

FLOOD RISK AND THE ACTIVITIES OF THE RISK ASSESSMENT, MEASUREMENT AND MITIGATION SUB-COMMITTEE (RAMMS)

Ed Pikusa
RAMMS Principal Project Officer
South Australian Fire and Emergency Services Commission (SAFECOM)

Introduction

'Australia's vast and diverse regions, landscapes and climatic variations mean we will continue to be at risk from the damaging impacts of disasters. Underpinning a disaster resilient community is knowledge and understanding of local disaster risks. We all share responsibility to understand these risks, and how they might affect us. By understanding the nature and extent of risks, we can seek to control their impacts, and inform the way we prepare for and recover from them.'

National Strategy for Disaster Resilience (COAG 2011) page 6.

The above quote from the National Strategy for Disaster Resilience (NSDR) (COAG 2011) highlights the importance of understanding risk and using that understanding to make decisions on how best to mitigate and reduce it.

The consistent theme is that there needs to be a better or higher level of understanding of risk through more assessments, and for that understanding to be consistent across jurisdictions and hazards, with the use of standardised terms.

The Risk Assessment, Measurement and Mitigation Subcommittee (RAMMS) is the national emergency management sub-committee directly concerned with emergency risk assessment and mitigation issues.

Figure 1 below illustrates the relative position of RAMMS, and its reporting relationship to the Australia-New Zealand Emergency Management Committee (ANZEMC).

RAMMS is one of four sub-committees that address emergency management issues. The other three cover matters of response capabilities, community education and recovery.

There are also a number of Working Groups, Taskforces and Reference Groups managing particular issues of relevance to Australia.

This paper focuses on RAMMS and its activities relevant to reducing flood risk in Australia. These activities involve RAMMS' interacting with the National Flood Risk Advisory Group (NFRAG)¹.

AUSTRALIA-NEW ZEALAND EMERGENCY MANAGEMENT COMMITTEE GOVERNANCE STRUCTURE

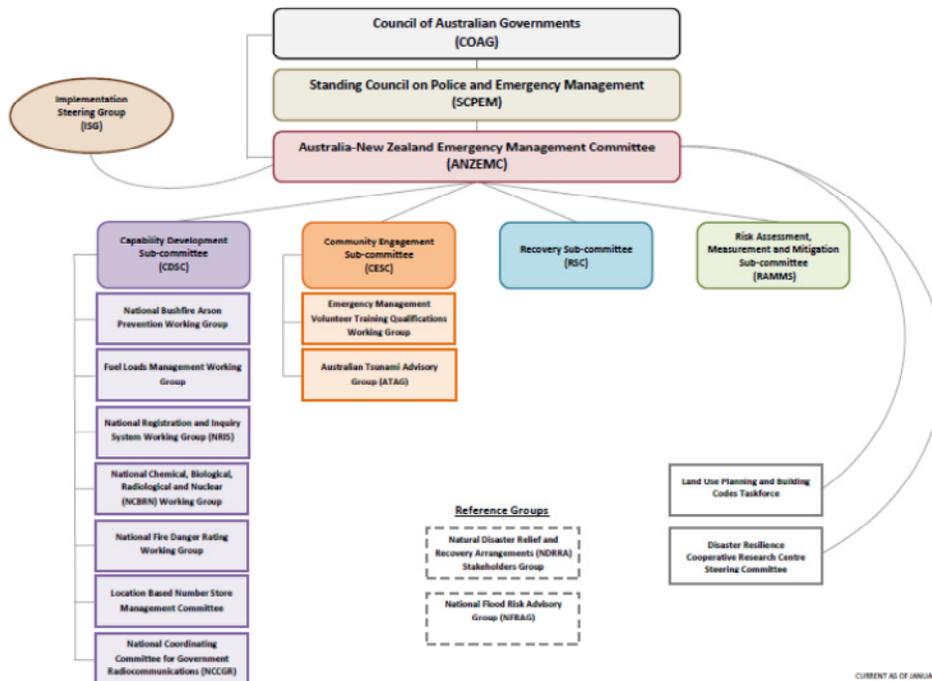


Figure 1: Australian Emergency Management Committee Structure

The Activities and Purpose of RAMMS

The main policy driving the agenda for emergency management of ANZEMC and its sub-committees, including RAMMS, is the NSDR, endorsed by the Council of Australian Governments (COAG) in 2011ⁱⁱ.

In general, RAMMS has a role to advise ANZEMC on nationally consistent approaches to disaster risk assessment, measurement and mitigation across Australia.

