

Resourcing the Canterbury Reconstruction

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- Who are we? – ***Resilient Organisations***
- Past research – Resourcing post-disaster reconstruction
 - Australian bush fires
 - Implications for Canterbury rebuild
- ***Recres*** project – ***Recons Resourcing***
 - What we found?
 - Why and how you can take a part?



The Resilient Organisations Research Group

- ***“Building more resilient organisations, able to survive and thrive in a world of uncertainty, through research and practice”***
- A multi-disciplinary team of 17 researchers and practitioners from around New Zealand
- A synthesis of engineering and business disciplines



Research objectives

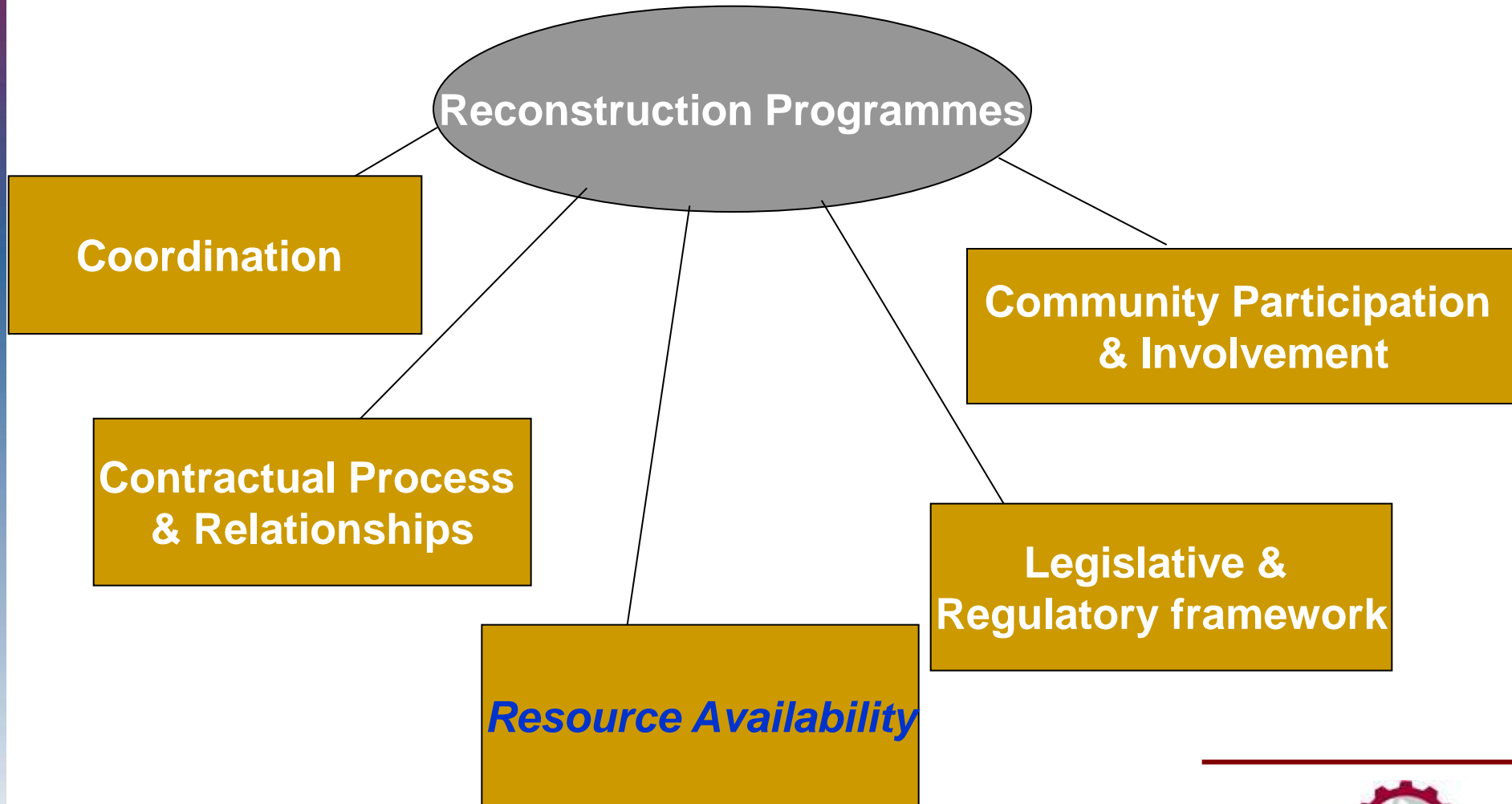
The programme integrates the *planning*, *prioritisation* and *deployment* and *legal issues* faced by New Zealand institutions.

