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Community
Safety Edition

Redefining heatwave

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The *Australian Journal of Emergency Management* is Australia's premier journal in emergency management. Its format and content are developed with reference to peak emergency management organisations and the emergency management sectors—nationally and internationally. The journal focuses on both the academic and practitioner reader. Its aim is to strengthen capabilities in the sector by documenting, growing and disseminating an emergency management body of knowledge. The journal strongly supports the role of the Australian Institute for Disaster Resilience as a national centre of excellence for knowledge and skills development in the emergency management sector. Papers are published in all areas of emergency management. The journal encourages empirical reports but may include specialised theoretical, methodological, case study and review papers and opinion pieces. The views in the journal are not necessarily the views of the Australian Government, Australian Institute for Disaster Resilience or its partners.

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Contents

AJEM - Celebrating 40 years

Foreword	4
The <i>Australian Journal of Emergency Management</i> (2006-2015): from risk to resilience in the third decade John Richardson	5
40 years of recovery in the <i>Australian Journal of Emergency Management</i> Dr Kate Brady	9
Looking back, thinking ahead	15
The changing character of AJEM over 40 years Associate Professor Melissa Parsons, Christine Belcher	16

Research

Moral injury and distress: influence of emergency services leadership and organisational dynamics Dr Greg Drummond, Dr Joseph Cuthbertson, Dr Kate Baecher, Dr Matthew B Thompson	25
Understanding interest-based conflict in disaster recovery collaborations Dr Danielle O'Hara	35
Strengthening local health system resilience in coastal Indonesia: lessons from post-disaster governance and preparedness Roy G. A. Massie, Meiske Elisabeth Koraag, Royke A. Koraag	48
An institutional framework for flood risk mitigation: a systemic redevelopment approach Dr Toinpre Owi, Professor Jamie Mackee, Professor Thayaparan Gajendran	55

Report

Getting the message: emergency management leaders talk leadership Olivia Conley, Dr Martin Perry	69
---	----

News and views

One Big Idea: reframing rescue with communities at the heart Dr Regina Jefferies	75
A living blueprint for sustainable emergency management volunteering Celeste Young, Professor Roger Jones	79

Book review

Frontline Crisis Response Dr Greg Penney	82
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Contributions in the Research section of the *Australian Journal of Emergency Management* are peer reviewed to appropriate academic standards by independent, qualified reviewers.

Foreword



Dr Margaret Moreton

CEO, Gender and Disaster
Australia

Anniversaries invite reflection about where we began and how far we have progressed. The research and analysis contained in the *Australian Journal of Emergency Management* (AJEM) since its inception in 1995 (and earlier as *The Macedon Digest*), reflect significant advances in emergency and disaster scholarship.

AJEM has increased our attention on gender, diversity and inclusion. This trajectory has early roots. In Volume 8 of *The Macedon Digest*, contributions by 3 women¹ raised important questions about the specific needs of women in emergencies. While these early papers were shaped by the prevailing binary and heteronormative understandings of gender, they represent an important foundation and remain relevant to current debates on equity, safety and disasters.

The AJEM body of work has evolved into a broader and sustained engagement with gender, diversity and intersectionality across multiple editions, including volumes 8, 21, 22, 28, 37 and 39. Recent editions deepen this focus. Volume 37, Issue 1 (2022) included the Gender Justice in Disaster conference proceedings, explored gendered dimensions of long-term resilience, violence against women post-disaster, masculinity and power structures and broader questions of gender inequality in disaster contexts. Volume 39, Issue 3 (2024) further expanded this scope, with contributions examining gender and sexual diversity, caregiving responsibilities, menstrual health, women in firefighting, leadership stereotypes and gender justice.

Research has matured from early gender-aware inquiry framed within binary assumptions, towards a more intersectional and systems-oriented understanding of gender, power and lived experience in disaster contexts.

This current edition brings together research examining how leadership, collaboration, governance and community practice are evolving in response to increasingly complex disaster risks, focusing on the systems, relationships and human factors shaping effective emergency management.

Owi et al. (p.55) examine systemic institutional approaches to flood risk mitigation, while O'Hara (p.35) considers how interest-based conflict shapes collaboration in disaster recovery. Massie et al. (p.48) also examine post-disaster governance in strengthening local health system resilience.

Drummond et al. (p.25) investigate moral distress and moral injury among emergency service personnel, highlighting how leadership behaviours and organisational dynamics shape these experiences and underscoring the importance of trust, values alignment and supportive leadership.

Drawing on the perspectives of experienced leaders in Aotearoa New Zealand, Conley and Perry (p.70) examine how emergency management leadership is evolving, including the need to extend leadership beyond the response phase and strengthen reflection, capability and organisational learning.

Taken together, the contributions in this edition highlight the complexity of contemporary disaster environments and the evolving approaches required to support more adaptive, inclusive and resilient systems.

I encourage readers to reflect on the gendered implications embedded within each contribution and their intersections with leadership, governance and practice in disaster contexts.

1. AJEM, Fuller, 1994; Honeycombe, 1994; Williams, 1994

The Australian Journal of Emergency Management (2006-2015): from risk to resilience in the third decade



John Richardson

Executive Director,
Australian Institute for
Disaster Resilience

The opening foreword of the decade highlights how the *Australian Journal of Emergency Management* (AJEM) is instrumental in identifying trends in emergency management, while remaining committed to providing access to knowledge for both researchers and practitioners. As noted at the time: 'The effective transfer and uptake of innovative practice, backed up where necessary with carefully targeted research, is critically important' (Ruddock, Vol 21/1, 2006).

Throughout the decade, the journal continues to publish peer-reviewed papers while increasingly serving as a vehicle for communicating government direction, policy developments, and Ministerial Council communiqués. AJEM also celebrates its 20th anniversary in February 2006 (Vol 21/1), marking both continuity and a period of transition.

Catastrophic disasters and contested narratives

Catastrophic disasters shape the narrative of the decade. The Bali bombings, Indian Ocean tsunami, Hurricane Katrina, Black Saturday bushfires, Queensland floods, and Cyclone Yasi all feature prominently. These events not only tested systems but reshaped public expectations and policy direction.

Reflecting on Hurricane Katrina, Handmer (Vol 21/1, p.38, 2006) questions whether it is an exception or whether prevailing approaches are shaped by a form of collective, media-induced distortion.

His observation, remains highly relevant:

Disentangling the myths, misreporting, various sorts of self-interest and agendas, the micro experiences of individuals, and the sheer heterogeneity and complexity of the event, is necessary before we can provide definitive answers.

Mass fatality management emerges as a recurring concern. Scanlon (Vol 21/2, 2006) reports on cross-cultural handling of the deceased, while Eyre and Payne (Vol 21/2, 2006) examine recovery and return of property. Nicholls (Vol 21/4, 2006) explores disaster memorials as a communication channel between governments and communities. Together, these contributions reflect a dignified maturing of the sector.

Risk management: from principle to system

Risk management continues to feature prominently. Tarrant (Vol 21/1, 2006) reflects on 20 years of practice, noting disasters are infrequent, large, and complex events requiring non-routine responses.

Lewis (Vol 21/3, 2006) argues that a risk-management approach focuses attention on actual risks and their community impacts, rather than resource- and process-focused frameworks such as PPRR (Prevention, Preparedness, Response, Recovery). Pitman (Vol 21/2, 2006) similarly suggests that goodwill and broad principles are no longer sufficient given the growing complexity of emergencies.

In the introduction to 2 special issues on risk assessment, Jones (Vol 23/4, 2008) outlines the introduction of a national all-hazards

risk assessment approach, signalling a shift toward more structured and evidence-based practice. Way ahead of her time, Cavallo (Vol 29/3, 2014) provides the first understanding of the systemic nature of disaster risk, adopting a system of systems approach.

The emergence of resilience

This is the decade in which resilience emerges as a defining concept, culminating in the National Strategy for Disaster Resilience.

The May 2007 edition signals this shift, with Bushnell and Cottrell (Vol 22/2, 2007) examining bushfire risk, Rohrmann (Vol 22/2, 2007) investigating accessibility of fire agency websites, and Maguire and Hagan (Vol 22/2, 2007) arguing for a more nuanced and integrated understanding of social resilience.

Goodman and Gawen (Vol 23/1, 2008) highlight latent strengths in individuals and communities. Ellis (Vol 27/4, 2012) challenges the framing of ‘prevention’, arguing for a focus on building resilience to hazards. Chia (Vol 25/1, 2010) introduces social capital, positioning relationships and networks as foundational to effective emergency management.

From concept to practice

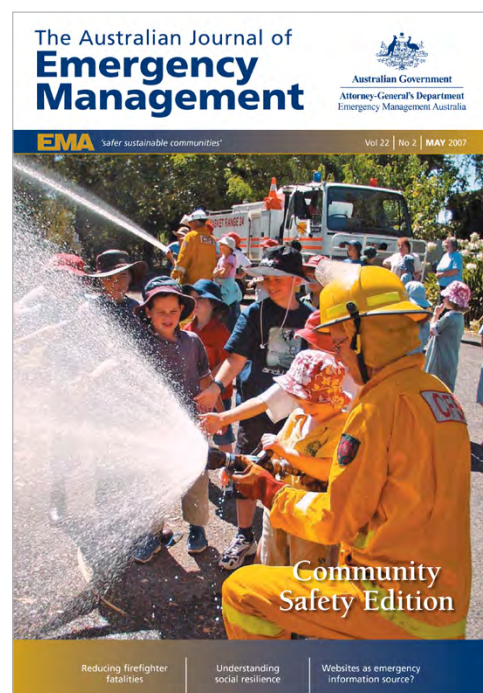
Prosser and Peters (Vol 25/3, 2010) argue that traditional policy approaches will not achieve the behavioural change required for disaster resilience, observing that ‘linear thinking is inadequate to encompass the interactivity and complexity inherent in building resilience’ (p.10).

Organisational resilience also emerges. Gibson and Tarrant (Vol 25/2, 2010), Tarrant (Vol 25/2, 2010), and Parsons (Vol 25/2, 2010) highlight that resilience arises from the interplay of organisational capabilities and that it is difficult to embed in formal plans.

Attention then turns to operationalisation. Arbon (Vol 29/4, 2014) proposes a community resilience scorecard; Neely (Vol 29/4, 2014) brings a lighter perspective drawing upon Vanilla Ice; McLennan et al. (Vol 27/2, 2012; Vol 29/3, 2014) unpack the challenges of shared responsibility. Together, these works overcome the difficulty of translating resilience from concept into measurable practice. Bajracharya et al. (Vol 27/3, 2012) present Gold Coast case studies demonstrating public-private partnerships in resilience, and the role of local government in facilitating them.

Policy context and system influences

AJEM continues to engage with broader policy settings. Dwyer (Vol 21/3, 2006) examines federalism through Cyclone Tracy, highlighting how governance structures shape disaster management in Australia. Sullivan (Vol 23/4, 2008) outlines policy responses to increasing extreme weather linked to climate change, while Crompton and



MacAveny (Vol 23/4, 2008) argue for disaster risk reduction based on increasing economic costs of disasters.

Proudley's (Vol 28/2, 2013) 'Place Matters' article reinforces the importance of place-based understanding in resilience. Gibbs et al. (Vol 30/3, 2015) – including yours truly – advocate for a shift toward a community wellbeing approach grounded in public health.

Gender, diversity and inclusion

A focus on gender emerges strongly in this decade. Earlier in the decade, Childs (Vol 21/2, 2006) identifies limited engagement with diversity in fire services, noting that references to 'diversity' more often relate to ecology or risk frameworks than workforce composition. A fabulous paper from Proudley (Vol 22/1, 2008) lifts the lid on women's experiences and roles in emergencies and the decisions families make. This paper was instructive in influencing Red Cross' Rediplan approach to support women as the key decision makers in household preparedness.

April 2013 was a special issue on gender and disasters that featured Owen's paper on women, men and incident management (Vol 28/2, 2008); Taylor's examination of gender, masculinity and bushfires (Vol 28/2, 2013); Parkinson and Zara's seminal paper on the domestic violence impacts after disaster (Vol 28/2, 2013), which still rates in the top 5 most downloaded papers from AJEM; and Hazeleger's examination of gender and recovery in Australia (Vol 28/2, 2013). The inclusion of Practical Stories in this special issue broadens the lens to lived experience, including women's resilience in Alpine Shire (Vol 28/2, 2013), the Myrtleford Men's Shed (Vol 28/2, 2013), and engagement with men after the Toodyay fires (Vol 28/2, 2013).

In looking at communities more at risk, 2 papers focus on Indigenous communities. Laidlaw et al. (Vol 22/1, 2007) identify the need for cultural heritage sites and assets to be documented and accessible in bushfire plans. The brilliant Moya Newman (Vol 21/1, 2006), a true trailblazer in Indigenous engagement in emergency management, gives an overview of the process leading to the Keeping Our Mob Safe Strategy. Fozdar and Roberts (Vol 25/1, 2010) detail a program in the then Fire and Emergency Services Authority in Western Australia to improve firefighters' understanding of Islam. Boon (Vol 28/3, 2013) sheds light on the important issue of disadvantage and equity in preparedness. Cornell et al. (Vol 27/3, 2012) caution against older adults being seen as a burden, arguing that their life experience and exposure to disasters over a long life can prompt positive behaviours and capacity. Every and Thompson (Vol 29/3, 2014) give us the first examination of homelessness and disaster preparedness, and ask 'can the homeless afford it?'

The first edition of 2014 focuses on young people, although as usual, the adults do the talking with only one paper where young people talk about their experiences by Hocking et al. (Vol 29/1, 2014). The papers focus on education (Raphael and Burns; Dufty; Towers et al.; Harwood et al.), emergency planning for children (Boon et al.; Ronan), evacuation planning (Davie et al.), and recovery (Gibbs et al.) (see Vol 29/1, 2014). The perennial question of 'how do we engage the young people of today?' is also addressed in Wajs-Chaczko's earlier paper on Generation Y (Vol 23/3, 2008).

Recovery

Recovery receives sustained attention as it continues to evolve through the decade. This is a topic we examine further in this issue with Kate Brady's paper on the emergence of recovery. Norman's paper (Vol 21/4, 2006) on holistic recovery outlines a model of recovery encompassing social, built, natural, and economic environments, with communities at the centre. Like pavlova and Russell Crowe, there is debate about whether the Australians (Victoria) or New Zealanders first developed this model.

Brady (Vol 30/4, 2015) gives us pause to reflect on the language and the words we use in disasters and what their impacts are on survivors. Nicholls and Healy (Vol 23/3, 2008) recognise that one size cannot fit all in communications with survivors of disasters. This paper laid the foundation for Red Cross's 'Communicating in Recovery Guide'. Krolik (Vol 28/4, 2013) looks at the intersection of disaster management, and rights-based community development.

Leadbeater (Vol 28/3, 2013) gives us a brilliant account of the role of the Strathewen Community Renewal Association leading the recovery of their community post Black Saturday. Dean (Vol 30/3, 2015) gives a detailed case

study of a community development approach to recovery in Queensland after the floods in 2011. Kargillis et al. (Vol 29/2, 2014) explore the use of storytelling and narrative approaches to help improve recovery outcomes. Graham (Vol 27/4, 2012) outlines the differences in disaster assistance programs across the globe and makes recommendations around a greater community engagement on recovery programs, noting that the 'provision of assistance by agencies to a community does not in and of itself enhance community wellbeing, deliver better recovery outcomes, or build resilience' (p.6).

Risk communication and media

Risk communications also receive significant attention through the decade. Cohen et al. (Vol 21/1, 2006) reflect on the deeper cultural issues encountered in bushfire representation in the popular media, and seeing disasters as panic pleasure. Hughes et al. (Vol 22/4, 2007) also examine how the media frames bushfires, and how the landscape is shifting away from formal informational media sources. Eburn (Vol 25/1, 2010) examines whether emergency service organisations can restrict the access of media to disaster sites. Howell and Rohan (Vol 25/1, 2010) dissect the role of traditional and emerging media in a novel emergency – equine influenza – and find the powerful role that radio plays in a wide-area emergency. Leadbeater (Vol 25/3, 2010) outlines the importance of joined up and coordinated public information in an increasingly complex disaster and media landscape.

The first edition in 2012 has a social media theme. Taylor et al. (Vol 27/1, 2012) provides a glimpse into the future



with an examination of the role of social media in disasters. They consider its role in providing psychological first aid, drawing on research after Cyclone Yasi. Furthermore, Bird et al. (Vol 27/1, 2012) examine at the role of Facebook, while Lo and Posetti (Vol 27/1, 2012) examine ABC and Twitter and information sharing. Dufty (Vol 27/1, 2012) outlines the role of social media in building resilience, and Nicholls (Vol 27/1, 2012) details good communications practice in influencing community resilience.

Capability, volunteers and doctrine

Capability development shifts toward experiential learning in training and exercising. Wall (Vol 21/3, 2006) advocates for the place of storytelling in creating realistic narratives, Arciuli et al. (Vol 23/3, 2008) use drama methods, and Owen et al. (Vol 30/3, 2015) examine broader professional development approaches beyond command and control.

Conway questions whether AIMS doctrine remains fit for purpose (Vol 27/2, 2012). Ganewatta and Handmer (Vol 24/2, 2009) assess the economic value of volunteers, while Francis and Jones (Vol, 27/4, 2012) challenge assumptions about volunteer motivations across age groups. Dufty (Vol, 28/4, 2013) identifies 5 types of evaluation, calling for consistency and comparability.

Risk practice and community behaviour

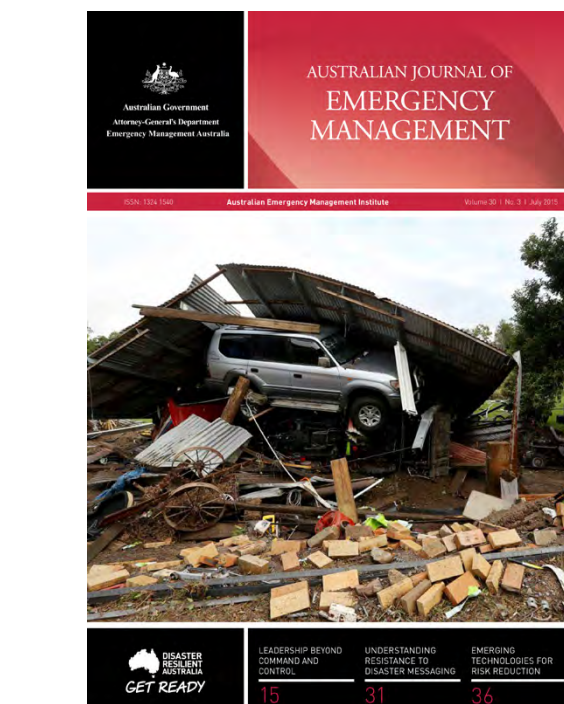
Volume 1 of AJEM in February 2009, published in the shadows of the Black Saturday bushfires, has a strong focus on risk: bushfire risk (Sherrah, Byrne, Hine et al.), landslide risk (Saunders and Glassey; Leventhal and Withycombe), and broad based risk (Osuchowski; Gabriel). Gissing, Keys and Oppen (Vol 25/2, 2010) detail the advances in understanding flood risk and consequences. King et al. (Vol 21/3, 2006) report on how well Innisfail prepared for Cyclone Larry.

Kelman and Karnes (Vol 22/1, 2007) introduce relocalisation of disaster risk reduction as a concept, and Vogt et al. (Vol 23/1, 2008) examine risk perception in flood-prone areas.

Loh (Vol 22/4, 2007) explores evacuation powers under stay-or-go policy, and Eburn (Vol 27/1, 2012) revisits failure-to-warn as a persistent legal challenge for emergency services amid rising public expectation that they will be warned.

Human and animal health

On health and disasters, Hope (Vol 25/3, 2010) outlines healthcare worker challenges in disasters, while Ranse et al. (Vol 28/4, 2013) examine disaster education for nurses. Smith (Vol 22/2, 2008) questions workforce reliability in crises, Hagan et al. (Vol 23/3, 2008) explore pandemic behaviour, and Ryan et al. (Vol 28/1, 2013) introduce new environmental health frameworks. A very hidden



issue gets a focus in Jenner's paper (Vol 22/2, 2007) on the psychological impacts of responding to agricultural emergencies.

Volume 30, Issue 2 (2015) focuses on animals, both livestock and pets. It introduces the national principles for animals in disasters and explores the animal-human bond (see articles by Mills; Fowles; Thompson and Trigg et al.). Taylor et al. look at planning for companion animals, while Smith et al. consider the same for livestock. In the same issue, Westacott and Prelgauskas outline SAVEM, the South Australia Veterinary Emergency Management approach to post disaster animal welfare.

Much of this content helped drive the AIDR Planning for Animals Handbook.

Conclusion

The third decade of AJEM reflects a field in transition. It begins with catastrophic events and a strengthening focus on risk. It progresses through the emergence and consolidation of resilience as a central concept, and expands to include gender, diversity, social capacity, recovery, communication, and systems thinking. This is captured at the end of the decade by Crossweller (Vol 30/3, 2015), then Director-General of Emergency Management Australia at the time, and way ahead of his time making a bold call to shift leadership thinking towards an ethical approach.

In doing so, the decade closes not with resolution, but with a clear and compelling call to lead differently—centred on ethics, grounded in humility and compassion, and responsive to the growing complexity of risk.



40 years of recovery in the *Australian Journal of Emergency Management*

Dr Kate Brady

University of New South Wales

I have had the privilege of being invited to provide a summary of how recovery has been reflected in the 40-year history of the *Australian Journal of Emergency Management* (AJEM).

When I started working in disaster recovery, AJEM was one of the resources I frantically flipped through to absorb information, trying to understand my role as the Recovery Coordinator at Australian Red Cross. The editions arrived at my desk 4 times a year, posted from Mount Macedon as part of a free subscription. I would devour each edition, whether at my desk or on the move as I worked with communities affected by the 2009 Black Saturday bushfires.

Looking back through 40 years of AJEM has been a real pleasure. I've organised my reflections by decade and theme, while reluctantly leaving out many favourites to keep to the word count.

1980s

The Macedon Digest (the precursor to AJEM) was first published in 1986¹, and throughout the decade, Ruth Wraith and Rob Gordon authored a series of 9 articles on 'Human Responses to Disasters', exploring the impacts of disasters on individuals, communities and the emergency management workforce (see also Vol 41/1, 2026). These pieces are written in non-clinical and accessible language, targeting emergency management workers. They catalogue the predictable challenges likely to be experienced by disaster-affected communities but also (importantly) identify how services can help. These articles are impressive in the way they seamlessly traverse the impacts of disasters across individuals, family, community and systems. While some

of the language and framing have inevitably changed in the subsequent decades, these articles are unbelievably solid and have stood the test of time.

Early editions also featured research summaries on the psychological and social impacts of disasters including Sandy McFarlane's study of Ash Wednesday firefighters, reporting on long-term psychological disorders and physical health issues comparable to military veterans (Vol 2/1, 1987). Helpfully, McFarlane linked this study to another one undertaken with children affected by the fires, framing firefighter mental health as a broader family and community concern rather than an occupational hazard. Julie Jones's study identified both positive and negative effects on Ash Wednesday workers' relationships, health and careers (Vol 2/2, 1987). In 1989, Neil Britton examined how sociological research had advanced the understanding of community level impacts of disasters (Vol 4/2 and Vol 4/3, 1989).

Roger Jones's article about future directions in recovery planning noted that 2 meetings in 1980 and 1981 were the first real attempts at national recovery planning in Australia, informed by lessons from Cyclone Tracy. He highlighted a divide between the 'welfare' and 'technical' elements of recovery (Vol 4/4, 1989).

One of the noticeable elements of these editions is how sophisticated insights into the human experience of recovery sit awkwardly within a largely militaristic representation of the sector. In one edition, for example, after exceptional pieces from Wraith and Gordon (p.3-5) and Jones (p.6-7) (Vol 2/2, 1987), a list of Australian Counter Disaster College

1. See <https://knowledge.aidr.org.au/collections/macedon-digest>

training for emergency managers offers courses focused on hazard analysis techniques, counter disaster approaches and response management. While the information about recovery is there, it's presented as adjacent to the work emergency managers need to train for.

1990s

What seems like an awkward nestling of information in the 1980s, started to emerge as a tension in how recovery was written about in the 1990s. The divide becomes starker between describing the aftermath of disasters as community impacts needing support, compared to situations needing operational consideration after the response phase. There are multiple examples of this tension.

In 1990, Kerry Gartland from the Victorian State Government outlined the complexity of recovery and the importance of government taking their lead from affected communities. She provided insights on understanding disaster impacts and offered a nuanced definition of recovery that squarely centred affected communities. Gartland's firm handle on complexity, her focus on community self-determination, and her understanding of the pressures on the recovery workforce is superbly insightful (Vol 5/2-3, 1990).

In contrast, later in the same edition there is a summary report from the Natural Disaster Organisation about their response to a 1990 flood event, where the authors proudly outlined their role and successes in response. Recovery warranted a small paragraph at the end (Vol 5/2-3, p.15, 1990):

We did have some problem with the transition from response to recovery, which we are addressing, and our plan worked quite well.

Also in 1990, a report on a Queensland flood referred only to disaster affected people in terms of rescue and shelter headcount (Vol 5/1B, 1990). This is contrasted by a report in the same edition from 4 Australian recovery workers who were invited on a knowledge exchange trip to San Francisco, reflecting (Vol 5/1B, p.3, 1990):

It was interesting to note that, despite the enormous differences in scale and culture between the US and Australian disasters, the same issues arose based on the fundamental right of people to manage their own recovery; to have equal access to information and services; and to retain control over their own lives and decision making processes.

The increased framing of recovery as a phase of emergency management rather than primarily as a human experience is reflected in other contributions, including Julie Frittam's overview of South Australia's recovery arrangements (Vol 7/3, 1992), Barry McPhee's account of coordinating the 1990 Charleville flood recovery (Vol 7/3, 1992), Barry

Wraith's examination of disaster payments through the Department of Social Security (Vol 8/2, 1993) and accounts of recovery services following the Dandenong Ranges fires (Vol 13/2, 1998). AJEM articles in the 1990s also discussed now familiar concepts, including community recovery committees, 'one-stop shops' (McPhee, Vol 7/3, 1992), and phases such as 'heroic' and 'honeymoon' (Dawe, Vol 14/1, 1999).

Philip Buckle and colleagues contributed significantly to evolving discussions on recovery management throughout the 1990s. Their work addressed Victorian recovery coordination arrangements identified pressing issues for recovery managers for the decade (Vol 7/3, 1992) and emphasised the need to 'support the whole person' after disasters, highlighting the sector's limited understanding of secondary and tertiary impacts (Vol 13/2, 1998). They also advocated for greater community involvement in decision-making noting this was rarely achieved in practice (Vol 8/3, 1993). Andrew Coghlan and Philip Buckle argued for community development approaches and attention to context in recovery (Vol 9/4, p.3, 1994):

In any disaster the physical impact of the event may be seen to be an overlay on pre-existing societal and community conditions prior to its taking place.

As recovery programs became more common, many of these contributors also pushed for improvement. Buckle doggedly pushed for recovery managers to adopt accountability standards (Vol 7/3, p.15, 1992):

At the moment we have no standards or criteria by which to measure the performance of disaster recovery management or the effectiveness of the assistance made available after disasters.

My wildcard read of the review is Robert Barchard of the Queensland State Emergency Service in 1991, misleadingly titled 'Earthquakes: Part of the "all hazards approach"'. Barchard raised serious concerns about emergency service organisations overseeing holistic disaster management, arguing that this would inevitably frame disasters as large incidents to be managed rather than complex systems with intersecting components. He pointed to the limitations of emergency services to cope with the realities of impacts on communities (Vol 6/4, p.10, 1991):

I have the highest regard for the professional standards and dedication of our emergency services, but I believe there is a lack of understanding across the board of what a real disaster involves and the chaos it creates ... In any major disaster, the scenario of the well drilled emergency service machine is a fantasy. The community and its proliferation of volunteer groups will become involved, and indeed have the right to be involved, and they will not react according to emergency services and standard operating procedures.

2000s

One shift I noticed in the new decade was the disappearance of first-hand accounts that characterised AJEM articles in the 1980s and 1990s, replaced by a more formal approach that echoed the growing reports on the professionalisation of emergency management.

Several articles by the magnificent Anne Eyre (UK researcher and Hillsborough disaster survivor) are peppered throughout this decade. These include her advocacy for emergency management organisations to acknowledge the impacts their processes have on disaster affected people (Vol 17/1, 2002), an accessible overview of the psychosocial impacts of disasters and subsequent implications for disaster managers (Vol 19/4, 2004) and a sensitive, practical guide to returning personal items after disaster events with Lucy Easthope (nee Payne) (Vol 21/2, 2006).

Several articles looked at the ambiguity of language being used in the disaster management sector and its effects on policy and practice. One is John Handmer's classic 'We are all vulnerable', where he pointed to challenges of how terms such as 'vulnerability', 'risk' and 'capacity' are meaningfully used (Vol 18/3, 2003). Another discusses what a 'community' is (Buckle et al., Vol 18/2, 2003).

Lessons from recovery across several significant disasters were reflected in this decade, including a comparative analysis of government communication following September 11 and the London bombings (Nicholls and Healy, Vol 23/3, 2008), a review of government supports after the 2003 Canberra bushfires (Winkworth et al., Vol 24/2, 2009) and

discussions of lessons from informal economies following the Boxing Day tsunami (Handmer and Choong, Vol 21/4, 2006).

The fourth edition of 2004 (Vol 19/4, 2004) was dedicated to the 'quiet revolution' Andrew Coghlan and Sarah Norman observed taking place in Australia and New Zealand recovery, post September 11. This included Cole and Buckle's article on principles for community capability in disaster planning, Rob Gordon's much referenced article about the social system as the site of disaster impacts, and Annabel Beckham and Susan Nicholls's analysis of the communication aspect of the 2003 Canberra bushfire recovery.

Two articles from this decade elicited strong reactions from me. The first is by Margery Webster, reflecting on her experience as a recovery worker following the Ash Wednesday bushfires (Vol 21/1, 2006). She recalled the community's lack of trust in government, the importance of the community 'action group' acting as a trusted liaison to services and as a 'watch dog' for the community, the strain for people living in temporary accommodation, divisions caused by perceived inequity in support, the burden of invisible labour carried by women, the exacerbation and acceleration of pre-existing health issues, and the complexity of parenting in post-disaster environments. Webster's 2006 retelling of events that happened in 1983 could be replicated in 2026, and it made me want to weep in frustration.