In recent years, particularly since the 2010-11 floods in Queensland, Victoria and New South Wales, flood risk has become a priority area for RAMMS.

Appendix 1 lists the role and functions of RAMMS in full.

RAMMS is chaired by a South Australian ANZEMC member and is deputy chaired by the Attorney-General's Department. Membership includes one representative from each State and Territory government, two representatives from the Commonwealth (Bureau of Meteorology (BOM) and Geoscience Australia (GA)), and a representative from the Australian Local Government Association (ALGA).

Products from RAMMS

National Emergency Risk Assessment Guidelines (NERAG)

The main output RAMMS has delivered since its creation is the National Emergency Risk Assessment Guidelines (NERAG) (NEMC 2010), and RAMMS has been working with jurisdictions for them to produce state emergency risk assessments using the NERAG.

In November 2011, SCPEM adopted the NERAG as the consistent national methodology for future use by Australian governments to assess risks for priority hazards.

While based on the 2009 Australian Standard for Risk Management (AS/NZS ISO 31000:2009) (Standards Australia 2009), the NERAG is a specific application of the Standard for emergency risk contexts. The principal intent of the NERAG is to create consistency in emergency risk assessments across different hazards and jurisdictions, and build a single common understanding of emergency-related risk exposure and mitigation priority.

The current National Partnership Agreement (NPA)ⁱⁱⁱ on Natural Disaster Resilience between the Commonwealth and the States and Territories includes a requirement for states and territories to conduct risk assessments. At their November 2011 meeting, SCPEM resolved that jurisdictions would provide a public version of a register for priority risks by June 2013. At this time it appears unlikely there will be a consistent format and standard applied to these risk registers. As time goes on, it is hoped that risk can be consistently presented to governments and the community, increasing understanding and making priorities for mitigation more transparent.

It is anticipated that flood risk will be a priority for many states and territories due not only to the threat it poses to life and property, but also because of the significant economic damage it causes. Flooding and flood mitigation activities will likely feature heavily in future risk management priorities.

There are currently three projects underway relating to the NERAG to improve risk assessment and help people with adopting it.

- The NERAG document, its method and criteria are currently being reviewed, following two years of exposure and application. A NERAG Working Group has been established that is looking at how it works, and making improvements.
- RAMMS is leveraging off the Emergency Management Knowledge Hub^{iv} to produce an online 'Practice Guide' to accompany the NERAG. The NERAG is designed to be more 'top down' and rigid, setting out the processes that need to be followed to ensure consistency. The Practice Guide is intended to contain resources that assist practitioners in conducting risk assessments. As well as 'how to'-type material, the Practice Guide is anticipated to contain worked examples of risk assessments, and allow practitioners to submit material for inclusion. This 'bottom up' approach is hoped to make applying the NERAG easier.
- Finally, an online training course^v for the NERAG has been prepared to allow practitioners to better familiarise themselves with its theory and use. This can be used as a standalone document or as a resource during training courses.

National Work Program for Flood Mapping

Another main package of work relevant to flooding in Australia is the National Work Program for Flood Mapping (NWPFM), initiated by Emergency Management Ministers in February 2011, following significant flooding across Australia during 2010-11. Ministers resolved that jurisdictions should:

“In consultation with Geoscience Australia, scope a potential work program to map areas of risk relating to riverine flooding, flash floods, storm surge and coastal inundation. That work should take into account existing knowledge and initiatives, currency of information and identified information gaps, and the need for consistent and robust methodologies”

The intent of the NWPFM is to move towards more standardised flood risk mapping information, which is the basis for flood risk assessment. Standardisation in modelling and mapping is a foundational activity that standardises the basis for flood risk assessment and prioritising mitigation activities.

It is widely recognised that an understanding of floodplains and associated planning is one of the best ways to mitigate flood risk and prevent losses from flooding. Doing so is reliant on the availability of consistent and reliable flood risk models and maps.

This NWPFM complements the National Flood Risk Information Project (NFRIP)^{vi}, which was established as part of the Australian Government’s response to the outcomes of the 2011 Natural Disaster Insurance Review (the Review). The Review was also commissioned after the 2010-11 summer floods.

As part of its initial response to the Review, the Commonwealth committed \$12 million to establish a national flood risk information portal (Geoscience Australia hosted) and develop national guidelines on the collection and reporting of flood risk information. This will create opportunities to better inform decision making in a wide range of areas including emergency management, land use planning and insurance.

The NWPFM also recognises NFRAG’s work in recent years on the update of the 1999 Australian Emergency Manual ‘*Managing the Floodplain*’ to improve national best practice on floodplain management.

