NATURAL HAZARDS in AUSTRALIA
Identifying Risk Analysis Requirements

Miriam H. Middelmann (Editor)

Australian Government
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Foreword

Whether it’s from bushfire, flood, severe storm, earthquakes, or even tsunami, Australia has suffered loss of life and extreme damage to infrastructure from natural hazards. And as our communities grow, so does the potential for greater losses in these areas.

My electorate of Paterson, New South Wales, has experienced firsthand the effects of natural hazards on a community. In 1989 the most damaging earthquake in Australia’s history rocked the city of Newcastle, and more recently floods in the upper Hunter Valley caused major damage.

Following a Council of Australian Government (COAG) natural hazard review into reforming mitigation, relief and recovery arrangements, the Australian Government identified a new approach was needed for the management of natural disasters in Australia and tabled a number of recommendations.

The first two reform commitments relate to this report:

1) Develop and implement a five-year national programme of systematic and rigorous disaster risk assessments

2) Establish a nationally consistent system of data collection, research and analysis to ensure a sound knowledge base on natural disasters and disaster mitigation.

In response to the COAG review, Geoscience Australia and its partner, the Department of Transport and Regional Services, committed to provide risk assessment methods, models and data to be used as benchmarks for risk assessment projects.

The purpose of this Report is to provide a knowledge base of how to conduct a risk analysis for natural hazards in Australia. The Report considers the suite of natural hazards identified by COAG and addresses a range of issues including impacts, gaps, data requirements and risk analyses. The report highlights the gains in a long-term data collection system and how integral it is to the risk analysis process.

Geoscience Australia has been a leader in hazard risk research in Australia for over a decade, and this collaborative report is an example of how mitigation research can provide emergency response managers at ground level with the information they need to combat the conditions at hand.

Natural hazards are a constant threat that every Australian has to live with, and as such we have developed some of the best emergency management response techniques in the world.

To limit the impact on our communities, we as a nation must continue to further our understanding and research of natural hazards, and this report is a great platform from which to learn.

The Hon Bob Baldwin, MP
Parliamentary Secretary to the Minister for Industry, Tourism and Resources
5 October 2007
Foreword

Every year, many Australian communities are confronted with the devastation caused by natural disasters. These disasters often cause considerable disruption to the community and significant damage to property, infrastructure, industry and economy. Natural disasters pose a unique challenge that government, private enterprise and communities must work together to prepare for and manage.

Reliable information to identify the risk and degree of damage that can be caused by a natural hazard is very important. Risk analysis is an important step in a comprehensive risk management approach to minimise the potentially devastating impact of bushfires, floods, tropical cyclones and other natural hazards on communities.

Australia’s Climate Change Policy (July 2007) identifies climate change as a serious challenge in the future and predicts impacts to include rising sea levels and a greater number of severe storms. A range of research suggests that the number and severity of natural hazards is set to rise across Australia, exposing a greater number of Australians to the risks they present, with potential flow on effects to the nation and the economy more generally.

The Australian Government plays an important role in mitigating the effects of natural disasters. This is done through:

- fostering strong relationships with communities, the private sector, state government and local authorities
- developing an understanding of common and individual goals before, during and after a natural disaster event
- developing a consistent national approach to the assessment of risks associated with different types of natural disasters
- improving mitigation measures to reduce the impact of natural disasters
- a more comprehensive approach to assisting communities to recover from an event
- identifying best practice initiatives to better manage events before, during and after they occur.

I have developed an appreciation of a range of issues relating to natural disasters through my current role as Secretary of the Australian Government Department of Transport and Regional Services (DOTARS) and in a previous role as Secretary of the Victorian Government Department of Natural Resources and Environment.

DOTARS oversees a number of future-oriented initiatives that aim to reduce the social and economic impact of natural disasters. While protection of the community and property is the responsibility of state and territory governments, DOTARS plays a vital role at the Australian Government level by providing policy advice and administering a number of funding programmes that enhance communities’ ability to prepare for and recover from natural disasters.

This publication brings together current understanding of natural disasters across Australia. It provides a new, central source of information on the process involved in analysing risk, which is a vital step in reducing the loss and suffering caused by natural disasters in Australia.

Michael Taylor
Secretary, Department of Transport and Regional Services
5 October 2007
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In the following sections, specific contributions made by individuals are acknowledged. Although an attempt has been made to thank everyone who directly contributed, an apology is extended to any individual whose contribution has been missed.

Chapter 1 - Introduction

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Chapter 2 - Impact of Natural Disasters

The ‘Impact of Natural Disasters’ chapter was written by Miriam Middelmann from Geoscience Australia.

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Chapter 3 - Risk Analysis
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Chapter 4 - Tropical Cyclone
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