Happily, the second piece provoked delight. Canadian journalist and disaster researcher Joseph Scanlon's article on a Canadian town's reception of diverted flights on September 11 is amazing (Vol 18/2, 2003). The tale of how the people of Gander punched above their weight (as a town of approximately 10,000 people that received 38 diverted planes and approximately 7,000 people) has been captured in the stage show *Come From Away*, but Scanlon analyses the factors that made this such a successful operation. I could write an entire paper on this article and why the actions captured here align strongly with evidence. Do yourself a favour and read it; it will make you feel better about the world.

2010s

A consistent theme in the 2010s was the importance of community-led approaches to recovery. Articles include Margaret Moreton's research on the tensions between government-led and community-led approaches to recovery (Vol 33/1, 2018), case studies from the Central Goldfields Shire on community-led recovery initiatives (Vol 28/4, 2013) and recommendations from Major General Chris Ford for how community recovery can be optimised (Vol 33/1, 2018).



In 2013, we see Anne Leadbeater's classic case study of the Strathewen Renewal Association (Vol 28/3, p.46, 2013):

If the value of community leadership in recovery is to be fully realised, it is imperative that recovery agencies and government at all levels acknowledge that disasters do not happen in a vacuum. Prior to being impacted, every community has existing values, networks, projects, relationships, knowledge and capacity that underpin its day to day operations, and indeed, it's very identity. But the imposition of externally constituted and 'templated' recovery models can seriously undermine inherent community resilience.

Several articles also examined the importance of a depth of understanding of recovery in the emergency management workforce. These include Carole Owen's exploration of how government can support community-led recovery (Vol 33/1, 2018) and Anne Eyre's assessment of the importance of skilled, empathic facilitators to offer psychosocial support (Vol 32/3, 2017). These articles are complemented by critiques of traditional emergency management for its militaristic framing that privileges emergency managers' expertise and positions affected communities as victims (Krolik, Vol 28/4, 2013) and the narrow focus of disaster inquiries, where Cole et al. note the persistent omission of recovery (Vol 33/2, 2018).

A 2013 edition focusing on gender and disaster featured Deb Parkinson and Claire Zara's landmark research on family violence following the 2009 Black Saturday bushfires, Tricia Hazelger's analysis of strategic issues for gender and recovery, and Mae Proudley's work on connection and disruption to place (Vol 28/2, 2013).

Children and young people were also the focus of thematic editions, featuring thoughtful summaries of the paradox of children's simultaneous vulnerability and resilience by Kevin Ronan (Vol 29/1, 2014) and again by US researcher Lori Peek (Vol 29/1, 2014), a report from Brett McDermott on the advances in mental health evidence to support children affected by disasters (Vol 29/1, 2014), an overview by Susan Davie and colleagues outlining the importance of child friendly spaces in evacuation and recovery centres (Vol 29/1, 2014) and Lisa Gibbs and colleagues' principles for practitioners and policy makers supporting the recovery of children and young people (Vol 29/1, 2014).

A range of recovery frameworks and guidelines emerged during this decade, reported in AJEM. These included efforts toward national consistency, resulting in the National Impact Assessment Framework and the National Monitoring and Evaluation Framework (Verlin and Argyous, Vol 33/1, 2018), the National Guidelines on the Management of Donated Goods (Vol 28/1, 2013), Shona Whitton's precursor report to the National Psychosocial Guidelines for Temporary Memorial Management (Vol 33/1, 2018) and the Collective Trauma Event Guidelines



(Vol 33/4, 2018). The National Principles for Disaster Recovery were also revised twice, with the ongoing relevance of the content largely reaffirmed (Vol 33/3, 2018).

A small but mighty article that stood out to me reported on the Lancefield-Cobaw fires that started when a controlled burn breached containment lines. The emphasis on the significance of the sincere and public apology offered by government representatives as the starting point for recovery is a lesson we would be remiss to forget (Brown and Scott, Vol 33/1, 2018).

2020s

One surprising finding from the 2020s is the smaller number of COVID-19-related articles than I anticipated. A few stand out, including Billy Tusker Haworth's piece on queer community resilience during COVID-19 (Vol 37/1, 2022) and several others with very specific focus: Fitzgerald's early analysis of COVID-19 from an Australian perspective (Vol 35/4, 2020) and Knight's piece on COVID safe aerial firefighting (Vol 35/4, 2020) are examples. However, given the scale of the pandemic, the limited focus on recovery is striking. A book review by John Richardson put words to that absence (Vol 38/3, p.17, 2023):

Recovery from the COVID-19 pandemic seems to be something that has dropped from the imagination or purview of people ... It is very 'old school' thinking, almost akin to 'the bushfires are out, we are done with them, let's just get on with that.

Until the 2020s, reflections of Indigenous knowledge or perspectives throughout AJEM were virtually absent. John Richardson has identified the limited pieces in his high-level

summary articles of the first and second decades of AJEM (Vol 41/1 and Vol 41/2, 2026), and it isn't until the 2020s that we see the inclusion of First Nations perspectives regarding recovery. Bhiemie Williamson and Jessica Weir's piece reports on the systemic exclusion of Indigenous perspectives in disaster practice, policy, and research, with a clear call for change (Vol 36/4, 2021). Kylie Radel et al. offer an analysis of how the incorporation of First Nations knowledges into disaster management policy is tracking to the Sendai Framework, finding recommended targets are not being met (Vol 38/2, 2023). 2025 saw the first Indigenous-focused edition of AJEM, with all articles being either led or co-led by First Nations people, marking a significant shift in the way Indigenous knowledges have been represented in AJEM (Vol 40/2, 2025).

Gender-focused editions in 2022 and 2024 extended the discussion and information available to the sector, including an increased focus on a more holistic understanding of gender and disasters, and more articles about gender in relation to preparedness, response and disaster workforces rather than a predominant focus on recovery seen in previous decades.

Stephanie Alexander's analysis of the implications of the 2023 Strategic Defence Review for Australian disaster management outlines the Australian Defence Force (ADF) position that it must prioritise its core function of warfighting rather than serving as a domestic recovery agency (Vol 38/3, 2023). This analysis can be read as a companion piece to Michael Eburn's earlier commentary on the 2019-2020 Royal Commission and the Australian Constitution where he discusses the hasty changes the Australian Government legislated (prior to the release

of the Royal Commission findings) regarding how the ADF can be activated in response or recovery, which offered one of the most underrated lines in the history of AJEM (Vol 36/1, p.9, 2021):

We may see the ADF as de facto 'spontaneous volunteers'; an organisation (albeit well trained and resourced) that turns up in an emergency area with its own priorities and command arrangements.

One of the standout recovery articles for me in recent years is the research report from Mehmet Ulubasoglu (Vol 35/4, 2020) on the uneven distribution of financial burden after disasters. This research identified which workers are most likely to bear income losses, who may benefit, and how recovery funding can inadvertently worsen these disparities. These findings are important but have yet to be meaningfully reflected in Australian recovery policy.

Themes

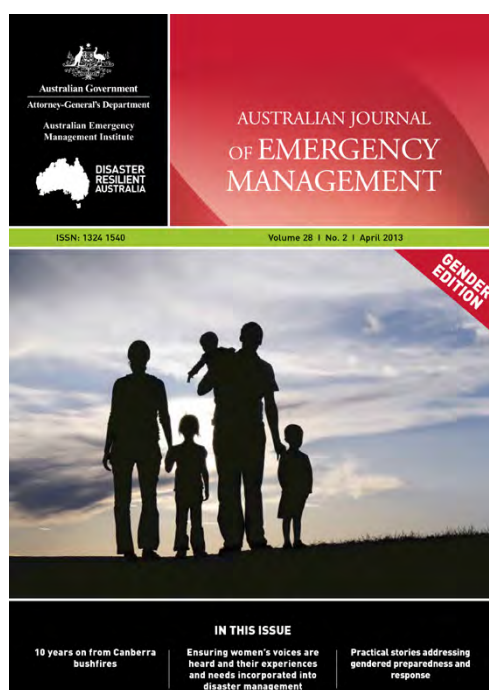
While I didn't set out to look at themes specifically across the 40 years, there were 2 that persistently presented themselves: how gender and collective trauma events are discussed over the decades.

Gender

One of the striking patterns when reading these articles in a concentrated way across decades is the representation of gender over time. In the 1980s, with a few notable exceptions (Ruth Wraith, all-star contributor, I'm looking at you), women are rarely mentioned, let alone present as active contributors. This imbalance is paraded in the first edition of 1990, which names 22 men and 8 navy ships but only 2 women. When tables of contents appear in the early 1990s, the disparity becomes easier to spot: for instance, only 2 of the 4 1992 editions include any articles authored by women.

Volume 8 Issue 4 (1993) is where we see the first substantial discussions of gender and disasters. The article titled 'Special needs of women in emergency situations' is a difficult read (Vol 8/4, 1993). Featuring helpful tips for emergency managers about how to support disaster-affected women are to wear 'recycled underpants' and dispose of soiled goods (as opposed to the disaster-affected men, who just tend to 'get on with it', apparently unbothered by the ownership status of their underpants), with one mention of gendered violence, it makes the changes that have happened since then feel more enlightened and substantive than they should.

The same issue featured the first discussion of family violence by Jan Williams, naming the issue and identifying 3 tiers of service response (Vol 8/4, 1993). The piece is



insightful and important, but reading it made me feel incredibly angry. When Deb Parkinson and Claire Zara, and subsequently GAD Pod (now Gender and Disaster Australia) contributed their research after Black Saturday demonstrating the increased frequency and intensity of family violence that women and children were experiencing in fire-affected communities (Vol 28/2, 2013), it was very much treated by the sector as entirely new information. While I am in no way disputing how important Parkinson and Zara's Black Saturday research was (and is), Williams's article shows this issue had been identified decades earlier but ignored and that is an ugly stain for the sector to reckon with.

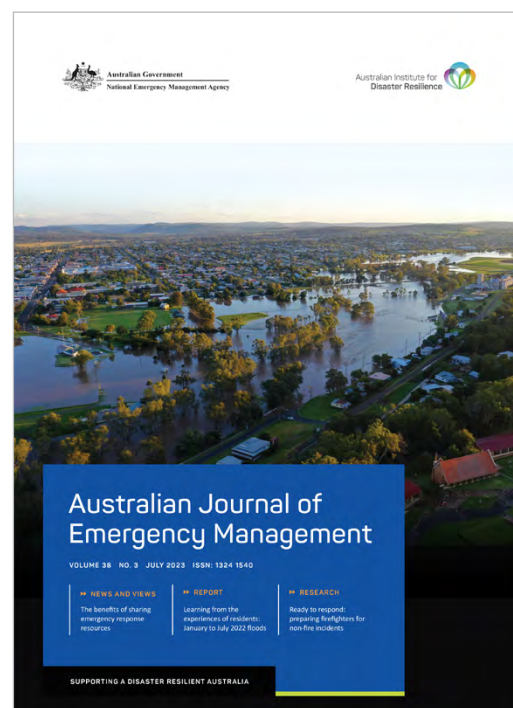
Until the 2020s, where gender is increasingly better integrated across emergency management topics, articles focusing on gender were mostly confined to recovery. This remained puzzling to me until I read Andrade and Lindsay's piece on gender workforce equality reporting, documenting overall improvement but nonetheless bleak results in AFAC member organisations (Vol 38/3, 2023). Taken together, we can see the problem more obviously after disasters because these effects are the results of failure to integrate gender before and during disasters. This gap is either reflective of, or driven by, a lack of diversity among those shaping disaster planning and decision making.

Collective trauma events

Another thing that stood out for me was the way collective trauma events have been represented over the years. In the 1980s, 1990s and early 2000s, there were several articles focused on these events, including a range of perspectives about the Kempsey bus crash, an eyewitness account from Tiananmen Square, the Thredbo landslide, Operation Safe Haven, the anniversary of the Tasman Bridge collapse and a number of heartfelt pieces about the Port Arthur shootings. These topics are handled thoughtfully and squarely from a perspective that supporting communities after these events is core work for emergency managers, given their profound impacts on the Australian community. This stood out to me in contrast to how these events are often discussed today, with a stronger operational focus and questions about whether the hazard type fits in emergency management or belongs elsewhere, despite the profound effects on the Australian community.

Conclusion

I would like to conclude by saying that I found the experience of reviewing approximately 160 editions of AJEM a delight, but the truth is that I found it an existentially gruelling exercise. The hardest part for me to grapple with is the concept of progress. I think the way recovery has been discussed in AJEM has changed over time. What saddens me is that despite the excellence, energy and determination of so many articles from the



1980s and 1990s, we are not seeing consistent reports of excellent outcomes and good practice as the rule today. I don't pretend that they were the 'good old days', but it's confronting to see the blueprint laid out decades ago still struggling to be implemented today. Why do the issues described by Margery Webster from 1983 feel so relevant and predictable today? Is the frustration I feel about this specific to recovery, or is it something historians have learned to live with?

A crude overview of recovery in AJEM from me would read something along the following lines: in the 1980s, there was a lot of information provision; the 1990s featured arguments for systemic good practice; the 2000s were mostly about refining program approaches and recently, there has been a theme of reporting about systems and systems failures.

As we move into the next decade, if all the corollary predictions are accurate, what we think of as recovery will largely be dead. In an era of permacrisis, living with layered disaster impacts will become the norm, without the breathing space for people, communities, environments or economies to fully recover. But we're still delivering inconsistent, short-term programs in ways that could fit effectively into the descriptions from the 1990s. The cynic in me predicts that the following decade will see reporting on reduced service provision, discussions of fiscal responsibility and a narrowing of what the emergency management sector see as their mandate. The optimist in me says that we'll see a decade of debate and challenge, where we see a broader range of perspectives centring the impacts of disasters. I hope the 2066 review reports the optimist was right.

Looking back, thinking ahead

In this special segment for AJEM's 40th anniversary issues, we interview past journal contributors about their early articles, what has since changed in the fields they work in, and their ideas and suggestions for the future of AJEM.

Listening to communities

An interview with Alison Cottrell

I was invited to do the research that became my first *Australian Journal of Emergency Management* (AJEM) paper (Cottrell 2005). The approach came from the community themselves. There was an academic on the community flood committee and a well-connected retired union organiser who valued research, and together they recognised that what they had been doing was worth documenting. They saw it as a good story and asked if we would be interested – and of course we were. For me, it was especially appealing because of my social research background, but it was also simply a joy to work with people who were so dedicated to dealing with an issue that mattered to them.

What stood out was the level of commitment shown by local residents over a long period. From the late 1980s through to the late 1990s, they gathered information about flooding in their area, assessed the extent of the problem, and considered possible technical solutions. They then used that information to advocate to local government. It was a combination of citizen science and volunteerism – people coming up with information based on facts rather than opinions.

A key message from that experience was that people will devote significant time and energy to something they see as worthwhile. When that happens, there is a responsibility on planners and agencies to recognise and respect that effort. The outcomes reflected what can be achieved when community participation is taken seriously.

Looking back, I think some of the underlying challenges remain. Managers still don't fully grasp the knowledge within communities and can underestimate how informed and capable people are.

At the same time, communities are more fluid. People move more often for work, and their make-up can change quickly. That makes it harder to know who is in a community and how people are connected, reinforcing the need to spend time there and get to know it. Census data can help, but it is often out of date or incomplete. You still need time 'on the ground' to properly understand a place.

Social media has added complexity by contributing to misinformation, making it harder for people working in communities to understand what is really happening. That again highlights the need to spend time in communities and build direct understanding.

Agencies and councils can still focus on telling people what to do rather than working with them. That can create misunderstandings, especially when communication doesn't clearly explain what has happened or why decisions were made. It's not just about providing information, but clear explanations.

There's also a broader issue around how emergency management arrangements are communicated. Many people don't really understand how local systems work – what disaster management groups are, how decisions are made, or how different roles fit together. That gap in understanding can contribute to confusion.

At the same time, a lot of what communities do – especially informally – still goes unrecognised. People help neighbours, share resources, and support each other, but much of that activity isn't counted. Yet it remains an important part of how communities respond to disasters.

Looking ahead, I would like to see more research in AJEM that takes a broader view, particularly around the connections between disaster preparedness and community development. A systems approach may seem old-fashioned, but it is still a useful way to think about how different elements fit together.

I would also like to see more work on how communities of place function, and how people with quite different values and connections can still work together when disasters occur. That intersection between community development and disaster mitigation remains an important area for further exploration in AJEM in the future.

References

Cottrell A (2005) Sometimes it's a big ask, but sometimes it's a big outcome: community participation in flood mitigation. *Australian Journal of Emergency Management*, 20(3):27–32. <https://search.informit.org/doi/10.3316/informit.095661081652764>

The changing character of AJEM over 40 years

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Introduction

Since 1986, the *Australian Journal of Emergency Management* (AJEM) has evolved alongside the emergency and disaster sectors in Australia and Aotearoa New Zealand. Originating as *The Macedon Digest*, it has transitioned from a newsletter to an outward-facing, internationally recognised scholarly journal. Its content has shifted from practice-based reporting to evidence-based research, evaluation and policy analysis and from a civil-defence focus to a community shaped, resilience-oriented approach. AJEM plays a significant role in leading the conceptual development of emergency and disaster management.

Background

In 1986, the Australian Civil Defence School (then part of the Australian Natural Disasters Organisation) launched *The Macedon Digest* as part of a growing national effort to formalise emergency management in Australia. The publication was a practitioner-focused newsletter, providing a platform to share lessons learnt from disasters and to circulate policy, training and operational insights.

Over time, *The Macedon Digest* expanded in scope and sophistication. From 1991, *The Macedon Digest* was co-titled as the *Australian Journal of Disaster Management*, reflecting knowledge sharing and institutional changes, including the transition of the Australian Civil Defence School to the Australian Emergency Management Institute (AEMI) on 1 January 1993. In December 1995, the publication was formally registered as the *Australian Journal of Emergency Management*, aligning closely with AEMI's training and doctrine. It became a nationally recognised journal combining practitioner insights with research and policy analysis.

As emergency management evolved into a recognised discipline encompassing mitigation, preparedness, response and recovery, the need for a formal, peer-informed approach to knowledge generation became evident. By the early 2000s, the sector experienced increased academic involvement and research funding, alongside increased integration and multi-agency coordination. This period marked the expansion of emergency management into an established policy and research domain.

Peer review became a defining feature of AJEM's research contributions. The journal currently draws on a global network of around 250 referees from academia, consultancy and practice, spanning Australia, Aotearoa New Zealand, Canada, Europe, Indonesia, Japan, the United Kingdom and the United States. The expertise and voluntary commitment of these reviewers over many years have maintained the journal's standards and the quality of its research.

Decadal journal anniversaries provide opportunities to reflect on progress and review trends in content, style and contributions (Gold and Hein 2026). As a hybrid industry-research publication, the journal bridges research and sector knowledge and informs evidence-led practice in the emergency management sector. This 40th anniversary year is a timely opportunity to reflect on and document AJEM's catalogue. This paper examines changes in the authorship, content, style and character of articles in *The Macedon Digest* and AJEM since 1986.

Analysis of the catalogue

The catalogue 1986 to 2025 comprised 158 issues. Publication occurred 4 times per year with the exception of 1990 and 2009 when only 3 issues were produced. Using records of 158 issues (Table 1), 1,755 published articles

were coded into a database of year, volume, issue, month, special issue status, title, article type, author organisation, author gender, country of authors, country of content and hazard type addressed in the article.

Articles corresponding to research papers or features, reports and ‘news and views’ were included in the database. While the purpose, structure, identity and content of the publication changed when AJEM was established in 1995 (Table 1), we applied experiential knowledge to equivalise articles from the earlier newsletter format of *The Macedon Digest* for coding. In all issues, articles advertising training courses, letters to the editor, visits, staff changes, library acquisitions, conference announcements, communiqués, events calendars, workshop and conference announcements, book reviews, opinions, viewpoints, forewords and vales were excluded from coding.

Basic statistics were used to identify trends in coded parameters over 4 decades. Trends in article titles were identified using a word cloud generator (wordclouds.com) where the most frequently occurring words in article titles appear larger in the word cloud. The words ‘disaster’, ‘disasters’, ‘emergency’, ‘emergencies’, ‘Australia’ and ‘Australian’ were excluded from display in the word cloud because they are common qualifiers for article topics. The word ‘management’ was retained because it was used in many contexts outside the term ‘emergency management’.

Articles have covered a range of hazard types over 4 decades

We coded 18 specific hazard types from the 1,755 published articles (Table 2). The most commonly covered

hazard types were bushfire, flood, technological and security hazards (including terrorism and nuclear attack), earthquake, health and disease (including biosecurity), cyclone and tsunami. Hazard types covered in only one or 2 articles included tornado, asteroid impact and dust storm. Overall, the ‘all-hazards’ category constituted over 60% of the content of articles (Table 2). This reflects the integrative nature of the emergency management sector and the aims of the journal.

The all-hazards category also dominated the content of articles in each decade (Figure 1). All-hazards articles capture content that applies in any hazard scenario, associated with broad topics such as recovery, emergency services training, operations, policy, strategy and organisational decision-making, disaster risk reduction, communications and warnings, search and rescue, lessons management, community engagement and preparedness, vulnerable groups, volunteering, education and qualifications, economics, disaster resilience, diversity and inclusion and animals in emergencies, among others.

Articles specifically about flood, bushfire, cyclone, tsunami, earthquake, coastal, health and disease, technological and security, and landslide hazard types persisted through the decades, but changed in prevalence. This is likely in response to major disaster events prompting post-event analysis, inquiry and research or in response to broad strategic, policy and funding influences.

Between 1986 and 1995 there were 26 articles (9%) about floods, covering events in Gippsland, Mitchell River, Rockhampton, Benalla, Western Queensland and

Table 1: Summary of publication naming, publication management and archive locations 1986–2025.

Years and volumes	Naming	Publisher	Archive obtained from
1986 (Volume 1) to 1989 (Volume 4)	The Macedon Digest	Australian Counter Disaster College	Australian Institute of Disaster Resilience Macedon Digest Collection page https://knowledge.aidr.org.au/collections/macedon-digest
1990 (Volume 5) to 1994 (Volume 9)	The Macedon Digest ¹	Australian Counter Disaster College (1990–93) Australian Emergency Management Institute (1993–94)	Informit Database ² https://search.informit.org/journal/macdig
1995 (Volume 10) to 2012 (Volume 27)	Australian Journal of Emergency Management ³	Australian Emergency Management Institute	Informit Database https://search.informit.org/loi/ajem/group/d1990.y1999.m11
2013 (Volume 28) to 2025 (Volume 40)	Australian Journal of Emergency Management	Australian Emergency Management Institute (2013–15) Australian Institute for Disaster Resilience (2016–25)	AIDR Knowledge Hub - Australian Journal of Emergency Management ⁴ https://knowledge.aidr.org.au/collections/australian-journal-of-emergency-management

1. *The Macedon Digest* was co-titled *The Australian Journal of Disaster Management* between 1991 and 1994.

2. These volumes are also available via the links on the Australian Institute of Disaster Resilience Macedon Digest Collection page. <https://knowledge.aidr.org.au/collections/macedon-digest>

3. In 1995, the publication transitioned from a newsletter format to a quarterly journal publication with editorial policies and peer-reviewed contributions.

4. These volumes are also available on the Informit database. <https://search.informit.org/loi/ajem/group/d1990.y1999.m11>

Table 2: Hazard types covered in all published articles between 1986 and 2025.

Hazard type	Total articles	%
Bushfire	220	12.5
Flood	123	7.0
Technological and security	72	4.1
Earthquake	63	3.6
Health and disease	58	3.3
Cyclone	48	2.7
Tsunami	26	1.5
Landslide	14	0.8
Coastal and marine	13	0.7
Storm	10	0.6
Heatwave	9	0.5
Structural fire	7	0.4
Volcano	4	0.2
Drought	2	0.1
Tornado	2	0.1
Asteroid	1	0.1
Dust storm	1	0.1
Hurricane	1	0.1
All-hazards	1,081	61.6

Bangladesh, but also articles about floodplain management and flood warnings. There were 20 articles (7%) about earthquake covering events in Newcastle, California and Iran, but also the emerging topic of seismic risk assessment and mitigation (Figure 1).

Between 1996 and 2005, technological and security hazard articles were prevalent (Figure 1). There were 51 articles (12%) about security-related topics such as terrorism (including a special issue on counter terrorism in 2005), Hazmat response and critical infrastructure protection. There were 36 articles (8%) about flood, covering flood events in Katherine, Wollongong, Nyngan, Cloncurry, New Zealand and Bangladesh and articles on flood-risk assessment in the Hawkesbury-Nepean catchment, flood warning, floodplain management, community recovery, evacuation, flood mitigation and flood insurance.

Between 2006 and 2015, bushfire was prevalent (Figure 1). There were 83 bushfire articles (20%) covering operational and community safety and recovery aspects of the Black Saturday bushfires. Alongside these were broader articles about bushfire risk assessment, community preparedness, firefighting, land-use planning, recovery and animal welfare; some of which drew from research and practice evidence from the Black Saturday bushfires. There were 26 flood articles (6%) covering integrative aspects of flood-

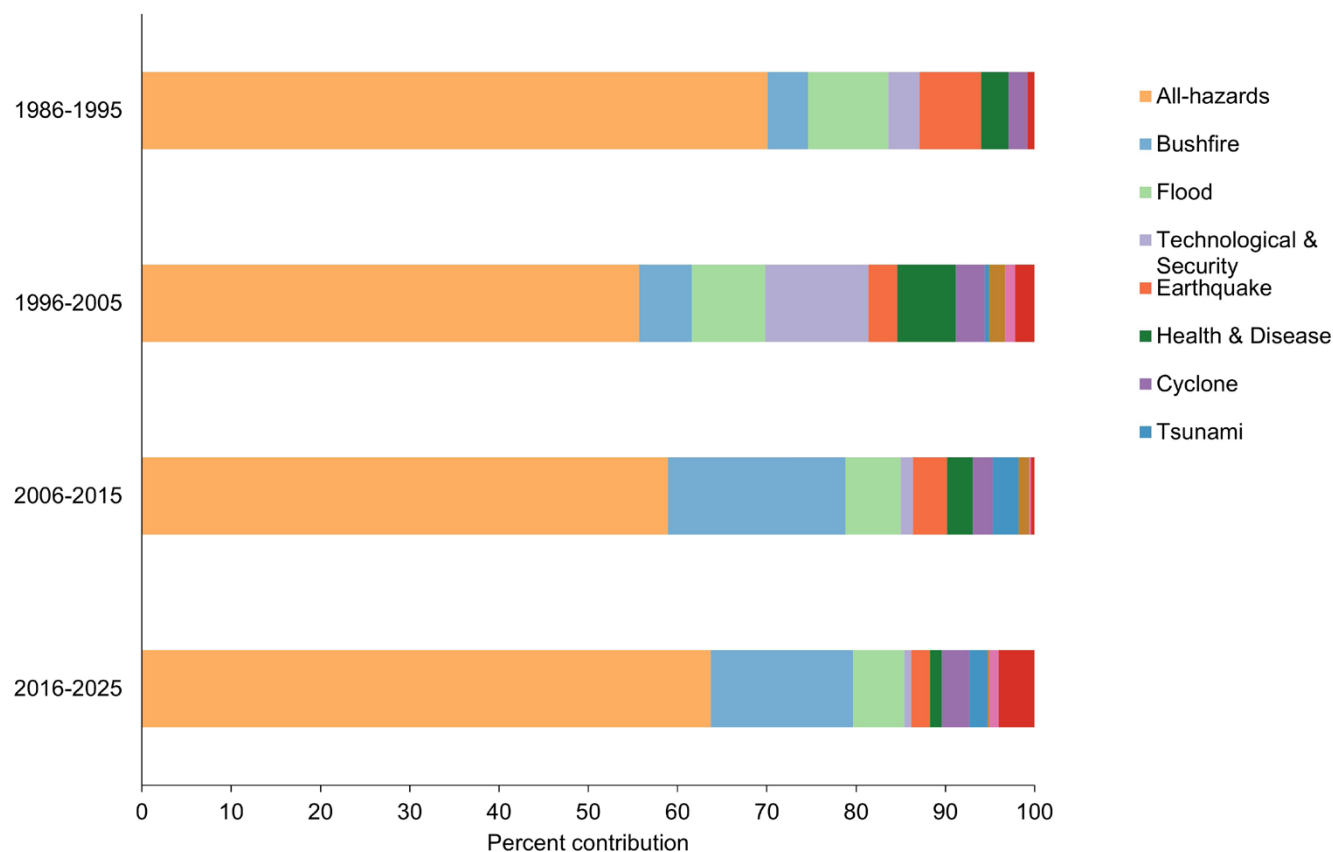


Figure 1: Hazard types addressed in all articles (news and views, reports, research) across 4 decades.

risk management, flood mitigation, flood warning systems, lessons learning from individual events (including the Dungog flash flood) and community preparedness. In this decade there were also 16 articles (4%) about earthquake, including several about aspects of the 2011 Canterbury earthquake in Aotearoa New Zealand.

Bushfire continued as the most prevalent hazard type between 2016 and 2025 (Figure 1). In this decade, 93 articles (16%) covered aspects of Black Saturday as well as other events including the 2013 Blue Mountains bushfires, Wye River, Sampson Flat, the Hazelwood mine fire and the 2019–20 bushfire season. Bushfire articles also continued to cover integrative topics such as land-use planning, community recovery, mental health, community planning, bushfire risk perception, gender and bushfires, animal welfare, cultural burning, indigenous land management, fire danger ratings, technological advances in fire detection and firefighting, operational and organisational decision-making and child and youth participation in bushfire risk reduction, among others.

Contributions from academia, emergency services, government, community and industry were consistent

Commensurate with the aims of the journal to advance knowledge and practice to strengthen disaster resilience and emergency management in Australasia, contributions

across all decades consistently came from academia, emergency services, government, not-for-profit and industry-affiliated authors (Figure 2). In many cases, article authorships were collaborations between groups: 10% of all articles were co-authored by combinations of academia, emergency services, government, community and industry groups. The hybrid research and practice focus of the journal remains a strength and the journal is uniquely positioned to bring together academic, practice and policy perspectives.