The NWPFM is made up of a set of eight projects, due to be completed in 2016. The first four (Projects 1 to 4) are short-term projects, and the last four (Projects 5 to 8) are long-term.

Short Term Projects 1 to 4

Projects 1 to 4 were completed during 2012:

- Project 1: Strategic overview - the benefits of better and more consistent flood risk modelling and mapping
- Project 2: Principles to underpin flood risk mapping
- Project 3: User needs analysis of the outputs from flood risk modelling and mapping, and
- Project 4: Stocktake of Jurisdictional flood risk mapping.

The intent of projects 1 and 2 were to achieve an agreement of high-level principles of the value and principles of flood mapping

While very broad in their scope, there is value in having a set of principles to guide work nationally. The principles resulting from Projects 1 and 2 make the case for higher quality and more consistent risk assessments.

Project 3, the End User Need Analysis (EUNA), determined the key users of flood risk information and their specific needs. The EUNA directly contributed to the NRFIP's development, in informing the design of the portal, to ensure it can evolve over time to meeting the ongoing needs of the sector.

Project 4, Jurisdictional Flood Risk Mapping Stocktake, provides an overview of flood mapping across states and territories, highlights key gaps and outlines important next steps to improve mapping data across the country.

Long Term Projects 5 to 8

Projects 5 and 6 are currently in progress, with all projects expected to be completed by 2016. The long-term projects are:

- Project 5: The development of technical specifications for the outputs of flood risk modelling and mapping.
- Project 6: The identification of datasets needed to enhance the utility of flood risk modelling and mapping
- Project 7: Development of a national competency framework - flood risk modelling, mapping and associated floodplain management, and
- Project 8: Evaluating success - flood risk modelling, mapping and associated flood plain management.

Project 5 is underway, being managed by NFRAG with National Emergency Management Projects (NEMP) funding. This will generate technical specifications that will represent national best practice in preparing flood models and maps. Some of the work of Project 5 was undertaken in the workshops of this conference.

Project 5 is intended to complement NFRAG's work on updating the Australian Emergency Manual (AEM) Number 19^{vii} *'Managing the Floodplain'* from its current 1999 version.

Project 6 has been proposed to commence in FY2013-14, subject to funding. The Project aims to identify and standardise the datasets needed to prepare and use flood mapping in floodplain management planning. This can include the datasets used in preparing flood risk maps, and other datasets used in conjunction with flood risk mapping to assess flood risk.

On completion of projects 5-7, an evaluation of the effectiveness of the NWPFM in improving the quality and application of floodplain mapping in Australia to mitigate flood risk will be undertaken.

Future Directions

The work of RAMMS has focussed on achieving more consistency in emergency-related risk assessment.

Work on the NERAG and NWPFM illustrates this focus on the risk assessment part of RAMMS' agenda. Other activities not described in this paper, also contribute to the risk assessment work of RAMMS and will continue as part of the national agenda. The principal work in this area includes working with jurisdictions to produce publically available state-wide emergency risk assessments, and

The future direction of RAMMS will focus on the Measurement and Mitigation elements of RAMMS functions.

The scope of the Measurement and Mitigation work is still being finalised, and is subject to the consensus agreement of jurisdictions but the focus is on what happens after emergency risk assessments have been completed.

In general terms, the Measurement work will seek to examine how undertaking standardised emergency risk assessments improves our broader understanding of the relative risk profile of hazards to Australian communities and assets.

The other future priority of Measurement is the objective measurement of 'community resilience', which is recognised as inherently more complex than measuring risk. If possible, it can be used to determine progress on NSDR initiatives, and measure return on investment on resilience programs.

Similarly, the Mitigation work will examine how an improved understanding of risk can be translated into improved prioritisation and decision-making to treat risks. The outcome of understanding risk and resilience will only be of benefit to Australia if it translates into tangible priorities that are used to reduce risk and increase community resilience.

The Mitigation work is intending to provide decision-support tools that assist jurisdictions to set risk and resilience-based priorities, and act on them.

Conclusion

The work of RAMMS contributes to national efforts to better understand and reduce flood risk in Australia, and to implement the *National Strategy for Disaster Resilience*.

The general theme of RAMMS' work is to improve consistency in our understanding of emergency risks across jurisdictions and hazards. This has been reflected in products such as the National Emergency Risk Assessment Guidelines.

