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Barriers to Post-Disaster Reconstruction

Report on Workshop

Held: 11 April 2006 at Te Papa, Wellington

**Resilient Organisations
Research Report – 2006/03**

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1 Overview of Resilient Organisations

‘Resilient Organisations’ is a six year research project designed to assist New Zealand organisations to recover economic competitiveness after hazard events by improving their resilience. This programme is funded by the Foundation of Research Science and Technology (FRST). The research programme is a collaborative project between the University of Canterbury, University of Auckland, and Kestrel Group.

The programme integrates the planning, prioritisation and deployment and legal issues faced by New Zealand organisations for their readiness, response and recovery processes. The programme is divided into three inter-related objectives:

1. Organisational planning for hazard events
2. Prioritisation and deployment of physical and human resources for recovery
3. Legal and contractual frameworks

For full details of the research programme, check www.resorgs.org.nz

2 Introduction

A workshop was held to identify the challenges and barriers to post-disaster reconstruction in New Zealand to help guide research under Objective 3 of the Resilient Organisations project. The workshop brought together people with relevant experience in post-disaster reconstruction and/or specialist knowledge of the regulatory, legislative and contractual issues that could influence reconstruction. A list of attendees is given in Appendix A.

This report summarises the key issues from the workshop and develops these issues into research directions. On the basis of both student and funding resources available, the report identifies the research that will be carried out as part of the current FRST funded research project. Other research from the priority list could potentially be carried out in the future if further research resources become available.

The report is organised into the four key areas considered during the workshop: legislative and regulatory issues, coordination of reconstruction, contractual issues and resource issues.

2.1 Workshop Objectives

- To explore the challenges and opportunities for reconstruction in a post-disaster situation;
- To prioritise research efforts on those reconstruction issues that are most critical, and that the research team might be able to realistically influence;
- To identify potential barriers and opportunities for engaging the reconstruction stakeholders in addressing these issues.

2.2 Workshop Format

The workshop started with presentations from David Hopkins, David Middleton and Jason Le Masurier, giving an overview of the research to date, the workshop aims and setting the scene for post-disaster reconstruction in New Zealand. Workshop participants were then divided into four groups to brainstorm and discuss the main issues of reconstruction under the headings of:

- Legislation and regulation
- Contracts and procurement
- Resources
- Co-ordination of reconstruction

After the breakout session, participants reconvened to report back the main issues identified; these are summarised in the sections of the following report. The main issues were then plotted on a matrix in terms of their importance and the ability of the research to influence. The issues were subsequently ranked and research outputs identified. The issues identified and the research priorities are summarised in this report.

Several of the issues raised at the workshop tend towards the operational aspects of emergency management and recovery and as such are specific to the government and NGO organisations in place. These lie outside the scope of the current Resilient Organisations research project. However, the research team would be happy to develop research proposals with relevant organisations to address those issues that are specific to their operations.

3 Legislation and Regulation

The various regulations that apply to routine construction provide for the safe development of infrastructure, capital improvements and land use, ensuring preservation and environmental protection. If the legislation and regulatory processes are well formulated they should not only be an effective means of reducing vulnerability to disasters, but also a means of facilitating reconstruction projects. However, legislation cannot be used for purposes other than those for which it is intended and where there is no provision in relevant legislation for post-disaster situations it can provide a barrier to reconstruction. For example, if all the routine construction regulatory and legislative processes are followed after a major disaster, it is unlikely that regulatory bodies would be able to cope with the volume of work.

3.1 Issues Identified: Legislation and Regulation

During the workshop, the following issues were identified and ranked as high priority for research.

- A1. Extent of liability for reconstruction and where it lies.
- A2. Simplification of consenting process for reconstruction.
- A3. Study of gaps in legislation and wider government initiatives and the consequent constraints on recovery.
- A4. Public acceptance of identified changes in legislation.

3.2 Research Priorities: Legislation and Regulation

An understanding of how legislation can facilitate or constrain reconstruction following a disaster is one of the original core aspects of Objective 3 of the Resilient Organisations project. Research will therefore be progressed in this area with James Rotimi (University of Canterbury PhD student) focussing on this aspect.

