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Resourcing of the Canterbury rebuild: *Changes and emerging themes*

June 2012

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SUMMARY

The second quarter of 2012 has seen a clearer plan for the recovery of Christchurch over the next few years. The targeted Government's agenda involves a \$5.5 billion 2012 Government Budget¹ and the creation of a new Christchurch Central Development Unit² to lead the rebuild of Christchurch Central. This in turn enables the organisations involved in the rebuilding of Christchurch to start finding efficiencies as part of their resourcing plans.

Depending on the pace of recovery, and the emergence of damage information as properties and buildings are assessed, the estimated demand for workers varies significantly. The labour forecasts show between 20,000 and 30,000 extra construction-related workers could be required at the peak of the rebuild (CESB, 2011). In the national context, the Canterbury rebuild and other significant projects across New Zealand are forecast to drive up construction-related employment by about 6% in the 2013 March year and by about 11% in the 2014 March year (DoL, 2012).

Within these economic parameters, construction organisations have been gearing up with a wide range of resourcing initiatives to link the organisations' development with immigration, education, innovation and employment. Since 2012, there have been signs of construction businesses actively working alongside the government and industry agencies, such as the Industry Training Organisations (ITOs), Canterbury Earthquake Recovery Authority (CERA), Canterbury Employment and Skills Board (CESB), Canterbury Employers' Chamber of Commerce (CECC) and Canterbury Development Corporation (CDC), in skills training and development. Various joint actions were established to find innovative solutions to one of the most fundamental issues New Zealand construction industry faces – low productivity and low efficiency.

Interviews with construction organisations in May 2012 confirmed the major issues noted in the RecRes project's January and April reports (Chang and Wilkinson, 2012; Chang et al., 2012) remain current. In the second quarter of 2012, major challenges for these organisations in the rebuild process are still attributed to a resources issue. There have been changes in resource demands and corresponding strategy adjustments the recovery stakeholders employed in response to those changes. The perceived changes and prominent issues were:

- Resource effects are more apparent as the rebuild picks up, with some construction businesses struggling while others have proved resilient to resource shortages.
- Nationwide, engineering companies have felt a major pinch, with more non-Christchurch-based structural and geotechnical engineers rotating to local branches and increased recruitment from other seismic-prone countries.

¹ <http://www.treasury.govt.nz/budget/2012>

² <http://www.ccdi.govt.nz>

- Both in Canterbury and nationwide, there are not enough people of the right age/background in certain specialised construction occupations, particularly building control professionals including project managers, site engineers and building inspectors.
- In the residential repair sector, demand is still great for trades including painters, plasterers, carpenters, joiners and concreters. Drain layers have been identified as an emergent ‘problematic’ resource in short supply.
- General labourers are also in high demand, and this may provide opportunities to reduce the unemployment rate among young people, in particular, in Canterbury. Resourcing strategies at both industry level and firm level are targeting this youth group.
- Construction businesses in Christchurch are still less concerned about the availability of building materials and plant. A consensus emerged that resource endowment in the South Island, particularly in the timber and quarry industries, would ensure sufficient supply of raw materials to meet increasing rebuild demands. Shortages of truck drivers and specialist plant operators become the biggest challenge to resourcing.
- Cement supply is put forward as a potential threat to the concrete manufacturing industry, as well as across other sectors, as broader economic activities pick up (such as Roads of National Significance³).
- There is an increasing strong demand for workers in some ‘service’ industries that directly support construction, including administrative positions and business services staff.
- A broad range of discussions with the Canterbury Earthquake Recovery Authority (CERA) and Project Management Offices (PMOs) (e.g. SCIRT, Fletcher EQR, Hawkins, etc.) has been sought by construction organisations outside Christchurch. Some of them are planning to enter into new joint ventures (JV) or multiple alliances to be part of the rebuild.
- Most organisations interviewed are changing their ‘people strategy’ – increased partnering, sharing, and investment in locking in specialist skills; and placing an emphasis on increasing efficiencies by optimising the use of people.

