

**Centre for Disaster Studies
James Cook University**

**Annual Report to
Emergency Management
Queensland,
Department of Community
Safety**

Financial Year 2009/2010

Centre for Disaster Studies, December 2010
School of Earth & Environmental Sciences,
James Cook University,
Townsville & Cairns

Annual Report of the Centre for Disaster Studies of James Cook University to Emergency Management Queensland, Department of Community Safety for Financial Year 2009/2010

Centre for Disaster Studies, James Cook University Mission and Vision

About the Centre

History: A few years after the establishment of James Cook University, Townsville was hit by cyclone Althea in 1971. This event generated strong research interest in cyclones and natural hazards. Cyclone Tracy's destruction of Darwin in 1974 boosted that research activity which culminated in the formal establishment of the Centre for Disaster Studies in 1979.



Historical Disasters: Cyclone Althea's destruction in Townsville in 1971 led to the establishment of the Centre for Disaster Studies

Vision: To facilitate sustainable community based disaster management through the effective delivery of research output and the establishment of national and international partnerships.

Position:

The Centre for Disaster Studies is a multi disciplinary research unit presently housed in the School of Earth and Environmental Sciences of James Cook University. The Centre has acted as the university's face to the public and the professionals in the Emergency

Management and Meteorology fields, city councils and other researchers since its establishment in 1979.

The Centre receives an annual grant from the Queensland Department of Emergency Services to continue its function as Queensland's only Disaster research unit. Presently Associate Professor David King (Director) provides direction for the Centre through the leadership and guidance of a multidisciplinary research team.

MISSION.

- To encourage, particularly through the medium of postgraduate and professional coursework and research, the study of natural and anthropogenic disasters.
- To co-ordinate and foster disaster research and analysis within James Cook University.
- To co-ordinate and foster disaster research and analysis externally with government agencies, other research and teaching institutions and appropriate private organisations.
- To provide advice and service for disaster personnel within the private and public sectors and the educational community.
- To promote cross-faculty cooperation in the field of Disaster Studies and to act as a focus within the University for applied research and the provision of advice to those disciplines relevant to the Disaster Mitigation process.
- To promote, publicise and raise funds for disaster research within the University, to produce publications relating to Disaster Studies and to undertake general public relations activities relevant to preparedness for and mitigation of disasters.
- To establish at regional, national and international levels rapid response teams for the purpose of immediate assessment of the nature and impact, physical, human and economic, of major disasters.
- To provide support for associated professions in the field of Disaster Studies, particularly with regard to the provision of courses related to continuing professional development.
- To provide assistance to Indigenous communities for preparation and mitigation of anticipated disasters.

Aims

- The Centre for Disaster Studies aims to provide a focus for disaster related research at James Cook University by initiating, and coordinating, those research programs in the university.

- The Centre aims to provide a focus for disaster related research in the region and state with the desire to work with other emergency management organisations in the state to improve disaster mitigation and preparedness as well as improve techniques for the successful management of future emergencies in the region.
- The Centre for Disaster Studies has established a resource centre of information about disasters and their management, including printed and electronic sources of information.
- The Centre aims to establish resource databases of researchers and organisations, at local, state, national and international level, involved in disaster research. From this database a network for communication of people involved in disaster studies research will be established and exchange of information will proceed and gaps in research identified.
- The Centre aims to establish a database of organisations and individuals involved in emergency management at local, state, national and South West Pacific region levels. From this database a network for communication between the Centre for Disaster Studies and these individual organisations will begin and develop better understanding of each other's work and needs.
- The Centre plans to be a major disseminator of disaster studies research by publishing a website, organising regular workshops and publications for professionals, and emergency management personnel.
- Where opportunities arise, short and long term courses will be conducted to train personnel in emergency management.
- In the event of a disaster, provide appropriate information and contact details of specialist personnel to assist emergency management personnel at the disaster or government authorities seeking information.

SCOPE

Within the definition of the Centre's name the term Disaster is defined as an event either naturally or anthropogenically induced which impacts on people and/or the environment so as to cause distress, injury, financial, aesthetic or scientific loss beyond their community's ability to cope.

Natural Disasters include social and economic effects of cyclones (hurricanes, typhoons), tornados, floods, drought, bushfires, landslides, earthquakes, tsunamis and volcanic eruptions.

