Afterword: Floods, Storms, Fire and Pestilence – Disaster Risk in Australia During 2010–2011

DAVID JOHN KAROLY AND SARAH BOULTER

Most of the natural disasters described in this book were single events affecting one region at one time. They were considered usually as isolated or individual events in the discussion of responses. However, climate change acting together with other factors, including population growth and coastal development, is likely to increase the risk of multiple natural disasters occurring in a short period of time and affecting the same region or country. Nearly simultaneous natural disasters will impose much greater stresses on emergency management systems than isolated events, stretching resources and systems.

So, what happens when multiple natural disasters affect the same country over a short period? In late 2010 and the first half of 2011, different parts of Australia experienced a wide range of natural disasters (or risk of disasters), with locust plagues in south-eastern Australia; wildfires and heatwaves in Perth in south-west Australia and Sydney on the east coast; flooding in many parts of northern, eastern and south-eastern Australia; severe thunderstorms causing flash flooding in south-east Queensland; and a Category 5 tropical cyclone making landfall on the north-east coast (Figure 25.1). While these were not all the biblical plagues of Egypt, the country could be forgiven for thinking ‘the gods’ were angry.

In some of these events, good preparation and emergency management meant almost no loss of life and actual damage much less than the potential (tropical cyclone Yasi in Queensland, locust plague in south-eastern Australia). Elsewhere, systems and procedures were inadequate to prevent loss of life because of flash flooding (south-east Queensland). Here we review the unfolding of events and cumulative impact of these disasters.

25.1 Disasters and Response – Australia in 2010/2011

25.1.1 *Locust Plague*

As early as autumn of 2010, the Australian Plague Locust Commission (APLC) and governments of South Australia, Victoria and New South Wales (NSW) identified

Figure 25.1 Schematic map of disaster risks during the summer of 2010–2011 showing the widespread geographical impact of the events on Australia.

the potential for a major spring infestation of the Spur Throated Locust in southern Australia. The tropical Queensland locust species rarely reaches plague proportions in southern states unless wet, humid conditions persist. In 2010, heavy summer rainfall boosted locust numbers with high autumn laying and a southward migration of adults. With high numbers of egg-laying adults, a high spring hatching was predicted as a result. A coordinated effort to prepare for the outbreak and minimise damage was initiated by state authorities and the APLC (APLC, 2010; Millist and Abdalla, 2011).

With at least six months in which to prepare for the outbreak, considerable resources were poured into stockpiling chemicals, preparing staff and equipment, surveying 'hotspots', and raising community knowledge and awareness. Regional and local preparations also included financing chemical rebates to landholders and the establishment of regional stakeholder groups. Locusts were targeted during the nymphal or band stage, before they reached the far more difficult-to-control stage in which they fly and form swarms (APLC, 2010).

A cost-benefit analysis of the operation estimated that the potential losses of the locust outbreak were in the order of AU\$963 million. Investment in treatment by all

parties was in the order of AU\$50 million, giving a net saving of AU\$913 million (Millist and Abdalla, 2011), although significant (unquantified) damage still occurred across the affected states (Ludwig, 2011).

The success of the control operation appears to be because of the early activation of response and planning, an appreciation of the potential severity of an uncontrolled outbreak, investment and cooperation across several jurisdictions, establishment of community and regional reference groups that allowed communication between local landholders and operational people on the ground as well as a strong community awareness campaign. In South Australia, for example, Biosecurity SA undertook a six-month campaign that harnessed community engagement, media liaison, fact sheets, a constantly updated website, weekly e-news and SMS text messages to subscribers for aerial spraying alerts (Biosecurity SA, 2010).