Construction companies pointed to emerging themes in certain key areas including:

- Accommodation for migrant workers is looming as a huge problem when the recovery really gets going. Some construction organisations are already facing difficulties with immigration issues and housing incoming workforces.
- The impact of an influx of migrant workers into Christchurch, as a result of rebuild demand, is emerging, putting pressure on the regional housing market.

³ <http://www.nzta.govt.nz/network/rons/index.html#rons>

This inflationary effect makes attracting tradespeople from other parts of New Zealand harder.

- Resource shortages, particularly in engineering consultant positions, have caused an inflationary impact which flows through to higher rates. This adds considerable uncertainty around the cost and timing of rebuilding in Christchurch.

In general, during the second quarter of 2012, many construction organisations are working to align their resourcing decisions and priorities with the Government's 2012 Budget agenda. They hope to gain a competitive edge from bringing in good skills. In the meantime, innovation and upskilling for growing organisational resilience become a focus. More than two-thirds of organisations interviewed think that whilst external shocks will always impact the industry, much of the organisational vulnerabilities come from their internal human factors. They believe internal upskilling holds the prospects for unlocking people's potential and helps develop a more family-friendly work environment.

Other uncertainties identified by the interviewed organisations include difficulties with forward planning, communication with PMOs, and accommodating incoming workers. The inflationary effects of increased construction professional fees and an increase in temporary house rentals for housing inbound construction workforce are emerging concerns. As the rebuild proceeds, construction-related inflation is expected to put extra pressure on the Canterbury labour market, community recovery and regional economic development of Christchurch.

ACKNOWLEDGEMENT

We would like to gratefully acknowledge the support of the Building Research Association of New Zealand (BRANZ) in funding this project. Our special thanks go to Adrian Bennett and Anne Duncan of the Department of Building and Housing (DBH), and Brett Lineham of the Department of Labour (DoL) for their advice and assistance in advancing the project.

We are thankful to Ben Mitchell (Prodirections & EQC), Duncan Gibb (SCIRT) and David Peterson (Fletcher EQR) for insightful advice. Their efforts in facilitating the links with construction organisations and government agencies in Christchurch are greatly appreciated.

A special acknowledgement is made to the many organisations and people who participated in the interviews included in this report. These organisations and individuals were busily engaging in rebuilding works in the Canterbury region, and yet were willing to offer time to help us. Without their cooperation we would not have been able to develop this report.

GLOSSARY

BRANZ	Building Research Association of New Zealand
CBD	Central Business District
CCDU	Christchurch Central Development Unit
CCC	Christchurch City Council
CDC	Canterbury Development Corporation
CECC	Canterbury Employers' Chamber of Commerce
CERA	Canterbury Earthquake Recovery Authority
CESB	Canterbury Employment and Skills Board
DBH	Department of Building and Housing
DoL	Department of Labour
EQC	Earthquake Commission
Fletcher EQR	Fletcher Earthquake Recovery
HR	Human Resource
JV	Joint Venture
LBP	Licensed Building Practitioners
PMO	Project Management Office
SCIRT	Stronger Christchurch Infrastructure Rebuild Team
SMEs	Small and Medium Enterprises

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INTERVIEWS' PURPOSE

This report presents findings from interviews of construction organisations that are involved in the rebuild in Christchurch. Opinions from government agencies and insurers' Project Management Offices (PMOs) were also utilised. The material included in this report draws on the interviews and field observations in May 2012. The sampled organisations in each sector (housing, commercial, and infrastructure) are shown in Table 1. Multiple interviews also took place within the same organisations in order to gain a more comprehensive picture of a company's resourcing practices.

