

Climate adaptation research and use: Information exchange shapes research design and delivery in Australia



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Structuring climate information

The scientific community guides the structure of climate information throughout the research process from:

- conceptualizing problems;
- formulating research questions;
- formatting for analyses;
- publishing results, and sometimes, developing useful applications for management and policy.



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Research Communication for immediate impact: Climate adaptation in Australia

Heat - Health and safety

A spatial vulnerability analysis of urban populations during extreme heat events in Australian capital cities

Roads - Local Government

Quantifying the Cost of Climate Change Impacts on Local Government Assets

Risk – Personal understanding

Public risk perceptions, understandings, and responses to climate change and natural disasters in Australia, 2010 and 2011



Western Australia. 2011 © Liese Coulter

Public health and Social vulnerability



A spatial vulnerability analysis of urban populations during extreme heat events in Australian capital cities

Final Report

Margaret Loughnan, Nigel Tapper, Thu Phan, Kellie Lynch, and Judith McInnes



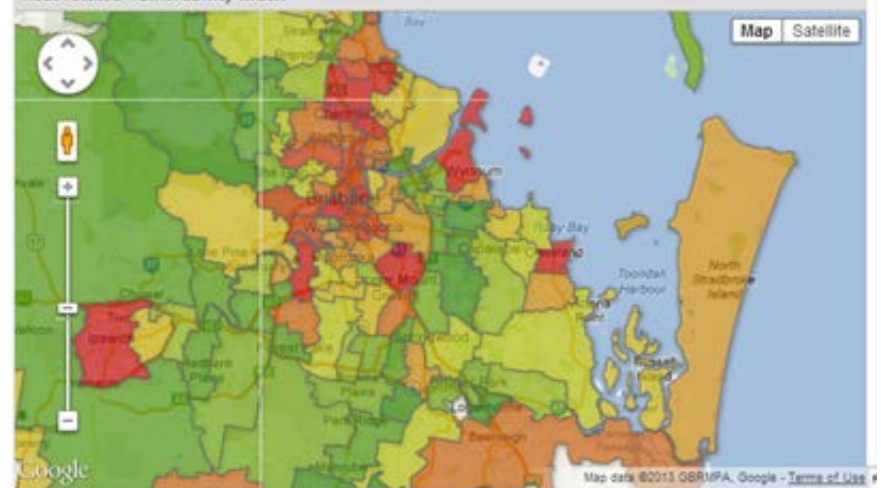
Mapping Heatwave Vulnerability

[Project Overview](#) [Select the City](#) [Feedback](#)

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Brisbane

More information is available at [project final report](#), pp 45 to 50.

Heat related Vulnerability Index



The spatial distribution of heat related vulnerability in the Brisbane greater metropolitan area suggests that areas of higher

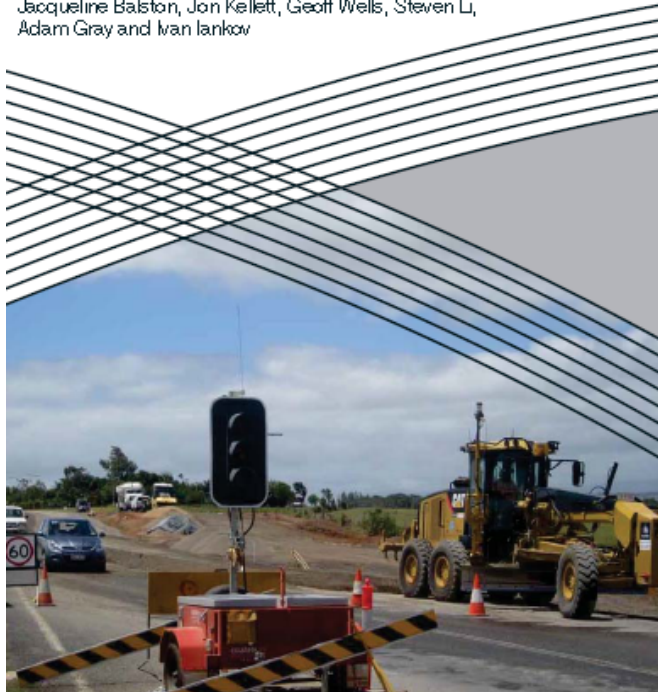
Local Governments and economic planning



Quantifying the cost of climate change impacts
on local government assets

Final Report

Jacqueline Balston, Jon Kellett, Geoff Wells, Steven Li,
Adam Gray and Ivan Iankov



THE FINANCIAL IMPACT OF CLIMATE CHANGE ON LOCAL GOVERNMENT ROADS

The context

Australia's 560 Local Government Councils are responsible for the management of a range of non-financial assets valued at approximately \$300 billion, more than half of which are roads – both sealed and unsealed. As the climate warms, roads are expected to be affected by changes to temperature, rainfall and soil moisture.