25.1.2 Floods

Beginning in Victoria in September 2010 (Comrie, 2011), widespread flooding was experienced across eastern Australia through until February 2011 (BOM, 2011a). The state of Queensland experienced some of the worst flooding, affecting three-quarters of the state and 2.5 million people. Thirty-five people lost their lives, with a further three missing (QFCI, 2011). The Australian Bureau of Meteorology recorded flood peaks at more than 100 Queensland river-height stations, and some 29,000 homes and business experienced some level of inundation. The cost of recovery has been estimated on the order of AU\$5 billion (Queensland Government, 2011). Major flooding was also experienced in NSW, Victoria and Tasmania at various times (BOM, 2011a).

At the height of the flooding in Queensland (and leading into the approach of cyclone Yasi, which made landfall on 3 February), the state's premier became the primary source of up-to-date and accurate public information through regular briefings, advising her constituents, 'If you hear or read on social networking sites rumours or statements, if they're not confirmed in these meetings, if you don't hear them out of my mouth or out of the police commissioner or deputy commissioner then it's very unlikely to be true' (Bligh, 2011).

Recovery

In response to widespread, regional flooding, the Queensland government established the Flood Recovery Taskforce on 5 January 2011. The scope of this body continued to expand as the scale of the disaster increased, and its role included the post-cyclone Yasi recovery efforts. A massive volunteer effort was also involved in the clean-up of affected suburbs in the cities of Brisbane and Ipswich.

In the aftermath of the flooding, a number of formal inquiry processes were set up to examine planning and response measures with the view to improve these in future events. In Queensland, the Queensland Floods Commission of Inquiry released an

interim report in August 2011 that made 175 recommendations on matters of flood preparedness, with the intent that these be available and actioned prior to the next wet season (QFCI, 2011), and a final report in March 2012 that made further comments on planning, development, mining, infrastructure, the operation of the Wivenhoe Dam and the deaths (QFCI, 2012). While a clear public warning and response effort was very successfully conducted, there were a number of aspects of the management of events that have attracted considerable public scrutiny: The limited warning of the most catastrophic flash flooding event in the Toowoomba and great Lockyer Valley region and the role of dam operations in the flood levels experienced in Ipswich and Brisbane (QFCI, 2012). The operation of the dam came under considerable scrutiny. The floods were preceded by several years of severe drought, and it became apparent that the procedures for flood mitigation conflict with the requirements for storing sufficient water in drought conditions for a large urban centre. The operations manual of the dam reflected conflicting procedures.

A similar inquiry process in Victoria examined the response to flooding in that state. In this case, the Victorian Flood Review (VFR) identified the same shortcomings in the state's emergency management arrangements that had been identified in the Victorian Bushfire Royal Commission (see Whittaker et al., Chapter 8). They noted that, despite the appropriateness of an 'all hazards, all agencies' philosophy of emergency management, it was not effectively operationalised because of barriers created by the organisational culture and lack of communication, coordination and information sharing. Critically, a lack of robust policy that could facilitate a coordinated or adequate command structure meant the response to the floods was *ad hoc*. One reason for these shortcomings was the adherence to artificial administrative boundaries, whereas a regional-scale response with clear articulation of roles would have ensured best practice in flood warning. The review also raised serious concerns over the vulnerability of privately owned and operated infrastructure in floodplains, the message being that mitigation of flood risk should be incorporated in planning and development (Comrie, 2011).

Rebuilding and Adapting

In one of the most severely affected townships, Grantham, the local council took the extraordinary step of relocating residents from the valley bottom affected by the floods to higher land. A very rapid response to the devastation saw the concept of relocation mooted in the first week after the floods. The local council prepared a community recovery and relocation plan together with a new master plan for the town, which moved at-risk residents to safer ground. In a fast-tracked development, residents were able to apply for the voluntary land swap in June 2011, with a ballot in August giving about 50 per cent of applicants their first preference. Residents began moving in at the end of 2011. This move affects about one-third of the population of Grantham, and there is no doubt that it is key to the long-term viability of the community, given the

devastation wrought by the floods. The entire project is expected to cost the council AU\$30 to 40 million.