Table 1: Interview sampling topology

Category of organisations	Number of organisations interviewed
Design	3 (2 small, 1 medium)
Structural engineering	5 (2 small, 2 medium, 1 large consultancy)
Geotechnical engineering	1 (large)
Constructing	5 (2 builder, 1 subcontractor, 2 main contractors)
Material/product manufacturing	2 (concrete producers)
Project management	5 (4 PMOs and 1 project management company)
Industry Federation	1 (Building Industry Association)
Government Departments	2 (DBH, DoL)
Total number of interviews	33 people from 24 organisations

The purpose of the interviews in May was to capture the perceived changes of resource shortages and emerging concerns in organisations' resourcing process. Interactive interviews mainly covered four themes:

- Trends and perceived changes in the availability of resources in Canterbury
- Changes in their resourcing practice in response to market conditions
- Emerging interdependencies between sectors, organisations and agencies in their resourcing process
- Impacts as a result of the above issues

It is important to note that this report provides information on a range of factors that affect the capacity and capability of the construction industry in the Canterbury rebuild. It is based on interviews at the firm level. This report does not predict construction levels and corresponding resource levels for the future, but seeks to provide qualitative context for recovery-related agencies and industry stakeholders to make more informed and planned resourcing decisions.

RESOURCES OVERVIEW

The forecasts of Treasury (2011) assumed that a big increase in residential investment activity will take place in 2012, with commercial activity and infrastructure

spending growing steadily in 2013 and 2014. While some construction activity picked up in the second quarter of 2012, Canterbury region-wide rebuild activity still remained below what had been expected. Lingering issues around land decisions, insurance payments and acquiring consents have added uncertainty about the scale, cost and timing of Canterbury rebuilding. And the question of when the reconstruction is to start in earnest has become a big 'unknown'.

In spite of delays to the rebuild, construction jobs have been increasingly created. Many of these jobs are still associated with assessing Earthquake Commission (EQC) claims, CERA's inspection of residential land damage, and demolition of buildings in Christchurch's CBD. On-going resource limitations are being experienced by design and engineering consultancies that provide professional services in land and building assessments. Figure 1 below shows, as of May 2012, major human resource demands are concentrated in four business types: engineering and design, construction, manufacturing logistics and supporting administration.

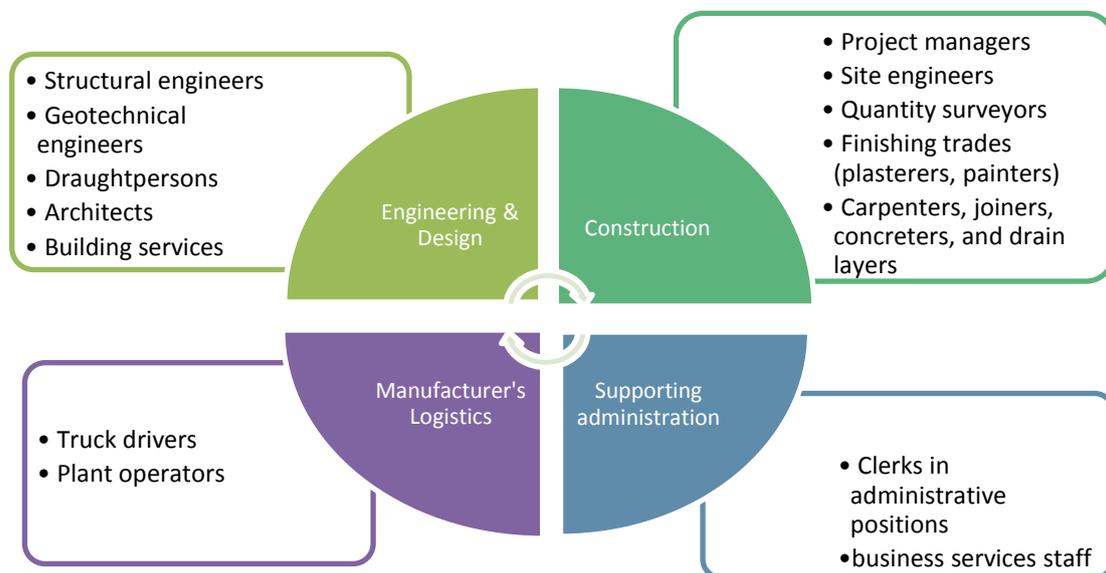


Figure 1: Topology of resource demands in construction organisations

In the second quarter of 2012, resource limitations became more prevalent in certain construction occupations that require corresponding experience, knowledge, and specialist skills. These include project managers, site engineers and quantity surveyors. Firms, however, tend to seek educated workers because of the worker's productivity. Targeted markets for such workers have been focused on Europe, particularly the UK and Ireland, due to a perceived better work ethic and possession of suitable project management skills.