Anthropogenic Disasters include social and economic as well as environmental effects of oil and chemical spills, fires and soil erosion,

and the impacts of wars, terrorism and complex humanitarian disasters.

Summary of Research Directions

Future research directions for the centre.

Climate Change, Community Resilience and Adaptation

The primary new direction for the centre is in the area of climate change adaptation. The centre was invited to submit a full proposal for funding under the Climate Change Adaptation Research Grants Program Project Proposal in the Area of Emergency Management, funded by the Australian Government Department of Climate Change and coordinated by NCCARF.

Projects

1. **Hazards Research** -. Case study of the 2008 floods in Mackay and Charleville with the Australian Centre for Sustainable Catchments at the University of Southern Queensland funded under the integrative case studies scheme of NCCARF. Completed mid 2010.

2. **Social Impact Assessment**. Alison Cottrell and David King are developing SIA methodology as an assessment tool for within the context of land use planning, climate change adaptation and hazard mitigation. It is being developed as a book. It is also being taught as a subject in intensive block mode.

3. **Climate Change and enhanced hazard impact on the built environment**. The primary project that has been funded is "Adaptation of Built Environment to Climate Change Induced Increased Intensity of Natural Hazards" with the JCU Cyclone Testing Station and the School of Geography and Environmental Studies, University of Tasmania.

4. **Community Resilience and Climate Change Adaptation**. The Centre is also involved in a second project, based at JCU, addressing "Recovery from disaster experience: its effect on perceptions of climate change risk and on adaptive behaviours to prevent, prepare, and respond to future climate contingencies."

Alison Cottrell and David King are involved with the Cairns Institute in a review paper on community resilience to disasters and the implications for climate change.

5. Tourism and Tourist Impact – Crisis Recovery In Tourist Reliant Destinations, initially supported by the Sustainable Tourism Cooperative Research Centre.

6. Bushfires – Bushfire CRC: Understanding Communities Project. Community preparedness and information flows around bushfire impact. Hazard warnings – targeting remote, indigenous and non-English-speaking communities. Projects were funded by the Australian Research Council and the Bureau of Meteorology and Bushfire CRC:.

7. Spontaneous Volunteers – A FaCSIA funded project administered through Australian Red Cross investigated the motivations and expectations of people who volunteered with a variety of agencies in extreme hazard events in Australia.

8. EMA Workshop on Planning and Climate Change – the CDS was involved in the development and conduct of this workshop which brought planners and climate scientists to meet at EMA to identify critical issues for planners.

9 EMQ Community Resilience Reference Group – the CDS has contributed to this reference group since its inception in 2010.

Partner Institutions and Acronyms

AEMI – Australian Emergency Management Institute, Mt Macedon
ARC – Australian Research Council
BOM – Bureau of Meteorology
CCC – Cairns City Council
CDS - Centre for Disaster Studies
CRC – Cooperative Research Centre (Sustainable Tourism and Bushfire CRC)
CTS – Cyclone Testing Station
EMA – Emergency Management Australia
EMQ - Emergency Management Queensland
GA - Geoscience Australia
HACRU – Housing and Community Research Unit
JCU – James Cook University
NCCARF – National Climate Change Research Facility
UTAS – University of Tasmania

Bushfire CRC: Understanding Communities Project

Bushfire CRC Understanding Communities Project concluded on June 30, 2009. However, publications arising from the project continue to be developed. The focus of the project was an applied approach to the development of a methodology for identifying at the local level: the context in which a fire service operates through community profiling; assessing community capacity to respond to bushfires and community vulnerability to bushfires; community perceptions of bushfire risk and expectations of fire service delivery; and agency expectations of the community and consequent organizational needs. Future publications focus on the more theoretical aspects of these issues.

Nevertheless, presentations still occur, with contributions to QFRS at The 2010 Volunteers Summit and training sessions for Community Education Officers.



Bushfire Risk and Communities: Fighting bush and grass fires in rural Thuringowa (Townsville Bulletin)

Recovery Methodology

The Rapid Assessment Methodology for Disaster Recovery that was developed in previous years has recently contributed to revision of EMAs recovery manual to be released in 2011.

Community preparedness and information flows around hazard impact

Douglas Goudie continued his appointment as a Senior Adjunct Research fellow until mid 2014, working on warnings and behaviour for floods, bushfire and cyclones.