Research objectives

- Aa1. Critically review the goals for and processes within the existing New Zealand legislation and guidelines for post-disaster reconstruction.
- Aa2. Identify the legislative and regulatory factors that governed the effectiveness of past reconstruction programmes and determine the relationships and levels of influence of these factors.
- Aa3. Develop scenarios with a range of disaster magnitudes that can be used to measure the effectiveness of existing and proposed reconstruction programme frameworks.
- Aa4. Develop process models that describe the existing legislative and regulatory framework as it applies to reconstruction and identify critical constraints within that framework.
- Aa5. Postulate improved regulatory processes and model and evaluate their response to the identified scenarios so as to quantify their improvement.
- Aa6. Recommend a suitable framework for reconstructing New Zealand's built environment affected by a major disaster.

Outputs

The research outputs, expected to be of benefit to stakeholders of the post-disaster reconstruction process, including disaster managers, insurance companies and property owners, are as follows:

- Ab1. Process models that will make explicit the statutory recovery process from damage assessments to the completion of reconstruction projects.
- Ab2. Models of alternative processes and responsibilities for the coordination of reconstruction during and after emergencies to promote improved coordinating and monitoring arrangements for reconstruction.
- Ab3. Best practice guidelines for reconstruction works under different disaster scenarios.

Further details are given in Appendix B on how these research priorities and outputs will be achieved, together with estimates of the timescale for completion. (Delivery time for research in this area is dependent on whether we secure funding to allow the current PhD student to move to full-time study).

4 Contracts and procurement

A variety of contractual relationships to procure construction projects are used in New Zealand. Procurement is critical as it determines the overall framework for construction, embracing the structure of responsibilities, risks, and authorities of the stakeholders; these issues are especially important for smooth delivery of post-disaster reconstruction. New forms

of procurement such as partnering and alliancing are proving beneficial in improving the time, cost and quality performance in project delivery and may be applicable to reconstruction works.

Responsibility for payment for post-disaster reconstruction projects is a complex issue, involving national and local government, insurance companies and private organisations and individuals. Spending the money wisely is important and priorities need to be established. Cost-reimbursement payment mechanisms are often used for emergency works as there is a large degree of uncertainty over the scope and cost of the work. This places a large portion of the risk with the owner. If the construction sector work with infrastructure owners to prepare in readiness for a disaster, the outcome following a disaster will inevitably be more efficient and predictable than an ad hoc response.

4.1 Issues Identified: Contracts

During the workshop, the following issues were identified and ranked as high priority for research.

- B1. Analysis of money flow for different subsections, e.g. fully insured, under-insured and uninsured.
- B2. Suggested formats for pre-registration of contractors and for setting of rates for post-disaster work.
- B3. Review of whether or not it is likely to be socially acceptable to impose controls on industries in a post-disaster environment.
- B4. Review of international experience for how contractual issues have been managed.

4.2 Research priorities: Contracts

Contractual arrangements for reconstruction following a disaster are one of the original core parts of Objective 3 of the Resilient Organisations project. Research will be progressed with Kelvin Zuo (University of Auckland PhD student) focussing on this aspect.

Research objectives

- Ba1. To examine international experience for how contractual issues have been managed.
- Ba2. To analyse who pays for reconstruction, the mechanism of payment and the contractual issues involved in payment for reconstruction.
- Ba3. To examine contractual pre-registration of contractors and for setting of rates for post-disaster work.

Outputs

- Bb1. Recommendations on contractual arrangements and contract types for disaster reconstruction.
- Bb2. Recommendations on how the contractual payment mechanisms should work during reconstruction following a disaster and analysis of money flow for different stakeholders, e.g. fully insured, under-insured and uninsured.
- Bb3. Recommendation on how the construction industry can pre-register contractors for post disaster work and what rates should apply.

Further details are given in Appendix B on how these research priorities and outputs will be achieved, together with estimates of the timescale for completion.

5. Resources

New Zealand is resource constrained generally. There have been various studies carried out into resource requirements in post-disaster situations. The issue is highlighted in the new National Civil Defence Emergency Management Plan (July, 2006) which states that:

‘effective response and recovery may necessitate mobilisation of all (New Zealand’s) available resources’.