In the residential sector, South Island firms are beginning to find it more difficult to source skilled labour. The nature of house repairs managed by Fletcher EQR determines ongoing demand for finishing trades including painters and plasterers. Demand is also great for trades such as carpenters, joiners, concreters and drain layers. With over two thirds of buildings in Christchurch's CBD being demolished⁴

⁴ <http://cera.govt.nz/demolitions/building-updates>

and EQC's TC3 drilling plan⁵ starting in the eastern suburbs, the landscape of those construction and engineering workflows will change over the second half of 2012.

The supply of building materials, products and machinery is not currently a limiting factor for the rebuild activity in Canterbury. Quarry industry is central to the Christchurch economy, creating diversified raw materials throughout the region, with road repair projects desperate for aggregate and concrete products. Major infrastructure and commercial developments will further expand material manufacturing output and employment opportunities across the region. The exception is the cement supply which is considered a potential threat to concrete production. As the only two cement manufacturing plants are located outside Christchurch city (Holcim Cement Plant is at Westport and Golden Bay Cement Portland Plant is near Whangarei in the North Island), any disruptions to their production and supply chain would have a major impact on its downstream sectors.

The interviewed building supply organisations seem to be less concerned about the availability of building materials. Concrete manufacturers identified finding truck drivers and specialist plant operators as the biggest challenge facing their organisations to enhance the plant's production capacity. They have made efforts to recruit truck drivers from the North Island in the hope that their capacity of concrete production would double once the logistic barriers of such a kind can be removed.

Indirectly, a number of administrative professionals are seeing increased demand for their services, including administrators and HR personnel. Contractors and builders indicated that their Christchurch branches had expanded their office space and hired additional staff or are considering doing so. This increase in construction supporting services is related to catching up on work delayed by the earthquakes and coping with earthquake-related jobs.

In the meantime, three non-Christchurch based companies (one Auckland-based architectural design company, one Australia-based construction company, and one Auckland-based roading subcontractor) have reported that work has not arrived yet for most of the SMEs outside Christchurch. External-to-Canterbury organisations have found it difficult to enter the Christchurch market. Since the beginning of 2012, interviewed non-Christchurch based organisations have been engaging in a broad range of discussions with CERA, Christchurch City Council, and PMOs, such as SCIRT, Fletcher EQR and Hawkins, to seek a proportion of the rebuild work. One possible strategy, proposed by three external organisations, is a planned Joint Ventures (JV) or alliance with Canterbury companies, which they believe holds the most potential for ensuring their entry into the Canterbury rebuilding market.

RESOURCING PRIORITIES

The Government has a comprehensive labour market programme⁶, which will guide the training and employment in the construction sector over the medium and longer terms for the rebuild in Canterbury. As part of the Government's drive to lift New

⁵ <http://canterbury.eqc.govt.nz/news/where-we-are-working/2012/06/tc3-drilling-plan>

⁶ <http://cera.govt.nz/recovery-strategy/economic/labour-market>

Zealand's productivity, the Government has also launched a workplace initiative to provide practical support to firms wanting to introduce High Performance Working (HPW) practices⁷. Since the second quarter of 2012, many construction organisations have been working to align their resourcing decisions and priorities with the Government's agenda. Innovation and upskilling for growing organisational resilience become a focus in most cases. Depending on the business' type, size and vision, their main resourcing techniques are:

- Pairing one young worker with an experienced worker for on-job upskilling
- Creating virtual resource flows via outsourcing and partnerships
- Investing in international recruiting for high values jobs
- Building more quality opportunities to retain and attract the skills

Pairing one young worker with an experienced worker for on-job upskilling

It has been recognised that merely bringing new graduates or post-school young people into the construction sector through industry training is neither sustainable nor conducive to higher national investment. The focus needs be on balancing the demographic composition at both sectoral and organisational levels. In examining the short-term employment prospects, the Department of Labour estimates that the 'retirement demand' is likely to be about 50,000 jobs per year over the coming years (2012-2014)⁸. A big impact of this retirement will be on the construction and utilities industries (DoL, 2012). Construction organisations who perceived this change are setting a course of one-on-one on-job training.