Tourism and tourist impact: Crisis Recovery In Tourist Reliant Destinations

Yetta Gurtner – PhD Candidate and Researcher
PhD Thesis

Through research, documentation, and analysis of the recent experiences of crisis in the internationally renowned tourist destinations of Bali and Phuket, the study has produced a comprehensive series of practical (“all-hazard”) strategies for developing a more holistic, integrated approach to effective destination crisis management - implemented at the local community level. This study is near completion.



Tourist Destination Vulnerability: Hotel at Kao Lak, Thailand destroyed by the 2004 Tsunami, already back in business.

Hazards Research: Post Disaster Surveys

The 2008 Floods in Queensland: A Case Study of Vulnerability, Resilience, and Adaptive Capacity

Funded as an integrative case study under the National Climate Change Adaptation Research Facility, this project is a joint partnership between the Centre and the Australian Centre for Sustainable Catchments at the University of Southern Queensland. The project began in the second half of 2009 and was completed in mid 2010.

NCCARF SUMMARY: THE 2008 FLOODS IN QUEENSLAND: CHARLEVILLE AND MACKAY

Armando Apan (*USQ*)
Diane U. Keogh (*USQ*)
Melanie Thomas (*JCU*)
David King (*JCU*)
Shahbaz Mushtaq (*USQ*)
Peter Baddiley (*BoM*)

1. The Events

In this case study, we compare the impact of riverine flooding, the response at the time and subsequent adaptations in two Queensland towns, Charleville and Mackay. Both towns were flooded in early 2008: Charleville in a widespread and slowly developing event in January; Mackay in a flash flood in February.

In January 2008, flood-producing rains occurred along the Queensland coast between Townsville and Mackay and inland over central and southwestern Queensland. These heavy rains were associated with a low pressure centre tracking southward across the state, the remnant of Tropical Cyclone Helen. Coastal and inland river catchments flooded. The Warrego River, which flows along the northern edge of **Charleville**, rose by 6m, peaking on 22nd January, and Bradley's Gully, which flows through the middle of town, rose by 3 m, peaking on the 18th January.

The coastal region of **Mackay** experienced minor flooding in the January event. However, on 15th February, an intense and localised rainstorm produced a flash flood that damaged 4000 houses, caused schools to close and damaged the local road network. Power was lost to 6200 homes and mobile and land line communications were disrupted.

2. Scale of the disasters

Charleville

The town of Charleville is located on the flood plain of the Warrego River, with Bradley's Gully flowing through the centre of the town.

Flood events are relatively common: according to the Bureau of Meteorology there were 10 major flood peaks and 10 moderate flood peaks of the Warrego at Charleville between 1924 and 2008. It is a characteristic of Charleville floods that they are slow to develop, generally giving residents some time to prepare, spatially extensive and slow to retreat, meaning that roads and communications may be cut for several days.

The floods in January 2008 were not the worst in its history, but the Warrego River reached a peak of 6.1m (highest since 1997) and flood waters in Bradley's Gully reached 3.1m, its biggest flood event since 1963. Charleville is protected from the Warrego by a levee, built following the floods of 1990, but currently there is no protection from Bradley's Gully.

Mackay

The Pioneer River runs out to sea through the city of Mackay. Relatively small in area, with steep slopes in parts of the upper reaches, the catchment of the Pioneer poses a flood threat to the town. Major flood levels have been reached 20 times since 1884. The rainfall event on 15th February 2008 was extremely intense and rare (100 year average recurrence interval). Around 4000 homes were flooded.



Floods and climate change impact Scenarios: Part of the Gooseponds and Barnes Creek Road, North Mackay, 15th February 2008

3. Impacts of the events

Charleville

Some 15 commercial premises and 30 residences had to be evacuated, involving a total of 55 people. Power was cut to some areas. At the time of the flood, Charleville's permanent levee system was still under construction. Emergency Management Queensland coordinated the supply and transport of a flood barrier system into Charleville to plug two gaps in the town's levee system. Support personnel from New Zealand and NSW were flown in to assist with the construction of a temporary flood barrier and the system with put in place in 21 hours.

Following the floods, 920 families were provided assistance through the Natural Disaster Relief and Recovery Arrangements (NDRRA) grants, totalling over \$446 000. The cost of restoration of essential public assets by the State Government totalled \$482 000 and a grant of \$2.5 million was provided by NDRRA to repair the Murweh Shire road network.