The most prevalent article topics changed over 4 decades

Management dominated article titles across all decades (Figure 3). In article titles, management was used as a noun (the act, art or manner of controlling, organising or handling something). Occurrences of the word ‘management’ were often as ‘emergency management’ or ‘disaster management’, which aligns with the disciplines and body of knowledge the journal represents. Other occurrences of the ‘somethings’ being managed varied widely as represented in article titles including risk, incident, recovery, evacuation, hazards, floodplain, flood, media, lessons, knowledge, waste, bushfire, land, public health, resource and volunteers. These usages often qualify a specific setting for management, such as in schools, specific locations, specific events or hazard types and aspects of emergency management such as recovery, operations or policy.

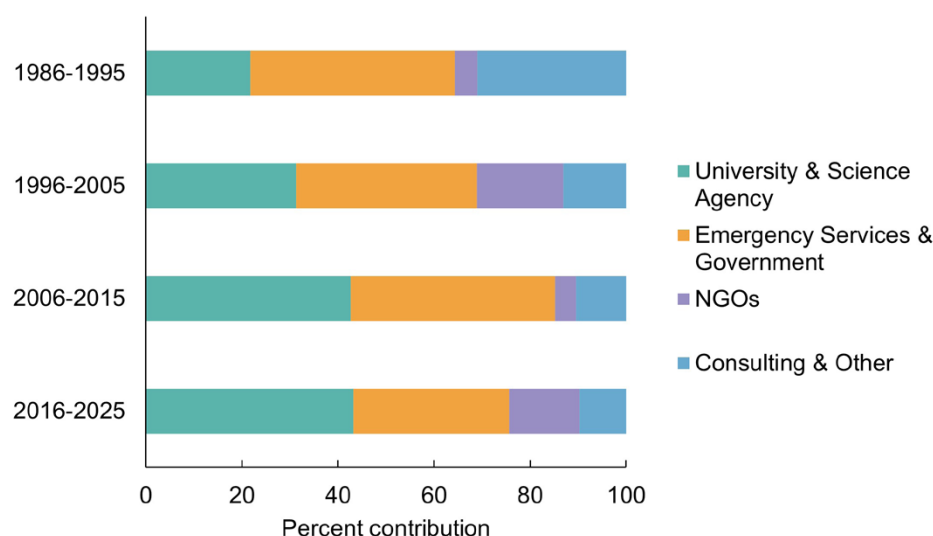


Figure 2: Author affiliations for all article types across 4 decades.

NOTE:

‘University & Science Agency’ includes CSIRO, Geoscience Australia and overseas-based science agencies.

‘Emergency Services & Government’ includes state emergency services agencies, state and federal agencies, local government, AFAC and AIDR.

‘NGOs’ include not-for-profits and Australian and international community organisations and committees.

‘Consulting & Other’ includes consultants, companies and the early Australian Counter Disaster College and Australian Institute for Emergency Management authors.

[illegible][illegible]

Larger words represent more frequent occurrences of words in article titles, taken from news and views, report and research article types.

Alongside this persistent theme of management, the prevalent article titles changed across the decades. Between 1986 and 1995, titles most frequently conveyed an international, health, recovery, flood, planning, natural, community, earthquake, response and services focus (Figure 3a). Between 1996 and 2005, titles most frequently conveyed a community, risk, recovery, flood, natural, response, services, mitigation and education focus (Figure 3b). Between 2006 and 2015, titles most frequently conveyed a risk, community, resilience, bushfire/fire, response, preparedness, planning and social focus (Figure 3c). The emergence of resilience and community-centered practice was cemented between 2016 and 2025 where titles had a resilience, community/communities, risk, recovery, bushfire/fire, planning, preparedness and response focus (Figure 3d). However, it is important to

note the full range of less frequently appearing words from article titles (Figure 3), which highlights the depth and breadth of topics covered within the journal.

Contributions by male and female authors change over 4 decades

Up until 2012, male authors dominated journal contributions across research, reports and news and views article types (Figure 4). In 1989, there were no contributions by female authors to *The Macedonian Digest* (Figure 4). Contributions by female authors trend upwards until 2012 after which contributions by female and male authors become relatively more even, although contributions by female authors slightly outnumber contributions by male authors (Figure 4).

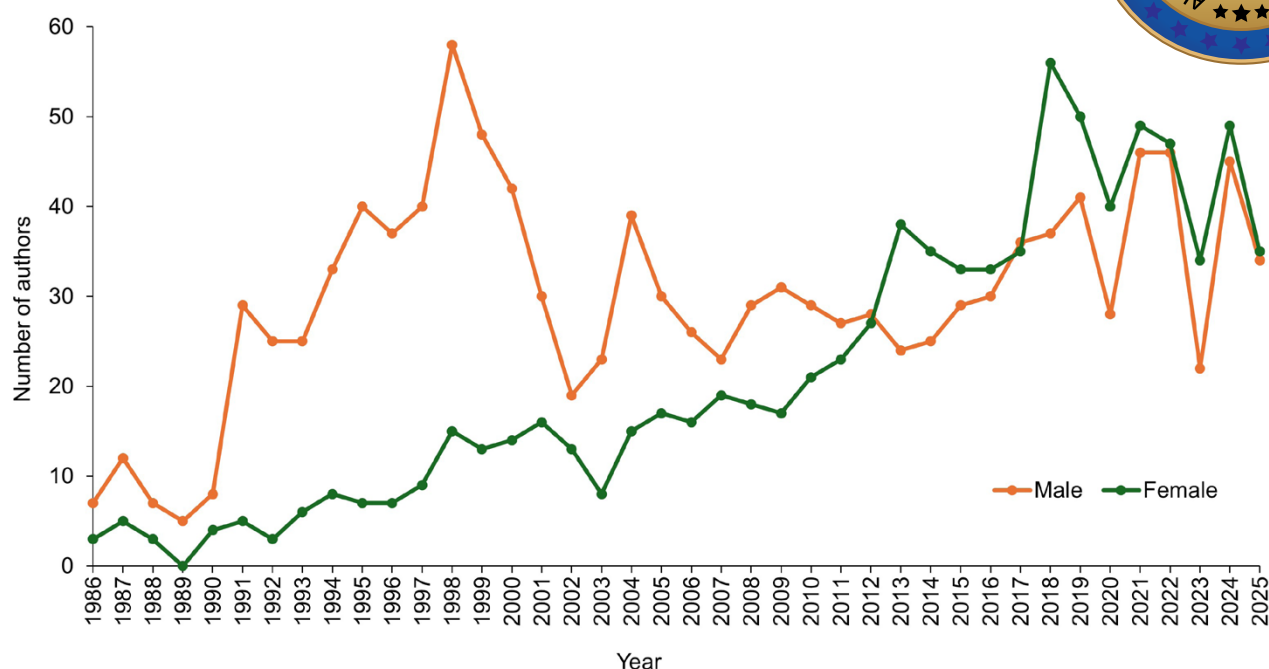


Figure 4: Gender of authors contributing to all article types 1986–2025.

Female participation in the emergency services sector has changed markedly since 1986. In 1996, Ruth Wraith asked in AJEM ‘*Women in disaster management: where are they?*’. Ruth showed that the employment profiles of Emergency Management Australia and 4 State Emergency Services were dominated by men and that the percentage of women undertaking formal training in emergency management through AEMI was approximately 5% (Wraith 1996). Almost 30 years later, Stephanie Andrade and Cassie Lindsey reported in AJEM that women’s participation in the emergency management sector was 26.5%, up from 22.5% in 2018, with 37.6% representation in general manager roles, up from 25.6% in 2018 (Andrade and Lindsey 2023). Similarly, female participation in the university sector, and by implication in research, has increased markedly since 1986 (White 2003; Calderon 2022). The increase in female authorship of AJEM articles likely reflects this general sectoral change.

The increased contributions by female authors between 2016 and 2025 is, however, largely in the non-research news and views article type (143 male authors, 208 female authors). This suggests a higher contribution by institutional and government-employed communicators where females generally outnumber males in the profession, particularly in early career stages (Media I 2025). Over the same decade, contributions of research articles and reports by male and female authors remained relatively even (research articles 172 male authors, 176 female authors; reports 50 male authors, 44 female authors).

Most content was about the Australian sector and most authors were from Australian institutions

The majority of articles published in the journal were about issues, events, practices and programs in Australia (Table 3). Articles about events and practice in other countries were contributed most frequently from Aotearoa New Zealand, United States and the United Kingdom

Table 3: Country or area of article content and authors of all article types 1986–2025.

Country or area	Articles		Authors	
	Number	%	Number ¹	%
Australia	1,427	81	2,708	84
Aotearoa New Zealand	69	4	171	5
United Kingdom	21	1	45	1.5
USA	45	3	64	2
Canada	14	1	23	1
Pacific countries	18	1	2	<1
Southeast Asia	11	1	3	<1
Rest of world	63	4	50	1.5
General content	87	5	-	-
Multi-country ²	-	-	167	5

1. Total authors were counted, not unique authors. Some authors contributed more than one article over the period of record.

2. Origins of multi-country article authorships were coded as one record. This value is the number of authors attributed to multi-country articles.

(Table 3). Between 1986 and 2025, a total of 3,233 authors contributed to the journal. Most were aligned with Australian institutions (Table 3). This is to be expected because the journal aims to capture research, practice and news from, and about, the Australasian emergency management sector. However, between 1986 and 2025, content about aspects of emergency management in 45 countries was represented in the journal, contributed by authors from 29 countries. This reflects the similarities in emergency and disaster management that occur worldwide and the collaborations authors in Australia have with international colleagues.

The contributions of research, reports and news articles changed across 4 decades

From its beginnings as the newsletter-style *The Macedon Digest*, the journal has included analysis, views, lessons learnt and insights into current and future issues in the emergency management sector. This hybrid industry-research identity shows in the growth of the total number of articles published: 288 articles were published between 1986 and 1995, rising to 438 between 1996 and 2005, then remaining relatively consistent at 418 between 2006 and 2015, before increasing markedly to 611 articles between 2016 and 2025.

The hybrid-industry identity of the journal was also reflected in the relatively consistent contribution of article types across the 4 decades. Research, reports and news and views articles always sit alongside each other in the journal, but the prevalence of each changes

slightly from decade to decade (Figure 5). Most notably, research articles dominated content between 2006 and 2015. This potentially reflects an increase in research after major events with a research or practice response and the establishment of major research centres focused on natural hazards. The prevalence of news and views articles may be a legacy of the early style of *The Macedon Digest*, periods of high policy and programmatic activity in the sector or editorial decisions.

Themed editions first appear in 1991

Themed editions place attention on topics of strategic, policy or industry relevance (Table 4). The first themed edition appeared in *The Macedon Digest* in 1991 on 'Disaster Health and Medicine' to acknowledge World Health Day. Articles explored infectious diseases, triage, rapid response medical capability for remote areas, medical disaster exercises, the NSW MedPlan and the health implications of climate change. Other themed editions of the journal have punctuated the emergency management knowledge-scape, reflecting on and advancing significant topics of relevance to the sector. Early themed issues about animals highlighted biosecurity and disease threats, while more recent animal-themed issues focused on the systems of care and relationships between people and animals in emergencies and disasters. Themed issues on resilience, volunteering, community safety, children and youth participation in disaster risk reduction, emergency law, gender and inclusion, forecasting and warnings and First Nations perspectives have generated thought leadership to accompany sector change. While articles on these topics are published in

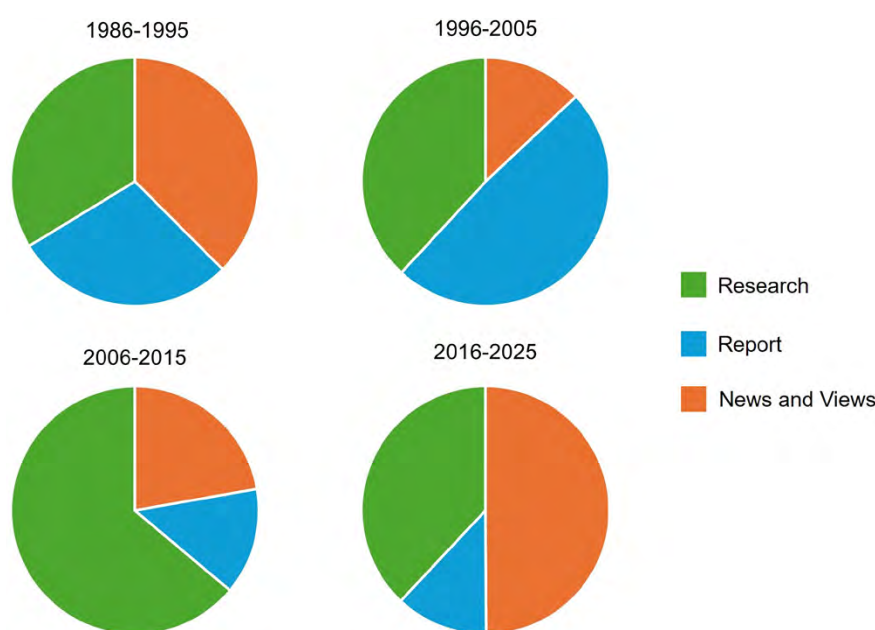


Figure 5: Percentage contribution of research, report and news and views article types across 4 decades.

Table 4: AJEM themed editions 1986–2026.

Year	Volume	Issue	Special issue topic
1991	6	1	Disaster health and medicine
1991	6	4	Earthquake
1993	8	1	Exotic animal disease
1994	9	1	Public health in disasters
1995	10	2	International Decade for Natural Disaster Reduction
2002	17	3	Training
2003	18	2	Mass emergencies and disasters
2003	18	2	Recovery
2003	18	3	Vulnerability
2003	18	4	Volunteers
2004	19	3	Australian agriculture – securing the future
2004	19	4	Recovery
2005	20	2	Counter terrorism
2005	20	4	Volunteering
2006	21	1	AJEM 20th anniversary
2006	22	2	Community safety
2008	23	3	Crisis communications
2010	25	2	Resilience
2012	27	2	Policy and law in disasters
2012	27	4	New Zealand Earthquake
2013	28	2	Gender and disasters
2014	29	1	Youth, children and education
2015	30	2	Animals in emergencies
2020	35	2	Children and youth in disaster risk reduction
2021	36	1	Forecasting and warnings
2021	36	3	Animals in emergencies
2022	37	1	Gender justice
2024	39	2	Animals in emergencies
2024	39	3	Gender and diversity inclusion
2025	40	2	First Nations perspectives

regular issues, themed issues galvanise critical attention on areas where research and practice knowledge has matured sufficiently to sustain policy and practice change or highlight topics of emerging significance for the emergency management sector.

Conclusion: looking back, looking forward

Over 4 decades, the Australian emergency management sector has progressed through eras of civil defence, counter disaster and emergency management (Handmer 2026).

Notions of PPRR, evidence-led decision-making, adaptive organisations, disaster risk reduction, disaster resilience, compounding disasters, community-centered preparation and recovery, technological change, diversity and inclusion and climate change have become normative settings for the policy and practice of emergency management. *The Macedon Digest* and AJEM have paralleled this sector progression and settings with a formal knowledge record.

This analysis of 1,755 articles over 4 decades shows how original research, reports of practices, projects, programs, incidents and policies and news about programs, policies, professional activity and events persistently occur alongside each other to frame advances and activity in the sector and to develop an applied knowledge record. All-hazards are the focus of the majority of articles, but different types of hazards come in (and out) of focus in response to disaster events and policy/programmatic or organisational change. Management dominates article titles but implies management in service of agency mandates (incident management, organisational management, lessons management), community needs (recovery management) or risk reduction (floodplain management, land management). The gender of authors is also reflective of major shifts in the inclusion of women within the emergency management and research sectors since 1986. Many of the themed edition topics, while novel and innovative at the time, have become mainstream elements of policy and practice (e.g. animals in emergencies, volunteering, forecasting and warnings).

As with many public-facing sectors, emergency management is encountering increasingly dynamic and complex policy, organisational and operational environments, community expectations and resource settings. The complexity of the sector is radically different in 2026 than it was in 1986 when *The Macedon Digest* newsletter met a perceived need for information about meetings, training activities, research and local and overseas events in the pre-internet world. The transformation from newsletter to a hybrid industry-research publication has actively recorded, or influenced, scholarly, practice and functional transitions (e.g. Richardson 2026a,b).

The ways that AJEM supports the emergency management sector with research, evidence, insight and knowledge in the coming 4 decades will require continuing attention to the needs of the sector, the diversity of legitimate production of knowledge by different actors, standards of scholarly research and practice reporting and interaction with readers in meaningful and beneficial ways. Upcoming challenges to the placement of AJEM include: demands for integrated systems thinking across sectors, hazard types,

communities and institutions; the emergence of artificial intelligence tools as activators of knowledge generation and access but also as sources for examined epistemic responsibility and ethical criticality; and the capture of potential state change in the severity and impacts of some types of climate-influenced natural hazards.

This analysis of articles over the last 40 years suggests some elements of the journal persist, while others change markedly. AJEM's persistence and change have both intrinsic and extrinsic drivers, leading change and recording change as it occurs. If the future will not be like the past, the responsibility to guide AJEM readers through the next 40 years of research and practice in the emergency management sector will be a satisfying and stimulating journey.

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Moral injury and distress: influence of emergency services leadership and organisational dynamics

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Introduction

Firefighters, police officers and paramedics (collectively referred to as emergency services personnel) respond to confronting and traumatic situations. These responses often involve dire circumstances that pose risks to both the public and the responder, while also challenging personal ethical and moral frameworks (Cuthbertson and Penney 2023). The exposure to potentially psychologically traumatic events combined with the inherent and sustained stress of these environments is associated with increased risk of posttraumatic stress, burnout and suicide among first responders and frontline personnel (Lentz et al. 2021; Smallwood et al. 2021). Their work can require them to make morally challenging decisions, such as a paramedic having to determine which patient to treat where resources are insufficient. These decisions can affect their psychological wellbeing and contribute to adverse psychological outcomes (Cuthbertson and Penney 2023; Lentz et al. 2021).

Unlike posttraumatic stress that can occur following threat-based trauma, moral distress (MD) and moral injury (MI) can arise from situations, events and actions that go against a person's deeply held beliefs and values. While definitions vary in the literature (Čartolovni 2021; Griffin et al. 2019; Litz et al. 2009; Litz and Kerig 2019; Shay 2014), for the purpose of this study, 'moral distress' is defined as: 'When one knows the right thing to do based on deep moral beliefs, but institutional constraints make it nearly impossible to pursue the right course of action' (Lentz et al. 2021) and 'moral injury' is defined as: 'A particular type of psychological trauma characterised by intense guilt, shame, and spiritual crisis that emerge following perceived violations of deep moral beliefs by oneself or trusted parties' (Jinkerson 2014, 2016).

Abstract

This study explores how leadership behaviours and organisational characteristics influence moral distress and moral injury among frontline emergency services personnel. Fifty-four Australian emergency responders completed an online survey containing 6 open-ended questions addressing their experiences, influential organisational and leadership factors, alignment between personal and organisational values and recommendations for organisational change. Responses were analysed using thematic analysis. Organisational factors, rather than direct exposure to trauma incidents, were frequently described as primary drivers of moral distress and injury. Specifically, distrust in leadership and perceptions of procedural injustice commonly amplified respondents' vulnerability to moral distress or injury. Participants reported a disconnect between organisational and personal moral values and indicated perceptions of inconsistency between the stated and enacted values of their organisations. Empathetic and supportive leadership behaviours were identified as protective factors, while bullying, unethical actions and leader detachment were commonly perceived as exacerbating experiences of moral distress and injury. These findings underscore the potential importance of attending closely to leadership practices, organisational ethics and the alignment of organisational values.

Although substantial MD/MI research arises from healthcare settings, this review focuses on emergency services personnel to preserve conceptual specificity. Where relevant, reference to adjacent sectors is used to contextualise convergent mechanisms (e.g. institutional constraints, perceived injustice) without extending beyond the study's scope.

The concept of MD is recognised as identified by Jameton (1984). Since then, MD/MI have increasingly been the focus of research within emergency services and first responder contexts. Lentz et al. (2021) conducted a systematic literature review examining MI, moral ambiguity, ethical decision-making, moral stress, MD, values, organisational betrayal and spirituality. Their analysis of 32 peer-reviewed studies (selected from an initial pool of 506) revealed that MD/MI were exacerbated when organisational protocols, procedures or requirements conflicted with a person's core values and beliefs. For example, moral conflicts arise when paramedics must follow medical protocols they believe may cause undue harm to patients rather than exercise their own clinical judgement. Similarly, police officers, whose ethos is to protect and assist rather than harm, are required to use physical force during crowd-control operations.

Emergency services personnel typically have a strong sense of pride in, and duty to, their service whereby their perception of identity blends with that of their role as a firefighter, police officer or paramedic. Within this context, the perception of organisational betrayal (e.g. lack of recognition or blocked career aspirations) and unfair treatment (e.g. unjust or overly harsh disciplinary action) can be a significant contributing factor to moral distress and injury. A systematic literature review by Beadle et al. (2024) analysed 104 studies and reports selected from an initial 1,689 sources and examined triggers and factors associated with MD and MI in health and social care workers. Their analysis revealed that MI emerges from a complex interplay of factors and workplace conditions and institutional limitations play significant roles in its development.

Appropriate operational guidance is crucial in emergency services organisations despite being a potential operational constraint. Penney et al. (2022, 2024) note that inadequate doctrine, protocols or guidelines can lead to unfair criticism of decisions made by public service personnel operating in time-sensitive and complex environments. Further to this, the potential effects of organisational factors explored by Drew and Williamson (2024) reported that while there was no direct relationship between trauma, stress and burnout, organisational factors including perceptions of unfair treatment were solely responsible for police officer burnout.

These findings suggest that organisational and leadership factors play a greater role in the development of MD/MI than previously recognised. While research has examined various aspects of MD/MI among emergency services

personnel, less attention has been given to understanding how personnel themselves perceive the influence of leadership and organisational factors on these experiences.

This study aimed to develop a better understanding of how organisational contexts shape moral challenges in emergency services work. The study examined the responses of frontline emergency services personnel to questions about the influence of leadership and organisational factors in exposure to MD/MI.

Method

While there are various approaches to structuring a methods section, for consistency and clarity this paper adopted the approach by Willis (2023).

Study design

The research question explored is: 'Do organisational and leadership factors play a significant role in the development of MD/MI?' The research team hypothesised that this was the case.

This study did not include clinical assessment of MD/MI. It elicited experiences via open-ended questions and the analytic focus remained on participants' reported experiences and meanings. Australian emergency services personnel were surveyed using 6 open-ended questions focused on their experiences with MD/MI, organisational values and leadership attributes. Responses were analysed using an inductive thematic approach to identify emerging patterns and insights from participants' perspectives. An online questionnaire distributed via STAT59¹ collected responses from frontline emergency services personnel in Australia between August and October 2024 regarding their perceptions of how leadership and organisational factors influence their MD/MI. The purpose was to understand and accurately report the views of intentionally recruited respondents, selected for their direct frontline experience. These specific constructs were explored using the questionnaire that aligned with established practices for targeted insight gathering (Check and Schutt 2011). Accordingly, findings should be interpreted as reflecting the perspectives of the participant group rather than representing the broader population of emergency services personnel. Participants were provided the study definitions of MD/MI and were asked:

1. Please describe an event or types of events that are most likely to cause moral distress or injury.
2. Do you believe the moral values of your organisation align with the moral values of frontline emergency personnel?
3. Do you believe that the values of your organisation are demonstrated by the organisation itself?

1. STAT59 Services Ltd, at www.stat59.com.

4. What are the leadership attributes from your immediate supervisors you have experienced, that (i) increase and (ii) decrease moral distress or moral injury?
5. What are the attributes or actions from your organisation that (i) increase and (ii) decrease moral distress or moral injury?
6. What changes do you believe would make the biggest impact to protecting Australian emergency services personnel from moral distress or moral injury?

Participants

Participation was invited from individuals who identified as frontline emergency services workers (paid and volunteer) in Australia, through the distribution of links to the study via social media (LinkedIn and Facebook). For the purposes of this study, emergency services personnel were self-defined by the respondent (i.e. they viewed themselves as an emergency services person). The rationale for this is the breadth of service providers who respond to emergencies and disasters and the desire to seek breadth of input across areas of practice. Participants were not required to have experienced MD/MI to participate in the study. No compensation was offered for participation in the study.

While 220 registrations of interest were initially received, 54 participants (65% men, 13% women, 22% undefined) completed the survey. Participants had a mean age of 50.12 ($SD = 11.95$) years. Respondents represented diverse emergency services backgrounds with some having served in multiple roles. The majority of participants (67%) had fire service experience, while others reported backgrounds in medic/ambulance/paramedical services (20%), policing (11%), State Emergency Services (7%) and Marine Rescue Service (2%). Additionally, 11% identified as having experience in other frontline emergency services not specifically categorised. The average number of years served was 22.83 ($SD = 10.03$) with a minimum of 3 years and a maximum of 47 years.

Data analysis

An inductive thematic analysis of the results was completed allowing for themes to emerge from the data as opposed to attempting to fit data into a pre-existing coding frame (Nowell et al. 2017). This approach provides a rich description of the overall data (Braun and Clarke 2006).

As free-text answers were permitted and respondents were encouraged to provide as much detail as possible, some answers contained multiple and, at times, unrelated elements. Where this occurred, the individual elements were coded accordingly and linked to different themes as appropriate. Not all participants completed all questions and, in very limited circumstances, provided responses that were considered unrelated to the question asked. This is important to note when interpreting the results

as the number of elements coded for each question will not necessarily align with the total number of study participants. In addition, 'outlier' individual responses that were not thematically linked to others yet offered particular or noteworthy insights were identified.

To address potential issues associated with interpretation of responses to open-ended questions, analysis was completed using a process aligned to the method in Nowell et al. (2017). To mitigate potential bias, researchers separately reviewed the data, developed initial coding and searched for initial themes. Researchers then jointly consolidated the preliminary results with all differences resolved through discussion until consensus was reached. A draft analysis and reporting were completed, which was reviewed and confirmed. The fourth member of the research team provided critical review of the process and reporting for quality assurance purposes.

Ethics statement

Ethics approval was provided by Monash University (HREC #41738) with optional counselling support services for participants available should participation in the study and recollection of distressing events cause distress.

Results

Inductive thematic analysis of responses to the question, 'Please describe an event or types of events that are most likely to cause moral distress or injury' revealed 5 distinct categories of events with remaining responses grouped as 'Other'. Table 1 lists these categories and their commonality.

The analysis revealed that organisational factors dominated participant reports of events likely to cause MD/MI. Distrust of leadership emerged as the most frequently cited cause (24% of responses), followed closely by lack of procedural justice (20%) defined as the perception of fair process in organisational decision-making. Together, these trust-related themes accounted for 44% of responses and suggest that breaches of trust between senior leadership

Table 1: Events most likely to cause MD/MI – thematic analysis of coded responses.

Response	Percentage (%)	Total (n)
Distrust of leadership	24	13
Lack of procedural justice	20	11
Exposure to trauma	19	10
Public health control mandates (vaccination)*	9	5
Resource constraint	9	5
Other (combined)	19	10

* Enforcement of COVID-19 vaccine mandates and related disciplinary processes for those who declined to comply with the mandates.

and frontline personnel are a strong reported source of moral distress and injury.

Exposure to traumatic emergency response incidents was identified in 19% of responses. However, these responses lacked sufficient detail to determine whether the MD stemmed from the inherent trauma of the incidents or from conflicts between moral obligations and operational constraints. Two themes, public health control mandates (specifically vaccination requirements) and resource constraints, were each reported in 9% of responses. Both categories represent external constraints imposed by governmental or organisational policies that frontline personnel typically cannot influence directly, potentially creating a sense of powerlessness that contributes to moral distress.

Analysis of responses to questions addressing organisational values revealed a substantial disconnect between stated values and frontline experiences. Table 2 presents participant responses to: 'Do you believe the moral values of your organisation align with the moral values of frontline emergency personnel?' and 'Do you believe that the values of your organisation are demonstrated by the organisation itself?'

The data revealed a pronounced pattern regarding organisational values in emergency services organisations. The majority of responses (78%) identified that an organisation's stated moral values did not align with the values held by frontline personnel. Only 2% indicated clear alignment, while 20% reported occasional alignment. Similarly, most responses (68%) indicated that their organisation failed to demonstrate values through actions and decisions. While 21% of responses reported their organisation consistently demonstrated stated values, 11% indicated that organisational actions only sometimes reflected stated values.

Notably, 6% of responses specifically distinguished between organisational levels of frontline and leadership,

indicating that while frontline staff demonstrated behaviours consistent with organisational moral values, senior leadership did not. This distinction suggests a perceived gap between operational and leadership levels of emergency services organisations.

Table 3 shows participant responses to the question: 'What are the leadership attributes from your immediate supervisors you have experienced, that (i) increase and (ii) decrease moral distress or moral injury?'

The presence or absence of empathy and support emerged as the most frequently reported leadership attribute affecting MD or MI with 20% of participants indicating that lack of these qualities increased MD/MI and 28% reported that their presence decreased MD/MI. Bullying (15%) and self-promoting or unethical behaviour by leaders (12%) were the next most commonly reported factors that worsened MD/MI. For factors that reduced MD or MI, good communication and willingness to listen were each reported by 8% of participants as the second most influential attributes. The substantial proportion of responses categorised as 'Other' (53% for factors increasing MD/MI and 56% for factors decreasing MD/MI) reflects considerable variation in participant responses. This variation aligns with previous research noting the highly individualised nature of ethical and moral perspectives (Cuthbertson and Penney 2023; Alhaidani et al. 2024).

Table 4 shows participants' most frequent responses to the question: 'What are the attributes or actions from your organisation that (i) increase and (ii) decrease moral distress or moral injury?'

Participants reported organisational factors influencing MD/MI that paralleled with previously reported leadership attributes. Lack of support for staff emerged as the most frequently reported factor increasing MD/MI (21%), followed by leadership disconnect from frontline personnel (17%) and organisational failure to address poor behaviour or complaints (15%). Notably, the most commonly reported

Table 2: Alignment and demonstration of organisational moral values, thematic analysis of coded responses.

Value alignment	Percentage (%)	Total (n)	Demonstration	Percentage (%)	Total (n)
No	78	40	No	68	36
Sometimes	20	10	Yes	21	11
Yes	2	1	Sometimes	11	6

Table 3: Top leadership attributes from immediate supervisors that influence MD/MI – thematic analysis of coded responses.