The project

This workshop presents the results of a National Climate Change Adaptation Research Facility (NCCARF) research project to develop a financial model to calculate the impacts of climate change on three major asset classes of importance to Australian Councils – sealed roads (both hotmix and spray sealed) and unsealed roads.

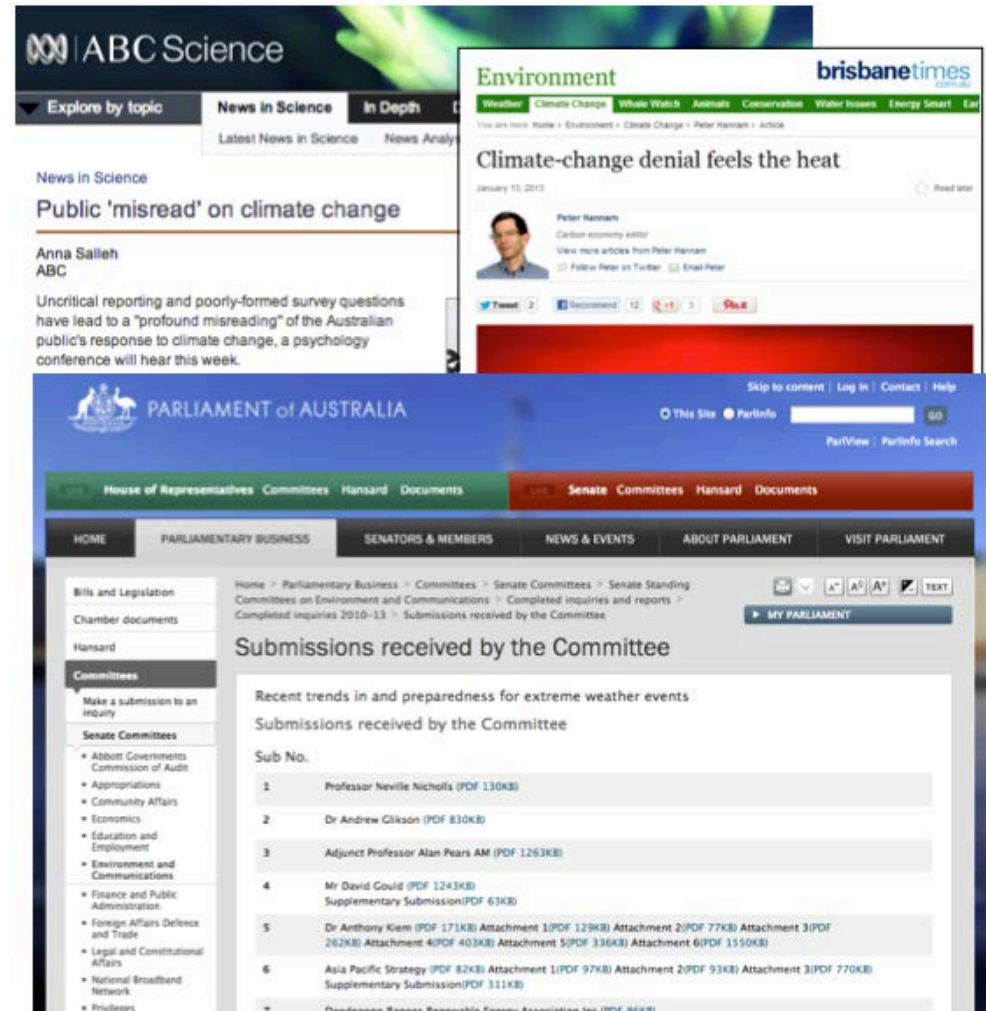
The outputs

The model developed in the project has been tested using real data and currently contains data for 139 Councils across southern Australia. The outputs of the model will provide Local Government with an indication of the likely impacts of climate change on road asset useful life and corresponding changes to maintenance and repair costs.

The workshop

The workshop will include a presentation describing the project and the key findings, a demonstration on how to use the project outputs in the Institute of Public Works Engineering (IPWEA) asset management NAMS.PLUS software and opportunities for questions and interactive discussion with project staff.

Senate Committee submission on extreme weather

ABC Science
Explore by topic | News in Science | In Depth | Latest News in Science | News Analysis

News in Science
Public 'misread' on climate change
Anna Salieh ABC
Uncritical reporting and poorly-formed survey questions have lead to a "profound misreading" of the Australian public's response to climate change, a psychology conference will hear this week.