5.1 Issues Identified: Resources

During the workshop, the following issues were identified and ranked as high priority for research.

- C1. Cataloguing requirements and current availability of the full range of resource for reconstruction, then reflecting on sequencing/critical path/bottlenecks for their mobilisation.
- C2. Analysis of the gap between logistics planning and mobilisation for reconstruction
- C3. Ability to get offshore / national resources into a disaster zone.
- C4. Identifying barriers to getting suppliers to do pre-event planning and generally engaging industry in a shared awareness.
- C5. Prior commitment of resources and impact of regulators.
- C6. Assessing the practicalities and worth of a continuously updated national database of available resources.

5.2 Research Priorities: Resources

Research in this area overlaps with some aspects of the Objectives 1 and 2 of the Resilient Organisations research project.

Research objectives

- Ca1. To examine and compare the reconstruction resource requirements of various organisations (Some aspects of this are being researched by Beshram Singh, a University of Auckland Masters student).
- Ca2. To assess the availability of national and regional resources and their ability to be brought into a disaster zone (Some aspects of this are being carried out by Heri Setiawan, University of Canterbury PhD student, as part of Objective 2 of the Resilient Organisations research project, but a full analysis would require specific funding).
- Ca3. To understand the barriers to getting industry to do pre-event planning (not currently planned, but could be carried out as part of a proposed preparedness benchmarking project aligned with Objective 1 of the Resilient Organisations research project, if funding is secured).

Potential Outputs

- Cb1. A catalogue of the reconstruction resource needs of both public and private sector organisations and homeowners and suggested mechanisms for prioritising the allocation of resources.
- Cb2. A GIS database of the extent of regional and national resources and an assessment of resource availability and mobilisation for various disaster scenarios.
- Cb3. Summary of the preparedness of the industry and recommendations of the ways of engaging the industry in pre-event planning.

Further details are given in Appendix B on how these research priorities and outputs might be achieved.

6 Coordination of Reconstruction

Responsibility for response and early recovery post disaster is well defined in the National Civil Defence Emergency Management Plan (MCDEM, 2006). However, responsibility for coordination and management of a major programme of reconstruction of housing and other infrastructure is not clear in the legislation and guidance and this lack of clarity has been proven to create barriers to reconstruction following previous disasters. The management and coordination of reconstruction following recent disaster events has fallen to insurance companies, the Earthquake Commission and local authorities; however none of these entities has a specific remit to work outside of their own interests.

6.1 Issues Identified: Co-Ordination

During the workshop, the following issues were identified and ranked as high priority for research.

- D1. Establish criteria for assessing Local Government capability to coordinate reconstruction.
- D2. Gap analysis for coordination capacity – function provision versus resources.
- D3. Analysis of potential impacts of jurisdictional boundaries.
- D4. Greater analysis of the issues inherent in the transition from response to recovery.
- D5. Characteristics of leaders/leadership required for effective recovery.

6.2 Research Priorities: Co-Ordination

Research objectives

- Da1. To understand the priority reconstruction needs of a community during the response and recovery stages (being carried out by John Hewitt University of Auckland PhD student).

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- Da2. To undertake a gap analysis for coordination capacity in terms of function provision versus resources (on hold).
 - Da3. To propose criteria for assessing Local Government capability to coordinate reconstruction (on hold).
 - Da4. To analyse the potential impacts of jurisdictional boundaries on reconstruction (on hold).
 - Da5. To define the talents required of people to operate effectively in times of crisis and strategies for developing these talents (on hold).

Potential Outputs

- Db1. A checklist to evaluate reconstruction priorities.
- Db2. A map of New Zealand's capacity for coordination of post-disaster reconstruction for various scales of disaster in various locations (on hold).
- Db3. A checklist of criteria, for self assessment or survey, to enable Local Government organisations to assess their current and required capability for coordinating reconstruction (on hold).
- Db4. A catalogue of potential conflicting reconstruction issues between government jurisdictions for several geographically widespread disaster scenarios (on hold).