Increase MD/MI	Percentage (%)	Total (n)	Decrease MD/MI	Percentage (%)	Total (n)
Lack of empathy / support for staff	20	12	Empathy / Support for Staff	28	14
Bullying	15	9	Good communication	8	4
Promotion of self at expense of others / unethical behaviour	12	7	Willingness to listen	8	4
Other responses (combined)	53	31	Other responses (combined)	56	28

organisational factor that could decrease MD/MI was 'nil - nothing can be done' (22%). Free-text answers indicated a perception that the leadership and organisational factors contributing to MD/MI were so systemic and entrenched that MD/MI could not be reduced regardless of interventions. Empathy and genuine care for staff were each reported by 16% of participants as the second most influential organisational factors that could reduce MD/MI. For both categories of organisational factors (those increasing and those decreasing MD/MI) a substantial proportion of responses fell into the 'Other' category (48% and 51%, respectively). This indicates considerable individual variation in participant perceptions of organisational influences on MD/MI.

Table 5 lists responses to question 6: 'What changes do you believe would make the biggest impact to protecting Australian emergency services personnel from moral distress or moral injury?'.

Improved education and training on MD/MI was reported by 20% of participants as the change that would have the greatest protective influence against MD/MI. Greater empathy and people focus was the second most frequently reported protective factor (17%) followed by improved recruitment and promotional processes (13%); increased accountability of staff (11%) and systems-level changes including restructures, external interventions or amalgamation of emergency services (9%). Among less frequently reported suggestions, 7% of participants indicated that increased compensation would reduce the effect of MD/MI. The remaining reported factors (30%) demonstrated considerable variation with low levels of agreement between participants.

Discussion

This study explored how leadership and organisational factors influence exposure to MD/MI by asking frontline emergency services personnel a series of open-ended questions about their experiences and perceptions. By analysing their responses, the research sought to capture the direct experiences and perceptions of these individuals to provide a rich, nuanced understanding of lived experiences. The central findings identified that organisational factors, particularly those pertaining to trust and procedural justice, were frequently reported as primary drivers of MD/MI. This suggests that the internal

dynamics and systemic structures within emergency services organisations may contribute to psychological harm more than direct exposure to traumatic incidents alone (Bell et al. 2025).

Distrust and betrayal-based moral injury

The analysis of events most likely to cause MD/MI revealed a compelling theme. Distrust of leadership was identified as the most frequently cited cause (24% of responses) closely followed by a perceived lack of procedural justice (20% of responses). Collectively, these 2 themes intrinsically linked to trust within the organisational framework, represent 44% of all reported causes, more than direct exposure to traumatic incidents (19%). Respondent text provided vivid illustrations of this distrust and perceived injustice. One participant described a 'sense of betrayal' and a sub-standard psychologically safe environment stemming from a lack of validation and procedural injustice within their agency. Another described experiencing 'deep distrust' due to alleged fabricated stories and unfair dismissal processes orchestrated by senior officers. Other accounts described 'organised abuse from senior management', including instances of lying and gaslighting, which had profoundly affected them. These accounts underscore that breaches of trust between senior leadership and frontline personnel are a potent and frequently reported source of MD and MI.

Looking across the events reported to most likely lead to MD/MI (Table 1), similarities between several categories are apparent. Participant distrust of organisational leadership connects directly to organisational procedures such as the enforcement of COVID-19 vaccine mandates and related disciplinary processes for workers who declined to comply with the mandates. However, all responses, including those that appear unrelated at first glance (such as resource constraints and vaccine mandates) share 2 fundamental elements. The first is the presence of a deeply held moral belief by the participant. The second consists of (i) a reported event, action or circumstance that (ii) the participant perceives as sufficiently conflicting with their moral belief to cause intense shame, guilt or betrayal and (iii) that the participant cannot control or correct.

Applying this to the resource constraint and vaccine mandate responses, in both cases, we observed these elements at work. For element 1, emergency services personnel typically have a deep belief that their role as

Table 4: Top organisational factors that influence MD/MI – thematic analysis of coded responses.

Increase MD/MI	Percentage (%)	Total (n)	Decrease MD/MI	Percentage (%)	Total (n)
Lack of support for staff	21	10	Nil - nothing can be done	22	8
Leadership disconnect from frontline personnel	17	8	Empathy	16	6
Failing to act in response to poor behaviour or complaints	15	7	Genuine care for staff	11	4
Other responses (combined)	48	23	Other responses (combined)	51	19

Table 5: Changes that would have the greatest effect in protecting emergency services workers from MD/MI in Australia.

Category	Percentage (%)	Total (n)
Improved education and training	20	9
Greater empathy and focus on people	17	8
Improved recruitment and promotional processes	13	6
Increased accountability	11	5
Systems level changes	9	4
Other responses (combined)	30	14

a firefighter, police officer, paramedic, etc. is more than a job; rather it is a desire or even responsibility to help others (Lentz et al. 2021; Long et al. 2019). This satisfies the first element. Element 2 is satisfied in several ways. First, organisational resourcing constraints can result in responders being unable to help others to the level of their internal standards (Cuthbertson and Penney 2023). This is a complex and multi-faceted issue in the same way vaccine mandates prevent responders who object to vaccines being able to help others as they cannot enter the workplace. Second, being unable to do their job due to resourcing constraints was reported to cause emotions such as shame and guilt. Finally, both increased resourcing and the removal of organisational (and government) mandates are beyond the control of the individual. Conversely, empowerment and control over outcomes have been shown to improve a person's psychological recovery from injury (Brough et al. 2021).

These findings resonate strongly with contemporary systematic reviews that underscore the critical role of workplace conditions and institutional limitations in the genesis of MI (Bell et al. 2025). It challenges conventional, individually focused interpretations of trauma by positing the organisational environment as a significant contributor to psychological harm. The concept of betrayal-based MI is particularly pertinent and aligns with observations in healthcare settings during the COVID-19 pandemic where a loss of trust in leadership and a fractured relationship with the organisation were identified as key factors (Bell et al. 2025).

The survey responses indicate that the organisational environment, characterised by a chronic perceived lack of trust and procedural justice, operates as a persistent stressor and a priming factor for MD/MI. While exposure to potentially psychologically traumatic events is an inherent and expected aspect of emergency services work, organisational failures represent a betrayal of the implicit social contract between the responder and their institution. This betrayal cuts deeper because it undermines the very support structures and ethical frameworks that individuals expect in a high-stress environment. This highlights that MD/MI in these contexts

is less about the inherent dangers of the job and more about how organisations manage their people and uphold its values.

Disconnect between stated and enacted values

A finding of this study is a pronounced 'values chasm' within emergency services organisations. A majority of participants (78%) reported that their organisation's stated moral values did not align with the values held by frontline personnel, with only 2% indicating clear alignment. This misalignment was exacerbated by the perception that organisations frequently failed to demonstrate values through actions, with 68% of respondents indicating this inconsistency and 21% reporting consistent demonstration. An observation was made by 6% of participants who explicitly distinguished between the behaviour of frontline staff and senior leadership, noting that while frontline staff often demonstrated values consistent with organisational principles, senior leadership did not.

Examples provided by respondents illustrate this disconnect. One participant noted that their organisation's stated values differed from its actions due to a 'deficit of organisational courage'. Another highlighted a 'huge divide' between Annual Report data, which was perceived to be untrue, and internal member surveys, which were perceived to be truthful. It was perceived that there was no consequence for people in leadership roles who were believed to be responsible for the perceived inappropriate external reporting. There was sentiment that departmental values were 'just words on a poster, just rhetoric' and this further encapsulates this perceived chasm.

The 'values chasm' serves as a direct pathway to MD/MI as MD/MI is fundamentally defined by perceived violations of deeply held beliefs (Rimon and Shelef 2025). When organisational protocols, procedures or requirements conflict with a person's core values and beliefs the experience of MD/MI is significantly exacerbated. This contributes to a recognised 'loss of trust in authority'; a critical viewpoint within moral injury theory (Rimon and Shelef 2025).

A nuanced aspect of the values chasm is the paradox of competing priorities, which can lead to unintended MD/MI. For example, senior leaders in emergency services organisations must consider the distribution of resources in order to achieve the best outcome for the greatest number of people. Despite good intentions, this approach can be little comfort for frontline responders who believe they are being denied the resources they deem critical to do their job to the level they believe is both required and owed to the community. This tension between the singular, often life-saving focus of frontline personnel and broader organisational or government constraints (such as budget limitations or public health mandates) could inadvertently

lead to MD/MI as frontline staff feel betrayed or let down by the management. This tension may occur when both frontline personnel and managers genuinely believe they are acting in the 'right' way within their respective domains. This observation underscores that moral conflicts are not always born of malicious intent but can arise from structural and systemic pressures. This indicates a mismatch between the espoused beliefs and values of the leaders with their actions, given competing priorities.

A sustained values chasm can erode professional identity and organisational cohesion. Emergency services personnel often deeply integrate their personal identity with their professional role, viewing it as a fundamental 'desire or even responsibility to help others'. When organisational values are not genuinely demonstrated or when institutional constraints prevent responders from fulfilling this core moral imperative (e.g. due to resource limitations or mandates that restrict their ability to work, it can provoke intense shame, guilt or betrayal). This extends beyond job dissatisfaction and fundamentally challenges a sense of purpose and professional identity. The long-term implication of such erosion is a potential for disengagement, reduced effectiveness and, ultimately, a loss of dedicated and experienced personnel (Giwa et al. 2021). This has consequences for recruitment, retention and the overall quality and resilience of emergency services organisations.

Leadership attributes as catalysts and buffers

This study indicated that leadership attributes play a dual role in the experience of MD/MI and acts as both catalysts and buffers. The data shows that a lack of empathy and support from supervisors is the most frequently reported attribute increasing MD/MI, accounting for 20% of responses. Bullying (15%) and the promotion of self at the expense of others or unethical behaviour (12%) were also identified as significant contributors to worsening moral suffering. Participants reported instances of 'dark triad of traits' and a 'lack of moral courage' in leadership as well as 'bullying, use of quasi-military structure to control or manipulate situation', and 'corrupt persons in senior positions whose focus was on protecting their own interests'. Unethical or unsupportive leaders may create distrust that contributes to broader organisational betrayal. Conversely, the presence of empathy and support from supervisors emerged as the top attribute decreasing MD/MI, reported by 28% of participants. Good communication (8%) and a willingness to listen (8%) were identified as key protective factors. Responses illustrate the positive effect of such leadership, including 'servant leadership promoting a climate of psychological safety', 'open and honest communication' and 'empathy and genuine connection, care, concern for the people'. The

findings are largely consistent with existing research that underscores the critical role of leadership in fostering a healthy work environment and mitigating moral suffering (Giwa et al. 2021). Engaged leadership, supervisor support and empowerment to make job-related decisions are recognised as protective factors against MI risk. Leaders are crucial in setting organisational values and providing support and perspective (Giwa et al. 2021; Woller et al. 2025). This highlights the imperative for leadership development programs to prioritise ethical conduct, empathy and communication skills rather than focusing on technical competence. The presence of a 'dark triad of traits' in some leadership is damaging and necessitates robust accountability mechanisms.

Emergency services organisations are often characterised as high-trust environments that cultivate a familial bond among members (Yesberg et al. 2024). The contrast between espoused values and enacted leadership behaviour, frequently articulated as 'In writing yes, in action no', undermines this crucial bond. Authentic leadership, defined by integrity, transparency and genuine care, help to maintain trust within these organisations. To address this, organisations must transition beyond superficial 'box-ticking' exercises (as described by a participant) and genuinely invest in leaders who embody stated values rather than merely articulating them. This includes promoting leaders based on merit and moral character not solely on tenure or political acumen.

Organisational processes as contributions to moral injury

The data indicates that organisational processes affect the development and mitigation of MD/MI. The most frequently reported organisational factor increasing MD/MI was a lack of support for staff (21%). This was closely followed by leadership disconnect from frontline personnel (17%) and the organisation's failure to act in response to poor behaviour or complaints (15%). Examples provided by participants included 'lack of care of the Fireys actually on the ground', 'vexatious allegations ... proven to be unsubstantiated yet no action was taken' and 'arrogance, stubbornness, and denial' as well as a 'disconnect from frontline personnel' within some services. When participants were asked about organisational factors that could decrease MD/MI, the most common response was 'Nil - nothing can be done' (28%). This implies that past interventions may have been perceived as ineffective, superficial (box-ticking) or disingenuous, leading to a pervasive distrust in the organisation's capacity or willingness to genuinely address these issues. Following this, empathy (8%) and genuine care for staff (8%) were identified as the next most influential factors that could reduce moral suffering.

A distinction emerging from the findings was the discrepancy between trauma and organisational harm. While direct trauma exposure occurs in emergency services operations, the data strongly points to organisational factors as primary drivers of MD/MI. This suggests that for many responders, psychological harm stems not from the inherent dangers of the job (for which they are trained) but from perceptions of unjust or unethical treatment experienced within organisations. This reframes the problem from one of individual resilience to one of organisational accountability and implies that current mental health support models, often focused primarily on trauma response, may be inadequate if they do not address the systemic sources of MD/MI (Drew and Williamson 2024).

The consequences of unaddressed MI extend beyond individual suffering, posing threats to workforce sustainability within emergency services organisations. Participants explicitly linked their experiences of MD/MI to their desire to leave the profession. One respondent noted a lack of follow-up once individuals leave the service, observing that ‘which is when the issues raise their head’. Another stated that ‘the amount of people leaving the job well before retirement speaks for itself’. The perceived lack of genuine care and support from the organisation was consistently identified as leading to burnout and a disconnect from organisational values. This finding aligns with existing literature indicating that moral distress is a significant factor contributing to professionals, such as nurses, leaving their careers (Giwa et al. 2021). MI is known to present considerable mental health challenges, leading to diminished self-esteem, isolation from and suspicion of others and spiritual distress (Knoblock and Owens 2024). The long-term consequences of unaddressed MD or MI include ‘significant and persistent negative changes in behaviour or habits, mistakes, isolation, compulsive behaviour ... and a weakened sense of empathy or compassion’ (Rabin et al. 2023; Thibodeau et al. 2023), all of which degrade the overall performance and resilience of the workforce.

Among the diverse responses, one participant suggested that the most effective protection against MD/MI would be achieved by removing requirements related to gender, equality, diversity or inclusion. This suggests that the individual believed that these requirements actively contributed to their own MD/MI. However, removing these requirements would contradict the legal, and arguably moral, obligations of the respective organisations when their views are out of alignment with acceptable policy and practice. This highlights that someone can experience MD/MI when their views are out of alignment with acceptable policy and practice. Ultimately, just because an individual experiences MD/MI it does not make it appropriate to

change desirable policy and practice. This poses challenges for leadership.

Findings of this study support the conceptual distinction between MD/MI and posttraumatic stress disorder (PTSD). While PTSD emphasises symptomatology following a traumatic event, MI is closely associated with the spiritual and existential aspects of an experience, often linked to feelings of betrayal and violations of deeply held values (Waller et al. 2025). One participant noted that ‘many people diagnosed with PTSD are either incorrectly or mixed in with moral injury as a dominant feature in their conditions’. This aligns with literature that posits MD/MI and PTSD as distinct, yet often co-occurring, psychological constructs (Waller et al. 2025). MI is linked to cognitive and emotional outcomes such as lower self-worth, reduced perception of the reliability and trustworthiness of others as well as diminished capacity for forgiveness (Bell et al. 2025). Recognising this distinction is important to develop targeted and effective interventions that address the unique facets of moral suffering experienced by emergency services personnel.

Limitations

The purpose of this study was not to generalise findings to all emergency services personnel. Instead, the aim was to understand and accurately report the views of intentionally recruited respondents selected for their direct frontline experience. Respondent demographics are noteworthy: the majority were males with fire service experience and an average age of 50 years. This composition means care must be taken when inferring or generalising analysis to represent the views of emergency services personnel as a whole. The findings should be interpreted as reflecting the perspectives of study participants rather than representing the broader population of emergency services personnel. Eliciting responses from a greater proportion of younger emergency services personnel, women, services other than firefighting, participants from diverse backgrounds and countries could yield different patterns of results. Nevertheless, the insightful and varied responses from these participants, along with the qualitative analysis approach, provide valuable contributions to understand frontline workers' experiences of MD/MI. These insights offer important perspectives that can inform interventions to reduce psychological harm in emergency services contexts.

The qualitative findings should be interpreted as participants' perceptions of influential factors. Quotations and themes illustrate the reported experiences and do not imply frequency in the wider workforce. While this study did not explore the influence of leadership demographics on MD/MI, this is considered an area for future research.

Conclusion

An online survey was used to explore how frontline emergency services personnel in Australia consider leadership and organisational factors that influence exposure to MD/MI. Organisational factors, rather than direct exposure to trauma incidents, were primary drivers of MD/MI. Specifically, distrust in leadership and perceptions of procedural injustice commonly amplified respondents' vulnerability to MD/MI. Most participants indicated a disconnect between organisational and personal moral values, highlighting widespread perceptions of inconsistency between their organisations stated and enacted values. Empathetic and supportive leadership behaviours were identified as protective factors, while bullying, unethical actions and leader detachment were perceived as exacerbating experiences of MD/MI. Some respondents expressed doubt that organisational actions could significantly reduce their moral suffering. These findings underscore the potential importance of attending closely to leadership practices, organisational ethics and the alignment of organisational value, as these factors are of central importance to the surveyed emergency services personnel.

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Understanding interest-based conflict in disaster recovery collaborations

Peer reviewed

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Introduction

The range of challenges encountered in disaster recovery clearly cannot be addressed by any single organisation (Chung 2016; Waugh and Streib 2006). Different agencies bring specialised skills, knowledge and resources and working collaboratively increases overall capability and capacity, reduces redundancy and integrates diverse perspectives into decision-making. The value of a networked as opposed to top-down approach to collaboration is increasingly recognised, with expectations for cooperation across the public, private and community sectors (Tierney 2012).

However, there is a tendency to oversimplify collaboration as a 'magic bullet' (Dewulf and Elbers 2018, p.2) solution to complex societal challenges like recovery. Existing literature focusing on collaboration tends to focus on the organisational preconditions necessary for effective collaboration, such as inter-organisational structures, trusting relationships and role clarity (Curnin and O'Hara 2019; Glavovic 2014; McNaught et al. 2024; Prakash et al. 2022; Quarantelli 1988). Other scholars suggest that institutional features such as the fragmentation of structures can also lead to relational dynamics that impede collaboration, such as poor communication, feelings of alienation and reactive behaviour due to a lack of contextual knowledge or understanding (Chuang 2019; Drennan et al. 2016; Manandhar et al. 2022; Tierney 2012). What is often overlooked or underexplored is that collaboration between organisations increases the potential for conflict by inviting agencies with both shared and divergent interests, practices and values to work together and contribute to decision-making. Collaboration may be essential, but conflict is inevitable.

Although conflict is sometimes acknowledged as a feature of collaborative relationships, it rarely receives direct attention. Conflict is usually considered peripherally in other disaster research and is consistently portrayed as inconvenient and exclusively detrimental. Terms such as dissension (Oliver-Smith and Hoffman 2020), divisions (Alexander 2015; Matthewman 2015; Mulligan 2013), contests

Abstract

The complex challenges of disaster recovery cannot be addressed by any single individual, organisation or institution. However, collaboration is often oversimplified as a 'magic bullet' solution to those challenges. Current approaches to understanding collaboration often fail to acknowledge that collaboration inevitably involves conflict, as it brings together organisations with divergent interests, practices and values. This study explored this challenge through semi-structured interviews with 38 Australian disaster recovery practitioners on their experiences of conflict in collaborative partnerships. This paper finds that psychological, procedural and substantive interests all play a role in inter-agency conflict and suggests that understanding them can help recovery workers to better navigate collaborative relationships. It also argues that we need to rethink collaboration and conflict.

(Boin et al. 2008; Boin and t'Hart 2003), differences of opinion (Davis 2005), friction (Aldrich 2019) and corrosive community dynamics (Brunsma et al. 2010) are frequently used. Some of these terms are euphemistic, while others lead to the misguided assumption that all conflict leads to harm and unnecessary distress. For instance, Fisk et al. (2019) argue that the presence of minimal conflict is a marker of effective recovery.

This aversion to conflict is not unique to disaster studies; it is a widespread belief that conflict signals something is broken and has inevitably damaging consequences (Lewicki et al. 2016). Some researchers within disaster recovery challenge this view. For example, Rosenthal et al. (1991) suggest that conflict need not carry exclusively dysfunctional connotations (p.229). However, a more nuanced understanding of conflict remains largely absent and there is still a significant lack of research on the potential positive functions of conflict in disaster recovery. The peripheral treatment of conflict in the literature, coupled with its mostly negative portrayal, underscores the need for this research.

For this research, 'conflict' refers to an expressed struggle between 2 or more interdependent parties, who perceive incompatible values, claims, goals or interests (Spencer and Hardy 2014, p.52–53). 'Causes' refers to the diverse and multiple factors that drive, catalyse or contribute to conflict, typically involving both long-term structural influences and short-term issues or interests (Dugan 1996). It should be noted that the causes of conflict may not be immediately evident, nor agreed by parties. The perception of what 'causes' an individual or prolonged conflict will vary between actors (Fisher and Ury 1981; Lederach 1995).

'Disaster recovery collaborations' refers to the process of inter-organisational collaboration whereby 2 or more separate but interdependent organisations come together to deal with a challenge or goal (Schruijer 2020, p.2), in this case related to disaster recovery. Collaboration in disaster recovery activities can range from informal and episodic cooperative activity to highly formalised organisational processes delineated by contract (Simo and Bies 2007, p.125). Regardless of the formality of the arrangement, what is shared is the notion of interdependence and of working together to navigate a shared challenge. It should be noted that although this research is focused on the organisation as the unit of analysis, the individual is still relevant. Individual interests intersect with organisational interests. Individuals serve as conduits to their organisations, bringing their personalities and agendas to the table, thus altering the nature of agency relationships and, at times, causing conflict.

Within disaster recovery collaborations, poorly managed conflict can stall processes, waste resources, damage relationships and result in a long, protracted tail end to recovery (Aldrich 2019; Chung 2016). In contrast, well-

managed conflict can reveal a diversity of knowledge, encourage negotiation, produce more robust decisions (Rosenthal et al. 1991) and contribute to social change (Hilhorst 2013). Individuals and organisations may also benefit, and there is evidence that affected populations can have more positive recovery outcomes when they engage in constructive controversy with government leaders (Chen et al. 2017). Therefore, effective conflict management can benefit disaster recovery by reducing distress and division and creating opportunities to collectively deliberate recovery decisions.

This research contributes to the effective management of conflict by firstly stepping back and asking: What causes conflict in disaster recovery collaboration? This approach aligns with the advice of conflict scholars who emphasise that effective conflict management is predicated on understanding the causes of conflict (Deutsch 1949; Galtung and Fischer 2013; Pruitt et al. 2004).

Interests

One of the causes of interagency conflict is organisational interests, which is the focus of this paper. Interest-based approaches focus on conflict caused by differences related to the immediate dispute. Interests represent the actual and perceived needs or concerns parties seek to address or satisfy (Fisher and Ury 1981; Jeong 2008; Moore 2014; Wehr 2006). In a conflict, interests can be shared and common, different but not incompatible, or entirely incompatible (Moore 2014; Fisher and Ury 1981). Importantly, interests are distinct from positions. While positions reflect specific demands made by one party towards another and usually result in 'win-lose' thinking, interests represent the underlying motivations of the conflict. Critically, the potential compatibility of interests makes them an ideal site for negotiating and navigating conflict, hence the focus on interests.

Interest-based approaches are widely used and form the basis of common alternative dispute resolution practices, such as mediation and conciliation. Despite their promise as a site for concentrating conflict management efforts, there can be a risk they encourage a focus on manifestations of conflict rather than their underlying cause (Furlong 2020; Lederach 2015) or perpetuate oppressive structures (Scimecca 1987). Interests are also invariably more compound, contradictory, ambiguous, variable, and political than regularly assumed (Hay 2016). However, it is suggested that interest-based approaches are most applicable in contexts where fundamental values such as the belief in human equality, shared community and non-violence are shared (Vallacher et al. 2013), which is the case in the disaster recovery sector in an Australian context.

In this paper, interests are categorised into 3 broad types, psychological, procedural and substantive, collectively termed the 'triangle of satisfaction' (Moore 2014: p.128).

Psychological interests concern the need for respect, recognition, dignity, professionalism and trust. Procedural interests refer to preferences regarding how decisions are made, problems are solved, or negotiations are conducted, encompassing desires for transparent, fair, participatory and equitable processes (Moore 2014). Psychological and procedural interests are distinctive because they cannot be solved, bargained or negotiated (Furlong 2020; Moore 2014). Substantive interests pertain to tangible outcomes or objectives in a conflict, including material resources such as money, property, survival or shelter (Furlong 2020; Moore 2014). Table 1 provides definitions, examples from research and a fictional vignette.

The paper finds that the organisational interests manifest in certain ways in conflict within disaster recovery collaborations. Firstly, psychological interests are anchored in the essential need for trust and respect. Secondly, procedural interests raised in this research centre on fairness, justice and reward. Underlying all interests, but especially the procedural, was the expectation organisational competence and commitment to community needs should be recognised and rewarded through transparency, funding, respect or delegated responsibilities. Thirdly, substantive interests in recovery primarily revolve around issues related to organisational survival, such as legitimacy, reputation or access to the community.

Method

This study forms part of a PhD project undertaken with the School of Political Science and International Studies, The University of Queensland. The project explored the causes of conflict in disaster recovery collaborations. It is underpinned by qualitative methodology, which is well-suited to the task of understanding conflict due to its capacity for thorough exploration of complex issues, its ability to facilitate meaning-making, and its provision of rich, contextual data that supports theory development. Semi-structured interviews are the primary research method.

Participants were recruited via purposive sampling, targeting disaster recovery actors across various organisations and jurisdictions. Various strategies were used to secure participants. For example, direct approaches were made through the researchers existing contacts, a flyer was shared through sector networking platforms and overarching agencies (such as local government associations or community sector peak bodies) and government departments (such as local government areas that had experienced numerous disasters, or specific recovery teams from state government) were contacted. Snowballing, in which new participants are secured through those already interviewed, occurred through existing contacts and through interviews.

Table 1: The triangle of satisfaction.

Cause	Definition	Example from the research relating to category	Vignette on how cause might manifest
Psychological interests	The desire for respect, recognition, dignity, professionalism, and to trust and be trusted (Furlong 2020; Moore 2014). They cannot be solved, bargained or compromised.	Respect is a psychological interest. It is suggested that the desire for respect both motivates actions and fosters collective motivation (Deutsch 2006; Thomson et al. 2006) and that respect for diversity in group settings can enhance constructive interactions among different groups (Jeong 2008).	<i>Conflict emerges in a disaster recovery committee when the chair, who also lost their home and thought they were going to die in the disaster, repeatedly belittles and undermines other members. Other organisations represented write a formal letter of complaint to the minister.</i>
Procedural interests	The desire for processes and decision-making mechanisms to be transparent, fair, participatory and equitable. These cannot be solved but continually negotiated (Furlong 2020). Procedural conflict may also include processes related to resolving the conflict (Mayer 2020).	Various researchers raise the need for processes and decision-making mechanisms in recovery to be transparent, fair, participatory and equitable (Fraser et al. 2020; Gibbs et al. 2018).	<i>Conflict emerges when a newly created non-government organisation receives a large contract to provide recovery support in a bushfire affected community. An established non-government organisation that has been lobbying to government for funding for years believes the funding process lacked transparency and overlooked their expertise, experience and ongoing contribution to the community, and refuses to collaborate with the new organisation.</i>
Substantive interests	The tangible requests or goals of a conflict. This may include money, property, resources, or shelter (Furlong 2020; Moore 2014).	Reputation is a substantive interest can relate to how the crisis is managed (Boin et al. 2017; Caruson and McManus 2012) and meeting expectations. For example, the government seeks to meet the electorates expectations (Choi and Honda 2019), and non-government organisations donor and the publics expectations (Choi and Honda 2019; Grellmann 2022).	<i>Local government seeks to change their planning scheme to prevent rebuilding on a floodplain. non-government organisations are concerned about this contributing to homelessness or displacement and state government are concerned about implications for future large-scale infrastructure projects.</i>

Between April and August 2023, 38 recovery practitioners from 5 Australian jurisdictions were interviewed:

- Victoria (5)
- Western Australia (4)
- New South Wales (25)
- Queensland (2)
- South Australia (2).

Participants were concentrated in areas that had experienced recent or frequent disasters. Participants represented diverse organisational types: local government (10), state government (15), commonwealth government (2), peak bodies (2), local non-government organisations and community organisations (9) and large national non-government organisations (18). Many participants had worked for various organisations in recovery, hence the distribution specified above.

Typically, participants were highly qualified with experience across numerous disaster events; 33 had worked in recovery for over 5 years and 26 had held management or executive responsibilities. They had worked across a range of recent and past events including the Boxing Day Tsunami, Port Arthur, the Thredbo Landslide, the summer bushfires of 2019–20, Cyclone Seroja, Blue Mountains (various) Northern Rivers floods (various) and Queensland floods (various), as well as smaller disasters. Several recent disasters occurred during the COVID-19 pandemic, which was mentioned as an additional layer of complexity for some participants.

The interviews followed a semi-structured format. Participants were asked to focus on their broad experiences, to describe the nature of their collaborative relationships and to provide examples of conflict. Following introductory questions, each participant was asked to describe how 8 categories influenced conflict in disaster recovery collaborations, namely institutions, data, values, relationships, systems and substantive, procedural and psychological interests. These categories were developed initially by mapping conflict analysis categories drawn from Moore's (2014) Circle of Conflict model to insights on conflict from disaster recovery research.

Preliminary data analysis was conducted using NVivo. Data was organised into manageable themes through coding. The analysis initially employed a deductive approach by anticipating broad themes as is common in qualitative research (Saldana 2015). For a theme to be validated, interviewees needed to describe conflicts in ways that aligned with the category definition and then provide further elaboration when prompted. To avoid prematurely aligning theory with data and to remain faithful to participants' experiences, as recommended by Galletta (2013), an inductive approach was employed to explore data outside the pre-identified themes. This involved frequently revisiting the literature and theory to test initial insights

and comparing differing perspectives across interviews, as suggested by Silverman (2013).

Ethics statement

Ethics approval for this research was granted by the University of Queensland Human Research Ethics Approval 2023/HE000074.

Findings

The study developed an analytical framework that identified 4 key drivers of conflict in disaster recovery collaborations, namely values, the recovery system, organisational interests and relational dynamics. This paper presents findings related to the influence of organisational interests in contributing to conflict, focusing on substantive, procedural and psychological interests. As noted the potential compatibility of interests makes them a useful place to focus conflict management efforts and justifies the focus of this study's findings.

