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**The application of risk analysis tools in Civil
Defence Emergency Management Planning in
New Zealand**

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requirements for the degree of**

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in
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Abstract

Civil Defence Emergency Management (CDEM) Groups were formed in New Zealand in response to the introduction of the CDEM Act in 2002. These Groups were required to prepare CDEM Group Plans within two years of their formation. These Group Plans were to be based on a risk management approach, and be consistent with a Director's Guideline issued by the Ministry of CDEM at the time the legislation was passed (MCDEM, 2002). The Director's Guideline recommended a process of risk analysis called the SMUG (Seriousness Manageability, Urgency and Growth) risk analysis tool. The tool was to provide CDEM Groups with a mechanism for a more detailed risk analysis process than a simple likelihood and consequence assessment as described in the Australian and New Zealand Risk Management Standard (AS/NZS 4360:1999).

Most CDEM Groups in New Zealand implemented the SMUG (Seriousness, Manageability, Urgency & Growth) risk analysis technique, or adapted the model to suit their own requirements. The reported benefits of using the risk analysis technique included greater engagement of a range of agencies with a role in Civil Defence Emergency Management, and greater understanding of the risks faced by each CDEM Group. However the limitations of the technique included over-reliance on the numerical rating system, inconsistencies of application of the model, lack of risk evaluation criteria, and difficulty of application.

CDEM Groups must revise their CDEM Group Plans by 2010 and it is recommended that future approaches allow flexibility for the purpose of risk analysis to acknowledge different levels of understanding of risk in different parts of New Zealand, and continue to involve a large range of agencies in the analysis process. The focus of future risk analysis processes should be on the consequences of hazard events, rather than the hazards themselves. Also, future risk analysis processes should remain qualitative if this is necessary to prevent CDEM Groups becoming over-reliant on numerical rating systems which convey a sense of accuracy often not proportional to the data upon which the analysis was conducted. Measurements of community vulnerability and resilience should also be incorporated into future CDEM Group risk analysis processes.

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