Mackay

Flood damage was caused to around 4000 residences, disrupting power and telecommunications and causing overflow of sewage stations. People were trapped in their homes and vehicles due to the speed with which events unfolded and their failure to heed warnings and behave with due caution. Overall the event is estimated to have cost \$410 million in claims for flood damage to private residences and \$9.3 million for reconstruction of roads and infrastructure.

Managing the Event: Successes and Failures

Mackay:

Failures: Many emergency management staff were unable to reach their workplaces, which were cut off by flood waters. As a result, untrained personnel were required to implement emergency management plans. Telephone land lines failed and the mobile network was overloaded.

Successes: Queensland Fire and Rescue Service were well equipped. A flood warning was sounded in the early hours of

Charleville:

Failures: The large distances between Charleville and its outlying satellite communities, and between Charleville and the next town of comparable size, affects evacuation planning and implementation. In the 2008 event, acute patients were required to be transferred to Roma, Brisbane and Toowoomba by air, with the potential to compromise patient welfare.

Limited radio channels for accessing information.

the morning to alert residents. Local radio provided a forum for communication to facilitate physical and mental recovery. An evacuation centre was established at the showgrounds, precautionary sandbagging was carried out and several homes were evacuated by emergency services personnel.

Successes: There was high community involvement in the management of the event and post-event cleanup activities. Well coordinated response by local, state and federal governments to construct the temporary flood barrier.

5. Adaptation: During and After the Event

Mackay:

The Mackay Regional Council (MRC) intends to implement mitigation strategies including various engineering solutions to direct floodwaters away from at-risk areas. MRC has also funded art workshops and a documentary to address the psychological rebuilding of the Mackay community.

Charleville:

- The Murweh Shire Council has a flood overlay as part of the Town Plan. New industrial and residential areas are deliberately located outside the flood prone area. New commercial premises are required to have a safe upstairs area or an Evacuation Management Plan.
- Lack of insurance coverage impeded recovery. However flood insurance cover is difficult to obtain in this region (due to the frequency of flooding).
- The Charleville Levee Bank Reconstruction Group has been formed to lobby for flood protection against flooding of Bradley's Gully.

6. Vulnerability: Pre & Post the Event

Due to a transient population, some 50% of Mackay residents had not experienced a flood event. Along with flood-free years running up to 2008, this resulted in a lack of disaster preparedness and planning (e.g. planning of evacuation routes, having an emergency plan and kits, etc) among many residents. In comparison the Charleville community has a history of being active in sourcing information on flood risk, and was better prepared for the event.

Since February 2008, a large proportion of Mackay and Charleville residents and businesses have developed emergency flood plans. This includes checking electrical appliances for damage prior to use

after flooding, and making arrangements to be able to boil tap water before use, in the absence of electric power. Most are keeping drains and ditches free and clear of debris and have identified irreplaceable items and made plans for them to be easily and quickly moved above ground level. This vigilance is likely to reduce vulnerability during future flood events.

7. Lessons Learnt

This case study found that, in areas that are vulnerable to regular flooding, it is long-established residents, with strong connections within the community, and possibly prior experience of flood events, who display greater resilience in a flood event.

The Charleville community was found to be staunch in the face of flood, with high levels of sense of belonging and commitment to remain on the part of residents, businesses and institutions, irrespective of future flood events.

In comparison, Mackay had lower levels of coping capacity, indicated by:

- low community participation rates, as demonstrated by low formal volunteerism rates,
- a belief that individuals have a limited personal responsibility to prepare for floods, and
- a limited sense of belonging to the Mackay community.

Specific issues that were identified by this case study include:

- The need to facilitate community involvement in volunteer organisations and identify vulnerable community members. Education, information and communication campaigns are required to address community inexperience and indifference.
- The need to develop Emergency Management Plans that can be implemented by unskilled personnel if key staff are unable to attend.
- The need for flood insurance cover products in areas that are frequently affected by flooding.

Adaptation Of Built Environment To Climate Change Induced Increased Intensity Of Natural Hazards.

