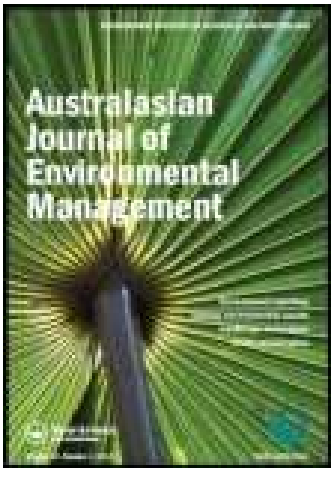

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EDITORIAL

Natural disasters and community resilience

Helen Ross and R.W. (Bill) Carter

Recently, there has been cause for the editors to remark on and express sympathies about the impact of natural disasters, but this season has been the most extraordinary of our lifetimes. We have been part of floods in central Queensland, followed by South-East Queensland, Victoria and Tasmania, a cyclonic-impact wind storm in Western Australia's wheatbelt, cyclone Yasi in Far North Queensland, then fires just outside Perth. As we go to press, a severe earthquake – the second in six months – has occurred near Christchurch, New Zealand; the region featured in one of the articles in this issue.

Some of the editorial team from both Australia and New Zealand, with our colleagues, have been at the centres of these events. We have experienced alarming evacuations, witnessed property damage, participated in the clean-ups, provided moral support, and been part of the immense expression of 'social capital' and self-organisation that emerged spontaneously in the public responses in both countries. Throughout all of the Australian events, the emergency services, the armed forces, leaders at all levels of government, and the media have been impressive in their preparation, responses and communication. Both countries are surely experiencing the benefits of decades of good emergency management planning, enhanced by evaluation of response to recent natural disasters here and elsewhere. We empathise with the dilemmas faced by emergency response teams in determining priorities. Unfortunately, some individuals did not take early flood and cyclone warnings seriously, so property loss was possibly higher than necessary. Others may not have had the capacity to respond fully.

During these events, clean-up and recovery, there has been much talk of resilience. Academics and practitioners are in the early stages of identifying what this involves in a disaster management context and more generally. Resilient communities and resilient biophysical systems are clearly intertwined, as Indigenous Australians recognise in their maxim 'healthy country, healthy people'.

Most of the research on social-ecological systems, however, has focused on natural and farming landscapes, with very little attention to the built environment of settlements and infrastructure. Physical resilience to disasters must be closely related to the placement and design of buildings and infrastructure to tolerate and be repaired quickly after damaging events. Thus, in rebuilding, we have the opportunity to learn how to improve both urban and rural landscape planning to reduce the vulnerability of housing and key infrastructure to probable, and possibly increasingly frequent, events.

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However, despite the personal and rebuilding costs associated with severe events such as the south-east Asian tsunami in 2004 and cyclone Katrina in 2005, there appears to be limited will to consider retreat from certain environments as a strategic response with long-term benefits. This option needs to be traded against predicted costs – can we afford or can we not afford to convert more urban dwellings on floodplains and coastal strips to parklands and reserves? Is it better to adapt infrastructure and building design for easier clean-up, and continue to occupy vulnerable environments?

Architects are already suggesting improved flood-adaptive housing designs, and we can learn much from south-east Asian vernacular housing that is designed to cater for flooding in wet seasons while providing downstairs shady living in the hot dry season. Innovative design needs to accommodate multiple potential hazards – severe storms, flooding, fire – while not detracting from privacy, comfort, aesthetics and practicality. Hasty reconstruction, while highly understandable given the urgency of return to social and economic functioning, continues the level of exposure to the same or potentially increasing risks. At least Australian governments are talking in terms of rebuilding adaptively. For New Zealand, it is too soon to tell.

Academics from different bodies of literature have identified a number of social dimensions of resilience, despite the infancy of this field of research. Many such characteristics have been exhibited in these recent disasters, both by those subject to the events and those assisting in recovery. The literature on social-ecological systems highlights that adaptive governance (Folke et al. 2005; Olsson et al. 2006) often involves strong linkages across spatial scales (local to national) and between sectors (government, community). We have seen this in action at every recent disaster (with some inconsistencies on preferred strategy within Australia as time passed). The spontaneous activation of 'social capital' – bonds within and between social groups – has been impressive, a solace to those affected, as well as a huge practical and economic benefit. Organised volunteers, such as from the Red Cross, were the foundation of evacuation centres, to give just one example. Vast numbers of members of the public stepped in to help wherever needs were seen, and volunteering organisers sprang up to coordinate (with city councils) the effort towards places of need.

Some of the literature identifies knowledge, communication and social learning as critical characteristics of resilience (e.g. Pahl-Wostl et al. 2007). These have also been evident in the recent events, with hydrological knowledge improving prediction and disaster preparation, and (on the whole) excellent public communication through media and word-of-mouth to warn and prepare others. Other aspects of resilience contributed from the literature on individual and community resilience include having a positive outlook and drawing on social networks for support (Buikstra et al. 2010). What remains to be seen is the longevity of the use and strengthening of social capital and governmental roles in mobilising to assure long-term community resilience, particularly in areas that have received recurrent disaster impacts (e.g. Innisfail, Christchurch).

