bushfire&natural HAZARDSCRC

SCIENTIFIC DIVERSITY, SCIENTIFIC UNCERTAINTY AND BUSHFIRE AND FLOOD RISK MITIGATION: PROJECT UPDATE

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OBJECTIVES

Across the PPRR spectrum in Australia:

1) To investigate the diversity and uncertainty of bushfire and flood science, and its contribution to risk mitigation policy and planning;

2) To explore how diverse individuals use and understand scientific evidence and other knowledges in their bushfire and flood risk mitigation roles; and,

3) To analyse how this interaction produces particular kinds of opportunities and challenges in the policy, practice, law and governance of bushfire and flood risk mitigation.

METHODOLOGY

Qualitative social science method

1. Literature reviews:
    - scenario exercises
    - scientific uncertainty in bushfire and flood risk mitigation
2. Three case studies:
    - interviews and participant observation
    - survey
    - scenario exercise
3. Review of science in court and inquiry processes

RESEARCH ENGAGEMENT

- 1-1.5 hour interviews with 21 risk mitigation practitioners and decision-makers engaged in Barwon-Otway region
- 58-question survey distributed to Barwon-Otway participants
- 11 face-to-face and phone meetings with case study stakeholders including DELWP, INSW, SES NSW, IAG and others

CASE STUDY 1: BUSHFIRE RISK MITIGATION IN THE BARWON-OTWAY AREA, VICTORIA

- high risk area + innovative scientific methods
- bushfire risk: contiguous lands; geographic distribution of population; few historical 'fires of chance'; and, prevailing weather pattern
- governance context: 2002-3 and 2006-7 fires; activity-based measures; and, new tools and data

CASE STUDY 2: FLOOD RISK IN THE HAWKESBURY-NEPEAN VALLEY, NSW

- high risk area + very politicised + extensive reviews
- flood risk: 'bathtub' and other topographical features; high PMF vs 1:100; future development; and, few recent 'major' floods
- governance context: Warragamba Dam; distributed responsibilities and incentives; and, significant community disagreement

SCIENTIFIC KNOWLEDGE AND SCIENTIFIC UNCERTAINTY: LITERATURE REVIEW

Review of scientific literature relating to the mitigation of bushfire and flood risk, led to 3 categories of scientific uncertainty:

HISTORICIST UNCERTAINTIES:

- gaps and inconsistencies in data
- relative rarity, uniqueness and force of hazard
- 'stationarity' and climate change

SCIENTIFIC KNOWLEDGE AND SCIENTIFIC UNCERTAINTY: LITERATURE REVIEW

INSTRUMENTAL UNCERTAINTIES:

- capturing hazard behaviours in simulators and algorithms
- capturing dynamic and static assets and values
- methodological standards

SCIENTIFIC KNOWLEDGE AND SCIENTIFIC UNCERTAINTY: LITERATURE REVIEW

INTERVENTIONIST UNCERTAINTIES:

- quantifying additionality
- reflexivity regarding parameters and consequences

The literature review will be published soon through the BNHCRC.

PRELIMINARY FINDINGS

- Science generates questions and uncertainties; information not answers; professional experience, trust, local knowledge very important to applied science

- Models have a social life; important to understand how 'facts' and uncertainties travel through and between agencies

- Science-led mitigation changes relations with communities and agencies; both opportunities and vulnerabilities

UPCOMING DATES

- Visit by project team member A/Prof Tara McGee (University of Alberta) to present seminars and participate in scenario exercise
- The scenario exercise for the Barwon-Otway case study in April
- Interviews for the Hawkesbury-Nepean Valley case study will occur in June/July
- Dr Neale and Dr Weir will be presenting at the AFAC 2015 conference, 1st–3rd September in Adelaide
- Final interviews for the Barwon-Otway case study in October/November

PUBLICATIONS

- Neale, T (forthcoming), *Scientific Knowledge and Scientific Uncertainty in Bushfire and Flood Risk Mitigation: Literature Review*. BNHCRC/University of Western Sydney.
- Neale, T & Weir, JK (submitted to CRC), Navigating Scientific Uncertainty in Wildfire and Flood Risk Mitigation: A Qualitative Review.
- Neale, T & Weir, JK 2015, *Scientific uncertainty and risk mitigation policy and planning annual report 2014*. BNHCRC.
- Wodak, J & Neale, T 2014, Can We Better Understand How Scientific Knowledges Work in Risk Mitigation Through Scenario Exercises? Poster at 2014 AFAC/BNHCRC Conference, Wellington, NZ.
- Wodak, J 2014, *Scientific diversity, scientific uncertainty and risk mitigation policy and planning: scenario exercise literature review*. BNHCRC/University of Western Sydney.