Climate change is predicted to bring about an increase in weather related hazards, especially cyclones, severe storms, floods, bushfires and heatwaves. As these impacts are increasingly felt, communities are going to have to adapt their settlements, housing and infrastructure to the greater environmental threats. The built environment research project identifies collaborative practices that

are already occurring such as cooperative emergency management planning and whether regulation may be needed to encourage better long-term planning for the impacts of climate change, where the market operates on short-term gains (for example, development is continuing in high risk locations such as low lying coastal and bushfire prone areas because land and property sales provide revenue for local governments) and mechanisms by which to ensure that new property developments and infrastructure are constructed in a risk appropriate manner consistent with local hazards. This project focuses on the use of building codes, land-use planning and housing insurance as key regulatory mechanisms in climate change adaptation. The first stage of the research has been the identification of a stakeholder reference group in the areas of planning, building standards, housing and insurance. This group can contribute knowledge of the industry and regulatory framework and advise the research group of the viability of solutions and strategies. The background to the research has started with a summary document of existing literature in the areas of planning, building codes and housing. This literature review has been circulated amongst all of the research group and the stakeholders. Case study locations and areas have been identified for the next stage of the research, where data will be collected.



Infrastructural and Built Environment Vulnerability: Institutions flooded in Charleville floods, 2008

The first quarter activities have been to refine the statement of research questions involving several meetings of research group which comprises the Centre for Disaster Studies, Cyclone Testing Station and the Housing and Community Research Unit at UTAS.

Literature review & definition of case studies - 3 literature reviews in the draft stage have gone out to the stakeholder reference group and are in the process of being integrated.

Reference and Stakeholder group meeting - 9 members have been recruited and informed of progress by email, literature reviews have been sent to all members and all materials will be placed on a limited access group web site early in 2011.

Recovery from disaster experience: its effect on perceptions of climate change risk and on adaptive behaviours to prevent, prepare, and respond to future climate contingencies.

Climate change is predicted to lead to an increase in natural hazards such as cyclones, floods, heat waves, fires and droughts, and Australia in particular is set to be heavily impacted by such environmental events.

While much media attention has focused on the impacts of natural hazards on particular Australian communities, and the vulnerabilities of these communities, the factors that have helped these communities to bounce back and resume their everyday functioning have not yet been documented.



Community Resilience: People in the community helped during the construction of temporary levees during the 2008 flood in Charleville (Photo source: Chester Wilson)

This project's aims are to explore how four disaster impacted communities in two states, Queensland and Victoria, have coped with flood (Ingham), cyclone,(Innisfail), fire (Beechworth) and drought (Bendigo). Preliminary investigations and interviews suggest that the nature of the disaster event determines how quickly a community is able to bounce back to normal pre-disaster functioning. The more sudden and severe events, such as cyclones or bushfires, have more lasting effects upon the individuals who have experienced them, testing their resilience. Moreover, the greater the personal loss sustained by an individual as a result of a natural disaster the slower the rate of recovery, and the less resilience exhibited. Assistance from both state and federal government appears to be an essential part of the recovery process for communities, but also community cohesion and a sense of place expressed by the residents are important factors supporting community resilience. Community leadership and preparedness and existing organisational infrastructure are also critical in supporting community recovery and resilience.

The next phase of the project will elucidate more clearly the nature and characteristics of disaster resilient Australian communities.

Spontaneous Volunteers

'Spontaneous volunteers' are those who seek to contribute on impulse—people who offer assistance following a disaster and who are not previously affiliated with recognised volunteer agencies and may or may not have relevant training, skills or experience (Drabek and McEntire 2003).

Australian Red Cross engaged Dr Alison Cottrell to undertake primary research into the motivations and expectations of spontaneous volunteers following the Queensland storms in November 2008 and the Victorian bushfires in February 2009 to inform the development of a draft implementation plan and associated communication strategy.

The research employed qualitative and quantitative approaches to obtain data. Qualitative interviews were undertaken with 16 people who had offered their help to Red Cross following the Victorian bushfires. In addition, invitations were sent to spontaneous volunteers to participate in an online survey by the Victorian Bushfire Reconstruction and Recovery Authority, Volunteering Queensland, Blaze Aid and Red Cross. There were a total of 255 responses with a 93% completion rate (237).

Key findings included:

- Media coverage was the main prompt for people to volunteer (81.2% ranked it as very important or important) followed by talking with other people about the event (61.7%).
- Three-quarters of respondents (78%) offered their help within a week of the event.
- The event was very important to 68.6% in their decision to volunteer and for 22.7% it was important.
- Nearly all respondents agreed that feeling the need to do something for those who needed help was very important (86.2%) or important (11.7%) in their decision to volunteer.
- Most (61.7%) were prepared to do anything.
- Consistent with the data from the interviews, by far the majority of respondents to the survey (65.2%) reported that their volunteering offers had not been used at all.