By pairing one experienced worker who is approaching retirement with a young worker, a huge learning curve can be achieved in a short timeframe. Upskilling through 'work place instructor', among other resourcing mechanisms, such as sharing, borrowing, recruiting, retaining and optimising existing resources (Chang et al., 2012) is identified by the interviewed construction organisations as an optimal solution. It will help the company to cope with future economic shocks, including managing risks of job defects by inexperienced young workers; increasing productivity and supporting a family-friendly working environment, and indirectly reducing future costs of training and new recruitment. By better supervising new apprentices, workers of many years' experience can pass their knowledge, skills and intellectual assets to younger generations before their retirement.

Some firms suggested the construction sector, through micro-level firms, needs to identify and set up a national database of those older construction workers for more productive and efficient uses of their experience and skills. However, many construction organisations reported their concern about losing those upskilled trainees in a couple of years to other sectors or Australia and other countries. If this is the case, they would not only lose people but suffer financial loss. Companies expect external fiscal assistance from the Government or industry training organisations before making a longer-term commitment to training and trainees.

⁷ <http://www.dol.govt.nz/er/bestpractice/hpwi/index.asp>

⁸ <http://www.dol.govt.nz/services/LMI/tools/skillsinsight/forecasting-narratives/retirement>

Creating virtual resources flows via outsourcing and partnerships

Over the past year, construction and engineering online vacancies increased by 68.5%, the second highest growth rate by industry (CESB, 2011). All of the Canterbury engineering consultancies involved in this study experienced growth between January and May 2012. In contrast, the level of construction in other places such as Auckland is limited. Auckland companies experienced falls in employment over this time. In the second quarter of 2012, a large number of structural engineers and geotechnical engineers were seconded from regions outside Canterbury.

Interviewed engineering companies reported more building and land assessment workers outside Christchurch and offshore will be needed over the second half of 2012. Christchurch-based firms have been working with education providers as well as recruiting nationally and internationally. Two Engineering Careers Fairs were held by the University of Auckland⁹ and the University of Canterbury¹⁰ in April and May 2012, respectively. Nearly all the engineering consultancies included in the interviews took part. Already by working with Immigration NZ, DoL has generated a skills shortage list for Canterbury¹¹ which includes civil, structural, and geotechnical engineers.

Engineering consultancies are aware that the benefits from the Budget 2012 for tertiary education initiatives for engineering degrees are still a few years away and that their workloads in Christchurch may fluctuate over time when operating in this highly uncertain environment. If the economy were hit by another severe shock, those consultancies of modest size would look at whether large-scale recruiting at this stage may actually harm their business by a sharp reduction in demand. Within this scenario, some companies are cautiously taking on people in a progressive way. Others tend to shift their resourcing priority from pure 'take-in' engineers through recruitment to 'source out' jobs through new forms of partnerships overseas. Virtual resources flows are being created among these onshore consultancies and offshore partners.

Interviewed engineering companies expect growth in emerging markets, especially in Asia, given their big infrastructure spending plans. In addition, by proactively seeking work partners in other seismic-prone countries such as the US, Chile, Indonesia and Italy, companies bring in people from their 'sister' companies to meet the demands of rebuild in Christchurch. Once the market quiets in New Zealand, companies will be better able to transfer their NZ-based engineers across sister partners as wider economic activity picks up in these places.