Across Queensland, new mapping of floodplains is being undertaken to assist councils in planning and development. The Queensland Flood Commission of Inquiry considered the issue of zoning, although no recommendations were made in its final report.

In Brisbane, the local council introduced temporary planning provisions as of 16 May 2011 aimed at reducing flood damage risk to new housing and rebuilding of damaged housing in flood prone areas. In advice to residents wishing to flood-proof rebuilding efforts, the council suggests, 'You could consider raising your house ... and use building products that have higher water resistance ratings' (BCC, 2011), with the recommendation that habitable areas of a house should be raised 500 mm above 2011 flood levels. In areas where flood levels already reached the second storey of some properties, this may not be a practical option. This then raises the long-term issue of whether there should be some program of buy-back in very vulnerable locations.

25.1.3 Cyclone Yasi

Severe tropical cyclone Yasi crossed the coast of north Queensland on 3 February 2011 as a Category 5 storm. Warning of the system and its potential to develop into a very large and severe event was available from as early as 28 January (Withey and Bavas, 2011). The government reactivated the State Disaster Management Group (recently stood down following the Queensland flooding) to prepare for the storm. Considerable effort was made to understand the potential for damage and storm surge, and a number of precautionary evacuations were instigated, including the complete evacuation of Cairns's two hospitals.

Although the storm brought with it extensive rainfall, wind damage and surge, there was only one recorded death (because of asphyxiation from diesel generator fumes). Significant wind damage was reported between Innisfail and Townsville (a distance of approximately 200 km; Boughton et al., 2011). The Insurance Council of Australia estimated the 2011 damage bill at AU\$1.4 billion (Insurance Council of Australia, 2012).

Again, a very clear warning and message was made to residents, with the state's premier identifying the window of opportunity to evacuate and advising residents on the best preparations and most sheltered place to stay in their houses in the lead-up to cyclone landfall.

Rebuilding is still ongoing two years after cyclone Yasi crossed the coastline. Significant investment was made in both the clean-up and improvements for future resilience. The Queensland Reconstruction Authority (QRA) undertook a program of 'build back better' with reconstruction to current engineering standards as a minimum,

and as described by the QRA Chairman, where it 'makes sense', improvement of the rebuilt structure (van Vonderen, 2012).

For the state of Queensland, the succession of disasters across several years has seen the reconstruction authority take on a more permanent ongoing role and has been instrumental in developing strategies for disaster resilience (e.g. Queensland Reconstruction Authority, 2012).

25.1.4 Heatwaves and Fire

The Sydney region experienced seven days of temperatures higher than 30 °C from 31 January 2011, with a maximum of 41.5 °C being reached on 5 February (BOM, 2011b). This event featured the hottest night on record, of 27.6 °C. Night-time temperatures were exceptionally warm and coincided with high humidity associated with recent tropical cyclone activity (T.C. Anthony and Yasi). On 6 February, the NSW Health Department said sixty-two people had been treated in emergency departments for heat-related illness in the preceding six days (O'Rourke et al., 2011), and throughout the week, paramedics responded to 213 cases of heat-related illness across the state (Schwartzkoff, 2011). Although electricity demand reached peak levels, with a record weekend demand on 5 February, only minimal power outages were experienced (Schwartzkoff, 2011). On 31 January, NSW Health issued warnings to communities about how to behave and take care of themselves in heatwave conditions.

In the same period, extreme fire weather was being experienced in Western Australia. A total fire ban was invoked in the Perth region on 3 February 2011. The first fires began on 5 February after a prescribed burn escaped containment lines, spreading very rapidly and eventually destroying seventy-one homes and damaging a further thirty-nine. Fortunately, no lives were lost (Keelty, 2011).

Early warnings of the impending severe fire season were issued by the Bureau of Meteorology (BOM) in October of 2010, and the WA Minister for Emergency Services was able to advise the WA parliament of the severity of the risk (Emerson, 2010).