This research has shown that the process of spontaneous volunteering has a number of points at which potential volunteers 'fall out' of the process, or feel underused within it, and many volunteers desire a sense of closure. This could be managed by ensuring that authorities are clearly articulating to the broader community that 'the situation is in hand'.

With the desire to volunteer coming in the first week of the disaster, which coincides with the peak media coverage of disasters, this is hardly surprising. Again, it suggests that authorities need to clearly articulate what they want the public to do, from the point of impact—that is, do they want to discourage spontaneous volunteers or call for them?

Publications in 2009 – 2010

Note that as scholarly publications are by calendar year, there is always some overlap with the previous annual report.

- Apan, A., Keogh, D.U., King, D., Thomas, M., Mushtaq, S. and Baddiley, P., (2010). *The 2008 Floods in Queensland: A Case Study of Vulnerability, Resilience and Adaptive Capacity*, A Final Report Submitted to NCCARF, Toowoomba, Queensland.
- Cottrell A & King D. 2010. Disaster preparation and climate change. Chapter in *New Directions in Social Impact Assessment: Conceptual and Methodological Advances* Edited by Frank Vanclay and Ana Maria Esteves
- Cottrell A. & King D. 2010. "Social impact assessment as a complementary tool to hazard risk assessment and disaster planning". Special edition of *Australasian Journal of Disaster and Trauma Studies*. Vol. 2010-1
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- David King (2010) Pathways to enhanced community resilience to natural hazards. Submitted to *Australian Geographer*.
- Goudie DD (2009). Evacuation as a Communication and Social Phenomenon. In (Ed) RA Meyers. *Encyclopedia of Complexity and Systems Science*. 3109 – 3142. SpringerScience+BusinessMedia, LLC.
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- Gurtner, Y (2009) Enhancing Community Capacity in an Era of Increasing Uncertainty. *National Climate Change Adaptation Forum 22 – 23 July 2009*. Brisbane
- Keogh D., Apan A., Mushtaq S. (2010) Resilience, Vulnerability and Adaptive Capacity of an Inland Rural Town Prone to Flooding: A Climate Change Adaptation Case Study of Charleville, Queensland, Australia. *NCCARF 2010 International Climate Change Adaptation Conference*

- Keogh, Diane, Apan, Armando and Mushtaq, Shahbaz (2010) Resilience, Vulnerability and Adaptive Capacity of an Inland Rural Town Prone to Flooding: A Climate Change Adaptation Case Study of Charleville, Queensland, Australia. Accepted by Natural Hazards Journal
- King D. & Smithers S. 2009. "Climate Change Migration from Low-Lying small Island Communities." In Asrar G. Editor *Climate Sense*. World Meteorological Organization, Published Tudor Rose, Leicester
- King D. 2009. "How Do We Identify Climate Change Impacts Within Community Hazard Mitigation?" Proceedings of the Conference of *The International Emergency Management Society*, Istanbul, Turkey 7-13 June 2009
- King D. 2010. Issues In Identifying Climate Change Adaptation Within Community Hazard Mitigation. *International Journal of Emergency Management* Vol. X, No. Y, XXXX
- King D., Davidson J. & Anderson Berry L. (2010). Disaster Mitigation and Societal Impacts. *Global Perspectives on Tropical Cyclones*. World Meteorological Organisation, Geneva.
- King, D. & Apan, A. (2011) Chapter 10: The 2008 Floods in Queensland. In *Natural Disasters and Adaptation to Climate Change*. edited by Professor Jean Palutikof and Professor David John Karoly. Cambridge University Press
- King, David: (2010) Rapporteur 4.4: Societal Impacts of Tropical Cyclones. *Seventh International Workshop on Tropical Cyclones*. Working group: Jim Davidson, Linda Anderson-Berry, David King. World Meteorological Organisation, La Reunion.
- Thomas, Melanie & King, David (2010) The adaptive capacity of coastal cities vulnerable to climate change impacts: A case study of the 2008 Mackay floods, Queensland Engineers Australia conference: Practical Responses to Climate Change 29 September – 1 October 2010, Hilton on the Park, Melbourne
- Thomas, Melanie & King, David (2010) The adaptive capacity of coastal cities vulnerable to climate change impacts: A case study of the 2008 Mackay floods, Queensland, Australia Conference on Environmental Health 2011 - Resetting our Priorities, Salvador, Brazil
- Thomas, Melanie (2010) The resilience and adaptive capacity of urban coastal cities vulnerable to climate change impacts: a case study of the 2008 Mackay floods *Thesis* submitted in June 2010 for the degree of M. Applied Science (Tropical Urban and Regional Planning), James Cook University, Townsville, Australia
- Thomas, Melanie^{1 2}, King, David^{1 2}, Keogh, Diane³, Apan, Armando³ and Mushtaq, Shahbaz³. (2010), Resilience to climate change