Investing in international recruitment for high values jobs

At the more skilled levels in construction and engineering, the organisations included in this study have reported ongoing skills sourcing problems from Canterbury and New Zealand wide. Some construction organisations interviewed have attributed their loss of competitiveness over the last decade to a lack/loss of more qualified building

⁹ <http://www.auckland.ac.nz/uoab/careers-fairs>

¹⁰ http://www.canterbury.ac.nz/careers/employment_fair/employment_fair_info_for_students.shtml

¹¹ <http://www.immigration.govt.nz/NR/rdonlyres/6E0E1E3B-0029-4146-8631-9C890E64CFA7/0/Canterburyskillshortagelist.pdf>

control professionals such as project managers and site engineers. They are now aiming firstly to restore and then enhance their economic performance by investing in international recruitment for these high value jobs. The construction organisations, (having been to the Opportunities Overseas Expo for instance in the UK) have reported satisfaction with their recruitment experiences for filling these high value jobs. Companies expect demand for specialist workers will continue to be strong over time.

As has been the case since the September 2010 earthquake, construction companies have been hiring mature project management skills from Europe. Engineering consultancies have been looking for engineers with seismic experience from earthquake-prone countries, particularly from the US. These two categories of people (project managers and civil engineers) continue to be the largest inbound demographic group involved with the rebuild in Christchurch. There are indications in Christchurch that a wide range of 'family package' assistance is being provided by construction companies to bring in highly skilled people of working age. Some organisations set up an additional HR position to focus on removing roadblocks (e.g. getting visa for employee's family members or partners, shipping their assets, finding temporary accommodation, organising Christchurch orientation tours, etc.) that prevent firms from taking in highly valued skills.

Interviews revealed that the fundamental reason for this investment is because construction organisations realise gains in efficiency contributed by those high value workers have the potential to have significant positive impacts on both their long term economic position and business performance. An efficient workforce also means these overseas recruited specialists can not only upskill but influence work ethos throughout the company so higher productivity can be achieved. In many cases, specific induction and training initiatives are also being put in place to cater for a multi-nation or multi-cultural workplace environment.

Building more quality opportunities to retain and attract skills

Following the 23rd December 2011 aftershock, there are signs that the workers in construction organisations are having trouble concentrating on jobs, suffering from fatigue, with errors and rework rates both higher than seen in 2011. In response, companies have been finding new ways to provide services to quake-affected employees. This includes personal counselling, remote working for staff, rotating them to non-earthquake-related jobs, providing family holiday packages and maximising flexible working. These initiatives are largely driven by a vision of creating a resilient workforce as well as a resilient workplace. By doing so, construction organisations reported that doing things with a focus on resilience results in better individual performance, leading to innovative approaches and changing the way a company organises itself.

Interviewed small subcontractors and builders have sought help from large or main contractors with training trades and labour. Some have been developing tools and capability to respond to their skills retention challenges. For instance, two interviewed builders have reported their inclusion of a benchmarking methodology to assess their labour productivity. By using standard and selected KPIs (Key Performance

Indicators) they understand more about the cost, efficiency and effectiveness of their contracting trades services.

Construction organisations also noticed that young people are keen to have Christchurch rebuild experience on their CV. Interviewed contractors and builders have made efforts to bring in these 'fresh' hands to undertake housing and infrastructure repair-related jobs. The Licensed Building Practitioners¹² (LBP) scheme for Restricted Building Work is a possible stimulus for those apprentices and youth tradespeople to develop their careers. As the external plasterers, brick and block layers, and concreters tend to be in high demand in the Canterbury region, the rebuild in Christchurch, and the nationwide weather-tightness remedial programme, have provided practical opportunities for them to develop skills and gain experience.

OTHER UNCERTAINTIES

Other emerging issues over the second quarter of 2012 frequently cited by interviewed organisations include difficulties with their forward planning, communication with PMOs and housing incoming workers, all of which were compounded by wage and rent inflation in Christchurch.

Unable to forward plan

Compared to the situation recorded in the project's January report, there seems to be very little change in the proportion of construction activity taken by interviewed organisations. Large- to medium-sized construction companies try to maintain a balance of 30% of earthquake-related work, 30% pre-earthquake work, and 30% new non-earthquake related work. Small organisations tend to be more involved in rebuild, with more than 60% jobs being quake-related. Companies had thought that the major build-up of work would start in mid-2012, but now expect the start to be delayed to the first quarter of 2013. Rebuild slowness, coupled with uncertainties about the future of the CBD and commercial reconstruction work in Christchurch City, pose difficulties for construction organisations with forward planning in terms of getting resources.