25.2 The National Scale

This series of natural disasters across Australia in 2010 and early 2011 was both directly and indirectly very costly to the nation. Insurance claims across the five events equal some AU\$4.4 billion, while estimated government expenditure on the recovery is set to exceed AU\$12 billion (Table 25.1). To meet the huge demand for rebuilding costs, the Australian government introduced legislation for a once-off tax levy (Gillard, 2011).

The costs to government budgets were also felt through a number of market mechanisms. In the first quarter of 2011, the Australian GDP shrank by 1.2 per cent

Table 25.1 *Cost of the disasters*

Event	Date	Location	Insurance claims (AUD) ¹	Government expenditure (AUD)
All natural disasters	2010/2011 financial year		N/A	\$6.6 billion (Federal) ²
Locust outbreak	2010/2011	Victoria, South Australia, NSW	N/A	\$50 million
Queensland flooding	21/12/2010 to 14/01/2011	Queensland, rural, Toowoomba, Lockyer Valley	\$2.39 billion	\$5 billion (Queensland) ³
Victorian flooding	12/12/2011 to 18/1/2011	Victoria	\$126 million	\$676 million (Victoria) ⁴
Cyclone Yasi	2/2/2011 to 7/2/2011	Far north Queensland	\$1.41 billion	(included in total for Qld flooding)
Severe storms Victoria	4/2/2011 to 6/2/2011	Victoria	\$488 million	
Perth Hills bushfires	5/2/11 to 7/2/11	Perth and surrounds	\$35 million	
Totals			\$4.45 billion	\$12.33 billion

(seasonally adjusted), and this was largely attributed to the impact of natural disasters, in particular the widespread flooding (Smith, 2011). Budget forecasting predicted reductions in tax receipts as a result of businesses being affected by disasters. For example, coal exports fell 25 per cent after the floods, wiping out AU\$7 billion worth of coal production in Queensland alone (Smith, 2011). The value of the Australian dollar was particularly high during the period following the floods, and it has been suggested that one reason for this is the increased demand by foreign reinsurers for Australian dollars to meet pay onto the insurance companies (Glynn, 2011).

National Emergency Management Planning

In 2009, the Council of Australian Governments released a national disaster resilience statement. This document sets out a direction for emergency management to build national resilience. The policy signalled a shift from focussing on documenting roles, responsibilities and procedures by building upon existing emergency planning

¹ Insurance Council of Australia as at 21 January 2013.

² Federal budget predictions over next six years.

³ Queensland Government, 2011.

⁴ Victorian state budget released in May 2011 (AU\$115 million expected to be recovered from insurance).

arrangements to focusing on action-based resilience planning to strengthen local capacity and capability, improving community engagement and a better appreciation of community diversity, needs, strengths and vulnerabilities (NEMC, 2009). A national emergency alert system has been established in Australia, which sends recorded messages to phones based on billing address in the case of an emergency (see www.emergencyalert.gov.au).

25.3 The Role of Climate

Large-scale patterns or modes of climate variations, such as El Niño-Southern Oscillation affecting countries bordering the Pacific Ocean or the North Atlantic Oscillation, tend to organise climatic extremes so that multiple natural disasters are more common in some years in some regions. A very strong La Niña event occurred in 2010 and 2011, with colder-than-normal ocean temperatures in the equatorial Pacific Ocean and associated increases in rainfall over eastern Australia and reduced rainfall on the Pacific coast of tropical South America (Blunden and Arndt, 2012).