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. *Issues for post-disaster reconstruction***



Objective 3: Issues for Post-Disaster Reconstruction



Resource availability

- What can we learn from past events?
- Do we have enough construction professionals, materials and equipment?
- What do we do about shortages?
- How does the shortage impact on productivity?



- Black Saturday, Saturday,
7 February 2009

173 people died as a result of the
fires

Importance of Safe Resilient Places:

Inside houses (113), Outside houses
(27), vehicles (11), **In garages (6)**,
Near vehicles (5), On roadways
(5), Attributed to or associated with
the fire but not within fire location
(4), On reserves (1), **In sheds (1)**



Consequences

- 450,000 ha burnt, 7,562 people displaced
- Over 3,500 structures destroyed including:
 - 2,029+ houses
 - 59 commercial properties (shops, pubs, service stations, golf clubs, etc.)
 - 12 community buildings (including 2 police stations, 3 schools, 3 churches, 1 fire station)
 - 399 machinery sheds, 363 hay sheds, 19 dairies, 26 woolsheds, 729 other farm buildings



5 months post-fire



5 months: findings



- Waste disposal + demolition key priorities
- Land-use planning
- Commitment to rebuild
- Temporary accommodation/displacement
- No/minimal rebuilding



18 months post-fire: 2010



18 months: findings



- Public buildings evident (schools, community centre)
- Rezoning/ new codes
- Resourcing problems
- Uncertainty from population (business/community)
- Still people in temporary accommodation
- Land sales/insurance



Resilient



**30 months
post-fire**



30 months post-fire: 2011



- No fast recovery
- 1/3rd of houses rebuilt
- Businesses returning but struggling
- Cost of code changes
- Materials hard to get (new windows/roofing)
- Skilled pros. still needed



- **Changed codes = slower recovery**
- Insurance is problematic, slows recovery
- Need for proper resource planning (prices go up, shortages – long term)
- Logistics for builders/construction
- Builders capacity stretched (esp. dealing with traumatised home owners)
- Housing affordability problems

Return in 2012....



Recres Project

- www.recres.org.nz
- Long- term study for Canterbury Recovery
- Evaluate *real-time* resource availability and resourcing issues
- Provide advice on resourcing availability, efficiency and improvements for rebuilding
- Respond to anticipated problems, monitor for best practice



Part 1: Skills availability – Housing, July 2011

- **Skills/trades –**
 - Top 5: Plasterers,
Carpenters, Painters,
Brick/block layers,
Roofers
- Others : Drain layers,
Plumbers,
Gibstopper,
Heating installers



Part 1: Solutions- Skills

- **Solutions**
 - Training - Using NZ people
 - Hiring skilled people overseas
 - Improving project management
 - Increasing funding
 - Paying better wages
 - Building material and technology innovation



Part 2: Rebuilding Resourcing Project

- Resource availability for Christchurch earthquake reconstruction (RACER)
- Survey - recres.org.nz
- Supplementary Interviews
- Reporting and briefing – CERA, DBH, BRANZ, EQC, MCDEM, local authorities, participant organisations



RACER online survey

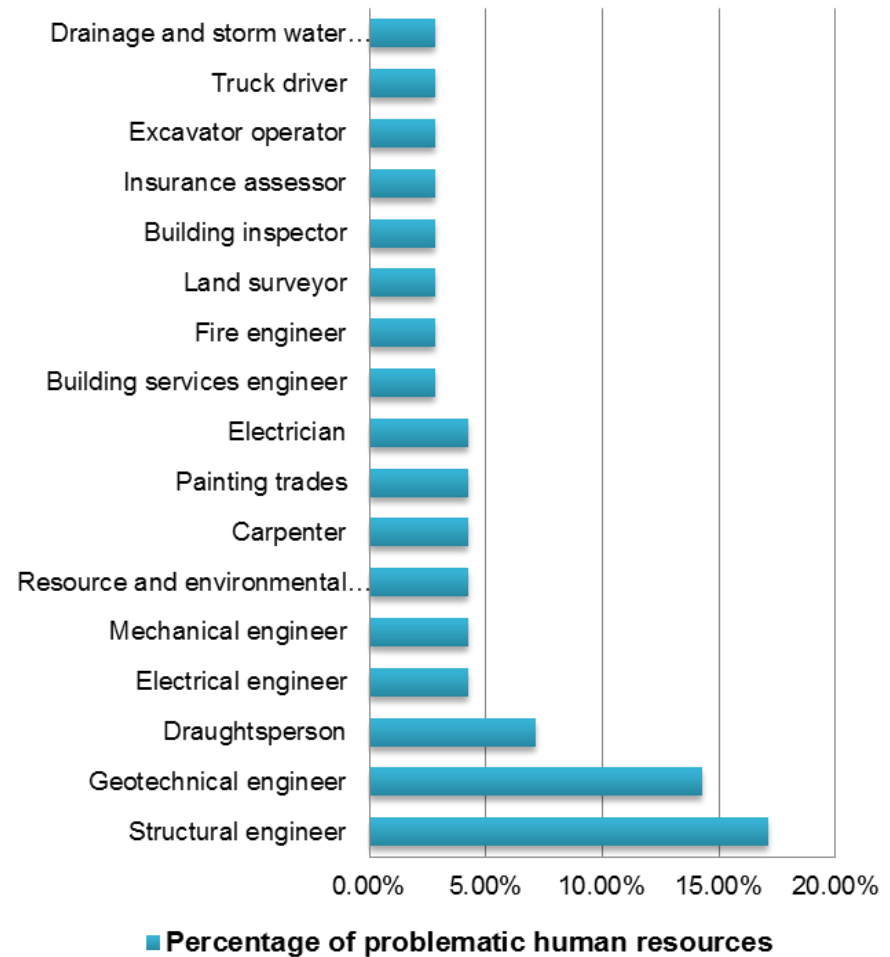
- Are there shortages in human resources/ materials/ plant/ equipment
- What impact(s) are these shortages having
- What arrangements are you making to solve any shortages
- What changes do you anticipate in the next 3 months