Shared interests across organisations

Before discussing each category of interest, it is important to establish that all the recovery workers who were interviewed were unified in their commitment to community and collaboration. Most participants often prefaced descriptions of conflict by stating their belief that most recovery workers were well-intentioned and collaborative work enabled recovery. Typically, the conflict described occurred between agencies holding shared interests. Participants' shared dedication to community and to collaboration are briefly discussed.

All the participants expressed a belief that agencies shared a common motivation in supporting a disaster-affected community to recover. Representatives from numerous agencies stated: 'no-one's in this business to make a profit' (P8), 'there's a common goal as a headline' (P2), organisations possessed 'a genuine commitment to go good' (P29) and 'people who work in recovery ... it's always for the greater good of the community and individuals we serve' (P33). Several participants noted that agencies or individuals perceived to blatantly hold different interests were ostracised, disregarded or ignored. For most, the minimal threshold for being considered a collaborative partner in recovery was an overt commitment to supporting the community.

In addition to prioritising community, all participants described a commitment to fostering collaboration, assuming collaboration would lead to improved community outcomes in recovery. As one non-government organisation participant described, 'The benefit of good collaborations is that the community does better and recovers better' (P5). Agencies invested considerable effort into developing strong partnerships and organisational relationships, describing attempts to 'forge our way

through' (P11), 'sit at the table and do it together' (P21) and 'get to know one another as human beings' (P5). Deliberate processes such as identifying shared goals and agendas, debriefs after events, shared exercises, seeking representative participation on networks and working groups, and having coffee after formal meetings to maintain relationships were described. One manager of a community sector peak body detailed their ongoing efforts to strengthen collaboration between the local community sector, larger non-government organisations and local and state government entities:

We have decided to collaborate, decided to build relationships of trust. It started in 2013, and we've been building on it ever since. Is it perfect? No. Does it work? Yes. The idea is to use the relationships of trust ... to encourage collaboration, to get the biggest bang for the sometimes-non-existent-buck to benefit our local community.

(P26)

All participants were unified in their belief that underneath it all, recovery agencies were driven by the betterment of community and committed to productive collaboration. This consensus gives rise to optimism about the successful prevention, handling or resolution of conflicts in disaster recovery partnerships. Nonetheless, it is crucial to comprehend the underlying interests contributing to conflict.

Psychological interests

Two key psychological interests dominated participant descriptions of conflict in disaster recovery collaborations: trust, and the desire for respect.

Many participants described trust as crucial for collaboration. Trust was related to other agencies' motives and competence and led to a willingness to collaborate and depend on them. Agencies described both distrusting other agencies and being the subject of distrust themselves.

Trust is the belief and willingness to act on another actor's words, actions and decisions (Lewicki et al. 2016). It is argued high levels of trust foster collaborative behaviour and increases information sharing (Butler 1999), reducing the likelihood of destructive conflict. Conversely, organisations with histories of conflict often have low levels of trust, leading to decreased commitment, manipulative behaviour, and dishonest communication (Ansell and Gash 2007).

Trust played a protective role in collaborations, facilitating effective conflict management and allowing for a tolerance of differing opinions. Many participants noted that, in situations where trust existed, minor slights or disagreements were easily managed and resolved. One community sector peak body manager explained: 'The relationships of trust are a prerequisite to collaboration. If you don't have those, they don't happen' (P26). In

contrast, distrust led to conflict escalation. Once trust was broken, it was difficult to rebuild, creating a cycle where distrust fostered stereotypes, rumours and suspicion. In such cases, every action was interpreted as signalling the other party's ill-intent. Trust was also linked to pre-existing stereotypes about agencies, with several participants recounting instances where they were distrusted simply because of the type of organisation they represented. One participant, who had worked for both state and local government, described their experience of being distrusted based on the assumption that, as a government employee, they must be self-interested and bureaucratic:

One thing that sticks out to me is the distrust I experienced working for local government. As soon as you say anything related to either local government or government, distrust comes into it, whether it's community or another agency. There's that automatic – 'you're not actually here for the community. You just want to tell us what to do. And you just want to sort of push us around and make us do what you want to do you, you're just all about the bureaucracy'.

(P25)

The subject of trust varied, with trust mainly related to the motives or competence of other agencies. Often, agencies distrusted the motives of other agencies and suspected they were not concerned with a community imperative. Several organisations mentioned sharing data or information with other individuals because they trusted their motives, with one participant who had worked for local and state government and the commonwealth describing: 'But that was all trust and relationship-driven, knowing whoever you're sharing information with was doing it for the right reasons' (P33). Motive mattered to participants, with the 'right reasons' focused on the good of community, not the good of the organisation.

At other times, agencies distrusted one another's competence. Several participants described a cycle whereby once an agency knows its competence is distrusted, it becomes less confident, reinforcing others' beliefs about its capability. For example, one manager of a non-government organisation working in recovery for over a decade described how a government restructure led to delays and inefficiencies undermining trust in 'the system':

In terms of creating conflict, it certainly caused a lot of disbelief and anger and a breakdown in trust ... of the system. And a breakdown in confidence that the institution was in a stable enough place to provide the support that services programs and projects on the ground required to get out to the communities as quickly as possible.

(P29)

Many recovery workers claimed a desire for trust and the existence of distrust drove conflict in recovery collaborations. Related to trust is the psychological

interest of respect. The recognition and respect of skills, knowledge, role and expertise mattered to participants, with 27 recovery workers mentioning a lack of respect leading to conflict. These participants acknowledged recovery relied on the involvement of interdependent but dissimilar organisations; therefore, different skills, expertise and geographical focus were inevitable. Respect for agencies' unique contributions was therefore essential to navigating and forging collaborations.

In conflict research, respect is considered a fundamental human need, and a lack of respect is tied to feelings of helplessness (de Matos 2006; Jeong 2008; Sandy 2006). In collaborative relationships, earning the respect of colleagues is vital for contributing to the collective good (Deutsch 2006; Thomson et al. 2006). Respect for diversity fosters constructive interactions between different groups (Jeong 2008), whereas polarisation indicates escalating conflict, threatening trust and respect (Fisher and Keashley 1991).

Participants who raised this topic perceived disrespect was based on generalisations about their agency rather than the substance of their interactions or demonstration of skills, knowledge or expertise. Frequently, feeling disrespected was a feature of new or early relationships where trust and rapport were not yet established. Lack of experience and relationships meant stereotypes, sometimes accompanied by disrespect, dominated interactions. For example, some agencies described feeling disrespected by individuals or agencies parachuted into recovery, with one participant urging:

You felt like just slapping them around the head and saying, 'How about taking 5 minutes to understand your space? Just listen to people, listen to all these perspectives and experiences around you and acknowledge you don't know enough yet.'
(P7)

Respect was considered not just about attitude or verbal recognition. To demonstrate or bestow respect, tangible demonstration was required, such as receiving funding, being consulted in crucial decisions, being included in committees, being 'bought in the loop' (P20) or being given a 'slice of the pie' (P26). Conflict and resentment occurred when agencies perceived their hard work, expertise or skills were not respected with concrete acknowledgment. For example, a participant from a large non-government organisation described how their agency had invested heavily in relief efforts, only to see other agencies receive long-term recovery funding. This caused frustration, as they felt: 'There was the belief ... they had put in the hard work, and it was compensation for having filled a gap where other people hadn't been able to' (P3).

The desire for respect was a deep psychological interest for interview participants. Failure to address the need for respect led to resentment, hurt and anger, contributing to conflict.

Procedural interests

Many recovery worker participants described a failure from other agencies to address procedural interests that led to conflict. Two main themes emerged concerning procedural interest conflict: conflict over territory or turf and the requests for transparency. Underpinning these 2 procedural interests was the desire for fairness and justice.

Participants who raised this topic described conflict motivated by the desire to protect their organisations or communities from competition or disreputable outside forces. Words such as 'turf' (2 participants), 'gatekeeping' (5), 'ownership' (3) and 'territory' (15) were used. Participants described behaviour motivated by a desire to control access to a particular location, area of expertise or responsibility. Sometimes, participants expressed protectiveness concerning their own community or 'patch', and sometimes participants described conflict caused by the perceived exclusionary ambitions of others. These turf-related conflicts were primarily driven by concerns about organisational survival and fairness. Established organisations felt it was unfair and undeserved for new or external groups to gain immediate access to communities or funding. This sentiment was particularly strong where the long-standing organisation had made a significant investment in building relationships, fostering trust and providing services over time.

Two key types of turf or territory conflict emerged: conflict between local and 'outsider' organisations and conflict between established and emergent recovery entities. Territorialism was regularly raised as a cause of conflict by interview participants, despite the lack of direct interview question. For example, one participant from a large non-government organisation summarised, 'There were a few different types of conflict there. One was ownership by existing agencies. One was the whole local versus not local. Our turf versus your turf' (P10). One participant from a large non-government organisation described ongoing territorialism between agencies in their community, extending beyond their current recovery context:

There is open conflict, there's a lot of gatekeeping, it's very territorial ... and my analysis is it's all based on funding and keeping people employed ... Council and the community service provider, they want to be seen as the go to for everything and the source of all knowledge and all truth. And so, when there's conflict comes, it's when people don't come and kneel at their feet and ask what they should be doing, is the sense you get.'
(P32)

Territory-related conflict existed between local and 'outside' organisations, raised by 21 participants, some multiple times. 'Outside' organisations included state government and large non-government organisations that

did not usually provide services in the geographic area of a disaster-affected community. Local organisations perceived outside organisations had unfounded assumptions regarding community need, arriving in their community and trying to take over. Being local was viewed *by locals* as desirable, trusted and credible. Being local was associated with having an honourable, community imperative. However, participants from 'outside' organisations also described the local/outsider conflict dynamic and expressed frustration concerning the hostility and antagonism directed towards their efforts to fulfil their responsibilities. One participant from a large non-government organisation described the experience of working in a regional community and navigating the 'local/outsider' divide:

It's important to mention the dynamics. It's 2 hours from Canberra, and 6 hours from Sydney, and there's not really a lot going on. So it feels quite isolated ... And so there is a real sense of like, 'we're out here in the bush doing it on our own, and then people just come in from Sydney and tell us what to do'. There is a strong divide at the agency level all the way down to people in community. And that plays a big role.
(P32)

Distinct from the local/outsider dynamic, 15 participants referred to conflict between established recovery organisations and new or emerging entities. Instead of geographic access to the community, the 'turf' at the heart of the conflict was the delegated or assumed legitimacy to provide a certain type of recovery support, which, by implication, contributed to the existence or survival of the organisation. The few participants from emergent organisations viewed themselves as 'good people doing good things people needed help with' (P18). However, established non-government organisations were often critical, describing emergent organisations disapprovingly as 'copycat organisations' (P3) or 'pop-up not for profits' (P23), accusing them of taking unnecessary risks, acting with haste to 'fix' recovery, not understanding the recovery context and undermining community-led recovery. Notably, established non-government organisation participants repeatedly raised concerns about emergent organisations not having qualifications, procedures or protocols. The unspoken implication was emergent groups were not legitimate recovery actors, in part because they had not 'invested' the requisite effort to meet legislative or bureaucratic standards. Attempted territorial control, whether related to geography or role, was described by some participants as a cause of conflict in disaster recovery collaborations.

Transparency was also regarded as an important procedural interest. Disclosure regarding decision-making rationale was considered a necessary accompaniment to quickly allocated funding and rapid policy choices. Transparency aided clarity and supported 'sense-making' in the fast-paced recovery

environment. At a surface level, the desire for transparency may partly have been motivated by self-interest (e.g., why did they receive funding, and we didn't?). However, many participant responses indicated transparency was also associated with procedural interests such as fairness, authenticity and integrity and was considered necessary for an interagency relationship to be truly collaborative. Regardless of the underpinning motivation, accidental or deliberate neglect of transparency contributed to conflict in disaster recovery collaborations.

Twenty-one participants raised conflict due to a lack of transparency regarding upcoming announcements, policy decision-making logic and rationales for funding distribution. Non-disclosure was perceived as especially aggravating where 'outside' organisations made decisions with local implications, without explaining how these decisions were made. A lack of transparency was linked to a lack of trust, a cyclical loop making conflict more probable. For example, some funded organisations automatically distrusted their funders, perceiving them as holding unjust power. Therefore, mutual transparency was unlikely. Conversely, if an organisation was perceived as untransparent, participants believed them also untrustworthy. One ex-state government employee described the cyclical relationship between trust and transparency:

I saw a real lack of transparency ... If people have a high level of trust, they are more likely to be transparent with what's going on and say, 'I trust if I say this, you're not going to- whatever- undermine my values'. Or 'you're not going to steal my money, or get more kudos than me, or be seen as more of a hero than me'. But I saw a lot of people holding things closely. So- the desire for things to be transparent, I didn't see that. I saw the desire for things to be closed and not shared ... which is obviously a positive reinforcement loop of: you're not transparent, you lose trust. You lose trust, you don't want to be transparent.
(P23)

Frequently, the desire for transparency related to the allocation of funding. Most participants accepted that time pressure in a disaster recovery context required atypical processes to allocate funding than normal. Especially in early recovery, recovery workers understood funding or services might be procured based on incomplete or changeable information. Yet some participants described conflict where funding was awarded based on perceived favour and attributed to previous relationships, nepotism or convenience. In these cases, participants described feeling a sense of injustice and the discretion applied to funding allocation meant such an accusation was hard to disprove. One participant who had worked for local government and non-government organisations in recovery described the resentment and conflict caused by funding decisions about early service provision:

There's been some resentment from the local services about one locally funded service getting funding, and not another. But it's that transparency around decision-making, and a lot of the times funding in the initial stages of recovery is allocated based on ... - well, it is merit-based, but it's not a competitive merit-based process. So the challenge is balancing the necessity to get services on the ground quickly, as quickly as possible ... and transparency. (P31)

Services overlooked for funding often described processes as arbitrary and unfair, leading to them distrusting both the recipient organisation and the funding body. Non-funded recipients described their disconcertion as motivated by a desire to protect a community imperative, asking questions such as, 'is government even checking the credentials of the people getting the funding?' (P10) or questioning the recipient organisations' motivations, 'there was also a perception they were very savvy. And so that's a perception- whether it's right or wrong. And I know they do decent good work, but -they were savvy' (P13). This dynamic, whereby the overlooked organisation questions the fairness of process, links the desire for transparency to the substantive interest of funding. One highly experienced recovery manager considered such questions as inevitable: if agencies did not receive funding, they would continually question the decision's transparency or legitimacy: 'until you give the people money, they're going to ask the question from different angles ... what they're on about is 'I want some money and I didn't get any' (P22).

Some participants raised conflict whereby recovery workers were expected to be conduits for policy or government decisions. Frequently, workers felt stymied, unable to be transparent regarding the logic and reason behind decision-making. Typically, recovery staff understood unfavourable and tough decisions might be necessary but believed other agencies and community members were more likely to accept or understand hard decisions backed by transparent logic. Transparency implied integrity and trustworthiness, attributes they wished to uphold. One participant who had worked across local and state government described the importance of communication, even when decisions may be disappointing:

The desire for things to be transparent, fair, and equitable is mainly because the decision-making is happening at a higher level than at a local level. And so, when you're the one on the ground that has to speak to the community, you're the face of their recovery process. It becomes important you know what's happening and that you're able to tell them. Even if things aren't going well, even if the funding isn't coming. It's that communication that's critical ... So as long as you can tell them exactly what's happening, upfront, rather than saying, 'I have no idea that's not my job' ... And when you're at a state level, there's a disconnect ... You're more concerned about making sure the decision is right, before you tell anyone

anything. But it's just about giving us something, some sort of information, so we can make sure that when we're speaking to the community, we're being honest with them. (P25)

A lack of transparency indicated to participants another agency was untrustworthy, with distrust impeding conflict in disaster recovery collaborating and pre-empting conflict.

Substantive interests

Interview participants identified a variety of substantive interests contributing to conflict in disaster recovery collaborations. Broadly, different organisational types, such as local and state government agencies and non-government organisations shared similar substantive interests. Conflicts often revolved around survival, reputation, legitimacy and external pressures, such as political dynamics and media scrutiny.

The theme of organisational survival emerged as a significant factor underlying examples of substantive conflict and this was raised by many participants. The theme of organisational survival is raised in various ways in disaster recovery and other research. Rosenthal et al. (1991), for example, emphasises the bureaucratic imperative to safeguard organisational existence during crises, where agencies defend their turf and reputation through their post-disaster performance. For organisations responsible for disaster recovery, the post-disaster phase represents a critical opportunity to demonstrate their value to other agencies and the public. Outside the field of disaster studies, Hanegraaf and Poletti (2019) use the term 'mortality anxiety' (p.126) to describe this phenomenon. Other researchers suggest anxiety is amplified by factors such as direct competition, organisational size, limited resources, and ongoing change (Halpin and Thomas 2012; Heylen et al. 2018), all characteristic of the disaster recovery context.

Participants frequently attributed conflict to substantive interests, such as funding, reputation or media involvement. However, a deeper analysis reveals these conflicts were often underpinned by a fundamental drive for organisational survival. The data suggests conflicts were triggered by actions aimed at safeguarding organisations from existential threats. The nature of these threats, and the mechanisms for survival, differed between organisation types. For instance, non-government organisations were often more reliant on external funding. One participant noted, 'they're a smaller organisation that has to struggle to survive, and fight or flight sort of kicks in' (P27). In contrast, government entities were seen as more dependent on reputation, legitimacy and maintaining the approval of constituents. While some participants regarded organisational survival as a pragmatic and reasonable interest, justifiable when it served the broader goal of supporting communities, others viewed it as self-interest that could undermine the shared goal of community recovery.

Recovery workers often described the 'mortality anxiety' of other agencies, believing it contributed to conflict. Where actions were seen to be motivated by a 'threat to the future of ... the organisation' (P10) or an attitude of 'we must stay alive at all costs' (P23), organisational survival was suspected of superseding the desire to support the community to recover and therefore betrayed the shared cause. For example, organisational action unrelated but tied to recovery was viewed as duplicitous or as taking advantage by seeking to 'piggyback off the disaster' (P1) or 'sneak the business-as-usual things through' (P20). One non-government organisation manager described how, as the recovery sector grows, more organisations are clamouring to 'do good' while holding a dual interest in securing available funding for organisational expansion:

My cynical hat might say it's a bit of empire-building. They're setting themselves up. Because let's be pragmatic here- when I started working in the disaster sector, it wasn't a sector. Now, it's an industry. And people keep saying, 'You'll never be out of work'. And it's true. It's growing. It's an actual sector in and of itself. So everyone wants a piece of the pie- including the local place-based organisations, right? So it's motivated by doing good. It's motivated by expanding on what they already offer. And it's motivated by 'we need a piece of this pie'. (P29)

While not all substantive conflict is linked exclusively to organisational survival, the theme frequently recurred, driving conflict related to reputation and legitimacy and fear regarding external threats.

Interviews revealed that the interrelated influences of politics and the media were believed to contribute to conflict in disaster recovery collaborations, exacerbating mortality anxiety and having a direct impact on reputation and legitimacy.

Recovery operates as an open system, continually subject to external influences, including politicians and the media. These external influences were viewed as holding the power to either announce 'policy on the run' or publish critiques of recovery agencies, setting off chain reactions to defend legitimacy or reputation. Media and politicians were considered powerful, external to formal recovery, yet with great influence. Participants expressed frustration at their inability to challenge or influence these forces, describing themselves as vulnerable to what they perceived as unpredictable, misinformed and sensationalised threats to their organisations. External political and media pressures were viewed as impeding both community and organisational interests, ultimately fuelling conflict.

Many participants believed the actions of politicians had cascading effects leading to conflict. A total of 26 participants mentioned the role of politics in driving conflict in disaster recovery collaborations. The connection

between the actions of politicians and the conflict between collaborating agencies was indirect but significant. Government participants especially felt powerless against the announcements and demands of politicians having flow-on effects concerning their time, attention and reputation.

Participants who had worked for government frequently emphasised the challenge of dealing with the 'political whims' of elected representatives, often first discovered by government staff via media announcements. Sometimes announcements were viewed as electoral politicking, sometimes as a well-intentioned but misdirected desire to expedite recovery. After an announcement, public servants described unwillingly acting as conduits, managing the expectations of communities and other agencies and delivering policy 'on the run'. One local government employee described dealing with unplanned policy announcements designed to 'fix things' and the difficulty presented for staff:

The doorstep policy announcement of grant support is really problematic, and it can create conflict ... Every political bit of machinery in a government will want to get in there and give these dollars- 'we need to do this, we need to do that'. And of course, the policy detail is not worked out before the announcement. Expectations are raised, and it becomes incredibly difficult to manage. It's done, a lot of times, with the best of intentions. I don't think it's politicking, purely politicking. There is a lot of good intention- 'we need to support our communities'. But it's not thought through. So, it creates conflict because you're trying to manage something, and you don't know the details. And that's a really difficult space. (P34)

Eleven participants brought up the topic of media influence on conflict in disaster recovery collaborations. Despite not being prompted with a related question, they expressed concerns about biased and uninformed media coverage negatively affecting the agency's reputation, employee wellbeing and identity. Perceived reputational damage was seen as a contributing factor to conflicts in collaborative relationships. Participants described the media as having power over them, noting the lack of opportunity to respond to or dispute such coverage.

The media causing conflict was raised mainly by participants from state government and large non-government organisations, who were subject to purportedly unwarranted scrutiny. As a result, the community and other agencies would criticise agencies for matters raised in the media causing reputational damage and psychological harm to recovery workers. Many managers described staff taking media criticism as a personal insult in a highly volatile and demanding environment. A state government employee who had also worked in the non-government organisation sector spoke about the impacts of media on staff:

I've seen ... the negative and emotional impacts of media on this team when they've worked so hard for so long. And then having to deal with hearing those stories and feeling like they're a failure. And with the failure of our agency, feeling they were to blame for that. It was extremely challenging, the results, the flow-on effects. (P21)

Politics and the media were viewed as interconnected and interdependent. Together, they reinforced the narrative that the 'system is broken'. Participants regarded both media and politicians as not understanding the complexity nor the institutional arrangements supporting recovery yet holding the power to shape public discourse and detrimentally affect agency reputations and dynamics. One ex-government employee expressed their frustration with the role of media in oversimplifying recovery and fuelling conflict:

The media plays into conflict as well. I found it enormously disappointing to see what media would pick up on and write about; I'd go, 'How can you possibly think this could be a helpful thing right now'? Do you think you're alerting government to the needs, or 'shining a light' on something happening?' It's actually so complex, you can't possibly represent it in this article. So, I think the media plays a really significant piece ... in either starting or fuelling conflict. (P24)

Despite operating outside the formal recovery system of recovery arrangements and plans, these external actors were seen as wielding significant power over time, attention, reputation and perceptions of other agencies, contributing to conflict.

Discussion

The findings from this study focused on the role of organisational interests in generating conflict within disaster recovery collaborations.

Firstly, psychological interests were anchored in the essential need for trust and respect, elements not extensively addressed in the disaster recovery literature. While trust is often cited as critical to collaborative efforts (Curnin and O'Hara 2019; Glavovic 2014; McNaught et al. 2024; Prakash et al. 2022), it is typically clustered with institutional features such as interorganisational structures and role clarity. However, trust must be more than just 'designed into' recovery arrangements or committees. It is cultivated over time through consistency, communication and reciprocity. Therefore, the challenge to existing research highlighting trust as essential to collaborative relationships is to expand on how trust is built. Trust cannot be design into policies or plans; it is developed through sustained actions.

Secondly, procedural interests raised in this research centred on fairness, justice and reward. There was the

expectation organisational competence and commitment to community should be recognised and rewarded through transparency, funding, respect or delegated responsibilities. New agencies skipping the queue and gaining access to funding and legitimacy was perceived as an affront to procedural fairness. These assumptions are inherently meritocratic and are tied to the myth of a manageable, just and predictable world. While much has changed since Young (1958) coined the term 'meritocracy', the idea that effort or performance should be impartially rewarded is still prevailing as an idea (Kim and Choi 2017). Within disaster studies, a meritocratic ideal presents a new and underexplored frame for understanding how agencies interact.

Thirdly, substantive interests in recovery primarily revolve around issues related to organisational survival, such as legitimacy, reputation or access to the community. This focus on organisational survival as a substantive interest is crucial but often overlooked in scholarship. For organisations involved in disaster recovery, the post-disaster phase is a critical opportunity to prove their value; their continued existence hinges on defending their reputation and establishing legitimacy through effective post-disaster performance, resulting in 'mortality anxiety' (Hanegraaf and Poletti 2019, p.126). While similar pressures have been examined in bureaucratic settings (Rosenthal et al. 1991), mortality anxiety within non-government organisations remains largely unexplored. As these findings have demonstrated, government agencies may face consequences for poor post-disaster performance, such as restructuring, budget cuts, media scrutiny or even judicial review, but they generally continue to exist in some form. In contrast, non-government organisations face a more fundamental existential threat. Perceived poor post-disaster performance may lead to the withdrawal of funding or exclusion from formal disaster recovery processes, potentially rendering the organisation non-viable. Furthermore, factors heightening mortality anxiety for non-government organisations, such as direct competition, organisational size, limited resources and change (Haplin and Thomas 2012; Heylen et al. 2018), are amplified in the post-disaster context. As a result, the stakes of post-disaster performance become critical drivers of organisational behaviour for non-government organisations and can result in conflict.

A new conversation

This study starts a conversation about conflict in disaster recovery. It brings conflict from the margins of research to a central position, highlighting it as a topic deserving focused and ongoing investigation. Conflict should not be treated as a minor inconvenience or sidenote but as a critical dynamic within disaster recovery. It can reveal problems with how recovery is organised, how we engage with one another and ensure different needs are

considered. But only if we are willing to acknowledge and examine it. This paper focused on one specific driver of conflict: perceived unmet organisational interests.

One reason conflict has been overlooked is the prevailing uncritical approach to collaboration in disaster studies and disaster recovery practice. This approach emphasises harmony as an ideal and collaboration as inherently good. If we assume collaboration is inherently good and that minimal conflict is a marker of good collaboration (Fisk et al. 2019), then seamless collaboration becomes not simply a way of working to achieve a shared goal, but a desired outcome itself. However, pursuing collaboration as a goal in its own right, rather than a means to achieve specific outcomes, can have adverse consequences. Conflict scholars warn against this, arguing that prioritising collaboration over its actual purpose can ignore power imbalances (McKeown 2013; Vallacher et al. 2013), reinforce the status quo (Rogers and Ramsbotham 1999) and compromise rigorous advice by prioritising consensus (Emerson et al. 2003). While the benefits of collaboration are unquestionable, the current uncritical approach, which treats smooth, friction-free collaboration as the ultimate goal, has created a blind spot requiring closer examination, a task this research has instigated.

A shift in perspective is necessary. Disaster studies would benefit from forgoing idealised notions of collaboration and embracing the idea of 'constructive controversy' which conveys how well-managed conflict can foster innovative problem-solving (Ayoko et al. 2014; Johnson et al. 2006; Tjosvold 2008), promote respect between stakeholders (Chen et al. 2017) and strengthen the rigour of research (Tjosvold 2008). Rather than treating conflict as an inconvenience to be avoided or a purely destructive force, it should be recognised as a vital component of recovery requiring careful management. Attempting to eradicate conflict is unrealistic and overlooks its potential to improve recovery outcomes. Thus, the aim of understanding conflict is not to eliminate it from collaboration but to reduce the harm it causes, harness it to uncover diverse perspectives, broaden decision-making considerations and improve the overall quality of recovery efforts. It is time to reimagine the role of conflict within disaster studies.

Conclusion

This research examined one cause of conflict in disaster recovery collaborations and organisational interests and has opened avenues for investigation. Several themes identified have received limited scholarly and empirical attention in the disaster recovery literature. Concepts of mortality anxiety, constructive controversy, trust and respect warrant closer examination and investigating them could offer insight into post-disaster conflict dynamics. This research deliberately refrained from exploring how to address conflict. Future work should consider how conflict in recovery collaborations might be navigated.

Such approaches should not aim to eliminate conflict but to prevent and respond to its destructive potential, and to transform interagency relationships so they are robust, equitable and fair, and ultimately contribute to effective recovery for affected communities.

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About the author

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Abstract

Indonesia's coastal regions are among the most disaster-prone areas in Southeast Asia, where repeated earthquakes and tsunamis test the resilience of local health systems. This study assessed post-disaster changes in governance, coordination and service capacity across 3 provinces of Aceh, West Sumatra and Central Sulawesi using secondary data from the Indonesian Ministry of Health, Health Crisis Management profiles. A pre-post evaluation framework was applied across 6 resilience dimensions of governance, coordination, human resources, infrastructure, logistics and financing. Results indicated substantial post-disaster improvements in governance and coordination, particularly in Aceh, but persistent weaknesses remain in logistics and health workforce readiness. The findings highlight the importance of continuous learning, sustained financing and inter-agency collaboration to strengthen local health system preparedness for future emergencies. These insights contribute practical lessons for disaster risk governance particularly in coastal and resource-constrained contexts.

Strengthening local health system resilience in coastal Indonesia: lessons from post-disaster governance and preparedness

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Introduction

Disasters are a persistent threat to coastal populations in Southeast Asia, particularly in Indonesia, one of the world's most hazard-prone archipelagos. The country's geographic position along the Pacific 'Ring of Fire' exposes it to frequent earthquakes, tsunamis and floods, which repeatedly disrupt health service delivery and exacerbate community vulnerability. Between 2006 and 2015, more than 130 major disasters affected over 10 million people across Indonesia resulting in significant mortality and damage to health infrastructure (Jang et al. 2021). The recurrence of such events highlights the critical role of the local health system as the first line of response in minimising disaster-related morbidity and mortality.

Disaster preparedness and mitigation are key components of environmental hazard management. The Sendai Framework for Disaster Risk Reduction 2015-2030 (UNDRR 2025) (Sendai Framework) emphasises the need for health systems to build resilience by integrating risk governance, early warning systems and community-based preparedness mechanisms. However, despite multiple reforms, local health systems in Indonesia, especially in coastal regions, remain fragile due to constrained logistics, weak inter-agency coordination and inadequate human resource capacity. These systemic weaknesses increase vulnerability to environmental hazards and reduce the effectiveness of post-disaster recovery and health protection (Bullock et al. 2013; Chan et al. 2019). The Sendai Framework emphasises the need to strengthen

disaster risk governance, invest in resilience and enhance preparedness across all sectors, including health systems (UNDRR 2015). Recent studies in Indonesia highlight the importance of local leadership and financing mechanisms in disaster governance, particularly in enhancing institutional and community resilience (Ruslanjari et al. 2024; Marlina et al. 2024). Several studies have also discussed coastal governance and community resilience in the Asia-Pacific region, such as case studies on managed relocation and community resilience (Elis and Bajracharya 2023; Wicaksono et al. 2024). However, specific studies on the resilience of health systems in Indonesia's coastal provinces are still limited.

