

Climate change as an emerging disaster risk in Australia and Oceania

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Introduction

Climate change is recurrently cited as the most important perceived challenge of this century (Intergovernmental Panel on Climate Change 2014; Watts et al. 2017). Yet, the perceptions of the risk of climate change, its societal impacts, ramifications and particularly the solutions needed to address it require further investigation.

This study profiles regional emergency and disaster management professional's perceptions of climate change as an emerging disaster risk in Australia and Oceania. We aimed to examine what evidence exists to support decision making and profile the nature, type and potential human impact of climate change as an emerging disaster risk in Australia and Oceania.

Method

Thirty individual semi-structured interviews with participants from nine different countries were conducted. All of the participants were engaged in disaster management in the Oceania region as researchers, practitioners in emergency management or disaster healthcare, policy managers or academics. Participants were interviewed to discern their perceptions of current disaster risk in the Oceania region and emerging disaster risks in the next decade.

Data collection was conducted between April and November 2017. Thematic analysis was conducted using narrative inquiry to gather first hand insights on their perceptions of current and emerging threats and propose improvements in risk management practice to capture, monitor, anticipate and control disaster risk.

This study used The Sendai Framework for Disaster Risk Reduction as a conceptual framework to examine emerging disaster risk in Oceania.

Results

The majority of interviewees viewed climate change as a risk or hazard. When this perception was explored further a breadth of impacts in Oceania related to climate change were described. Hazards identified included climate variability and climate related disasters; increasing infectious disease related to climate change; increasing heatwaves; climate issues in

island areas and loss of land mass; and trans-nation migration and increased transportation risk due to rising sea levels. A participant from Timor-Leste related that:

"We have already seen some evidence of the impacts of climate change, personally noticed difference in seasons, have seen significant new drought impact in East Timor."

An Australian participant described the effects of climate change on the natural environment and its relationship to disaster related to infectious disease; in particular,

"Climate change is increasing vector prevalence;"

The impact of climate change on basic needs was identified by a Pacific resident who voiced concern of the sustainability of small island states to support the needs of populations impacted by climate change. A concern of access to food and fresh water was expressed:

"Climate change causes migration due to food and water insecurity"

Moreover, a further respondent (Australian) described climate change as having an indirect, influencing affect across populations' vulnerability:

"Populations are vulnerable to emerging risks; overall vulnerability is increasing due to climate change with more hot days and less cool days."

When participants described why they thought climate change was a risk, human impact on the natural environment featured strongly in participant responses. Descriptors included:

'human development and its imbalance with nature'; 'increasing global warming influencing natural disaster risk'; and, 'manmade causes/manmade impacts on planetary health'.

Insights on how climate change supported risk analysis and decision making varied between respondents. Geography, societal change and political will were key factors described:

'The location of Oceania lends itself to these risks. What's reported seems to indicate that they are escalating in size and

population numbers are increasing therefore the footprint is increasing’.

This response is insightful in demonstrating that whilst Oceania has a natural disaster risk profile, the augmentation of natural disaster impact is related to both climate change and changes in population size and density.

Investigation of the relationship of society and governance in respect to disaster risk reduction and climate change produced findings that indicated challenges were perceived in upstream and downstream sections of communities. Whilst government inaction was voiced, it was also evident that there was a perceived lack of engagement at an individual level in some sectors of society:

“Government of the day not seeing them as a high priority in terms of mitigation due to cost, lack of government will to alter current human impact trajectory.”

“Society is becoming more modernised and therefore more vulnerable to a lack of technology when it fails...health systems are vulnerable in developed countries due to technology reliance and rapid/unsustainable urbanisation.”

“Weather, decreasing natural resources, affluent society have high expectations that may not be met post impact...the sense of community has reduced over years particularly in big cities, in condensed areas there is an increased risk of disruption to basic needs.”

When examining barriers to improvement in understanding disaster risk, interviewees identified challenges related to risk appreciation of slow impact events and inadequate measurement of the long term health effects of disaster:

“The use of the word disaster is the Achilles heel in risk assessment as it has a connotation that infers a large event rather than a small event or slow burning/onset or series of small events - terminology is important in ensuring event capture.”

“There is a lack of evidence to describe long term health effects associated with disasters and therefore investment in preventing or responding to these consequences. There is a lack of evidence for interventions and validation of them and little evaluation of determinants of risks associated with disasters - we need to look at determinants of an event not just the response.”