Skills, Nov-Jan 2011/12

Main Shortages:

- Structural engineers
- Geotechnical engineers
- Draughtsperson
- Other consulting engineer professions, such as electrical engineer, mechanical engineer, resource and environmental engineer;
- Trades, such as carpenter, painting trades, and electrician



Impacts of skills shortages

- Project schedule overruns (slower delivery and delays)
- Increased workloads and pressure on employees
- Having to turn work
- Time wasted in advertising and recruiting
- Compromising quality of work
- Limiting capacity to grow business
- Increased cost in bringing people from outside Christchurch
- Impacts on other NZ offices due to relocating staff to Christchurch



Impacts of skills shortages

Impacts felt by organisations with varied size:

- *micro-sized organisations* - time and cost overruns
- Using: improved project management, work-share, outside CCH recruitment

- *medium-sized organisations* – unable to grow their businesses
- Using: outside CCH recruitment, improving working conditions, partnerships/alliances with other companies



Impacts of skills shortages

Impacts felt by organisations with varied size:

- *large-sized organisations* - challenges posed by the disproportionately increased workloads against their normal level before the earthquakes.
- Using: relocated staff, overseas recruitment, sub contracting of work, improving conditions/pay



Materials and products

- **Not many companies are experiencing shortages of physical resources**

Sector	Problematic physical resources
Infrastructure utilities	Specialist pipe fittings
Housing & Commercial buildings	Cement and aggregate for making concrete Reinforcing steel, structural steel Windows or glazing Exterior cladding materials Paint Fill Lifts and escalators

- **Impacts:** construction delays



Construction plant

- **11.5%** reported problems of acquiring construction machinery
- Main shortages:
 - Truck, Crane, Loader, Portable cabin, Excavator, Roller/paver.

Impacts

- Fulfilling other contracts
- Re-scheduling projects
- Plant hire cost escalation



Productivity

Factors negatively affecting construction productivity (in descending order):

- Waiting for council approvals
- Delays in main contractor providing information
- Excessive head contractor/client oversight or (New) procedures
- Inadequate work specification & changed specification after work began
- Waiting for EQC inspections/ approvals



Anticipated Resource concerns

61% anticipate changes to resource availability:

- (-) more construction activities will lead to a great demand on critical resources
- (-) Competition for resources across sectors, organisations, and regions (Auckland, Nelson, and Dunedin)
- (+) More work efficiency as the procedures and processes become more familiar
- (+) companies will grow through the recovery



Next Steps

- Re-launch RACER online survey 1st April
- What's changed, why, where are the problems/solutions, what's anticipated, what are the needs
- Case study to inform good practice
- Interviews
- Long term mapping and dissemination

Seek long term partnerships with construction organisations

Looking for longer-term funding



Interested in participating?

- **Understand and use best practice**
- **Keep informed and updated of anticipated resource challenges and current solutions**
- **Inform, educate and promote the interests of the construction industry to key decision makers**



How can you take a part?

- **How can you take a part? –**

Come to talk to us, complete the survey (10 minutes every 3 months), give us some feedback, get involved, help us find funding!

- For further information on the ResRec project, visit www.recres.org.nz
- Thanks to BRANZ and UoA for initially funding the project