Previous studies on disaster management in Indonesia have primarily focused on emergency response logistics or hospital-based preparedness (Fuady et al. 2011; Lopo et al. 2022) with limited evaluation of how lessons from past disaster events shape long-term governance and health-system resilience. There remains a lack of integrated analysis connecting institutional preparedness, mitigation measures and local health governance frameworks. This gap limits evidence-based policymaking for disaster-prone coastal regions where health infrastructure often faces recurrent risks.

Despite the increasing global emphasis on disaster risk reduction, local health systems in hazard-prone regions remain inadequately prepared to cope with large-scale disasters. In Indonesia's coastal areas, health institutions often operate within fragmented governance structures resulting in limited coordination and reactive crisis management. Previous research has concentrated on emergency response and hospital preparedness, providing little insight into how local health systems learn and adapt following disasters (Lopo et al. 2022; Fuady et al. 2011). Comparative evidence across provinces is scarce and the integration of health-system resilience within local disaster risk reduction frameworks remains underexplored.

The aim of this study was to address these gaps by applying a pre–post evaluation of local health-system preparedness and mitigation capacities grounded in the resilience framework adopted by the World Health Organization and adaptive governance theory to identify institutional learning processes that enhance disaster preparedness in Indonesia's coastal regions. By evaluating changes in governance, coordination, human resources, infrastructure and mitigation practices, this study identified institutional learning processes and persistent vulnerabilities within Indonesia's coastal health systems. The findings inform evidence-based policy strategies that strengthen disaster risk governance and enhance health-system resilience to environmental hazards.

Method

Study design and framework

This study applied a descriptive pre–post evaluation design to examine changes in disaster preparedness and mitigation capacities of local health systems in selected coastal provinces of Indonesia. The analysis followed a modified Theory of Change framework (Weiss 1997) linking the inputs (governance, resources and regulations) and processes (coordination and human resource capacity) to expected outcomes (improved resilience and mitigation readiness).

The indicators assessed are the existence of local government regulations on disaster management, the availability of technical regulations that support disaster management and supporting resources. The pre-disaster assessment was defined as the condition prior to the major disaster events (earthquakes and tsunamis) in each province. These events occurred in Aceh in 2004, West Sumatra in 2009 and Central Sulawesi in 2018. The post-disaster assessment refers to the condition following these major events.

For the purpose of analysis, we used the most recent assessment years available in the Health Crisis Center profiles published by the Ministry of Health of Indonesia.¹ The pre-disaster assessments for Aceh and West Sumatra correspond to the 2002 reporting cycle, while Central Sulawesi's pre-disaster assessment used the 2017 profile. The post-disaster assessments for Aceh and West Sumatra were taken from reporting years after 2017, whereas Central Sulawesi's post-disaster assessment used data from 2020.

It is acknowledged that other smaller-scale hazard events, such as seasonal flooding, may have occurred during the assessment periods chosen. However, no additional large-scale disasters of comparable severity occurred in the 3 provinces selected within this timeframe. Therefore, the pre–post comparison reflects the effects of a single major disaster event in each province without being confounded by subsequent disaster events.

Study area and data sources

The assessment was structured around 2 analytical dimensions:

1. preparedness: policies, regulations, early warning mechanisms, coordination and human resources
2. mitigation: logistics, hospital capacity, post-disaster rehabilitation and risk reduction programs.

Three coastal provinces were purposively selected based on their major disaster history and exposure to environmental hazards of Aceh (earthquake and tsunami

1. Health Crisis Center profiles, at Indonesia Health Profile | GHDx, <https://ghdx.healthdata.org/series/indonesia-health-profile>

in 2004), West Sumatra (earthquake 2009) and Central Sulawesi (earthquake, tsunami and liquefaction in 2018).

Secondary data were obtained from the Health Crisis Center of the Ministry of Health of the Republic of Indonesia, 2017 to 2002. Reports contained structured assessments of disaster preparedness, health infrastructure conditions and institutional arrangements at provincial and district levels. Supplementary peer-reviewed sources were used to triangulate contextual information on health response and governance reforms (Lee et al. 2005; Fuady et al. 2011; Lopo et al. 2022).

Public health emergencies, including the COVID-19 pandemic, were excluded because they are categorised separately and are not included in the preparedness and mitigation assessment system used in this dataset. Therefore, the scores analysed represent institutional preparedness for major geological disasters, not pandemic-related events.

Indicators and scoring

Each province's preparedness and mitigation performance was evaluated using 6 indicators extracted from the data of governance, coordination, human resources, infrastructure, logistics and financing. The results are shown in Table 1.

Data for each indicator were extracted from provincial Health Crisis Management profiles and verified through regional disaster management reports. Composite scores for preparedness and mitigation were calculated by averaging the 6 dimension scores, enabling comparison across provinces and time periods.

Analytical approach

Scores were synthesised into provincial preparedness and mitigation indices using simple additive scaling (average per dimension). Qualitative findings from the Ministry of Health of Republic of Indonesia reports were integrated to explain score variations. Interpretation focused on identifying patterns of institutional improvement, persistent weaknesses and cross-provincial lessons for resilient health-system governance in coastal contexts.

Results

Comparative preparedness and mitigation scores

The results of the comparative analysis across the 3 provinces are shown in Table 2.

Overall, all 3 provinces demonstrated measurable improvements in both preparedness and mitigation capacities following major disaster events. However, the degree of improvement varied, with Aceh showing the highest post-disaster resilience gains (Δ change (post - pre) = +2.5 preparedness; +2.2 mitigation) followed by West Sumatra and Central Sulawesi.

In Aceh, the 2004 tsunami triggered comprehensive institutional reforms, including the establishment of the Aceh Disaster Management Agency and the integration of health crisis units at the district level. These structural changes explain the significant improvement in both preparedness and mitigation scores. In West Sumatra, post-2009 reforms focused on strengthening hospital standards and forming rapid response teams, yet coordination across agencies remained fragmented, limiting the overall improvement. In Central Sulawesi, despite the creation of coordination mechanisms after the 2018 earthquake and tsunami, limited logistics and hospital capacity hinder operational readiness.

Institutional and governance improvements

Post-disaster reforms led to the creation of health crisis management units in all 3 provinces and the formalisation of standard operating procedures for coordination and rapid response. However, weaknesses remained in cross-sectoral integration, particularly between health offices, hospitals and local disaster management agencies. Provincial health offices often lacked the authority to mobilise resources across districts, which negatively affects the timeliness of response actions.

Resource and capacity challenges

Despite institutional progress, logistic and human resource gaps persist. There is uneven distribution of trained

Table 1: Dimensions and indicators of local health system resilience to disasters.

Dimension	Indicator*	Description
Governance	Existence of regional regulations on disaster management.	Legal framework and policy authority.
Coordination	Availability of SOPs and crisis management units.	Mechanisms for multiagency coordination.
Human resources	Availability of trained staff and rapid response teams.	Technical and non-technical capacity.
Infrastructure	Hospital readiness and functional health facilities.	Capacity for emergency medical response.
Logistics	Availability of medicines, supplies and equipment.	Material support for response operations.
Financing	Budget allocation for disaster risk reduction.	Dedicated financial support and continuity.

*Each indicator was rated on a 3-point ordinal scale where 1 = weak/non-existent, 2 = partial/developing and 3 = established/functional.

Table 2: Preparedness and mitigation scores (pre–post disaster evaluation).

Province	Preparedness (pre)	Preparedness (post)	Change (post - pre)	Mitigation (pre)	Mitigation (post)	Change (post - pre)	Improvements
Aceh	1.0	3.5	+2.5	1.2	3.4	+2.2	Establishment of regulations, standard operating procedures and HR capacity building programs.
West Sumatra	1.2	3.0	+1.8	1.5	3.1	+1.6	Hospital standards improved; rapid response teams formed.
Central Sulawesi	1.4	2.6	+1.2	1.3	2.5	+1.2	Coordination improved but logistics and hospital readiness remained low.

personnel and delayed mobilisation during emergencies, inadequate medical supplies and damaged infrastructure in remote coastal districts as well as inconsistent incentive mechanisms for emergency responders, particularly in Central Sulawesi. These findings align with regional assessments emphasising that resource fragility and governance fragmentation remain significant determinants of weak disaster health resilience in Indonesia's coastal zones.

Discussion

This study provided a comparative evaluation of local health system responses to major disasters in coastal Indonesia and revealed how crisis experiences stimulate institutional adaptation and policy reform. The pre–post evaluation demonstrates that, while all provinces selected for this study made measurable progress in preparedness and mitigation, disparities remain in governance effectiveness, coordination and resource allocation. These findings reinforce the understanding that disaster resilience in health systems depends on both structural capacity and adaptive governance.

Health system resilience and adaptive governance

The observed improvements, particularly in Aceh and West Sumatra, indicate that exposure to severe disasters can catalyse governance reforms and institutional learning. This finding aligns with Kruk et al. (2017) and Hanefeld et al. (2018) who emphasise that resilience arises not only from resources and infrastructure but also from the capacity of institutions to learn, reorganise and adapt following crises. Similar to experiences reported in post-earthquake Nepal and the Philippines, Indonesia's post-disaster recovery process shows how health governance structures evolve towards more formalised coordination and regulatory mechanisms (Nuzzo et al. 2019).

Adaptive governance in decentralised systems often faces fragmentation and unclear mandates that hinder rapid decision-making. In Central Sulawesi, for example, weak vertical coordination between provincial and district health offices constrained the mobilisation of medical personnel

and logistics during emergencies (Aldunce et al. 2015). This governance challenge is similar to 'coordination barriers', a common obstacle to effective disaster management in a multi-level governance context (Howes et al. 2020).

In line with previous studies on coastal community resilience, these findings indicate that governance reform and community engagement are crucial. However, previous studies focused on community adaptation (Fisher and Orchiston 2024), whereas this study highlights the central role of health facility resilience and institutional learning to maintain preparedness. Although previous research has highlighted community adaptation strategies (Elis and Bajracharya 2023), these findings show that improvements in regulatory frameworks and crisis units are indeed necessary, but they are not sufficient without simultaneous investment in logistics and hospital preparedness.

The findings underscore the importance of logistics capacity and the readiness of the healthcare workforce as part of local disaster response capabilities, particularly in terms of the availability of medical supplies and effective coordination among healthcare personnel (Carmody 2023).

Communication gaps during disasters are a major obstacle to coordinated health responses, especially in decentralised systems where information must move quickly between agencies and levels of government (King and Gurtner 2025). The challenges observed in Central Sulawesi reflect this broader pattern.

Integration with the Sendai Framework and the Global Disaster Risk Reduction agendas

These findings resonate with the priorities of the Sendai Framework particularly the call to 'Build Back Better' and enhance institutional readiness for future hazards. Integrating health systems within broader disaster risk governance contributes directly to Priority 4, Enhancing disaster preparedness for effective response, and Priority 2, Strengthening disaster risk governance. Resilient health systems are both a prerequisite and an outcome of effective disaster risk reduction implementation (Gnanapragasam et al. 2016; Oostlander et al. 2020).

In this study, provinces that institutionalised crisis management units and established clear standard

operating procedures after disasters demonstrated higher improvements in preparedness scores. Organisational learning and standardisation of response mechanisms are key determinants of institutional resilience (Sharifian et al. 2017). However, persistent shortfalls in financing and human resources suggest that Indonesia's health sector remains largely reactive, with limited investment in pre-disaster risk reduction.

Institutional learning and post-disaster adaptation

The results highlight that post-disaster recovery can serve as a critical window for institutional transformation (Djalante 2019). Aceh's extensive post-tsunami reconstruction, supported by national and international collaborations, produced lasting improvements in policy, coordination and capacity development. By contrast, Central Sulawesi's recent experience illustrates the ongoing challenge of transforming short-term humanitarian response into sustained governance reform.

The differences across provinces underline the importance of continuous monitoring, evaluation and learning loops within local health governance. Embedding evaluation mechanisms into post-disaster recovery processes allows institutions to capture lessons, revise policies, and strengthen resilience over time (Nuzzo et al. 2019).

These findings contribute to the growing discourse on the climate–disaster–health nexus. Climate change intensifies coastal hazards such as floods, storm surges and tsunamis, compounding the health effects of disasters (Ebi and Luchters 2021). Strengthening local health systems is central to building adaptive capacity in climate-sensitive regions. Resilient health systems must integrate climate adaptation, early warning systems and community-based surveillance to reduce mortality and morbidity (Robinson et al. 2024). From this perspective, Indonesia's coastal provinces represent frontline laboratories that link environmental hazard management with health system strengthening. Future strategies should align disaster risk governance, climate adaptation and health resilience policies into a unified framework; an approach increasingly recommended by global disaster risk reduction and planetary health agendas (Gnanapragasam et al. 2016; Ebi and Luchters 2021).

Policy and practical implications

Local governments should embed health crisis management units within formal administrative structures, ensuring that coordination persists beyond post-disaster recovery periods. Routine simulation exercises, emergency drills and pre-positioned logistic stockpiles should be mandated for high-risk provinces. Partnerships with academic institutions and NGOs can sustain continuous capacity development (Hanefeld et al. 2018).

Provincial governments should incorporate resilience indicators into regional development plans, linking health, environment and infrastructure policies. This would operationalise the concept of adaptive governance across sectors and scales (Aldunce et al. 2015). Ultimately, enhancing local health system resilience requires long-term governance commitment, consistent funding and institutionalised learning. Strengthening these pillars will allow coastal regions to better anticipate, absorb and adapt to the growing frequency of environmental hazards. Previous studies emphasise that regulatory improvements must be supported by specific financing mechanisms, as demonstrated by the Coastal and Estuarine Risk Management Program, which funds long-term mitigation and coastal infrastructure protection (Stone 2022). This is consistent with these findings that governance reforms alone are insufficient without parallel investments in health system logistics and facility preparedness.

Limitations

This study relied on secondary data from the Ministry of Health's Health Crisis Center profiles, in which preparedness and mitigation scores were completed by provincial and district officials. As these assessments are self-reported, they may be subject to assessor bias and may result in either over- or under-reporting of actual capacities. Additionally, variations in indicator interpretation and differences in training or familiarity with standard operating procedures across provinces may lead to inconsistencies in scoring. The assessment data recorded in official reports may therefore not fully reflect the quality or consistency of on-the-ground implementation. These limitations may introduce variability in measurement. However, the Health Crisis Center profiles remain the only standardised national dataset available for longitudinal comparison of local disaster preparedness.

In cases where a province experienced more than one disaster during the study period (e.g. an earthquake followed by flooding or an earthquake followed by a tsunami), the assessment did not distinguish the effect of each individual event. This is because the Health Crisis Center profiles report preparedness and mitigation scores at specific reporting intervals, which inherently capture cumulative institutional learning and changes resulting from multiple disaster exposures. As a result, the 'post' measurement reflects the combined effects of both major and minor disaster events rather than changes attributable to a single incident. While this approach is consistent with the structure of the available national data, it represents a limitation because the analysis cannot identify the specific contribution of each disaster event.

Conclusion

This study assessed the resilience of local health systems in 3 disaster-prone coastal provinces of Indonesia of Aceh, West Sumatra and Central Sulawesi by comparing preparedness and mitigation capacities before and after major natural disasters. The results show that disaster experiences triggered positive institutional changes, including stronger regulations, the establishment of crisis management units and improved coordination mechanisms. Nonetheless, significant gaps remain in logistics, trained personnel and inter-agency coordination. This highlights that policy reforms do not automatically translate into operational readiness. These findings reaffirm that resilience depends not only on infrastructure and resources but also on continuous institutional learning and adaptive governance.

From a policy perspective, strengthening local health-system resilience must become a sustained component of Indonesia's environmental hazard governance. Integrating health crisis management within the framework of disaster risk reduction consistent with the Sendai Framework and the Health System Resilience approach will help preparedness become institutionalised rather than reactive. Continued investment in training, financing and data-driven evaluation is essential to maintain progress beyond post-disaster recovery cycles. Future studies should extend this work through longitudinal and spatial analyses to capture how local health systems evolve and adapt under compounding climate and disaster pressures.

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An institutional framework for flood risk mitigation: a systemic redevelopment approach

Peer reviewed

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Introduction

Globally, disasters have hindered hard-won developmental strides of several nations and indicates a growing trend in vulnerability (UNDRR 2019; CRED 2023). Risks are emerging from changes in geomorphology, population density and land use, which has exacerbated flooding in urban areas (Andjelkovic 2001; Tierney 2012; Hallegatte et al. 2013). The renewal of urban centres has necessitated the replacement of old infrastructures but this rarely keeps pace with rapid urban sprawl. While urban redevelopment is crucial, limited consideration of baseline information and construction-related activities may exacerbate flood effects. Disaster risk governance research explores the interconnected roles and complex cultural-cognitive, regulative or normative interactions between institutional actors, social processes and structures in varying settings including urban and regional sustainable development (Renn and Klinke 2015; Klinke and Renn 2018; Renn 2020). A key approach is to build 'resilience' – a term that describes the capacity and ability of individuals and communities to adapt, resist and recover from shocks (Renn and Klinke 2015; Djalante 2012; Hegger et al. 2016). While resilience is crucial in the ability to bounce back from the negative effects of hazards, Ben Wisner argues its interpretation as a concept that should 'illuminate' rather than 'obscure' (Ahmed et al. 2020). Despite the efforts by governments to localise international frameworks, there is limited emphasis on defining a path for institutional discourses on flood risk governance. This widens vulnerability gaps globally, and specifically in the context of Africa (Wisner et al. 2014; van Niekerk 2015; Toinpre 2020).

Disasters are not natural; they are products of hazards and vulnerability that develop over time due to complex interactions between human and natural spheres (Cutter et al. 2015; Kelman 2025). Hence, as systemic effect of disasters and climate change undermine

Abstract

The unprecedented nature of flood impact on populations globally is a challenge for government organisations. Similarly, the consequences of inaction to address rapid urbanisation, unequal economic development, regulatory defiance, resource constraints, flood risk reduction policy gaps and other forms of systemic risk is coming at a huge cost to individuals, the private sector, governments and communities. The complex, uncertain, interrelated and multi-dimensional nature of flood risk necessitates the redevelopment of established urban centres of heritage, cultural and economic significance, which leaves behind residual risks that undermine the efforts of international humanitarian development initiatives and governments to address pre-existing risks. Using a qualitative approach involving semi-structured interviews from public sector organisations and international non-governmental organisation projects, this paper argues for a systemic redevelopment of institutional approaches to flood risk reduction. This is achieved through thematic analysis of participant views on institutional pressures and the nature of interacting systems and arrangements influencing flood mitigation responses and access to social and self-protection. This paper offers a framework that provides insights valuable for rethinking non-structural approaches to flood risk governance.

existing social, economic and environmental pillars of sustainable development, reducing systemic risk can promote resilience and sustainable development (UNDRR 2022). This study identified the root dimensions of flood effects and explored institutional pressures necessitated by the desire to attain better flood risk governance. This study took a constructivist philosophical approach using semi-structured interviews with people in the south-eastern region of Nigeria where flooding and gully erosion are high. The framework developed from this study offers insights for researchers and policymakers to design and develop initiatives that facilitate multi-sectoral responses to flood risk mitigation.

Literature review

Disaster risk governance challenges in developing countries

Quarantelli (2003) showed that just as developing countries have their share of hazard effects, developed countries are also hit hard resulting in increased rates of urban vulnerability. Hazard events include bushfires, cyclones and floods in Australia (Dowdy 2020; Davy and Sarre 2020), floods in New Orleans in the USA (Dixon et al. 2006), earthquakes in Japan, notable in Fukushima that resulted in a nuclear power plant accident (Ohnishi 2012) and the 2004 Indian Ocean tsunami that affected the Asia-Pacific region (Birkmann et al. 2010). Severe droughts and floods have also affected Mozambique, South Africa, Tanzania and Nigeria on the African continent (Nkwunonwo 2016; van Niekerk 2015) with consequences necessitating a shift in the traditional forms of response to disaster risk management (UNDRR 2019; Paton and Buergelt 2019). These changes are evident in the commitments by countries to the 2030 Agenda on Sustainable Development,¹ New Urban Agenda,² Agenda for Humanity,³ Paris Agreement on Climate Change⁴ and the Sendai Framework for Disaster Risk Reduction⁵ implementation (Twigg 2015; Renn et al. 2018; UNDRR 2019). These frameworks have translated into national, regional and local level policies, initiatives and programs to forge a clear path for actualising resilience.

According to Wisner et al. (2014), Twigg (2015) and Toinpre et al. (2018), vulnerability has been associated with a lack of access to power, structures and resources that influences devolution of power and risk prioritisation. Reflectively, issues such as political under-representation of vulnerable groups, societal attitudes, resource constraints and outdated land use and land management policies persists (Wilkinson et al. 2014; Toinpre 2020). These lags have necessitated the need for good risk governance that depends on the right balance of institutional commitment from governments and other stakeholders in DRR (Renn 2015; van Niekerk 2015; Hegger

et al. 2016). Founding and contemporary studies in disaster risk echo the ‘unnaturalness’ of disasters as a product of anthropogenic interactions (Mileti 1980; Quarantelli 1986; Holling 2001; Toinpre 2020). Limited capacity for communities to anticipate, prevent, mitigate or respond to risks also extends timeframes required for communities to rehabilitate or bounce back from shocks. Structurally, the use of engineering works can contain floodwater through reservoir storage, reduction of runoff velocity, dam spillways to regulate the flow of water downstream or levees, culverts and dykes (Twigg 2015; Andjelkovic 2001). Conversely, flood risk mapping, flood insurance, flood sensitisation campaigns, land use zoning, flood vulnerability assessment, flood modelling, forecasting and early warning etc. can be supplemented to inform design, development, use and maintenance of structural measures (Andjelkovic 2001; Jha et al. 2012; Twigg 2015).

The environmental features of some locations increase vulnerability. These include impermeable surfaces, saturated land and soil infiltration capacity. Flood intensities may be influenced by river basin characteristics (i.e. area of basin, aspect of altitude, bifurcation ratio) and network characteristics (i.e. nature of drainage patterns) (Andjelkovic 2001). Due to excessive rainfall, heights of floodwater and area of inundation may result in longer floodwater recession times. Figure 1 shows how recovery is largely influenced by slope, soil and other load sediment characteristics.

Figure 1 suggests the use of bio-based construction materials such as bamboo; bio-retention systems; natural vegetative buffer measures such as grass filter strips, mulching, terracing and sedimentation basins as well as other runoff farming techniques using crop varieties at various slopes and gradients as ‘best management practices’ (Prosser and Karssies 2001; UNEP 2023). Although these and other flood risk mitigation actions exist, constraints that are institutional and climate change related add to the challenges for governments (Toinpre 2020), academia, environmental management experts, value engineering teams, construction and project management specialists and hydrologists to foster risk reduction, adoption and adaptation strategies (Andjelkovic 2001; Gajendran et al. 2024; Siva et al. 2024).

Figures 2 and 3 show other watershed and erosion control treatments such as erosion control blankets and turf reinforcement mats used in transportation (i.e. bridge or road) infrastructure construction to reduce flooding and water damage.

1. 2030 Agenda on Sustainable Development, at <https://sdgs.un.org/2030agenda>

2. New Urban Agenda, at <https://habitat3.org/the-new-urban-agenda>

3. Agenda for Humanity, at <https://agendaforhumanity.org>

4. Paris Agreement on Climate Change, at <https://unfccc.int/process-and-meetings/the-paris-agreement>

5. Sendai Framework for Disaster Risk Reduction, at www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030



Figure 1: Agro-based technique to reduce stormwater runoff.

Source: Pexels©, free to use licence

On the African continent, hydrometeorological hazards are common. However, floods, droughts and cyclones are prevalent (van Niekerk and Wisner 2014; CRED 2023). Floods have affected millions of people around the globe (CRED 2023; UNDRR 2023) and these events have been associated with causes such as rapid urbanisation and limited capabilities to predict, adapt and recover from shocks (Pelling and Wisner 2012; Jha et al. 2012). Other factors have also been associated with deteriorating drainage infrastructure and increased rates of development in flood-prone locations (Nkwunonwo et al. 2016).

Flood vulnerability and effects on urban environments: an African context

Trends in urban growth especially in parts of Asia and Africa have been influenced by urban risk reduction. By 2050, it is predicted that around 2.5 billion people will be urban dwellers and 90% of this growth will be on the Asian and African continents (UN-DESA 2018). Demographic changes necessitate changes for people, development and the environment (Nagendra et al. 2018). These factors exacerbate exposure to climate change in terms of embodied and operational carbon emissions in the built

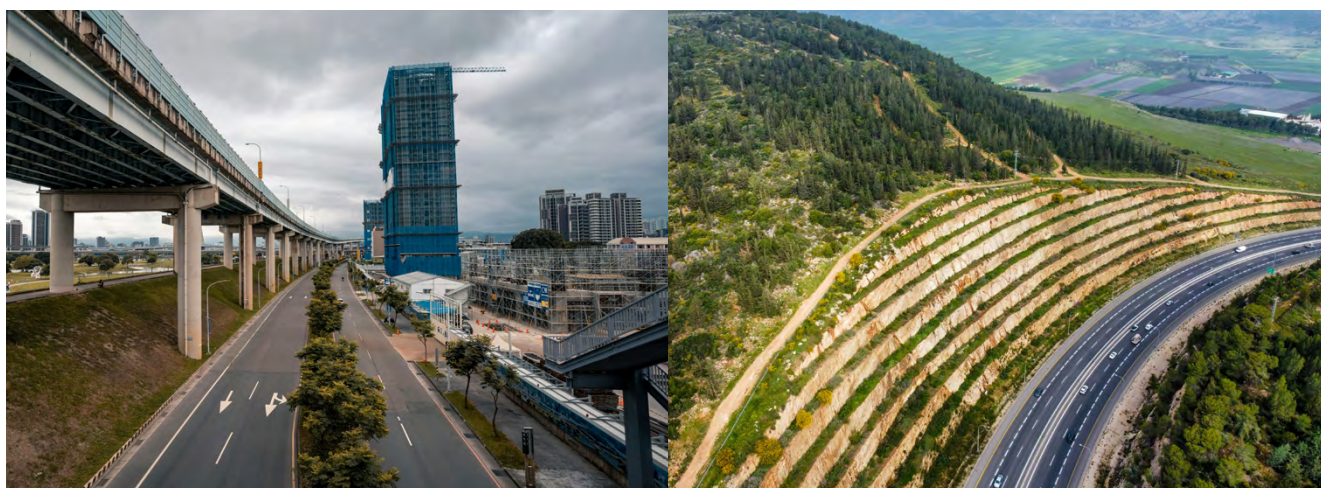


Figure 2: Highway slope channelling and stabilisation.

Source: Figure 2(a): Pexels© and 2(b): Pexels©, free to use licence



Figure 3: Vegetative filter strips/turfs for flood and erosion mitigation.

Source: Pexels©, free to use licence

environment (Siva et al. 2024). Others include biodiversity loss and environmental degradation particularly in countries in Africa such as Egypt, South Africa, Tanzania, Uganda and Sierra Leone (DeFries et al. 2010; Li et al. 2021; Prasad et al. 2022).

The African continent is particularly vulnerable to the effects of climate change as it experiences high temperatures in some regions (IPCC 2022; Li et al. 2022). Patterns of temperature and precipitation are also changing due to climate change with the increased magnitude of floods, drought and heat waves (Henderson et al. 2014, 2017). This is evident through hydrometeorological hazards that swept through Mozambique, Malawi and Madagascar affecting over 2.3 million people (CRED 2023). Thus, the effects of hydrometeorological hazards are being experienced more in municipal centres, affecting the livelihoods of people in those areas and socio-economic development (Ogbonna et al. 2020).

Exploring floods in Nigeria

Nigeria has 2 major rivers, the River Niger and the River Benue. Although the nature and causes of flooding in Nigeria have been widely discussed (Obeta 2014; Agbonkhese et al. 2014), these discourses have predominantly focused on flood risk mitigation using flood risk assessment maps and geospatial analysis tools focusing on communities and geopolitical regions.

In the past decades, Nigeria has experienced adverse effects of flash flooding, riverine flooding and urban

flooding. Floods in 2012 caused widespread social, economic and environmental damage in the country (Federal Government of Nigeria 2018). As nearly 50% of the population lives in urban areas, there is high demand for public infrastructure services to compensate for increasing migration pressures (Ogbonna and Albrecht 2015). According to the world risk report cumulatively represented over a 10-year period (see Figure 4), Nigeria has performed relatively well in terms of vulnerability reduction. The peak level of vulnerability was at 67.39% in 2015, while the lowest level was at 63.06% in 2022. Conversely, susceptibility was at the lowest point at 49.50% in 2020 but increased by 7.36% in comparison with 2025 records signifying more effort is required to strengthen Nigeria's strategic, operational and tactical approaches to risk reduction (Federal Government of Nigeria 2018).

Despite commitments to international frameworks, studies suggest the need for reinforced measures for flood risk mitigation to address vulnerability gaps (Federal Government of Nigeria 2012; Obeta 2014). The Nigerian Flood Recovery and Mitigation Assessment Report based on household surveys from 6 states (Anambra, Bayelsa, Delta, Jigawa, Kogi and Nasarawa) reports that 19.7% of respondents said that they were aware of government alerts about flood warnings and 8.3% said they were not able to evacuate before the floods (Federal Government of Nigeria 2023). The findings show that 89.6% of respondents indicated that they did not receive support during the floods compared to 1.5% of affected people who did receive support (Federal Government of Nigeria

2023). In the same report, when respondents were asked about future risk mitigation measures to be put in place, 62.9% reported not implementing any measures to mitigate future flooding. 25.5% reported construction and cleaning of drainage systems, and 10.7% use of early warning messaging systems to create awareness (Federal Government of Nigeria 2023).

As shown in Table 1 showing rainfall distribution across some selected cities, parts of the country usually experience excessive rainfall during the rainy season. Flood occurrences in cities show multi-sectoral challenges (Aderogba 2012; Olotu et al. 2015; Weddawatta and Ingirige 2012). As cities become locations for commercial activity, there is more pressure on public sector organisations to provide critical infrastructure services to address urban sprawl. This necessitates an institutional approach to flood risk governance.