The work of RAMMS in undertaking the NWPFM is one of several activities in a national effort to better understand and reduce flood risk. It is foundational work that complements the NFRIP, the updated Australian Emergency Manual on Floodplain Management, and the update of Australian Rainfall and Runoff (partially funded through the NFRIP).

In the future, RAMMS intends to focus its efforts on providing consistent guidance to governments regarding risks and assisting them in making informed decisions on risk mitigation activities.

It is intended that the national work of RAMMS will make a high-level contribution to the decision-making processes that inform the mitigation of floods and other emergencies across Australia.

References

Council of Australian Governments (COAG), 2011, *National Strategy for Disaster Resilience*, Commonwealth of Australia.

National Emergency Management Committee (NEMC), 2010, *National Emergency Risk Assessment Guidelines*, Commonwealth of Australia.

Standards Australia, 2009, *Risk management – Principles and guidelines*, AS/NZS ISO 31000:2009, prepared by the Joint Technical committee OB-007, Risk Management, published in Australia by Standards Australia.

Acronyms used in this paper

AEM	Australian Emergency Manual
AEMI	Australian Emergency Management Institute
AGD	(Commonwealth) Attorney-General's Department
ALGA	Australian Local Government Association
ANZEMC	Australia-New Zealand Emergency Management Committee
BOM	Bureau of Meteorology
CDSC	Capability Development Sub-committee
CECSC	Community Engagement Sub-committee
COAG	Council of Australian Governments
EM	Emergency Management
GA	Geoscience Australia
NERAG	National Emergency Risk Assessment Guidelines
NEMC	National Emergency Management Committee (now known as ANZEMC)
NEMP	National Emergency Management Projects
NFRAG	National Flood Risk Advisory Group
NFRIP	National Flood Risk Information Project
NPA	National Partnership Agreement
NSDR	National Strategy for Disaster Resilience
NWPFM	National Work Program for Flood Mapping
RAMMS	Risk Assessment, Measurement and Mitigation Sub-committee
RSC	Recovery Sub-committee
SAFECOM	South Australian Fire and Emergency Services Commission
SCPEM	Standing Council on Police and Emergency Management

Appendix: Role and Functions of RAMMS

Role

Contribute to the management of disaster risk by developing national approaches to risk assessment, measurement and mitigation.

Functions

The primary functions of the Risk Assessment, Measurement and Mitigation Sub-committee (RAMMS) are to:

1. Provide advice to the ANZEMC on disaster risk assessment, measurement and mitigation issues and priorities relating to disasters in Australia.
2. Develop nationally consistent approaches to disaster risk assessment, measurement and mitigation aimed at enhancing the resilience of Australian communities to disasters.
3. Progress relevant priorities and actions identified under the National Strategy for Disaster Resilience
4. Facilitate the effective exchange of practice, research and information on national and international issues relating to risk assessment, measurement and mitigation.
5. Where appropriate develop national policy on risk assessment, measurement and mitigation for ANZEMC consideration and/or endorsement.
6. Engage with other ANZEMC Sub-committees, working groups, reference groups and other stakeholders, particularly the National Flood Risk Advisory Group, to ensure consistency in approach, efficient application of resources and appropriate collaboration on national initiatives.
7. Undertake activities as directed by the ANZEMC.

Additional Functions

8. Improve the body of knowledge for risk-based emergency management decision making by developing a systematic approach to risk and resilience assessment at all levels, based on the application of agreed standards, to generate consistent and shared information.
9. Identify, develop and recommend approved initiatives under the National Risk Assessment Framework for Sudden Onset Natural Hazards.

Endnotes

ⁱ National Flood Risk Advisory Group:

<http://www.ga.gov.au/hazards/governance/national-committees-hazards/national-flood-risk-advisory-group.html>

ⁱⁱ COAG Endorsement of the NSDR: <http://www.coag.gov.au/node/81>.

Published version of the NSDR:

<http://www.em.gov.au/Publications/Program%20publications/Pages/NationalStrategyforDisasterResilience.aspx>

ⁱⁱⁱ National Partnership Agreement for Natural Disaster Resilience: <http://www.em.gov.au/npa>

^{iv} Emergency Management Knowledge Hub: www.emknowledge.gov.au

^v NERAG Online course is currently available, with long-term hosting arrangements currently being negotiated: <http://www.dla.edu.au/NERAGModules/Home.html>.

^{vi} National Flood Risk Information Project:

<http://www.ga.gov.au/hazards/flood/national-flood-risk-information-project.html>

^{vii} Australian Emergency Manual Series

<http://www.em.gov.au/Publications/Australianemergencymanualseries/Pages/default.aspx>