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**Organisational responses to warnings of
impending hazards: What can be learned
from the September 2009 and February
2010 warnings in New Zealand?**

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Abstract

Organisational responses to warnings of impending hazards: What can be learned from the September 2009 and February 2010 warnings in New Zealand?

The purpose of this study was to investigate organisational response to two tsunami warnings issued for New Zealand in September 2009 and February 2010 following off-shore earthquakes: Samoa and Chile respectively. Communication was at the forefront of the investigation with the aim to discover how communication could potentially affect response, coordination and planning.

Four methods were applied using semi-structured questionnaires to obtain qualitative and quantitative information, literature reviews and reviews of technical and debriefing reports. Seventy nine organisations were approached to participate. Twenty five questionnaires were sent out to six organisations in various regions for staff to complete with 18 returned. Interviews were organised and were conducted, with 5 completed. One debriefing report provided relevant information and was treated as an interview.

The results of the study indicated the majority of respondents (71%) considered their organisational response to the tsunami warnings in 2009 were effective (53%) and very effective (18%). The majority did encounter problems during the September 2009 tsunami warning with 29% indicating a less than effective response. In 2010, improvements were seen with 44% indicating the response was effective and 38% thought it was very effective and 19% indicating it was less than effective.

Interagency communication was very effective for 14% in 2009; slightly increasing to 19% in 2010. In 2009 it was effective for 29%; increasing to 56% in 2010. Interagency communication was somewhat ineffective for 43% in 2009 reducing to 19% in 2010. Terminology was one issue raised by all respondents as this did cause confusion amongst response agencies.

Intra-agency communication was believed to be very effective (12%) and effective (41%) in 2009; improving in 2010 (31% and 50% respectively). Some (41%) who did believe intra-agency communication was somewhat ineffective in 2009; reducing to 13% in 2010. Some indicated it was ineffective in 2009 (6%) and 2010 (6%).

Planning issues were identified in 2009 by 71% of respondents and in 2010 this reduced to 64%. Others indicated no issues (28%) with planning in 2009. In 2010, 36% indicated no planning issues. The roles and responsibilities of the EOC and primary emergency services communication centres indicated more planning and transparency was required.

Coordinated incident management was required with 81% indicating it was fully utilised and 19% did not fully utilise or use coordinated incident management (CIMS) in 2009. There was little change in 2010 with only 80% fully utilising CIMS and 20% either not utilising it fully or not using it at all.

In 2009, 72% believed the warning to be a good reminder of New Zealand's vulnerability to natural disasters; dropping to 53% in 2010. In 2009, 39% believed it to be a good training exercise; increasing to 47% in 2010.

Interviewees indicated lateral and vertical communication pathways were not always implemented. Coordination was not always functional. The results also revealed that the warnings sufficed as a good training exercise due to the urgency and requirement to respond. This allowed organisations to test their procedures and identify gaps in knowledge and plans.

The principle conclusion was that communication can affect response, coordination and planning. Communication has to work in its entirety. When gaps appear in communication pathways, this has an effect on planning, response and coordination. All response organisations need to re-evaluate the current CIMS structure, training, terminology used, and communication pathways to improve response.

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LIST OF ACRONYMS

- CDEM:** Civil Defence and Emergency Management.
- CDEMA:** Civil Defence and Emergency Management Act 2002
- CDEMG:** Civil Defence and Emergency Management Groups.
- ECC:** Emergency Coordination Centre (see GEOC).
- CEG:** Coordinating Executive Group
- CIMS:** Coordinated incident management system.
- EMO:** Emergency management officer employed by the regional, district, or local council.
- EOC:** Emergency Operations Centre.
- GEOC:** Group Emergency Operations Centre
- IAP:** Incident action plan
- ICP:** Incident control point
- IMT:** Incident management team
- InterCad:** Computer method of sharing information between Fire, Police and Ambulance also known as I/Cad.
- L.A.:** Local Authority (a regional council or territorial authority - includes regional, city and district councils, and unitary authorities).
- LESLP:** London Emergency Services Liaison Panel
- MCDEM:** Ministry of Civil Defence and Emergency Management
- NCMC:** National Crisis Management Centre
- Sitrep:** Situation report
- SOP's:** Standard operating procedures
- 4R's:** Reduction, Readiness, Response, Recovery

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GLOSSARY

Adaptability. The ability to adjust easily to new or changing environmental conditions.

Auditability. A systematic assessment, especially of the efficiency of effectiveness of an organisation or process, typically carried out by an independent assessor.

Communication. Exchanging information between people or organisations by means of speaking, writing, or other common systems including technological devices such as paging, phone texting, public announcement warning systems.

Confirmability. Similar findings have been confirmed in previous studies.

Creditability. Bringing credit or worthiness to the research field.

Emergency Service Communication Centre. Also known as control rooms or dispatch centres where emergency calls are received and appropriate resources are dispatched to emergency incidents.

Intercad. A software programme used to provide incident reports to New Zealand Police, Fire and Ambulance services. These incidents can be updated informing each agency of updates to a situation where multiple agency events occur.

MCDEM. Ministry of Civil Defence and Emergency Management

Primary Emergency Services. For this thesis, primary emergency services include New Zealand Fire Service, New Zealand Police and Ambulance Service.

Risk. The chance of something going wrong and will result in loss occurring.

Risk Communication. The ability to exchange information pertaining to the risk to provide communities and organisations with the ability to make appropriate decisions appropriate to their situation, including when and where to evacuate.

System. A method or set of procedures for achieving inter- and intra-agency goals during multi-agency incidents.

Transparency. An honest way of doing things that allows other people to know exactly what you are doing.

Tsunami. A very large wave, or series of waves, caused by something such as an earthquake moving a large quantity of water typically in the ocean.