

December 2012

Towards a Resilient Sydney: research into the role of emergency management in climate change adaptation (research summary)

Emergency Management

Neil Dufty and Tim Morrison, Molino Stewart

Methodology

The report reviewed a range of international, national and Sydney specific literature and undertook interviews with relevant lead emergency management agencies. The report synthesised findings and undertook a gap analysis.

Scope

The report related largely to the resilience interrelationships of disaster risk reduction; emergency management; and community development. It also mapped the relevant legislation and governance arrangements in New South Wales.

Notable Research

- Flood studies, floodplain risk management studies and plans across Sydney region that incorporate climate change and sea level rise (where relevant)
- Bush Fire Risk Management Plans across Sydney region (5-year review of risk)
- NSW State Disaster Sub Plans relevant for Sydney – Botany Bay Precinct, Bush fire, Flood, Hawkesbury-Nepean Flood Emergency, Heatwave, Storm, Sydney CBD Emergency.
- District and Local Displans and Regional/Local Flood Sub Plans
- Bradstock, R.A., Cohn, J.S., Gill, A.M., Bedward, M and Lucas, C. 2009, Prediction of the probability of large fires in the Sydney region of south-eastern Australia using fire weather. *International Journal of Wildland Fire*, 18, 932-943.
- Clarke, H.G., Smith, P.L., & Pitman, A.J., 2011, Regional signatures of future fire weather over eastern Australia from global climate models. *International Journal of Wildland Fire* 2011, 20, 550–562
- Mella, S., & Madill, P., 2007, Climate Changes, Heat Illness and Adaptation in NSW. *Environmental Health*, Vol. 7, No. 3, 98-106
- Department of Climate Change, 2010, Coastal Inundation at Narrabeen Lagoon – Optimising Adaptation Investment. AECOM.
- Environmental Defenders Office of NSW, 2010. Audit of Sea Level Rise, Coastal Erosion and Inundation Legislation and Policy. A report for the Sydney Coastal Councils Group.
- Molino Stewart, 2011, Community responses to sea level rise/flood planning in Lake Macquarie.
- Victorian Department of Planning and Community Development - Resilience measures across all Victorian LGAs
- Howard, B., 2009, Climate Change and the Volunteer Emergency Management Sector. *National Emergency Response*. Winter 2009 8– 11.
- Takahashi, K., 2011, Introduction to Research Projects in Japan relevant to DRR/CCA. *Climate Change Adaptation and emergency management: A workshop on research and policy*. Friday May 20. RMIT.
- Pearce T, Handmer J, Higgins J, King D, McDonald J, Pagano F, Schneider J, Whetton P, 2009, National Climate Change Adaptation Research Plan for Emergency Management. National Climate Change Adaptation Research Facility

Key Commentary

- The three key issues identified as pressing for Sydney from the interviews with the emergency

Emergency Management

Neil Dufty and Tim Morrison, Molino Stewart

agencies representatives: 1) increased workload and strain on capacity; 2) declining volunteerism; and 3) uncertainty as to the effects and community response to hazards. The report notes that climate change may drive organisational change within emergency management – requiring a shared culture that supports a willingness to further develop strategic integration and coordination across agencies.

- Aspects of community development that are increasingly being viewed as critical to emergency management are volunteerism; social capital formation and disaster behavioural psychology. The report noted that no major studies were able to be sourced in relation to emergency management volunteerism, social capital formation or community disaster resilience in Sydney.
- In relation to flooding in Sydney, there is increasing potential risk to infrastructure. The report outlines that it is an imperative that emergency agencies have access to data from all infrastructure owners to enable future emergency planning in flood prone lands.
- There are generally gaps in research relating to recovery from disasters, potentially due to no major natural disasters in Sydney for over 10 years, but noting the research may come under other banners such as social work and health. Lower extent of research into heatwave and coastal erosion/inundation compared to flooding and bushfire. Lower level of research into the preparedness of communities / businesses in Sydney.

Research Recommendations

1. Understand the increased capacities (including of volunteers) required for large-scale and quick repeat hazard events.
2. Examine the future demographics of potentially impacted parts of the Sydney Region and its implications for emergency management in a climate change future.
3. Gauge the present risk perception, preparedness and potential response behaviours (including evacuation) of the Sydney Region populace and ways to improve these behaviours in relation to projected climate change impacts.
4. Define the current roles and responsibilities of Sydney Region local councils in emergency management and examine the implications of this related to climate change projections for the region.
5. Gauge the community resilience levels across the Sydney Region in relation to current and future potential disasters.
6. Investigate the linkages between community development (e.g. social capital formation) and emergency management in the Sydney Region and how to best to leverage these linkages to build community disaster resilience to projected climate change impacts in the region.
7. Examine the potential risks, preparedness, response and recovery required for heatwaves related to climate change projections for the region
8. Identify best practices in recovery across the key natural hazards impacted by climate change.
9. Examine the role of the private sector in adaptation through emergency management.

Key cross sectoral research recommendations

- Emergency management and community – research recommendations #2, #3, #4, #5)