

Community Risk From Natural Hazards

Transforming Science and Engineering to Impact & Risk

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Theme Leader

NHRP

Natural Hazards Research Platform

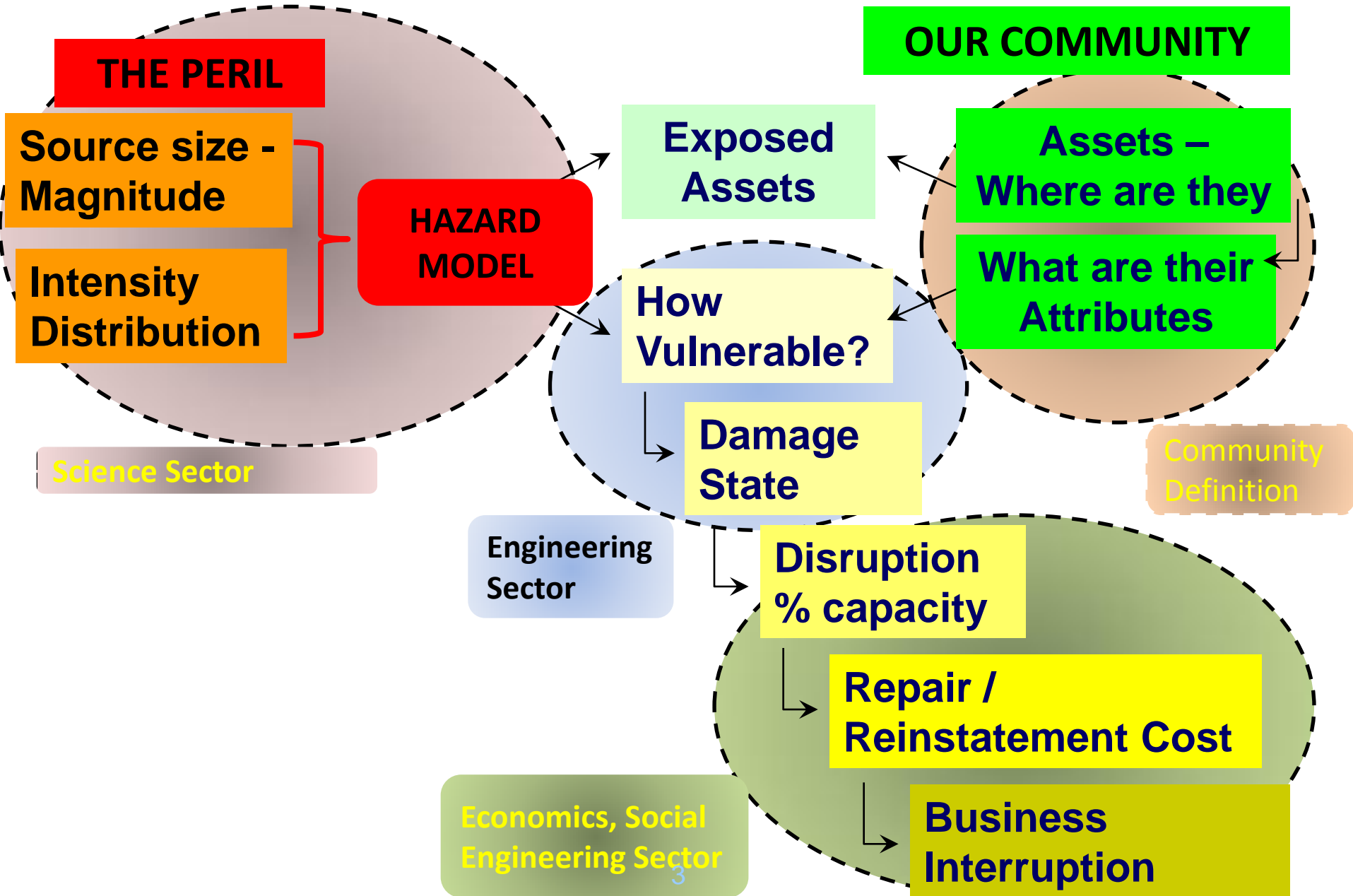


Modelling Natural Hazard Impacts



RiskScape

Fundamental Concepts of Risk Assessment



Outline

- Active Programmes ~ NHRP Risk Theme
 - RiskScape ~ \$2M pa
 - Applying Christchurch losses to NZ ~ \$200K pa
 - Remote sensing ~ \$180K pa
- Related research
 - Behaviour of buried networks ~ \$650K pa
 - Economics of Resilient Infrastructure ~ \$700K pa

