

The Framework for Effective Post-Disaster Reconstruction in New Zealand

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Abstract

New Zealand's vulnerability to natural disasters demands its proactive engagement in disaster management programmes so as to reduce risks and eventually increase its resilience to future events. Previous disaster studies indicate opportunities for improving recovery and reconstruction.

This research study adopts a tripartite approach to evaluate current reconstruction strategies for effectiveness, while also exploring improvement schemes within policies and regulatory provisions. These learning oriented evaluations would provide information and data relevant to support best practice guidelines that will be suggested for achieving more robust reconstruction programmes.



Motivation

- To focus on issues pertaining reconstruction of the built environment (a subset of holistic recovery processes). This will complement considerations in the area of reduction, readiness and response.
- To address perceived implementation problems for large-scale reconstruction programmes within current legislative and regulatory provisions e.g. RMA, Building Act etc.
- To enhance New Zealand's capability to recover from disasters (Goal 4 of the CDEM Act 2002 through proposed best practice guidelines).

Questions

- Are existing recovery strategies capable of ensuring effective and efficient reconstruction of built infrastructures after disasters whilst also meeting stakeholder objectives?
- Will existing legislation and regulatory provisions facilitate recovery during large-scale reconstruction programmes?
- What practice changes would improve the robustness of existing reconstruction guidelines to enable its implementation under different disaster scenarios?

Objectives

- Review the goals and processes of the existing emergency management framework within the context of policies, legislation and guidelines for post-disaster reconstruction.
- Identify the factors governing success of previous reconstruction programmes and their levels of influence.
- Generate disaster scenarios for measuring the success of existing and proposed reconstruction programmes.
- Develop process models that describe the existing system and identifying critical constraints to its success.
- Postulate improved processes and models and evaluate their response to different disaster scenarios.
- Recommend suitable best practice frameworks for post-disaster reconstruction.

Research

Methods

Essentially scientific, a systematic process of problem identification, data collection and analyses, and objective conclusions for problem solving and decision-making. Three major approaches are being developed concurrently.

Case Studies and Scenario Writing

- In-depth contextual analyses of post-disaster reconstruction programmes in New Zealand e.g. Manawatu and Matata floods 2004 and Canterbury snowstorm 2006.
- Evaluation of research information from incidents in other parts of the world, while translating the reconstruction dynamics to New Zealand situations e.g. Cyclone Tracy in Australia (1974), Northridge Earthquake, in USA (1994), Kobe Earthquake in Japan (1995), Asian Earthquake and Tsunami (2004).
- Develop disaster scenarios, with a range of magnitudes in order to measure the effectiveness of existing and proposed reconstruction programmes.

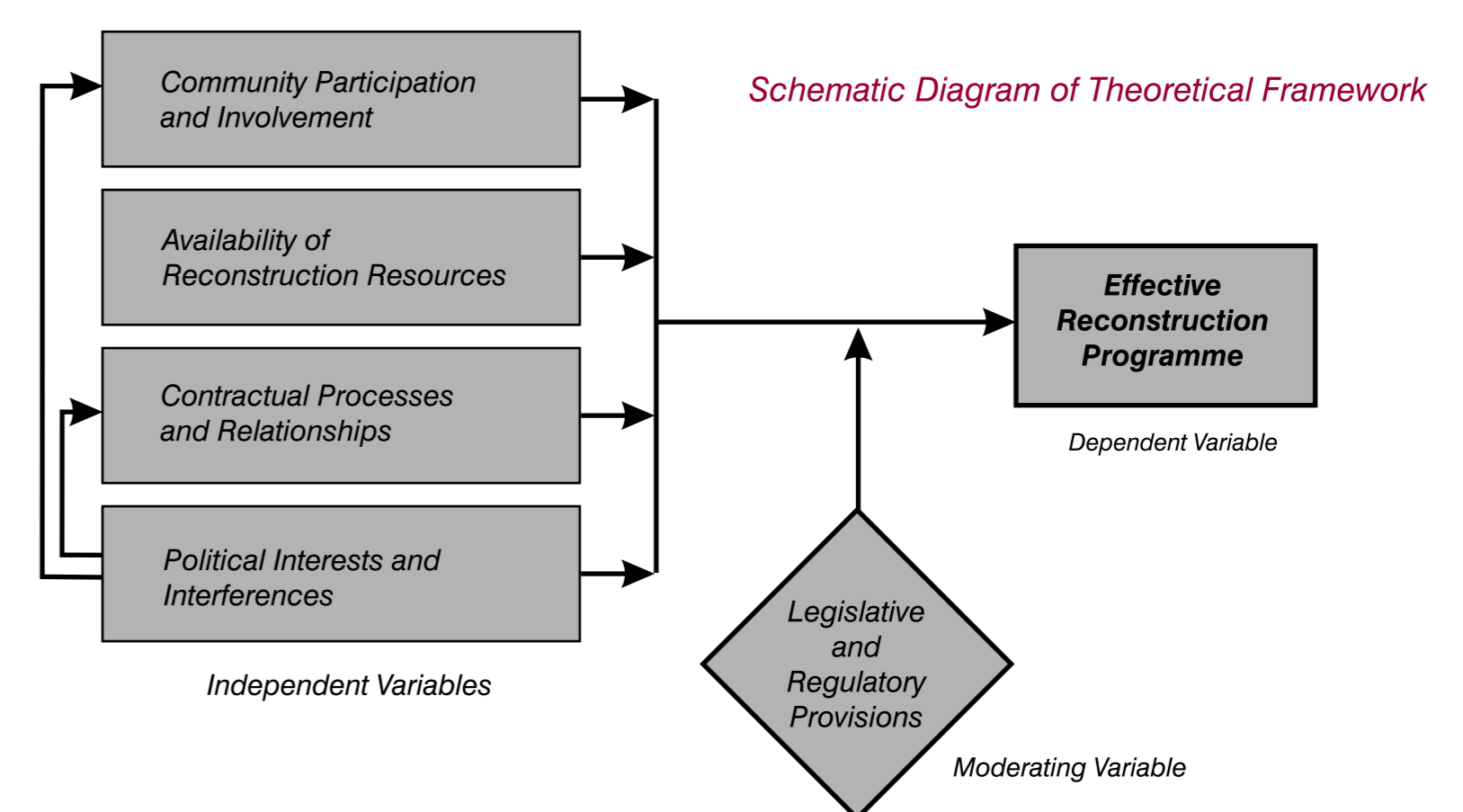


Process Modelling

- Model the variety of roles and interactions within the existing reconstruction framework.
- Evaluate the models to identify critical constraints to their effectiveness.
- Suggest improvements using rich descriptive models for clarity and ease of understanding.

Empirical Testing

The diagram below is a theoretical framework showing the relationship between variables generated from a conceptual model that will facilitate empirical testing.



Hypotheses will be formulated so that statistical methods for tests of hypotheses, tests of significance, regression analysis etc. could be applied.

Data will be obtained using semi-structured interviews and questionnaires to Recovery Managers, Coordinators and other emergency management practitioners, Lifeline agencies, property and infrastructure owners, EQC and other insurance companies.

Outcomes

- Models of the statutory recovery process from initial impact assessments to final reconstruction project delivery, and alternative processes and responsibilities for coordinating.
- An understanding of the complex interactions between the different disaster agencies.
- Best practice guidelines for reconstruction works under different disaster scenarios, which will promote improved coordination and monitoring of reconstruction activities.