When examining solutions to improving disaster risk assessment a strong theme of community and individual engagement and responsibility emerged; particularly in reference to understanding and ownership of risk:

“Ensuring grassroots training on preparedness and response on the disaster risks that are relevant to those communities. Providing training to communities and ensuring plans are local and relevant.”

“Every community needs to own risk management strategy that is updated regularly with new and evolving knowledge. Urban planning needs disaster risk strategies built into them with detail. Then communicate these actions into the local population”

“Improve connectedness in communities, and knowing people and groups within them - this should be a function of disaster practice that creates trusted networks.”

Discussion

The Lancet Commission reported climate change as “the biggest global health threat of the 21st century” (Watts et al. 2017). This research investigated perceptions of current and emerging disaster risk in Oceania (Cuthbertson et al. 2019). The majority of respondents resided in Australia. They associated climate change as a primary current and emerging disaster risk that threatens the safety and security of communities. Climate change has been identified as future hazard in Australia (McAneney et al. 2009). The National Strategy for Disaster Resilience has included climate change within its scope following the 2008 Australian Prime Minister’s National Security Statement (Rudd 2008, Council of Australian Governments 2011).

The Sendai Framework for Disaster Risk Reduction notes the importance of climate change, identifying it as a driver of disaster risk and articulates its relationship to disaster risk reduction and disaster risk assessment with a specific call for action on climate change and variability (UNISDR 2015). This policy tone indicates the relationship between the Sendai Framework for Disaster Risk Reduction and the United Nations Framework Convention on Climate Change Paris Agreement, and is demonstrative of the need for collaboration across disciplines and practice for comprehensive disaster risk reduction activities (UNISDR 2015, United Nations 2015). Moreover, and directly related to the Oceania region, The Sendai Framework for Disaster Risk Reduction specifically identifies the vulnerability and risk of small island states for particular attention (UNISDR 2015).

The findings of this study are consistent with previous research describing the health impacts of climate change. The fifth assessment report of the Intergovernmental Panel on Climate Change (IPPC) has identified injuries, hospitalisation and deaths due to intense heat waves, fires and other weather disasters and changes in patterns and impacts of infectious

disease (International Panel on Climate Change 2014). Importantly the report notes that populations with low socio-economic status and pre-existing vulnerabilities are at greater risk of the impacts of climate change. Specific risks posed by climate change to populations in Oceania resulting in climate refugees have been previously reported by Weir et al who noted the intersection of climate change, conflict and disaster (Weir et al. 2011).

There is overlap between disaster risk reduction and adaptation to climate change strategies. The increasing severity and intensity of natural disasters impacts many communities sensitive to changes in climate. Whilst disaster risk reduction embodies an 'all hazards' approach, focus on climate change adaptation strategies is required where socio-economic vulnerability is increased due to climate change.

Conclusion

Climate change is perceived as a significant contemporary and future disaster risk in the Oceania region. Strategies for action identified by respondents include improved government and community engagement in risk understanding, ownership and mitigation; and improved understanding of the long term effects of disaster impact upon human health.

References

Council of Australian Governments, *National Strategy for Disaster Resilience*, A.-G. Department, Editor. 2011.

Cuthbertson, J, Rodriguez-Llanes, J, Robertson, A & Archer, F 2019, 'Current and Emerging Disaster Risks Perceptions in Oceania: Key Stakeholders Recommendations for Disaster Management and Resilience Building', *International Journal of Environmental Research and Public Health*, vol. 16 no. 3, p. 460.

IPCC 2014, 'Impacts, adaptation, and vulnerability, part B: regional aspects', Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge, United Kingdom and New York, 2014.

McAneney, J, Chen, K & Pitman, A 2009, '100-years of Australian bushfire property losses: is the risk significant and is it increasing?', *Journal of Environmental Management*, vol. 90, no. 8, pp. 2819-2822.

Rudd, K 2008, 'The first National Security Statement to the Australian Parliament', The Government of Australia.

UNISDR, *Sendai Framework for Disaster Risk Reduction 2015 - 2030*. 2015: 9-11 Rue de Varembé CH 1202, Geneva Switzerland.

United Nations 2015, United Nations Framework Convention on Climate Change, *Paris Agreement*.

Watts, N, Adger, N, Ayeb-Karlsson, S, Bai, Y, Byass, P & Campbell-Lendrum, D 2017, 'The Lancet Countdown: tracking progress on health and climate change', *The Lancet*, 2017, vol. 389, no. 10074, pp. 1151-1164.

Weir, T & Virani, Z 2011, 'Three linked risks for development in the Pacific Islands: Climate change, disasters and conflict', *Climate and Development*, vol. 3 no. 3, pp. 193-208.