk with long term impacts as a result.

State government has the largest allocation of risk ownership and some responsibilities shared with federal government. Federal government has specific responsibilities for the national agenda. There is less clarity around risk ownership allocation in local government, civil society and private and business.

# KEY FINDINGS

The majority of recovery funds are currently spent on roads and other transport infrastructure.

Social and environmental assets has delegated ownership for protection, but it is unclear who has the responsibility for their long-term recovery if they are severely damaged.

It is important to provide positive incentives to change from current practices if perverse incentives are likely to hamper recovery or prolong vulnerability.

Accountabilities and responsibilities may exceed the resources and capacity of some organisations and groups.

# NEXT STEPS

- 1) Draft values at risk maps – May
- 2) Four workshops June – September
- 3) Two journal papers:
  - a) Framework
  - b) Risk ownership within this framework
- 4) Develop findings of workshops – risk ownership at the institutional scale

# QUESTIONS

Thank you

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