The typical pattern of rainfall anomalies in Australia during a La Niña event was very strong in 2010/11, with record high rainfall in a number of parts of northern, eastern and southern Australia but record low rainfall in south-west Australia (Figure 25.2; Ganter and Tobin, 2012). La Niña events are also associated with an increased risk of land-falling tropical cyclones on the north-east coast (Evans and Allan, 1992) and above-normal temperatures in south-west Australia (Jones and Trewin, 2000). Hence, La Niña provided the large-scale climatic environment that increased the chances of these natural disasters affecting Australia in the same period. In addition, there were record high sea surface temperatures in the eastern Indian Ocean to the north-west of Australia, which likely enhanced the typical La Niña pattern. The previous very strong La Niña in 1974 was also associated with flooding in Brisbane and much of eastern and southern Australia, as well as the severe tropical cyclone Tracy that caused extensive damage to the city of Darwin in northern Australia.

While the possible contribution of anthropogenic climate change to extreme weather and climate events in 2011 in other regions has been considered (Peterson et al., 2012), no such studies have been completed for these extreme events in Australia yet.

25.4 Conclusion

A number of the disasters reported here have been followed up by a formal inquiry process that assesses the response of community and emergency management, considers existing vulnerabilities and makes recommendations for actions to reduce the impact of future events (adaptations). This model has been employed in Australia

Figure 25.2 Australian rainfall anomalies for the twelve-month period May 2010–April 2011, showing large parts of central and eastern Australia experienced record high rainfall but the south-west of Western Australia experienced record low rainfall (Australian Bureau of Meteorology).

following some of its worst disasters (e.g. the Black Saturday fires described in Chapter 8). In Queensland, the reconstruction and recovery effort is aimed at rebuilding a 'stronger, more resilient Queensland' (Queensland Reconstruction Authority, 2011). It is clear that the detailed assessment of the successes and limitations of past emergency management responses can help to build improved responses to future events.

However, while one of the goals of such inquiries is to aid in the rapid rebuilding of safe communities and to minimise the risk of future natural disasters, sometimes their limited scope can lead to perverse outcomes. The IPCC Special Report *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* (IPCC, 2012) makes it clear that effective management of the risks of weather and climate-related disasters requires the consideration of anthropogenic climate change as one of the multiple stressors increasing the risks of extreme events. This has not always been the case in the recent inquiries in Australia.

Multiple natural disasters affecting one country over a relatively short period, such as Australia in 2010/11, provide an indication of the limitations of natural disaster management systems in coping with current extreme events and the even greater limitations likely under the compounding effects of future climate change.

In particular, the structural organisation of the responding organisations appears to fall short of what is necessary to deal with large-scale and multiple rapid-succession disasters.

Unlike the biblical plagues of Egypt, there is no book with which to inspire 'belief' in climate change, and one of the greatest challenges for climate change adaptation is convincing the wider community and the political body of the need for action now in response to a growing threat. In Australia, there appears to be an alarming trend toward increasing scepticism despite the daily growth in scientific literature that shows the future may be grimmer than we first thought. Human nature means we understand and respond to immediate or previously experienced threats, but if we can't make an emotional connection to a problem, we defer action. The experience of disasters may be the best 'surrogate' or 'analogue' we have to the problems of and pathways to adapting to climate change.

In Australia, a strong community program of risk awareness using imagery of king tides (as an analogue for sea-level rise) provides community-based guidance to build resilience (see www.greencrossaustralia.org). The 'Harden Up' slogan adopted for this Web-based agent-of-change program suggests to the community that they must empower themselves, but the website also uses disasters and extreme events as a pathway to develop community resilience and adaptation action. The lessons provided by the natural disasters described in this book can assist with adaptation to climate change, but only if we listen.