Communicating with PMOs

Interviews with PMOs and construction organisations have revealed a consistent issue in relation to their two-way communication. Several issues were identified by the two parties, including: (1) errors occurred when organisations working across PMOs follow different reporting procedures; (2) there is inadequate information tracking system within construction companies, particularly small ones, and (3) time and cost implications of two-way communication were not factored into PMOs' work planning.

Housing incoming workers

From the second half of 2011 to 2012, CERA has asked commercial building owners to engage engineers to complete detailed engineering evaluations of their buildings

¹² <http://www.dbh.govt.nz/lbp>

so that CERA can assess which buildings in the city are earthquake-prone. This has led to a sudden demand for structural engineers from outside Christchurch. The supply of highly skilled roles in construction is being addressed by recruiting internationally. The influx of those international, national temporary and permanent workers, however, adds extra pressure to an already tough 'housing crisis' in the city. The Government has been finding housing solutions for displaced home owners in the Red Zone and those whose houses will be/are under EQC's repair process. Housing incoming workers becomes the construction organisations' responsibility. Some organisations are liaising with real estate agencies to help their newly-recruited overseas workers find temporary accommodation. Those who migrate with families are facing difficulties finding a place for medium and longer-term stays.

Inflation effects

The interviewed engineering consultancies located near the Christchurch CBD are facing inflated lease prices for the same or similar properties occupied prior to the earthquakes. Interviews found those relocating construction businesses also faced a compromised rental market. Across the interviewed organisations there is another consistent message: the shortages of professional engineers in Christchurch have caused engineering consultants' wages to continue to increase. Wage rises are more profound in structural design and assessment professions where rates have gone up by 30% to 50% since the September 2010 earthquake.

NEXT STEPS

To achieve a better understanding of the resource issues relevant to the Canterbury rebuild in the second quarter of 2012, the research team has been actively linking with the DBH Productivity Partnership and DoL Canterbury Labour Market programmes, and CERA's Workforce Strategy Group. In the next stage, the research team will take two initiatives to further advance the project: (1) establishing an Advisory Committee and (2) in-depth case studies.

Setting up the Advisory Committee

In the third quarter of 2012, the research team will set up an Advisory Committee for the project, bringing together experts from the Government agencies and the industry. The purpose of the Advisory Committee is to align the project's objectives more with practical decisions in the Canterbury rebuild. The Committee will guide the project in terms of where and how this project is adding (or can add) value to the industry's practice.

In-depth case studies

The case studies method will be applied in this project since it allows the researchers to respond to emerging areas of concern and interest more flexibly. By using case studies, the project will offer insight into business dynamics in response to resource issues in a longitudinal way. Case studies will focus on understanding the reasons behind all organisational and individual behaviours and the impact of alternative decisions on their economic performance, resource use and work quality.

CONCLUDING STATEMENT

The information discussed in this report shows that resourcing pressures are building up and impeding recovery progress in Canterbury. By capturing data from construction organisations, this report provides an understanding of how companies are responding to a looming skills and labour shortage for the Canterbury rebuild and how their resourcing choices might affect the environment where they operate.

More than that, the report makes the case for a new approach to looking at resourcing problems following a major disaster. Those methods that are based on neoclassical economics and deal mostly with the larger economy tend to consider resource availability as a consequential result of market processes. The work of the RecRes project is demonstrating that a good theory of resourcing needs to include an organisational perspective which explains both internal resourcing dynamics and the linkages between construction organisations and the wider recovery environment.

'Resourcing stories' included in this report will improve the decision making of different recovery agencies in Christchurch and inform productivity enhancement in the construction sector. The work of the RecRes project will contribute to the workforce components of the Economic Recovery Plans of CERA and CDC by studying resourcing issues at a firm level and offering insights into their resourcing dynamics in the Canterbury rebuild.

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