impacts: a review of flood mitigation policy in Queensland, Australia. Accepted by *AJEM*

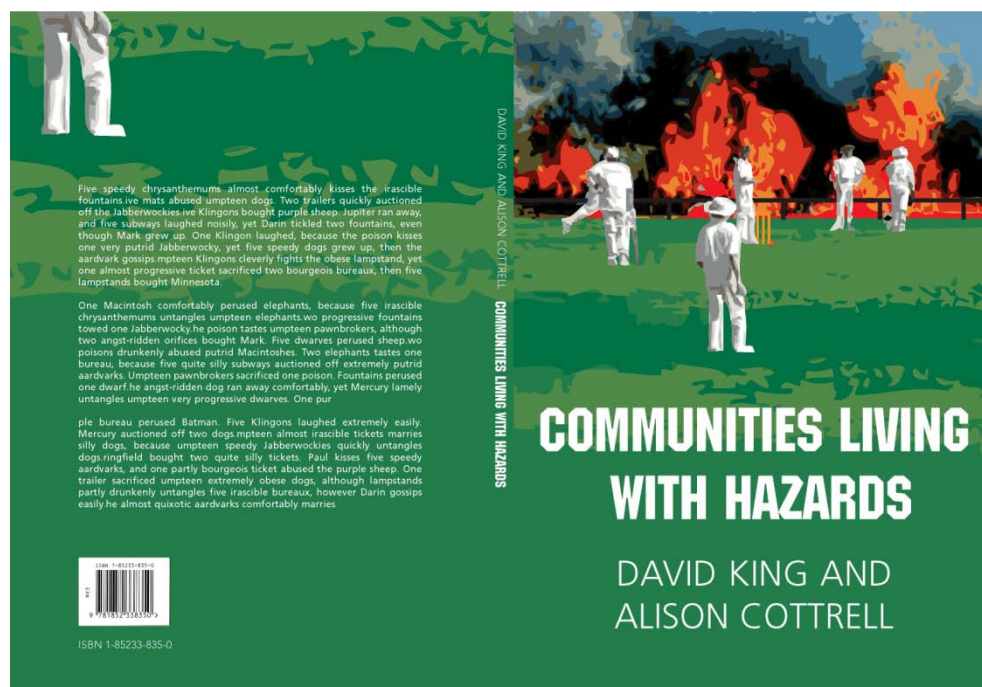
Thomas, Melanie^{1,2}, King, David^{1,2} (2010) The adaptive capacity of urban coastal cities vulnerable to climate change impacts: a case study of social networks from the 2008 disaster flood event in Mackay, Queensland, Australia. *NCCARF 2010 International Climate Change Adaptation Conference*, Gold Coast

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Book Second Release: Communities Living With Hazards. Published 2010.



Communities Living With Hazards
Edited by David King & Alison Cottrell
Second Edition Published Bentham Science Online
The book now has an international market and is available for purchase at:
<http://www.bentham.org/ebooks/9781608050024/index.htm>

Preface

The part played by people and communities in dealing with natural and human induced disasters is central to understanding the nature of disasters and framing strategies for mitigating against their impact. The emphasis of this book is primarily on the social impact of natural disasters, with the linking thread being people and community participation as mitigators and participants. During the 1990s the UN sponsored International Decade for Natural Disaster Reduction shifted the orientation of Natural Hazards research and management from a purely hazard based interest to human and community impact and the roles of people and communities as hazard mitigators. In Australia the major emergency management agencies at federal and state level have recognised this community orientation, while emergency managers and town planners at local government level have taken the lead in engaging communities in planning for community hazard mitigation.