References

- APLC – Australian Plague Locust Commission (2010). General situation in April and outlook to spring 2010. *Australian Plague Locust Commission Bulletin*, May 2010. Accessed 17 December from: <http://www.daff.gov.au/_data/assets/pdf_file/0011/1623656/bulletin-may2010.pdf>.
- BCC – Brisbane City Council (2011). *Floods Fact Sheet Advice for Residents. Approvals for Repairing, Renovating or Rebuilding Flood Affected Houses*. Brisbane: Brisbane City Council. Accessed 17 December 2012 from: <http://www.brisbane.qld.gov.au/2010%20Library/2009%20PDF%20and%20Docs/5.Community%20Support/5.4%20Emergency%20management/Factsheet_Planning_and_Building_Residents.pdf>.
- Biosecurity SA (2010). *Locust Management in Grain Crops and Pastures*. Adelaide: Primary Industries and Regions South Australia. Accessed 10 June 2013 from: <http://www.pir.sa.gov.au/_data/assets/pdf_file/0019/131059/locstman_Grain_Crops_and_Pastures_ds.pdf>.
- Bligh, A. (Premier of Queensland) (2011). *Transcript – Press Conference – 11:30 am Thursday, 13 January 2011*, media statement. Accessed 17 December 2012 from: <<http://statements.qld.gov.au/Statement/Id/73283>>.
- Blunden, J. and Arndt, D. S. (2012). State of the climate in 2011. *Bulletin of the American Meteorological Society*, 93(7), S1-S264.
- BOM – Bureau of Meteorology (2011a). *Frequent Heavy Rain Events in Late 2010/Early 2011 Lead to Widespread Flooding Across Eastern Australia. Special Climate Statement 24*. Melbourne: National Climate Centre, Bureau of Meteorology. Accessed 10 June 2013 from: <<http://www.bom.gov.au/climate/current/statements/scs24c.pdf>>.

- BOM – Bureau of Meteorology (2011b). *Sydney in Summer 2010–11: A Dry Summer with Very Warm Nights*. Sydney: Bureau of Meteorology. Accessed 18 December 2012 from: <<http://www.bom.gov.au/climate/current/season/nsw/archive/201102.sydney.shtml#recordsTminDailyHigh>>.
- Boughton, G. N., Henderson, J. D., Ginger, J. D. et al. (2011). *Tropical Cyclone Yasi Structural Damage to Buildings. CTS Technical Report No 57*. Townsville: Cyclone Testing Station, James Cook University.
- Comrie, N. (2011). *Review of the 2010–11 Flood Warnings & Response. Interim Report by Neil Comrie AO, APM, 30 June 2011*. Melbourne: State of Victoria.
- Emerson, D. (2010). Grim outlook for bushfires this summer. *The West Australian*, 12 November 2010. Accessed 18 December 2012 from: <<http://au.news.yahoo.com/thewest/a/-/wa/8305010/grim-outlook-for-bushfires-this-summer/>>.
- Evans, J. L. and Allan, R. J. (1992). El Niño/Southern Oscillation modification to the structure of the monsoon and tropical cyclone activity in the Australasian region. *International Journal of Climatology*, 12, 611–623.
- Ganter, C., and Tobin, S. (2012). Australia [State of the climate in 2011]. *Bulletin of the American Meteorological Society*, 93, S218–S221.
- Gillard, J. (Prime Minister of Australia) (2011). *Rebuilding after the Floods*, media release, Commonwealth of Australia, Canberra, 27 January. Accessed 12 December 2012 from: <<http://www.prm.gov.au/press-office/rebuilding-after-floods/>>.
- Glynn, J. (2011). Reinsurance costs in Yasi, Queensland floods trigger Australian dollar surge. *The Australian*, 31 March 2011. Accessed 18 December 2012 from: <<http://www.theaustralian.com.au/business/markets/reinsurance-costs-in-yasi-queensland-floods-trigger-australian-dollar-surge/story-e6frg94o-1226031290450>>.
- Insurance Council of Australia (2012). *Catastrophe Events and the Community*. Sydney: Insurance Council of Australia. Accessed 18 December 2012 from: <<http://www.insurancecouncil.com.au/issues-submissions/issues/catastrophe-events>>.
- IPCC – Intergovernmental Panel on Climate Change (2012). *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change*, eds. C. B. Field, V. Barros, T. F. Stocker et al. Cambridge University Press: Cambridge, UK.
- Jones, D. A. and Trewin, B. C. (2000). On the relationships between the El Niño–Southern Oscillation and Australian land surface temperature. *International Journal of Climatology*, 20, 697–719.
- Keelty, M. J. (2011). *A Shared Responsibility. The Report of the Perth Hills Bushfire February 2011 Review*. Perth: Government of Western Australia.
- Ludwig, J. (Minister for Agriculture, Fisheries and Forestry) (2011). *ABARES Study Finds Locust Dollars Well Spent*, media release, Commonwealth of Australia, Canberra, 25 March. Accessed 12 December 2012 from: <http://www.maff.gov.au/media_office/media_releases/media_releases/2011/march/abares_study_finds_locust_dollars_well_spent>.
- Millist, N. and Abdalla, A. (2011). *Benefit-Cost Analysis of Australian Plague Locust Control Operations for 2010–2011. ABARES Report Prepared for the Australian Plague Locust Commission*. Canberra: Australian Bureau of Agricultural and Resource Economics and Sciences.
- NEMC – National Emergency Management Committee (2009). *National Strategy for Disaster Resilience*. Canberra: Council of Australian Governments.
- O'Rourke, J., Dingwall, D. and Barlass, T. (2011). City seeks refugee from heat. *The Sydney Morning Herald*, 6 February 2011. Accessed 18 December 2012 from: <<http://www.smh.com.au/environment/weather/city-seeks-refuge-from-heat-20110205-1ahmj.html>>.