RiskScape

A Natural Hazard Risk Assessment Tool

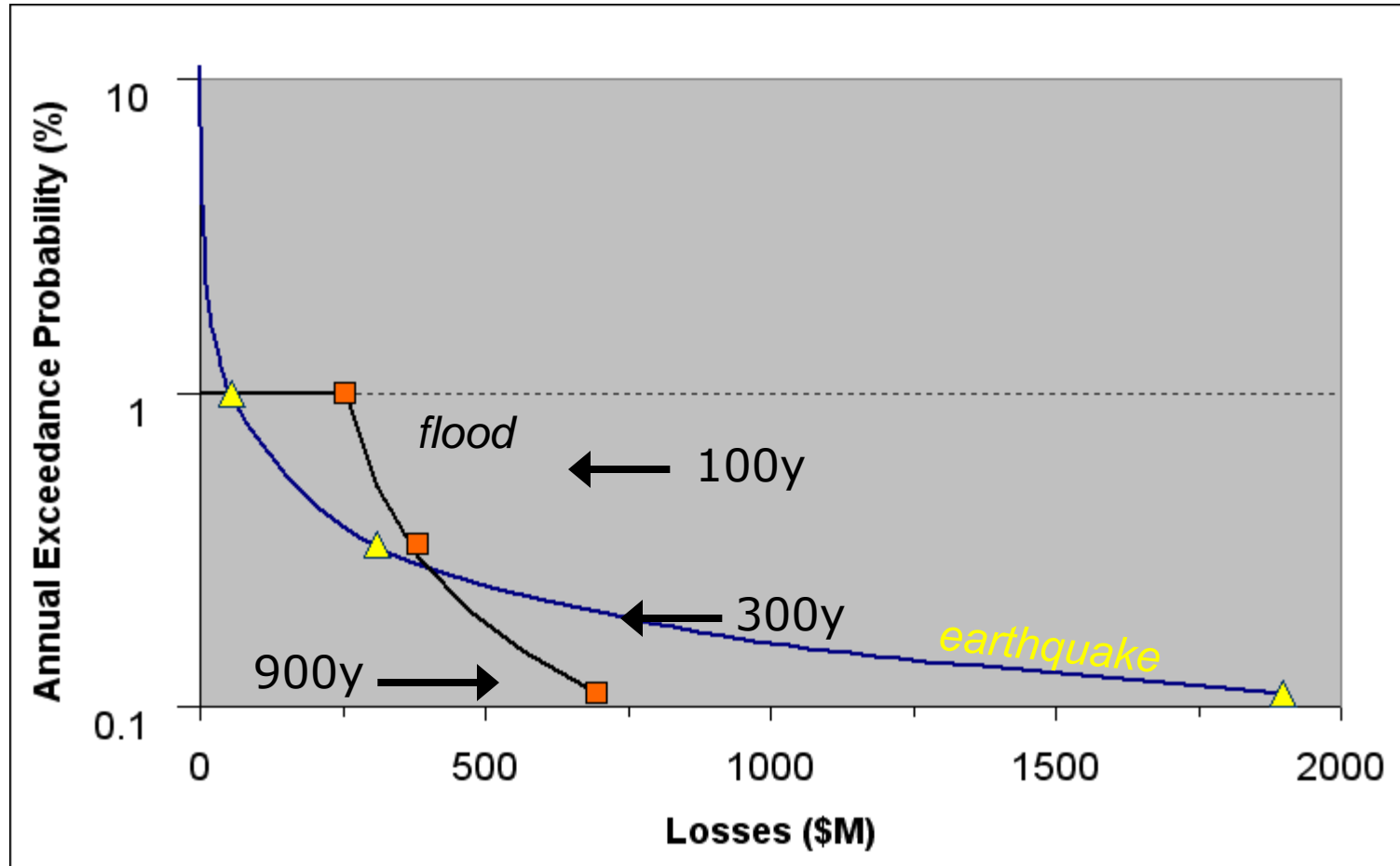
- Includes all of the above hazard models
 - Earthquake / flood / storm / tsunami / volcanic ash / Landslides* / snow* / proximal volcano* / Coastal erosion*
- Accepts wide range of Assets
 - buildings / people / pipes / cables / roads / bridges
- Multiple impacts considered
 - Damage states(5) / economic impact(\$ * 5) / casualties(5) / disruption
- Application across New Zealand (potential)
- Simple use-friendly platform with transparent interface
- Affordable (no expensive license arrangements)



Presenting comparable direct losses

Flood vs Earthquakes (example only)

e.g. could report 1%, 0.33%, 0.11% AEP



Target End-user Sectors

- CDEM Responders
 - MCDEM; Fire Service; Medical Sector; Social Services;
- Administrators
 - Local response
 - Utility operators – priority re-instatement
- Territorial Authorities
 - Land-use planning.
 - Response planning
 - Utility replacement strategies
- Central Government
 - Treasury; Reserve Bank;
- Insurers
 - loss models calibration
 - Understanding NZ risk
 - Risk-informed insurance
- Portfolio Management
 - Risk transfer decisions – self cover; bonds; insure
- MBIE
 - Risk-based Tolerable impacts