Disaster risk governance architecture in Nigeria

Disaster risk governance has been widely acknowledged as a concept guiding stakeholder and multi-sectoral interactions and approaches for reducing risks (Hegger et al. 2016; Li et al. 2022; van Niekerk 2015; Renn 2015). One of the major disaster risk reduction approaches of the Federal Government of Nigeria has been to establish the National Emergency Management Agency (NEMA) by Act 12 of 1999, as amended by Act 50 of 1999.⁶ NEMA in Nigeria has a mandate to coordinate stakeholder activities, plans and programs as well as to research risk reduction (Federal Government of Nigeria 2012). The National Disaster Risk Reduction Action Plan (2006-2015) was also developed in response to the implementation of the Hyogo Framework for Action 2005-2015 (Federal Government of Nigeria 2018; UNDRR 2005) to identify hazards and assess associated costs, enhance public awareness, train, educate and enhance capabilities of State Emergency Management Agencies (SEMAs), Local Emergency Management Authority (LEMA) and communities (Federal Government of Nigeria 2012).

Figure 5 shows the interacting coordinating mechanisms (vertical and horizontal) between NEMA, the State Emergency Management Agency and the Local Emergency Management Authority. Two approaches used to coordinate and manage disasters are strategic and operational (Federal Government of Nigeria 2010). The strategic approach involves integration of emergency management programs with other activities of government and stakeholders while the operational approach encompasses the procedures involved in translating disaster risk management plans to field-level operations and activities (Federal Government of Nigeria 2018). These are reinforced by vulnerability and capacity analysis and vulnerability and risk assessment mapping. The Emergency Operations Centre is where the Incident Command System

is activated to coordinate response (Federal Government of Nigeria 2018).

Existing institutional efforts in Nigeria

Organised emergency and disaster management in Nigeria dates to 1906 when the fire brigade took on the statutory functions of coordinating humanitarian services during emergencies (Federal Government of Nigeria 2018). Although, according to the policy report there were no specific, well-formed institutional response mechanisms, this is because disaster response was considered a security issue (Federal Government of Nigeria 2018). This led to the establishment of the National Emergency Relief Agency in 1976 and NEMA in 1999. Existing policies and guidelines for flood risk governance include the National Environmental Wetlands, Riverbanks and Lake Shores) Regulations, S.I. No. 26 of 2009, the National Environmental (Watershed, Mountainous, Hilly and Catchment Areas) Regulations, S.I. No. 27 of 2009 and the National Environmental (Soil Erosion and Flood Control) Regulations, S.I. No. 12 of 2011 (Federal Government of Nigeria 2018).

While existing initiatives have been operationally critiqued, there are still avenues to consider updating existing frameworks and mechanisms. As identified in the National Capacity Assessment Report (Federal Government of Nigeria 2012), this has been due to lags in evacuation and distribution of relief materials that has undermined existing efforts. Nonetheless, it may be unjustifiable to affirm that these institutional lags are responsible for the frequency of floods and their effects. It is crucial to examine institutional interactions that can identify, assess and address flood risks. This approach enables researchers and policymakers to unravel and develop mechanisms for social protection and self-protection as exemplified in the Pressure and Release Model, Access Model and Sustainable Livelihoods approach to development (Wisner et al. 2014).

6. National Emergency Management Agency (Establishment, etc.) Act, at placng.org/lawsofnigeria/print.php?sn=297.

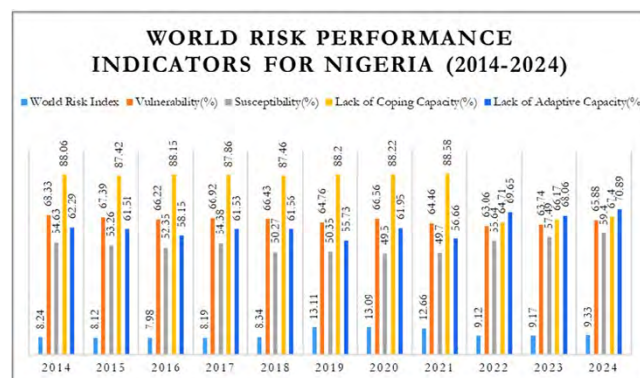


Figure 4: World risk performance indicators for Nigeria.

Source: Compiled from world risk reports 2015 to 2025. See Bündnis Entwicklung Hilft at <https://weltrisikobericht.de/worldriskreport>.

Table 1: Flood-related data in Nigeria.

Location	Mean width (metres)	Highest experienced height (metres)	Mean frequency (per annum)	Mean longest duration (days)
Lagos metropolis	747.00	11.88	10	25
Abuja (FCT)	163.00	6.20	5	4
Ibadan	521.45	9.20	3	7
Owerri	124.04	8.21	5	7
Asaba	125.00	7.88	6	10

Source: Adapted from Aderogba (2012), p.6

Methodology

Data collection

Qualitative research involves worldviews and assumptions that inquire into the meaning individuals ascribe to a social problem. It involves the use of interviews to gather data in a natural setting (Creswell and Poth 2016; Creswell and Creswell 2017). This research is based on an extensive literature review and analysis of data obtained from 41 semi-structured interviews and a focus group discussion. However, for the purpose of the study, the unit of analysis was organisations. Seven of these organisations were public sector organisations and 2 were international non-government organisation projects.

Ethics statement

A human research and ethics committee at the University of Newcastle Australia received and approved (H-2018-0015) application for the data collection for the study.

Institutional theory and its prowess in institutional analysis: approach to inquiry

While quantitative methods may rely on a large quantity of data for representativeness and validity for a given population, qualitative methods are based on people's

experiences and allow for smaller sample sizes using interviews, focus group discussions and document analysis (Creswell and Creswell 2017; Creswell and Poth 2016). As Yin (2009) suggests, case studies are suitable ways to explain and describe studies. Creswell and Creswell (2017) agree that case studies are a suitable form of inquiry, design and a unit of analysis. A phenomenological case study approach was used to obtain rich qualitative data encapsulating the experiences of participants in relation to flood risks, risk reduction and other interventions.

Data was coded using NVivo software and a 2-cycle (i.e. provisional and structural) analysis aided the identification and description of nodes depicting pressures and institutional interactions that supported framework development. Institutional theory is a theory acknowledged for shaping organisational behaviour and institutional outcomes (DiMaggio and Powell 1983). Having gained prominence, critiques have argued its use as a supplementary theory, its application in disaster risk management (specifically in flood risk governance studies) using the Pressure and Release Model, Access Model and Sustainable Livelihoods approach to development (Wisner et al. 2014; Toinpre et al. 2018; Toinpre 2020). Thus, by focusing on analysis at this level, actors can better understand decision-making processes while having dissimilar goals (Wooten and Hoffman 2017).

Sampling information

A non-random purposive sampling technique was employed. This involved the identification of participants whose statutory roles cut across disaster risk reduction and Climate Change Adaptation (CCA) policy design as well as planning and implementation. The justification was to involve participants that were able to provide the best information based on their experiences (Matthews and Ross 2014; Kumar 2011). Table 2 shows the number of respondents within each sampling level.

Study area and risk profile

The south-eastern part of Nigeria comprises 5 states of Abia, Anambra, Ebonyi, Enugu and Imo. Imo State has a land area of about 5,100 km² with an estimated population of

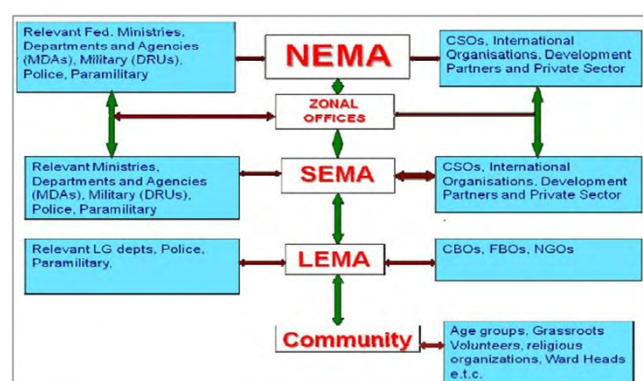


Figure 5: Nigeria's national emergency management coordination mechanism.

Source: Federal Government of Nigeria (2010), p.21

4.8 million (Okoro et al. 2014). Imo State was categorised as a 'Category B' state based on the severity of floods in 2012 (Obeta 2014). The state has a tropical rainforest climate with wet (April to September) and dry (October to March) seasons. It experiences a period of 'cold dry dusty winds' between December and February (Emeribeole 2015).

Imo State falls within the Niger Delta region and its age and economic history makes it one of Nigeria's oldest vibrant commercial centres (Duru and Chibo 2014). The state's capital city, Owerri, is characterised by 2 major rivers: River Nwaorie and River Otamiri (Okoro et al. 2014; Emeribeole 2015). Owerri was selected for this study given its geographic characteristics and river drainage morphology as the area surrounding this urban centre is characterised by gully erosion and urban flooding.

Findings

Risk governance is complex as it encompasses pre-assessment, characterisation and evaluation, appraisal, management and communication. This study analysed organisations that can be characterised as a disaster risk reduction organisational field. Institutional pressures were derived from the expectations and demands depicting the regulative, normative and cultural-cognitive elements. Participant responses reflected their experiences working in an organisation that has been shaped by their personal, professional and disciplinary ethics and pre-existing social and cultural perceptions.

Institutional pressures (see Table 3) were derived from the expectations and demands of participants. In terms of development planning, participants called for a review of approaches towards urban renewal projects. Some concerns emanated from limited attention to revisiting existing city masterplans to understand the

terrain, changes in development patterns and initial underground channels that conveyed stormwater. Some of these channels were allegedly altered in the course of construction works and had led to flooding. Participants suggested that preliminary risk assessments, baseline studies or environmental audits could have identified affected areas and resulted in unclogging or updating drainage designs to address urban and flash flooding.

One respondent said:

The causes of flooding in Owerri are numerous. But one of them is the inadequate drainage patterns or systems. When Owerri master plan was drawn, the number or concentration of buildings in Owerri was not how it is today. So as time went on, development, other activities have come up, and presently it happens that the drainage system that is supposed to be conveying water from one place to another is no longer adequate compared with the number of concentration of buildings and most of those drainage systems have been damaged.

Respondent 11

Another aspect was to update land use management and zoning plans required to advise citizens about avoiding development in flood-prone areas. These areas require funding and inclusion in budgets and sometimes where these considerations are not included, it creates new risks for contractors, engineers, site managers and project specialists executing city development or urban renewal projects. On the other hand, timely budget approvals and funding mechanisms that provide appropriate on-site vehicles, regular servicing and maintenance of monitoring of compliance fleet, on-site bonuses, upgrading tools, equipment and software for site analysis and other welfare packages are crucial to motivate them to

Table 2: Sampling information and organisational characteristics.

Governance level	Specialisation	No. of respondents
Federal level	Emergency management, coordination and disaster risk reduction policy intervention	2
	Environmental standards and regulatory enforcement	3
	River basin management	6
State level	Urban development planning	5
	Environment and natural resources management	3
	Public utilities and infrastructure	10
	Emergency management coordination and DRR policy intervention	1
Local level	City Council development	5
International non-governmental funded projects	Disaster risk reduction/Climate Change Adaptation flood, erosion, watershed management and rural access mobility	6
Total		41

Source: Adapted from Aderogba (2012)

perform their statutory functions. This is reflected in one participant's response:

The signing of budgets on time is a very important factor because they have their financial year and construction is something that should take a minimum of 6 months. Most times where they award the contract, they will expect the contractors to finish under two months. Now they have not signed the budget, and they have not brought out appropriation ... You can also imagine getting to terrains that are so bad, I cannot use my Camry vehicle there, it has to be a Hilux, so when we cannot move any further sometimes we take a rough estimate, which is wrong.
Respondent 13

Critical issues such as limited consultations and inclusivity in decision-making also resulted in conflicts that hinder project implementation. These range from project site inspection at the initial stages of the project to completion and commissioning, as indicted in the following:

The government should go through due process and allow professionals in the ministry to be involved. When they do so, the problem of flooding will be a thing of the past. A way forward is involving us in all the construction projects so that when contractors are making mistakes we can stop them.
Respondent 23

According to participants, this requires continuous commitment and involvement of public sector organisations in supervision, monitoring and evaluation exercises of ongoing projects to ensure the quality of construction. This will require continuous professional development to update officials on best practices through training, workshops, courses and certifications. Capacity-building programs and continuous professional development programs are crucial for promotion within the sector. One response was:

We dearly need workshops and other competency-based programs. We have manpower needs, and this is what we have been lacking for years now. Only few people can now do this, but they have to fund themselves ... there is an annual performance and review form(s) we fill every year that captures target, performance, impediment ...
Respondent 28

Participants suggested that mindset shifts could be achieved through inter-organisational networking and collaborative partnerships where knowledge can be shared among professionals who have gained unique skill sets.

Table 3: Institutional pressures for flood risk mitigation.

Expectations and demands	Nodes generated	Sources	References
Development planning and control		3	5
Funding		18	25
Professional development		8	11
Inter-organisational networking		10	14

Discussion

Demystifying the influence of institutional pressures on flood risk governance

While risks may be intensive, extensive or recurring, their manifestations exist in socio-cultural, economic and political interactions that can exacerbate vulnerability (Holling 2001; Wisner et al. 2014; UNDRR 2019). Research including Twigg (2015) and Wisner et al. (2014) suggests that these factors shape societal attitudes and influence the environment that people live and work in.

As illustrated in Figure 6, the Pressure and Release Model (Wisner et al. 2014) frames vulnerability progression from root causes, pressures and unsafe conditions to disasters. The model shows the interconnectedness between micro-forces that are socially constructed (Oliver-Smith et al. 2017). Thus, the need to define societal systems and how organisations can manage and respond to multiple and conflicting logics (A in Figure 6). As defined by Scott (2013), 'institutions are cultural-cognitive, normative and regulative elements that together with associated activities and resources, provide stability and meaning to social life'. Institutional actors create, maintain or disrupt institutions and collectively redefine, reconfigure and question the status quo through institutional work (Suddaby et al. 2016). Organisational fields enable open dialogues, reinforce codes of conduct and reassess values, norms and expectations (Greenwood et al. 2002) (B in Figure 6). These aspects shape the dominant institutional logic, which influences organisational field response (i.e. strategic, operational or tactical) and the rationality behind people living in high-risk locations (C in Figure 6). By integrating regulative, normative and cultural-cognitive elements into existing strategies, policies and programs as enshrined in institutional arrangements, statutory organisations can offer better development planning and funding diversification. Oftentimes, the less obvious underlying structural and systemic issues that affect people's livelihood sources as well as access to credible information necessary for their protection is influenced by these interactions (IRGC 2018; UNDRR 2019; UNDRR 2022).

Inflationary pressures due to the scarcity of necessities creates cost-of-living pressures (World Economic Forum

2023). Wisner et al. (2014) describe this as a marriage between the natural and social where the separation of both represents a failure to understand the burdens posed by hazards (Wisner et al. 2014). Both aspects necessitate the critique of economic globalisation, the principles of neoliberalism manifested through structural adjustment and other human capital development programs implemented in developing countries (van Niekerk and Wisner 2014; Twigg 2015). These discourses focus on addressing risk governance from the notion of 'human security' and 'social protection' as well as structural deprivation and economic hardships posed by endemic systemic issues and disasters. Hence, the focus is on undertaking development in a manner that respects people's freedoms, geographical sovereignty and fundamental human rights (Altman 2004; Sen 2014).

A major frontier for this has been the United Nations Office for Coordination of Humanitarian Affairs (UN-OCHA). While these issues imply a need for strategic steps towards human empowerment, funding through access to flood protection incentives, credible and reliable income generating schemes, skills, training and competency building remains a crucial aspect for governments as well as humanitarian and civil organisations (D in Figure 6).

Just as resourcing for disaster risk reduction is crucial, empowerment through human capital development is equally relevant. This approach requires access to resources for self-help, insurance and other personal and collective measures. As 'access to safety' is important to reduce vulnerability, it is also important to distinguish between 'social protection' and 'self-protection'. The former is provided by entities that operate above the household level, while the latter is provided by and for the household. Both aspects include food security programs for wellbeing and affordability to adopt preventive measures (Wisner et al. 2014; Twigg 2015). The Food and Agriculture Organisation⁷ and the United Nations International Children's Emergency Fund⁸ have been a reliable resource for food security by tackling food shortages, malnutrition and ameliorating hazard effects. Additionally, non-monetary interventions such as safety nets and social capital are crucial for shaping and facilitating institutional responses (E in Figure 6). Finally, risk communication is an interactive process, and it spans campaigns, advocacy and education to debates (National Research Council 1989; Twigg 2015). Thus, as there is no one-way formula or approach for communicating risks, it is crucial to include stakeholders in conversations about flood risk (Balog-Way et al. 2020). Interorganisational collaboration and networking, and professional development, as identified in the nodes generated, can be fostered through the identifying and harnessing resources from statutory organisations within the organisational field.

Although, collaborative digital platforms and interactive media tools, apps, maps and other communication tools are used in risk communication, source credibility is important, and authorities could implement cyber security and data protection initiatives to ensure the safety of communities and individuals (F in Figure 6). These approaches will assist governments to assist households to implement and take responsibility to reduce their risks while operationalising existing frameworks to harmonise and strengthen institutional disaster risk reduction efforts at larger scales. Subsequently, contemporary approaches that engage stakeholders in flood risk mitigation approaches such as the Fuzzy Cognitive Mapping (FCM) and Group Model Building simulations to support decision-making in events of cloudburst rainfall can be adopted (Dartée et al. 2023; Lopez-Gunn et al. 2023; Jørgensen et al. 2023).

Conclusion and recommendation

Disaster risk governance is multi-faceted, and given its complex nature, it is crucial to clearly define and examine causative factors and the influence of institutional interactions at all levels. As disaster risks are socially constructed, it is important to identify residual and emerging risks. This study identified coercive, normative and mimetic pressures that are inherent in public sector organisations and international non-government organisations. It was found that interactions are driven by the legitimacy-driven nature of organisations to access funding streams that create platforms for collaborative flood risk reduction projects. The study considered the city of Owerri because of its geographical features, institutional resilience and urban redevelopment initiatives. While considering floods as a single hazard, flood risk governance should consolidate on multi-hazard design and development of capacity and capability development frameworks and resourcing mechanisms to protect individuals and communities. These frameworks need to address the rights and obligations of stakeholders and organisations in risk reduction activities and engagement.

Although disaster risk management is well received in most developing countries, issues such as limited buy-in from the private sector persists. As Nigeria has been a member of the Global Facility for Disaster Risk Reduction and Recovery's consultative group, the country's position puts it at the forefront of charting a long-term policy and strategic direction for multi-hazard risk mitigation and framework implementation. As a signatory to the Paris Agreement on Climate Change⁹ and the Sustainable Development Goals,¹⁰ emphasis is on reinforcing the attainment of sectoral targets and indicators to foster health, industry and

7. Food and Agriculture Organisation, at www.fao.org/home/en

8. United Nations International Children's Emergency Fund, at www.unicef.org

9. Paris Agreement on Climate Change, at <https://unfccc.int/process-and-meetings/the-paris-agreement>

10. Sustainable Development Goals, at <https://sdgs.un.org/goals>

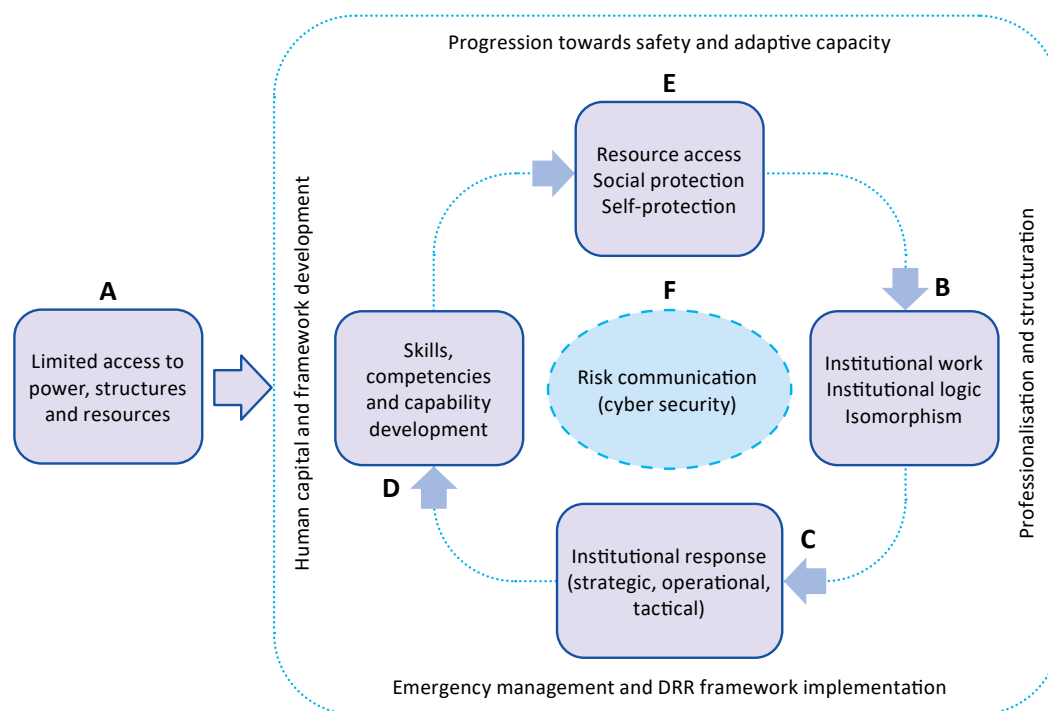


Figure 6: An institutional framework for flood risk governance.

infrastructure development; decent work and economic growth; inclusivity; climate action; land management and partnerships to achieve them. Initiatives such as the World Bank's National Erosion and Watershed Management Program¹¹ and Sponge-Cities initiative in China are noteworthy in this implementation. Examples of good risk governance practices and lessons management are the STAR-FLOOD project in Sweden, Belgium and Netherlands.¹² Other reports such as the *Views from the Frontline Beyond 2015*,¹³ Global Assessment Report,¹⁴ Intergovernmental Panel on Climate Change (IPCC)¹⁵ and International Risk Governance Council (IRGC)¹⁶ can be localised.

The Addis Ababa Action Agenda¹⁷ has played a key role in outlining fiscally sustainable and nationally appropriate measures to realign financial flows and in reducing structural risks to inclusive growth. With continuous support from the United Nations Development Program, United Nations Environment Program and African Development Bank, funding mechanisms can be established to address underlying structural issues providing support for the public sector while making concerted efforts towards exacerbating flood vulnerability and impact. As one of the early adopters of disaster risk reduction in Africa, Nigeria needs to consider examining issues that undermine government efforts to empower and protect citizens from the underlying causes of vulnerability while considering sustainable development. Hence, a need to harness skills, competencies and values in a manner where people and organisations can be harmonised as a 'disaster risk reduction organisational field'. As identified

in countries such as Australia, issues of duplication of risk reduction efforts, as identified in its Royal Commission into National Natural Disaster Arrangement Report of October 2020¹⁸ and the updated most recent version, can be addressed to harness resources. While this study identified the need to adopt a robust institutional approach to flood risk mitigation, it primarily considers rethinking an institutional approach and recommends further research considering other approaches. Such approaches may require pragmatic philosophies involving larger sample sizes conducted across states to simulate or predict the effect of intervention ranging from 'acceptable/satisfactory', 'low/minimal' or 'limited response/intervention' by statutory organisations on critical infrastructure and other societal systems. This is crucial for enhancing deployment of governance capabilities and has the propensity to create awareness as well as in the design and management of robust strategies for interventions to reduce disaster risks.

11. National Erosion and Watershed Management Program at, <http://documents.worldbank.org/curated/en/728741468334143813>
12. STAR-FLOOD, at <https://cordis.europa.eu/project/id/308364/reporting>
13. *Views from the Frontline Beyond 2015*, at www.gndr.org/wp-content/uploads/2022/11/View-from-the-Frontline-Report-2015-English-Version.pdf
14. The UN Global Assessment Report on Disaster Risk Reduction (GAR), at www.undrr.org/gar
15. The Intergovernmental Panel on Climate Change (IPCC), at www.ipcc.ch
16. International Risk Governance Council, at <https://irgc.org>
17. Addis Ababa Action Agenda, at www.un.org/esa/ffd/publications/aaaa-outcome.html
18. Royal Commission into National Natural Disaster Arrangement Report of October 2020, at www.royalcommission.gov.au/natural-disasters/report

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Getting the message: emergency management leaders talk leadership

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Abstract

There is a general view that emergency management leadership needs to adjust to a changing organisational context and a capacity to respond to heightened risks. Adding the voices of leaders into this agenda may assist that transition. This report details findings from interviews with 2 emergency management leaders with experience of leading through significant emergency events in Aotearoa New Zealand. Based on what these emergency management leaders say comprises good leadership, gaps in leadership practice identified include a need for critical reflection on the value of experience as a qualification for leadership and awareness of the importance of effective leadership outside the response phase of emergency management.

Introduction

Perspectives on how to improve emergency management leadership draw on a variety of evidence to convey a variety of messages. Changes in the organisational context of emergency management require the need to move away from 'command-and-control' styles of leadership in favour of open communication and collaborative leadership (Vaugh Jr. and Streib 2006). Learning from emergency events has informed areas of leadership weakness, including identification of specific competencies to be strengthened such as the capacity to balance decisiveness with flexibility and the ability to both inform and motivate responders (Kapucu and Van Art 2008; Murphy and Dunn 2008). Insight gained from providing professional development for emergency management leaders has identified a need to confront 'unconscious habits' and a tendency for leaders to favour 'dysfunctional momentum' over well-informed action or in-action (Owen et al. 2005). Leadership competencies have been proposed based on leader responses to predetermined

options (Van Wart and Kapucu 20). The broader understanding of the qualities displayed by effective leaders has spilled over to the understanding of emergency management leadership, while recognising the distinctive demands on leaders operating on the 'edge of chaos' (Boin et al. 2005).

Whatever the source of evidence, leadership matters whether dealing with routine, previously encountered emergencies or out-of-scale events. (Trainor and Velotti 2003). Leadership qualities must adapt to the different phases of mitigation, planning, response and recovery. This context is arguably another reason to draw evidence widely in assessing the state of emergency management leadership.

This report provides findings of interviews with leaders in emergency management who were involved with the responses to 3 'out-of-scale' weather events that affected parts of the North Island of Aotearoa New Zealand in early 2023, collectively referred to as the North Island severe weather events (for a description of these events see Boshier 2023). This provides a cohort of managers with experience of leading through extreme events that overwhelmed the scope of prior planning and enables informed comment on effective leadership by those whose leadership has been tested. The aim was to determine what might be learnt about leadership in general rather than to evaluate their actions during the specific events. Existing reports provide evaluations of how well emergency management services performed during the events to which this sample of leaders are linked (Bush 2023; Bush 2024; Ombler et al. 2024).

The Aotearoa New Zealand context

Comment on the context from which the interviewed leaders are drawn is appropriate to gauge the relevance of their responses

to leadership in other environments. As elsewhere, emergency management in Aotearoa New Zealand essentially involves a small core of full-time emergency management professionals coordinating support from a wide range of other agencies (including police, fire, medical, local government, lifeline utilities and volunteers) to prepare for and respond to emergency events.

The *Civil Defence Emergency Management Act 2002* (CDEM)¹ establishes a national framework comprising the National Emergency Management Agency (NEMA) and 6 regional Civil Defence Emergency Management Groups (CDEM Groups). NEMA acts as steward, operator and assurer of the emergency management system (Department of the Prime Minister and Cabinet 2023). CDEM Groups coordinate planning and activity across the '4Rs' of risk reduction, readiness, response and recovery; preparing communities for emergencies. CDEM Groups lead the response and recovery to local emergencies, while NEMA takes charge in the event of multi-regional and severe events.

As well as the oversight of NEMA, use of the Coordinated Incident Management System (CIMS) 3rd edition (Officials' Committee for Domestic and External Security Coordination 209) provides a standardised set of organisational structures, procedures and protocols that are designed to enable multiple agencies to work together. Countries including Australia have similar frameworks.

The decentralised structure places significant decision-making power at the regional level, to which all the interviewees were attached, which can enhance localised response efforts but requires strong coordination at the national level during large-scale events (Scott and Tarazona 20). Under-funding and under-staffing are long standing and continuing challenges with, for example, NEMA's capacity to oversee CDEM preparedness undermined by the frequent need to redirect resources to actual involvement in emergency responses (Department of the Prime Minister and Cabinet 2023). With a reliance on coordinating multiple agencies, failures to establish situational awareness and a common operating picture have been identified as weaknesses in Aotearoa New Zealand's management of emergency events (see Faafoi 208; Technical Advisory Group 208; NEMA 2024; Ombler et al. 2024).

The interviews and content analysis

Interviews were designed to gather participant views about what constitutes good leadership based on the leadership they had exercised and experienced during the 2023 weather events. The participants were recruited by approaching CDEM managers known to have been involved in the responses to the 2023 North Island severe weather events and asking those managers to propose other participants. In total, 2 managers were recruited who all had held a leadership position during one or more of the 2023 events (in the study, advisors overseen by 3 of the

managers who were also interviewed but not included in these findings).

This study approach differed from other investigations of emergency management leadership that aim to identify the tasks and competencies associated with effective leadership (e.g. Boin et al. 2005; Van Wart and Kapucu 20). Rather than seeking to propose specific skills that need to be possessed, this study was concerned with leadership behaviour in terms of how leaders interact with others and how they deploy their skills. As far as possible, interviews gathered unstructured responses with a minimum of prompts or questioning to capture the authentic voice of the leader.

Using content analysis, interview responses were coded and grouped into one of 8 themes on the basis that a theme captures a distinct topic mentioned by multiple respondents. Table 1 details the themes and representative interviewee comments.

Theme: Roles and responsibilities

An understanding of the role and responsibility and that of the people leaders interact with is viewed as a basic starting point for good leadership. Clear job demarcations are favoured to give authority to act, provide ownership of tasks and to define the skills needed to fill a leadership position to ensure the right people are appointed to roles

Participants had no doubt about their own roles and responsibility, referring to the CIMS framework as helping to demarcate positions and give authority to act. Rather, the issue was highlighted as a problem when dealing with people whose responsibility was unclear. In particular, the actions of elected officials were highlighted as an example. One participant said:

There were monumental messes created in the heat of the moment ... in this case, coming back to what I said, it's about needing to have credibility and understand the architecture and the framework that you're working within.