Further details are given in Appendix B on how these research priorities and outputs might be achieved.

7 Other Issues from the Workshop

There was significant overlap in the discussions between the four areas identified above. Some other broad issues raised in the workshop, that cut across those given above, are as follows:

- E1. Community requirements in terms of reconstruction sequencing and how this maps across to co-ordination.
- E2. Community acceptance of changes in legislation in advance of and following a disaster.
- E3. Insurance mechanisms for reconstruction and in particular the insured/uninsured interface – what to do with uninsured?
- E4. Ways to bring relevant stakeholders/industries together to managed shared risks.

Research in these areas is not currently envisaged under the existing Resilient Organisations research project due to limited research resources and a lack of clear alignment with the core themes of the Resilient Organisations project. However, if additional funding is forthcoming in the future we would be happy to work with the funding organisation to develop research objectives to address these issues.

8 The Next Stages

8.1 Feedback and involvement in the research proposed

The research will involve significant interaction between the researchers and key stakeholders of reconstruction – in particular the workshop participants. The research team would welcome expressions of interest from the workshop participants to provide more detailed input into each of the proposed research objectives given in this report and/or suggestions of names of relevant key people who may have an interest and who we should approach.

We would also welcome feedback on this report and any other suggestions as to how the quality and value of the research outcomes could be improved. In addition we would be very pleased to hear of any sources of funding which would allow objectives of particular interest to an organisation, that are currently on hold, to be moved to the ongoing research schedule.

8.2 Timeline

Time lines are given in the attached summary tables (Appendix B) for the various outputs. As the outputs become available we will forward them on to stakeholders and participants in the research.

8.3 Dissemination of research findings

Progress of the research will be shown on the Resilient Organisations website (www.resorgs.org.nz). As the research outputs are completed they will be disseminated to interested parties in the form of project reports. When opportunities arise the research findings will be presented in academic journals and at national and international conferences.

The Resilient Organisations team will be hosting the 2008 conference for I-Rec (International Group for Research and Information on post-Disaster Reconstruction) in Christchurch Wednesday 30 April – Friday 2 May 2008. This is a bi-annual conference which brings together international practitioners and researchers on post-disaster reconstruction. The focus of the conference will be on the four themes discussed in this document.

9 Conclusion

Despite the extensive research and planning that has already been undertaken by various organisations in New Zealand, there remain challenges and opportunities for improving the processes for reconstruction in a post-disaster situation. A key challenge is to overcome the apparent division between those who, in practice, take responsibility for reconstruction and those who set policy and legislation. It is important therefore that the further research engages with a broad range of reconstruction stakeholders, to overcome such barriers.

10 References

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Appendix A Workshop Attendees

Bruce Shephard – EQC
Hugh Cowan – EQC
John Balmforth – AMI
Anita Middleton, IAG
Laurie Brady – AMI
Dean Myburgh – SOLGM and Manukau City Council
Terry Winyard - Tauranga City Council
Roger Crimp – Telecom
Geoff Swainson – Local Government NZ
Graham Rowe – NZ Society for Earthquake Engineering
Andrew Hazelton – Hazelton Law
David Middleton – EQC
Simon Chambers – MCDEM
David Oughton
Rian van Schalkwyk – Greater Wellington Regional Council
Dave Bates – Transit NZ
Reagan Potangaroa – Unitec
Braden Austin - Manawatu Wanganui Infrastructure Recovery Manager
John Christianson – Connell Wagner
David Hopkins – David Hopkins Consulting
Richard Sharpe - Beca
Rudolph Kotze – Transit NZ
Ian Page - BRANZ
Adrian Bennett - Building Research

Research Team

1. Dave Brunson
2. Erica Seville
3. Andre Dantas
4. Jason Le Masurier
5. Suzanne Wilkinson
6. Bruce Deam
7. James Rotimi (Ph.D. student)
8. Kelvin Zuo (Ph.D. student)
9. John Hewitt (Ph.D. student)

