

HOW RISK INFORMS EMERGENCY MANAGEMENT:

A STUDY OF THE INTERFACE BETWEEN RISK MODELLING FOR TSUNAMI INUNDATION AND EMERGENCY MANAGEMENT POLICIES AND PROCEDURES



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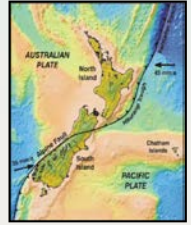
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SCENARIO

A tsunami generated by an earthquake within the Hikurangi Subduction Margin is probably a candidate for the most destructive tsunami New Zealand is to encounter ¹. And this is not New Zealand's risk alone; destructive tsunamis of this scale are also a major risk to Australia's coast ². However surveys have shown that understanding of tsunami risk and correct warning-response action is limited ³, and that there is a considerable distance to go to ensure adequate awareness and preparedness of individuals and communities ^{4, 5}.



RISKScape



RiskScape has been established to meet demand for a natural hazard impact and loss modelling tool meant for New Zealand conditions. The software combines hazard, asset and vulnerability modules through a data selection process to quantify a range of economic and social consequences and is designed to assist organisations and researchers with estimating asset impacts and losses from natural hazards.

This project will assist in reviewing how useful RiskScape is as a tool for informing local government and communities on tsunami risk originating from the Hikurangi Subduction Margin (as pictured).

<https://riskscape.niwa.co.nz/>

METHODOLOGY

Use RiskScape to model risk for an 'all of boundary' event at the Hikurangi Margin and potential tsunami wave height along the southern east coast of the North Island.

Use Participatory Action Research (PAR) with identified individuals in local government and the community to:

- establish levels of risk awareness (using RiskScape),
- observe how this risk awareness is acted upon,
- and reflect on the limiting or contributing factors for risk awareness, as per the research questions.

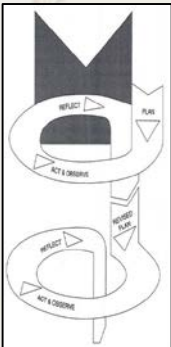
RESEARCH QUESTIONS

1. How is emergency management policy and planning informed by risk modelling?
2. How is risk modelling and assessment informed by emergency management?
3. How is risk communicated, understood, believed, embedded, and revised by government bodies as well as individuals and communities?
4. What are the factors that limit (or contribute to) risk awareness and understanding for individuals and communities?
5. What link do these limiting (or contributing) factors have with emergency management policy and procedures, and how can those policies and procedures be developed to overcome any limiting factors?

PROJECT AIMS

To understand how tsunami risk informs regional and local government emergency management policies and procedures, by reviewing the way risk information is used by planners and decision makers as well communities.

PARTICIPATORY ACTION RESEARCH (PAR)



This project will adopt a PAR method to interact with local government and communities. It will tie in with existing initiatives i.e. RiskScape review and MCDEM led Tsunami Exercise Tangaroa (being held in October 2016) to observe and reflect on how risk information is used via a combination of surveys and case studies.

Further revisions of the PAR cycle that fall outside the timeframes of this project can be managed by East Coast Lab – a multi-agency initiative that aims to increase understanding of the New Zealand East Coast plate boundary.

It is intended that emergency management organisations uses this PAR to develop better policy and procedures creating a more resilient community.

END USER BENEFITS

While it will focus primarily on tsunami risk, the insights gained from this project could be applied to a range of natural and man-made hazards. Understanding how risk interfaces with emergency management is significant because it better equips decision makers to develop emergency management policy and procedures that advances community resilience.

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2. Paton, D. (2009). Living on the Ring of Fire: Perspectives on Managing Natural Hazard Risk in Pacific Rim Countries. Journal of Pacific Rim Psychology, 3, pp 1-3 doi:10.1375/jppr.3.1.1
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4. Curry, C.S., Enjamilio, J., Girardo, D.O., Hensel, C., Leonard, G., Johnston, D. (2013) Tsunami awareness and preparedness in the Greater Wellington Region, Institute of Geological and Nuclear Sciences report 2014/10. 83p
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