Theme: Supportive and solutions-focused leadership

In a high-pressure, high-stress environment, it was recognised that staff get overwhelmed and being supportive of the team is critical for effective leadership. Support is shown by providing direction, reminding teams of the overall emergency response objectives, discouraging fixed mindsets and instilling awareness that situations can change rapidly. One participant said:

It's really important for leadership to sort of pull people back and say, 'hang on a minute, what are we trying to do here, we need to make sure that everything we're doing is working towards this big picture and we need to all know what the big picture is.

1. www.civildefence.govt.nz/strategy-capability/legislative-framework/cdem-act

Table 1: Dimensions and indicators of local health system resilience to disasters.

Theme	Codes*	Representative quotes
Roles and responsibility	1, 3	'When you are working even in the CIMS framework, you the controller be a controller ... as a controller, you need to understand that we've got those risks at the moment. Those are your responsibilities and I can [support] but I need [you] to understand where you sit.'
Supportive and solutions-focused	4, 26	'People need to feel supported when they respond to an event. I think one of the massive roles of someone in a leadership position is just to actually look after everybody and sort of instill the sense that we've got this.'
Relationships	5	'It's about your relationships and ability to establish rapport. If you're someone who has to be acting at leadership level, whether it's formal or informal, you need to provide advice.'
Decision-making	22	'You want someone who's really good at making decisions and making calls under really high pressure with little to no information.'
Wellbeing	35	'If you're not looking after the welfare of the team, then the team struggles.'
Communication style	6, 19, 25	'The main thing is to get information out early and then match the appetite with your output and ideally get ahead of it. You do that by recognising where people are at.'
Directive style	24, 29	'There is a really strong school of thought, and I can see that it's necessary that in a command centre, you need command, also when in a control centre you need control, you do need to have that command-and-control type approach ...'
Phases of responses	12, 13, 14, 15	'Leadership is required throughout, I think. The better way to sum it up would be the style of leadership that's required differentiates through the entire response cycle.'

*Explanation of how codes are allocated and amalgamated into themes are expanded in Conley (2024).

'Leading from the side' is seen as a preferred leadership style and seen as enabling others to perform by getting alongside them and participating in problem-solving to get things moving with the goal of raising team performance. The need to tailor support to the characteristics of the group was noted in the study. People drawn into an emergency response for the first time need direction as to how their skills can be applied in an unfamiliar context. A leader appointed from outside to add resource to a local team may need to build respect and confidence and show support by sharing the workload than they might when leading a home team. One participant said:

When you deploy, you don't have the core knowledge ... so you need to defer to the people who have been there before. Even if they were doing a terrible job, which they're probably not, but even if they were, they know more about what's going on than you do. You've got to defer to them. So, what I would tend to do is get alongside the person and say, 'Okay, look how I'm here to help. What are you most in need of?'

Theme: Relationships

Separate to supporting staff, establishing relationships and rapport with individuals was highlighted by participants. Leaders talked about displaying knowledge, clear communication, stressing people's strengths and not trying to take over other people's roles as rapport building techniques. One participant said:

It's about your relationships, and ability to establish rapport. If you're someone who has to be acting at leadership level, whether it's formal or informal, you need to provide advice.

Theme: Decision-making

The conditions under which leaders during emergencies make decisions and how they respond was critical to effective leadership. The general context in which decisions are often required mark leaders out. One participant said:

A lot of decisions and calls being made off limited information and things that need to be decided or done very quickly.

Two responses to the decision-making challenge highlight a willingness to take inputs widely and the willingness to pivot as new information comes to light. Participants said:

It wasn't made by this one person in a room by himself ... He was talking to his function managers, he was talking to Iwi, he was talking to everybody. He got all the information that he could possibly get at the time, and he was like, Alright, let's do it.

If I'm making a decision based on the best possible information I have at the moment. If an hour later someone comes in and goes hey we've just had people on the ground this is actually not that and so on and so forth. I'm not going to double down, like, no this is what we're doing. For me that new information that's come in there completely changes the whole reason we made that decision in the first place. So, you ... kind of need to pivot ... and the ability to be able to do that and do it fast, I think is a really good skill to have.

Theme: Wellbeing

A human element to emergency management leadership is caring for the emotional and physical health of team

members. This received comment as something to attend to and as a weakness in some leaders. One participant said:

I've worked with leaders in response, not necessarily in my function, but you can tell that they are absolutely wearing themselves ... they're trying to have that hero mentality and won't regulate themselves and their teams underneath them do the same, and then everyone gets burnout.

Theme: Communication style

Participants elaborated on the need to communicate directly with team members, favouring standup briefings and open forums and keeping information as simple as possible. One participant said:

I like to establish, like, open forums and relationships that mean that having discussions is easy, I don't want to bark orders at people. Also making sure that you consider the full range of people that might need something.

While open and collaborative communication is endorsed, participants acknowledged that communication may need to be recorded to allow for review of the actions taken. One participant said:

The key thing that comes up in every inquiry and after-action review, is that everything which influences your decision-making needs to be documented.

The need for clear, concise and orally communicated information was also mentioned and related to how affected people may have reduced ability to process messages and think clearly when in high-stress situations. It was discussed that leaders need to provide clear direction and create space to allow people to process information at their own pace. One participant said:

It's one of those things where our brains don't think clearly and so the leader needs to be that voice of reason, try and keep all 3 sailors rowing in the same direction.

Theme: Directive style

While comments suggested leaders are converts to a collaborative leadership style, participants also endorsed a directive style of leadership when circumstances require a forceful approach. The need for quick decisions and immediate response justify a directive style, akin to command-and-control. However, the participants acknowledged that people will respond differently to being commanded. One participant said:

Everyone will respond differently, [to a directive style]. Depending on how they feel at the moment ... if you've ever had someone who's totally flustered by the whole thing, that person will probably respond really well to a style of leadership that is like 'okay, I'm in control and we are in control, we're going to be providing good stuff and good directions here.

Directive leadership is described as needing to be fair but not at the expense of remaining approachable and is best used as part of a larger shift in leadership behaviour. While comments support a sensitive use of directive leadership, it was suggested that some followers may be accepting of the style such as people from a military or police background. One participant said:

In emergency management, what you have is people whose day jobs are something completely different and who are suddenly being plucked from a business-as-usual space, which is not command-and-control and then going into an emergency control centre, we're suddenly expected to operate quite differently.

Theme: Phases of response

Given the context of these interviews, the responses focused on leadership during the immediate response phase of emergency events. When asked about leadership over the full cycle of emergency management responsibilities, there was a consensus that leadership behaviour should adapt to the prevailing situation. One participant said:

I think once people get into a bit of a rhythm ... you can change your tact a little bit, because once the incident has reached its critical mass, I mean, it ain't gonna get any worse, right? You know, when the rain stopped or the waters are receding or whatever. We still know that we've got that completely cut off base and that. We can think more around the logistics and in-depth sort of thing.

Broadly, there was agreement that while a directive style of leadership can be justified when decisions need to be made quickly to minimise risks, once the situation has stabilised there is scope for more collaboration and openness.

Implications for leadership development

Participants in this study endorsed a generally collaborative style of leadership including the willingness to seek continuous input into decisions with an awareness that leaders need to be prepared to change course as the situation develops and information improves. This finding endorses much of what is generally presented as good practice. While these findings are for a group and do not assess individual leaders, there is a consensus in the responses.

Related to leadership development, 3 gaps in responses gathered in this study suggest areas worth attention. First, in the context of roles and responsibility, there was reference to experience as being the basis for taking on responsibility and exercising good leadership. There was little or no mention of training and professional development even with respondents acknowledging that

gaining experience is hard when emergency management responses are infrequent. The implication is that experience trumps any other source of learning. One participant said:

Working in the academic space, you know, there's only so much that book learning will do for you in this kind of thing. I mean, I'm from an academic background, so my approach to learning things is to sit down and read stuff ... That only gets you so far, because until you apply it won't embed itself into your mind, it's that whole thing where you retain the information that it's useful for your brain to know.

Such outlooks underscore the challenge for providers of training and development to overcome a view that experience is an innately superior form of learning. It also points to the use of experiential training methods that puts trainees in simulated real-life situations (see Johnson 2017 for further discussion of experiential methods for leadership development).

Second, the status afforded to experience identifies a risk that encourages too much emphasis on past events and actions and over confidence that emergencies progress in familiar ways. Recourse to past experience can become a risk when assumed familiar emergencies develop in unanticipated ways (see Murphy and Dunn 2018). Ideally, as well as reference to the value of experience, these interviews would have elaborated how experience had changed a leader's behaviour, improved their ability to develop situational awareness and avoid the 'dysfunctional momentum' as identified by Owen et al. (2015). We cannot say that these are not happening among managers, but it appears the value of such learning should be given more emphasis.

Third, leadership during the recovery phase of an emergency response may justify further attention. While participants endorsed a shift to collaborative leadership styles during the recovery phase, there was little evidence of thinking about how else leadership during recovery differs from that in the initial response to an emergency event. Others have pointed out that political and economic factors are more apparent during recovery due to the damage incurred to communities and infrastructure, indicating a need for leaders to be skilled in negotiating funding which, in turn, can require engagement with a wide range of agencies (Johnson 2017). This shows the need for strategic leadership that recognises that recovery continues for significant periods after an event and introduces inconsistencies in the effectiveness of the disaster response without an alignment of visions and influence to secure resources. In the context of Aotearoa New Zealand, the need to strengthen capacity for recovery leadership has been identified and, to recognise that this, leadership needs to be present from the outset

(Officials' Committee for Domestic and External Security Coordination 2019). While the study sample was small, the interviews tend to endorse this recommendation.

Conclusion

This study was undertaken believing that the voices of leaders tends to be missing from discussions of how emergency management leaders need to adapt to the changing environment in which they operate. It opted to engage with leaders in an unstructured interview to avoid prompting responses that would direct respondents to our conceptions of what might be good leadership practice. The approach has revealed a set of leaders with a view of good leadership that emphasises a supportive style of leadership, based on relationships rather than authority, a capacity for decision-making and problem-solving under pressure, maintains staff wellbeing and that recognises the importance of effective communication. As well as these qualities, knowing when to revert to a directive leadership style emerges as another aspect of good leadership. Clearly there is still scope for variation in the precise understanding of leadership qualities, but the broad consensus revealed by the interviews does suggest a starting point for leadership development that assumes an acceptance of a collaborative style of leadership. By omission, the interviews also suggest 3 areas in need of attention: openness to ongoing leadership development as important alongside experience as a qualification for leadership roles; encouraging reflection on experience to develop a recognition that familiar responses may not work in future events, and strengthening awareness of how leadership needs to adapt as disaster response moves to recovery.

Developing from the latter point, further research could build on this study by investigating how the understanding of good leadership practice varies according the 3 main phases of an emergency response (initial, containment and recovery). This would clarify awareness of how the phase of the emergency response can affect leader behaviour and the skills that need to draw upon. Questions specific to the phase of a response could also open discussion over the need for and ability to make a transition in leadership styles.

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One Big Idea: reframing rescue with communities at the heart

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New South Wales

Introduction

In October 2025, the University of New South Wales hosted 'One Big Idea', a showcase of select UNSW academics, researchers and PhD students to share how they could change the world as we know it. Selected participants had 10 minutes to share how one concept in their field of expertise could revolutionise life on Earth.

Imagine: a drone pans across the sky, you begin to see where the floodwaters end and the dark clouds begin. What were green sugarcane fields are covered in grey water that matches the sky. Out of the corner of your eye, a dark block floats into view. As you begin to descend towards it, there are people standing on what looks like the roof of a building. They're trapped. They're surrounded by water. And they're waiting for you to rescue them. They wave frantically as they realise help is on the way.

But it didn't have to be this way. We can – and should – flip the script to think about evacuation as forced movement (McAdam 2025). That subtle shift opens us up to ways of preventing and responding to disasters that are attentive to people's experience and knowledge of their communities. It also opens us up to not only recognising but prioritising the traditional knowledge and sovereignty of First Nations peoples. Our laws and emergency management plans must recognise this reality and they must support and enable it.

The people trapped on the roof are not a one-off. They are waiting, just like hundreds of other people who could not be immediately reached by overwhelmed emergency services teams, for example in Texas and Malibu in the United States and Taree and Mallacoota in Australia (Tillman and MacKenzie 2025; Casas and Yousif 2025; Lee et al. 2025; McGuire and Butt 2020). And it's not just floods. During

2025, many people were unable to leave their homes before wildfires tore through Los Angeles. In 2020, the Royal Australian Navy evacuated over 1,000 people and 150 pets that had fled to a beach in Mallacoota on Victoria's southeast coast as bushfires moved into the town.

In each case, evacuations undoubtedly saved lives and minimised harm. They became necessary as hazardous conditions overwhelmed communities. But those conditions, and our susceptibility to them, are not inevitable. With climate change, hazards, like floods and bushfires are increasing in intensity and frequency (DHA and NEMA 2023). Events will unfortunately continue to unfold. And, just as in these cases, emergency services personnel won't be able to assist every single person (Australian Climate Service 2025). Not because they're not trying; but because the numbers are simply too great.

Evacuation as forced movement

This situation appears bleak, but our ability to prepare for and prevent the need for evacuation doesn't have to follow the same script. We can chart a path forward that places people and communities at the centre of how disaster response is done. If we take a step back, evacuations are not equivalent to rescue. Instead, people are forced to move either as a result of the hazard itself or by some other decision-making authority (McAdam 2025). This is true regardless of whether a Navy ship scoops people off a beach or people leave before the disaster hits.

When we look at evacuations only as a way that people are rescued from dire situations, it makes it hard to think about them in any other way. However, at their core, evacuations are a process that forces people to move from one place to another, even when it appears voluntary. Evacuations are deeply disrupting

and involve different risks of harm for different people and communities (Oliver-Smith et al. 2017; Howard et al. 2017; McAdam 2025). They are a process that may not end in people returning home quickly – or at all.

Many people in Taree, for example, have still been unable to return home (Burgess and Fisher 2025) and they won't be able to until their homes are rebuilt or they move again. For them, and countless others, evacuation isn't temporary. During the summer bushfires of 2019–20, some Aboriginal and Torres Strait Islander people were turned away when they tried to access evacuation centres and supplies (Williamson 2022). People with medical conditions, or who don't have documents matching their gender identity, may regard staying put as their only option (Yamashita 2024). Farmers, and people with animals, may see limited, or no choice about whether to leave or stay (AIDR 2024).

Putting people at the centre of planning, response and funding

Traditional knowledge and local experience are critical to disaster response (DCCEEW 2025). Law and policy must change from placing 'combat agencies', like police, at the centre of planning, response and funding. Instead, people – and especially First Nations peoples – should be at the centre of planning, response and funding.

Rather than rescuing people trapped on a roof, reducing the risk of disaster should empower people and resource them directly (Sharpe 2021; Cretney 2015). This may mean individual payments to assist residents to evacuate ahead of a cyclone or flood. It may mean providing building and other materials to communities to make structures resilient to bushfires. Or it may mean providing vehicles to assist people who do not have transport. Local communities, whether a town or a group of friends, and First Nations peoples as traditional custodians of the land, are best placed to know their needs and context (Copes-Gerbitz 2024). People are key to preventing the need for evacuation and they can be key to disaster response, if properly empowered and supported.

During the 2019–20 summer bushfires, local Indigenous community organisations worked on the ground to provide evacuation assistance (Williamson 2022). This included providing food and shelter to evacuees. In many parts of the country, First Nations peoples were first responders who filled a gap in response without being funded to take on that role. They repurposed schools as evacuation centres because someone had a key to the building not because it was set up for evacuations.

During Hurricane Katrina in 2005, neighbours called one another to provide information or to urge evacuation (Li et al. 2008). Before evacuating, they knocked on each other's

doors to check if anyone was there, looking out for elders and people without vehicles. Neighbours packed and evacuated together, sharing cars and other resources.

In response to the 2011 tsunami in Japan and the Fukushima disaster, people throughout the country measured radiation in the air, food and soil (Kenens et al. 2020). They couldn't access the type of local data that they needed to make informed decisions about whether their food was safe nor whether they should evacuate because of dangerous levels of radiation. These data were made publicly available in a variety of ways via websites, word of mouth, organised meetings, whatever worked in a particular community.

In Australia, there is a decentralised and Indigenous-led movement of cultural burning; a fire management practice with a long history (Williamson et al. 2020). The movement has collaborated with land and fire agencies across Australia to re-establish First Nations peoples participation in fire management. Yet, to date, that work has mostly been incorporated into existing processes of land and fire risk management.

In 2017, bushfires tore through more than one million hectares of British Columbia. The Tsilhqot'in Nation was heavily affected (Verhaeghe et al. 2019). In the face of a rapidly spreading fire, one community decided to remain and defend their territory. The decision to not evacuate was based on traditional knowledge such as the topography of the land and forest as well as past fire and weather behaviour and traditional decision-making arrangements. The Tsilhqot'in successfully defended their territory despite lacking the equipment and funding of the Royal Canadian Mounted Police. That experience reinforced the importance of First Nations knowledge and relationships to the land. This highlights the need to provide material support and funding directly – as well as decision-making authority – to those on the front lines.

The knowledge and the capability of First Nations to lead is often sidelined by current legal frameworks. This must change. Rather than filtering funding, equipment and materials through layers of bureaucracy and people, communities and First Nations should be at the front of the line because they are on the frontlines.

Building a new system with people as partners

Shifting our thinking of evacuation as forced movement should lead us to think about people on both sides of the equation. For example, law enforcement agencies should not lead evacuation planning in over-policed or marginalised communities (National Justice Project 2025). State or regional organisations may not be best placed to make decisions for a community they do not know (Copes-Gerbitz 2024).

So, where does all of this leave the people standing on the roof, surrounded by floodwater? If we saw the people as partners and not just potential evacuees, perhaps they wouldn't have had to climb onto the roof, waiting for rescue. Maybe they would have had somewhere safe to go, trusted a warning that their house would be inundated or have been supported to relocate to higher ground before this flood or future floods.

People routinely point to family and friends, community and trustworthy information as vital during evacuations. Neighbours knock on doors to assist people to leave. Parents use open-source technology to check the real-time radiation levels in their homes. First Nations peoples rely on generational knowledge about fire behaviour and deep relationships to lands to prepare for and decide whether to evacuate. This isn't about leaving people to fend for themselves. And it's never as simple as just sending in a helicopter. Evacuating people isn't always the right move, but empowering people always is. Let's stop designing systems that rescue people after the fact. Let's start building systems that trust, resource, fund and place decision-making authority with people before evacuation becomes necessary.

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A living blueprint for sustainable emergency management volunteering

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Communities are changing and innovating, and emergency management organisations need to change and innovate with them.

Conventional forms of emergency management volunteering have served the emergency services well. However, changing communities and community contexts, digital and technological innovation, and the increasing frequency and severity of climate-induced natural hazard events means it is now critical for the sector to evolve. To achieve this, organisations will need to innovate and adapt in response to their dynamic context and leverage the opportunities change offers to strengthen their workforce and ensure the sustainability of volunteering.

Compression points are emerging across the sector that include:

- increasing demands for emergency management services and competition for volunteers
- increases in other forms of volunteering
- expansion of the volunteering role
- resource and time constraints in agencies and communities
- increased professionalisation of volunteering
- the need to build resilience and 'work with communities rather than for them'.

These factors are changing the social contract between communities and agencies as to the role they play across the PPRR spectrum. The changing psychological contract between organisations and their employees is resulting in new expectations as to how volunteers wish to work and their expectations of the organisations they choose to work for. This has resulted in a need to build new understandings and rethink formal and informal arrangements across the emergency management volunteering ecosystem.

Why national action has been elusive

'It has just felt like Groundhog Day. We keep doing things and nothing seems to change' (emergency management volunteering manager).

The emergency management sector has worked to address issues such as training, retention and recruitment. While there has been some progress in these areas, it has done little to address more entrenched issues and their root causes. One of the barriers has been the lack of enabling infrastructure to support national action. The systemic nature of solutions also presents challenges and has resulted in action paralysis due to 'over choice'. Patchy data, the lack of a comprehensive national picture of volunteering and the lack of visibility in relation to the contributions volunteers make have compounded this.

To achieve meaningful change requires sustained investment and commitment over the longer term and broad collaboration across government, communities and agencies. Central to this is the need to enhance the volunteering experience and build inclusive relationship between communities and the emergency management sector.

Building collaborative and connected pathways towards a sustainable volunteering future

It is not that people don't want to volunteer they just want to do it differently.

The Volunteering Blueprint has been a 2-year project that was initiated by the AFAC Volunteering Management Technical Group. This project was undertaken by Victoria University and funded by Natural Hazards Research Australia. It has been developed collaboratively with the group, community members and representatives from the volunteering sector. Its aim was to provide an evidence-based structure that would move the volunteering agenda 'Beyond words'.

We used a systemic approach that consolidated current research and industry knowledge and mapped the volunteering ecosystem and strategic landscape of the sector.

The Blueprint (Figure 1) provides a foundation to support a coordinated approach to sectoral action. It aligns and connects organisational and national strategic directions and initiatives through live documents that can be adapted to incorporate changes as they occur while maintaining focus.

Figure 2 shows the Blueprint strategic framework and provides:

- principles that outline the basis for an inclusive, respectful and ethical processes
- strategic directions that align with AFAC, organisational and Volunteering Australia strategies to enable tracking of progress over time and provide focus

- high-level guidance for practitioners including a maturity matrix to evaluate strategic directions
- innovation case studies.

The Emergency Management Sustainable Volunteering Blueprint: Interim Action Plan provides:

- a structure to show where initiatives are occurring so they can be coordinated across the sector
- a pathway to enhance the volunteering experience and build volunteering capability within emergency management organisations through innovation, education and learning.

The Emergency Management Sustainable Volunteering Blueprint: Support for practitioners provides:

- practical exercises and guidance to support connection to front line activities and program development with key components of the strategic framework
- guidance in relation to the use of tools such as the Strategic Blueprint Ecosystem and Maturity Matrix
- useful resources.

The Volunteering Management Technical Group have endorsed the strategic framework and took ownership of the Interim Action Plan. This research has contributed to the development of the National Emergency Volunteering Strategy being led by the New South Wales Department of Premier and Cabinet.

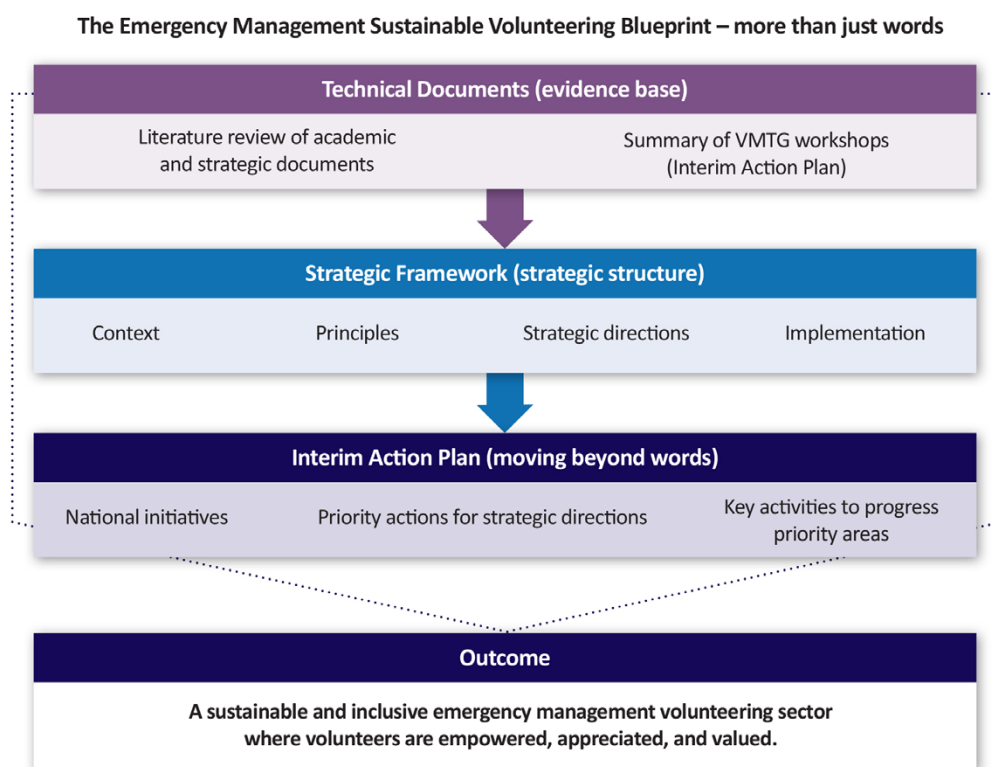


Figure 1: The Emergency Management Sustainable Volunteering Blueprint.

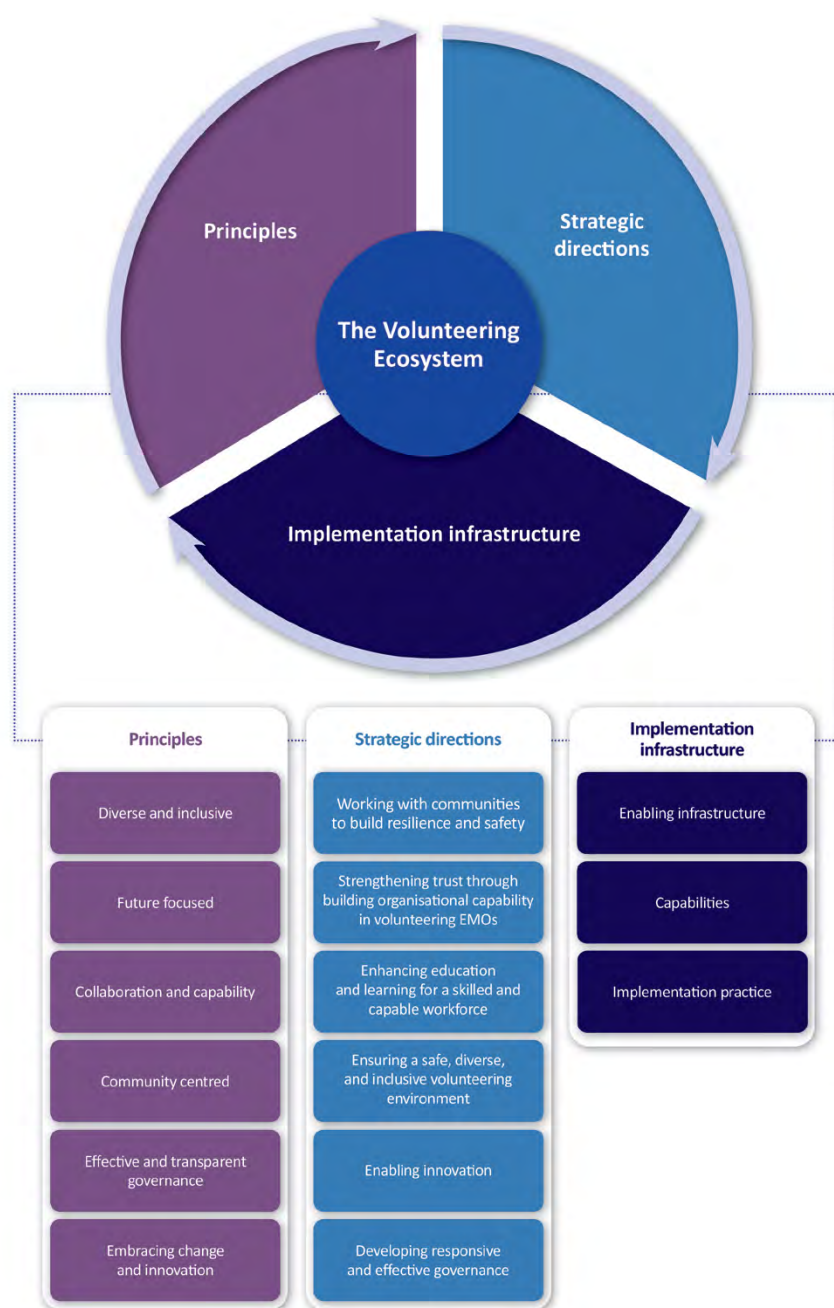


Figure 2: The Emergency Management Sustainable Volunteering Blueprint: Strategic Framework.

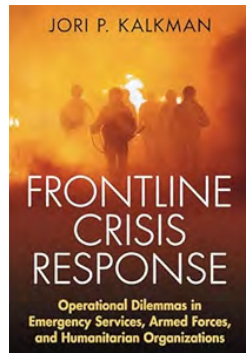
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Information on the blueprint and how it is informing national action is at www.naturalhazards.com.au/research/research-projects/emergency-management-volunteering-more-just-words.

Watch the NHRA webinar at www.naturalhazards.com.au/news-and-events/news-and-views/november-hazardous-webinar-2025-emergency-management-sustainable.

Frontline Crisis Response



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In *Frontline Crisis Response*, Jori Kalkman, an Associate Professor at the Netherlands Defence Academy, explores emergency service and military frontline response to uncertain and disorderly situations that temporarily destabilise power relations and impede centralised control over operational responders. A detailed and broad review of crisis response, guided by the author's findings from previous research, the book takes a somewhat different perspective to sense-making, complexity and coordination of crisis response than other established approaches of Australian and some international, military and emergency services. In doing so, the book provides alternate perspectives that can assist frontline personnel and decision-makers to expand their thinking with respect to this critical field.

Kalkman defines 'crisis' as any situation that is characterised by a physical threat, uncertainty and time pressure. Through this lens, he explores the effects and management of crisis to first responders and people at a tactical or operational level while also discussing concepts of incident and emergency management. Written in a similar style to Paul Grimwood's, *Euro Firefighter 2: Firefighting Tactics and Fire Engineer's Handbook*, Kalkman uses extensive references and supported citations that allow the reader to further explore concepts and arguments. At the same time, the text provides summary lessons and points for reflection at the end of each chapter that can assist educators and practitioners alike.

Readers of the text should approach it with an open mind and should not expect to see references to Endsley, Boyd or Snowden. Instead, readers are presented with 'adjacent' perspectives and views on situation awareness, sense-making and the resolution of complexity. Readers from Australasian emergency services backgrounds should also expect discussion and thoughts that present somewhat different approaches to crisis management adopted in Australasian Inter-service Incident Management System (AIIMS), the Incident Command and Control System Plus (ICCS+), or Crisis Appreciation and Strategic Planning (CASP) protocols.

Overall, this book provides interesting perspectives on crisis response that can assist readers familiar with Australasian emergency management practices to reflect on the subject using a different lens.

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