Environment | **brisbanetimes**
Climate Change | Wildlife | Animals | Conservation | Water Issues | Energy Smart | Car
Climate-change denial feels the heat
January 15, 2013
Peter Hannan
Carlisle economy editor
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Submissions received by the Committee
Recent trends in and preparedness for extreme weather events
Submissions received by the Committee

| Sub No. | Submission |
|---------|---|
| 1 | Professor Neville Nicholls (PDF 130KB) |
| 2 | Dr Andrew Glikson (PDF 830KB) |
| 3 | Adjunct Professor Alan Pears AM (PDF 1263KB) |
| 4 | Mr David Gould (PDF 1243KB) Supplementary Submission(PDF 63KB) |
| 5 | Dr Anthony Kiem (PDF 171KB) Attachment 1(PDF 129KB) Attachment 2(PDF 77KB) Attachment 3(PDF 262KB) Attachment 4(PDF 403KB) Attachment 5(PDF 336KB) Attachment 6(PDF 1550KB) |
| 6 | Asia Pacific Strategy (PDF 82KB) Attachment 1(PDF 97KB) Attachment 2(PDF 93KB) Attachment 3(PDF 770KB) Supplementary Submission(PDF 311KB) |
| 7 | Dandenong Ranges Renewable Energy Association Inc (PDF 86KB) |

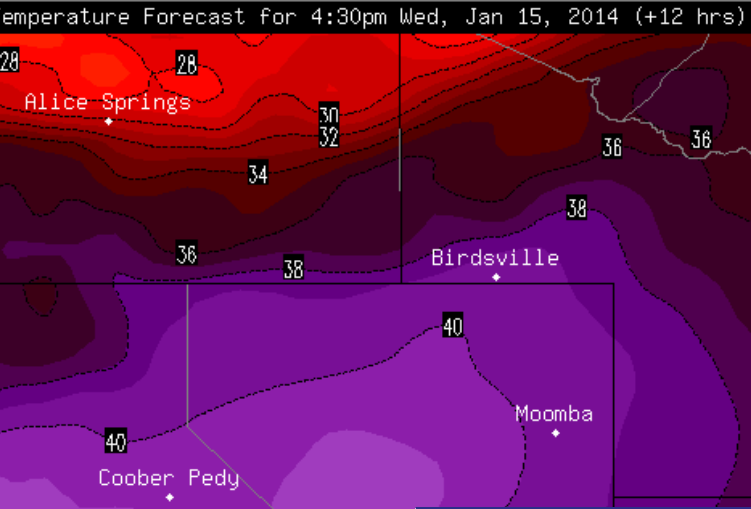
Common factors

- 1) **Ongoing knowledge exchange** based on initial communication and user-engagement plan.
- 1) **Data formatted to suit user's** current practices wherever possible.
- 1) **Investigators developed and maintained relationships** with key stakeholders, meeting periodically for workshops throughout the project.

Common factors

- 4) **Strong communication channels** increased end-user acceptance of new information from familiar and trusted sources.

- 4) **Engagement funding was built into project budget** and included in-kind contributions by stakeholders.



Engagement and communication strategies

| | Data | Dissemination | Application |
|--------------|---------------------------------------|--|---------------------------------|
| Heat | information sources as stakeholders | media interviews | public access vulnerability map |
| Roads | information designers as stakeholders | peak body partnership | integration with user software |
| Risks | research community as stakeholders | media interviews, government submissions | interdisciplinary publications |

Extreme weather events excluded?

"It is important to note that Local Governments generally don't make a specific funding allocation in their annual budgets to make safe and repair as warranted assets that may be damaged by extreme weather events." (p.41 Balston 2013)

RESOURCES

Balston, JM, Kellett, J, Wells, G, Li, S, Gray, A & Iankov, I 2013, *Quantifying the costs of climate change on local government assets*, National Climate Change Adaptation Research Facility, Gold Coast. pp. 215.

Coulter, L., Rissik, D., Zhong, J., (2014) Research Communication for Immediate Impact: Climate Adaptation in Australia, in: Longnecker, N., Harris, C., Madden, K. (Eds.), *Australian Science Communicators National Conference*. 2-5 Feb, 2014. ASC, Brisbane, pp. 22-37.

Loughnan, ME, Tapper, NJ, Phan, T, Lynch, K, McInnes, JA 2013, A spatial vulnerability analysis of urban populations during extreme heat events in Australian capital cities, National Climate Change Adaptation Research Facility, Gold Coast, pp.128.

Reser, JP, Bradley, GL, Glendon, AI, Ellul, MC & Callaghan, R 2012, Public risk perceptions, understandings, and responses to climate change and natural disasters in Australia, 2010 and 2011, National Climate Change Adaptation Research Facility, Gold Coast, 245 pp.

<https://www.nccarf.edu.au/publicationsand> and <http://www.asc.asn.au/publications/>

Sturt Creek crossing SA 2009 Flickr: © Yaruman5