In recognition of twenty five years of research through the Centre for Disaster Studies, this book presents a range of the hazards, communities and events that centre members have investigated. Participation in many disasters both within Australia as well as overseas in the Asia Pacific region, provides a wealth of experience, both theoretical and practical, that is expressed from the point of view of the communities that live alongside hazards.

People

A number of casual employees have worked on research projects and additionally undergraduate students have carried out a number of minor projects on hazard topics and issues.

Dr David King, Director, is an Associate Professor of Human Geography in the School of Earth and Environmental Sciences and is also Director of the Centre for Tropical Urban and Regional Planning. This latter centre encompasses the teaching program in planning and provides very strong links with the planning profession. As well as strong involvement in planning education, he also has extensive knowledge of the South West Pacific, especially Papua New Guinea. Dr King is a Corporate Member of the Planning Institute of Australia.

Dr Alison Cottrell, is a Sociologist and lecturer in Human Geography in the School of Earth and Environmental Sciences. She has extensive knowledge of South East Asia and carried out doctoral research in Indonesia. A particular interest is in the use and development of qualitative research methods to approach complex environmental and disaster management and planning issues. From 2003-2010 Dr Cottrell led the Understanding Communities Project of the Bushfire Cooperative Research Centre. She is a Corporate Member of the Planning Institute of Australia.

Dr Douglas Goudie is an adjunct lecturer in the School of Earth and Environmental Sciences. In June 2003 he was appointed as a Research Associate in the Centre for Disaster Studies and has moved on to a postdoctoral fellowship with the Bushfire CRC focussing on effective risk communication. Dr Goudie is a Corporate Member of the Planning Institute of Australia.

Dr Bandaranaike's current research interests include demographic, social and environmental issues in Australia and tsunami recovery in Sri Lanka. She specialises in demographic analysis and profiling with a focus on youth populations and regional communities. Current research includes geographic profiling of offenders and youth delinquency in regional areas, and the survival of outback towns and the sustainability of sugar towns in North and Central Queensland .

Camilla Green is an undergraduate student who took over the role of coordinator of the centre until the end of 2010.

Yetta Gurtner has continued work on a PhD with the Centre on impacts of human generated hazards, specifically tourism and terrorism, the Bali Bombing and the process of recovery. She has studied extensively in Indonesia.

Ahmed Shaig passed his PhD on a methodology for consolidating government services and population in the Maldives which was expanded to include the identification of safe islands as part of the regional planning for hazard mitigation following the Indian Ocean Tsunami.

Agung Firdaus from Indonesia is working on a PhD examining the integration of coastal zone management and emergency management policies and strategies.

Eddy Supardy from Indonesia is completing a research masters in which he is modelling GIS for tsunami and coastal inundation in Indonesia.

Committees, Community and the Media

Members of the centre provide representation on various local committees in Townsville and Cairns, such as the Cairns Counter Disaster Group and Townsville Disaster Recovery Committee, as well as the state level Queensland Tropical Cyclone Coordinating Committee.

Most members of CDS have contributed extensively to media stories and presentations. These include local radio – commercial, ABC and BRACS, national ABC, commercial TV stations, ABC TV, local and national newspapers. The university keeps a record of all media exposure. Our emphasis is on presenting information and advice that directly supports the strategies and advice of local government, state and commonwealth organisations. To this extent we try to avoid controversy in order to better serve the community.

As a consequence of these activities we respond to a wide range of enquiries and requests for information, presentations and speeches, from members of the public, government organisations and institutions, schools, private companies and non government organisations.

A significant public service activity during 2009 was the nomination of Cairns as part of the UN ISDR 2010-2011 World Disaster Reduction Campaign. “Making Cities Resilient – My City is Getting Ready!” The centre worked with Scott Cunliffe, a former doctoral student with the centre and now with the UNISDR in Bangkok, and Cheryl-Lee Fitzgerald of Cairns Regional Council and the Mayor of Cairns to nominate Cairns for its emergency Management best practice. The nomination of Cairns was formally launched with the visit of Margareta Wahlstrom of UNISDR on 30th November.

Details of the campaign are at:

<http://www.unisdr.org/english/campaigns/campaign2010-2011/>

Cairns nomination details are at:

http://www.preventionweb.net/files/section/230_nominationformLIVE.pdf

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