- Peterson, T. C., Stott, P. A. and Herring, S. (2012). Explaining extreme events of 2011 from a climate perspective. *Bulletin of the American Meteorological Society*, 93, 1041–1067.
- QFCI – Queensland Floods Commission of Inquiry (2011). *Queensland Floods Commission of Inquiry Interim Report*. Brisbane: Queensland Floods Commission of Inquiry.
- QFCI – Queensland Floods Commission of Inquiry (2012). *Queensland Floods Commission of Inquiry Final Report*. Brisbane: Queensland Floods Commission of Inquiry.
- Queensland Government (2011). *Queensland State Budget 2010–11. Mid Year Fiscal and Economic Review*. Brisbane: Queensland Government.
- Queensland Reconstruction Authority (2011). *Rebuilding a Stronger, More Resilient Queensland*. Brisbane: Queensland Government. Accessed 18 December 2012 from: <<http://www.qldreconstruction.org.au/u/lib/cms/Resilience-doc.pdf>>.
- Queensland Reconstruction Authority (2012). *Operation Queenslander: The State Community, Economic and Environmental Recovery and Reconstruction Plan 2011–2013 Update*. Brisbane: Queensland Government. Accessed 18 December 2012 from: <<http://www.qldreconstruction.org.au/u/lib/cms2/operation-queenslander-state-plan-full.pdf>>.
- Schwartzkoff, L. (2011). Finally, some relief after hottest night in history. *The Sydney Morning Herald*, 7 February 2011. Accessed 18 December 2012 from: <<http://www.smh.com.au/environment/weather/finally-some-relief-after-hottest-night-in-history-20110206-1aif4.html>>.
- Smith, P. (2011). Natural disasters hit Australia's GPD. *Financial Times*, 1 June 2011. Accessed 18 December 2012 from: <<http://www.ft.com/cms/s/0/24992bf0-8bfe-11e0-854c-00144feab49a.html#axzz2FS7uep8G>>.
- van Vonderen, J. (2012). Reconstruction authority chairman says Yasi rebuilding on track. *ABC News*, 3 February 2012. Accessed 23 January 2013 from: <<http://www.abc.net.au/news/2012-02-03/reconstruction-authority-chairman-says-yasi/3811360>>.
- Withey, A. and Bavas, J. (2011). North Qld on cyclone alert again. *ABC News*, 28 January 2011. Accessed 18 December 2012 from: <<http://www.abc.net.au/news/stories/2011/01/28/3123758.htm?site=tropic>>.