Research Summary: Regulation and Legislation

Issue	Research output	How	Who to consult	When
Critically review the goals for and processes within the existing New Zealand legislation and guidelines for post-disaster reconstruction.	Literature review	James Rotimi (part-time PhD student)	MCDEM	December 2006
Identify the legislative and regulatory factors that governed the effectiveness of past reconstruction programmes and determine the relationships and levels of influence of these factors.	Case studies	Ditto	Stakeholders in reconstruction following past disasters (insurance companies, lifelines, local government)	December 2007
Develop scenarios with a range of disaster magnitudes that can be used to measure the effectiveness of existing and proposed reconstruction programme frameworks.		Ditto	Disaster recovery managers	December 2008
Develop process models that describe the existing legislative and regulatory framework as it applies to reconstruction and identify critical constraints within that framework.	Process models that will make explicit the statutory recovery process from damage assessments to the completion of reconstruction projects.	Ditto	Lawyers, regulators,	December 2009
Postulate improved regulatory processes and model and evaluate their response to the identified scenarios so as to quantify their improvement.	Models of alternative processes and responsibilities for the coordination of reconstruction during and after emergencies to promote improved coordinating and monitoring arrangements for reconstruction	Ditto		December 2010
Recommend suitable framework for reconstructing New Zealand communities affected by a major disaster.	Best practice guidelines (in the form of manuals) for reconstruction works under different disaster scenarios.	Ditto		December 2010

Research Summary: Contracts and procurement

Issue	Research output	How	Who to consult	When
To examine international experience for how contractual issues have been managed.	Recommendations on contractual organisations and contract types for disaster reconstruction	Kelvin Zuo, PhD Student Univ. of Auckland, funded by FRST Resilient Organisations	Construction Industry	December 2006
To analyse who pays for reconstruction, the mechanism of payment and the contractual issues involved in payment for reconstruction.	Recommendations on how the contractual payment mechanisms should work during reconstruction following a disaster and analysis of money flow for different stakeholders, e.g. fully insured, under-insured and uninsured.	Ditto	Stakeholders in reconstruction following past disasters (insurance companies, lifelines, local government)	December 2008
To examine contractual pre-registration of contractors and for setting of rates for post-disaster work	Recommendation on how the construction industry can pre-register contractors for post disaster work and what rates should apply.	On hold		

Research Table: Resources

Issue	Research output	How	Who to consult	When
To examine and compare the reconstruction resource requirements of various organisations	A catalogue of the reconstruction resource needs of both public and private sector organisations and homeowners and suggested mechanisms for prioritisation the allocation of resources	Beshram Singh, ME thesis student, Univ. of Auckland	Public and private sector organisations and homeowners	August 2007
To assess the availability of national and regional resources and their ability to be brought into a disaster zone	The communication and information sharing aspects of this issue are being addressed as part of Objective 2 research, with the development of a dynamic GIS framework for supporting the effective mobilisation of resources.	Heri Setiawan, PhD student Univ. of Canterbury (working under Objective 2 of Res. Orgs. Research project)	Lifelines organisations	Prototype available Aug. 2007, testing in 2008
To understand the barriers to getting industry to do pre-event planning	Summary of the preparedness of the industry and recommendations of the ways of engaging the industry in pre-event planning	On hold, could be conducted as part of a resilience benchmarking study under Res. Orgs. Objective 1		

Research Table: Coordination of reconstruction

Issue	Research output	How	Who to consult	When
To understand the priority reconstruction needs of a community during the response and recovery stages	A checklist to evaluate reconstruction priorities	John Hewitt, PhD student Univ. of Auckland	Architects, town planners, communities facing reconstruction	By 2009
To undertake a gap analysis for coordination capacity in terms of function provision versus resources.	A map of New Zealand's capacity for coordination of post-disaster reconstruction for various scales of disaster in various locations.	On hold		
To propose criteria for assessing Local Government capability to coordinate reconstruction	A checklist of criteria, for self assessment or survey, to enable Local Government organisations to assess their current and required capability for coordinating reconstruction.	On hold		
To analyse the potential impacts of jurisdictional boundaries on reconstruction	A catalogue of potential conflicting reconstruction issues between government jurisdictions for several geographically widespread disaster scenarios.	On hold		