Articles in this issue

In this issue, we have three articles on policy innovations and measuring the state of the environment, one on environmental restoration, and one on public attitudes.

Geoffrey Browne and Ian McPhail document the 'transition' to sustainability principles used to underpin the preparation of the 2008 Victorian State of the Environment report. These are: the fundamental dependence of human wellbeing on ecosystem services; the importance of measuring wellbeing; the value of addressing environmental problems through an 'aetiological' approach of understanding networks of causes; the importance of decoupling and understanding shifting baselines and tipping points; and the role that resilience and its elements must play in transitioning to a sustainable future. These principles reflect the complexity and interdependence of environmental issues. Browne and McPhail argue that, where interpretations of human wellbeing run counter to sustainability, these principles can help government and other policy-makers to integrate sustainability into decision-making. The principles will be useful in designing new approaches consistent with complex adaptive systems thinking.

Non-market valuation of environmental assets has gained an important role in providing information to policy-makers. Jeff Bennett provides a lucid introduction to this field and uses a set of recent choice modelling studies to explore methodological challenges in the application of stated preference techniques. These challenges include ensuring that respondents have an incentive to answer without bias, selecting appropriate attributes of environmental change, incorporating uncertainty in the future management scenarios, and integrating value information into decision support systems. He advises on refinements to ways of presenting the choice questions to improve the likelihood of unbiased answers and hence the confidence with which policy-makers can use value estimates in decision-making. The studies indicate the Australian public's positive orientation towards environmental improvements, and potential support for policy initiatives.

Turning to the on-ground practicalities of environmental management, Michelle Frey and Ian Spellerberg outline the approach taken to restoration of a New Zealand gravel pit for amenity and biodiversity values. Gravel pits are common, yet since they predate most environmental legislation, there is little statutory demand for their restoration. Key factors in the successful restoration process were a visionary initiator, preparation and planning, proximity to a small town, local government and community support, and the legal status of the site. The process is an exemplar for community-based restoration processes, that bring degraded environments into new productivity.

Matthew Gilbertson and colleagues explore public acceptance of water conservation measures in Darwin, an urban area well supplied with water, and the Mallee in north-western Victoria, a rural area which had suffered severe droughts. While both sets of participants were strongly in favour of water conservation, significantly more people from the water-scarce Mallee region favoured and participated in water conservation measures. While not inherently surprising, this confirms other literature on the influence of a motivation to avoid running

out of water. The results affirm the importance and feasibility of demand management as a component of water supply, and suggest the importance of tailoring communication messages. Conservation messages could assist people elsewhere to imagine what it would mean to have no water, and how their water conservation behaviour can make a difference to their families and to all of Australia.

New publishing arrangements

This is the first issue to be published under a new partnership with Taylor & Francis Ltd. This continues the journal's evolution in step with the major international changes in scholarly publishing and the use of dissemination technologies that has occurred in recent years. Taylor & Francis is a major international publisher, with a strong record of working in partnership with professional associations and learned societies to publish scholarly journals. Taylor & Francis has an office in Melbourne and publishes 60 Australasian-edited journals. It is recognised for its 'green' publication processes, which have won the International Printers Network's International Publisher of the Year award for use of digital printing technology to reduce carbon footprint. The new arrangement will also help us to 'grow' the journal and our international readership. While any changes in journal policy and content will be evolutionary rather than revolutionary, the editors and authors will soon benefit from more efficient manuscript handling procedures, including web-based submission of manuscripts. It is with some sadness, however, that we leave a rewarding relationship with Hallmark Editions, our typesetter-printer over the many years of self-publishing this journal. We thank Hallmark, and particularly Mitzi Mann, for their quality of work, efficiency and friendly service. We thank our Associate Editor Bec McIntyre, who is also EIANZ Publications Officer, Anne Young (EIANZ Operations Manager), Bill Haylock (President) and Michael Chilcott (Treasurer) for their roles in the selection and establishment of a new publisher. We also thank editorial assistants Jasmyn Lynch and Natalie Jones for their roles in managing the transfer.

We also welcome some new members to the Editorial Advisory Board: Prof. Carol Adams of La Trobe University, Melbourne; Prof. Neil Adger of the University of East Anglia, UK; Prof. Paul Eagles of the University of Waterloo, Canada; Prof. Suzanne Benn of the University of Technology Sydney; Prof. Claudia Pahl-Wostl of the University of Osnabrück, Germany; and Prof. Craig Pearson of the University of Melbourne. We thank those retiring from the Board after some years of service.

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Editors' tips

We are introducing a new segment on writing advice for journal publication. This issue's tip is to target your journal carefully. Key considerations are:

- Does your work fit the scope of this journal?
- Does this journal attract your target readers?
- Does the journal have the reputation to match your professional needs? (This is important for academics)
- Is your scientific or policy content, and standard of writing, sufficient to be accepted in this journal?