Department of
Building and Housing
Te Tari Kaupapa Whare

Skill Issues in the Building and Construction Sector

Summary Scoping paper

Building and Construction Sector Productivity Task Force
11 November 2008, Wellington

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Introduction

Purpose

1. The purpose of this paper is to help the Taskforce identify the key issues to focus on and assist in developing its work programme. This paper does not explore all the relevant issues in detail and is intended only as a starting point for discussion.

Background

2. On 1 August 2008 more than 60 leaders and decision makers from the building and construction sector attended a forum to discuss the big issues facing the sector and to agree on how best to work together to address them. A key focus of the discussion was the slow productivity growth of the sector.

3. Low productivity is a cause for concern because it directly affects New Zealanders living standards. Since the building and construction sector employs a large number of people and produces important intermediate goods and services for other sectors of the economy, low productivity growth affects everyone whether they realise it or not. Not least, it is reflected in industry profitability and relative wage rates.

4. Little detailed research has been conducted into the causes of poor productivity growth in the building and construction sector. However, because of the sector's high labour intensity, "skills issues" (broadly defined) are likely to be an important factor.

5. Some industry players argue that recent rapid growth is part of the reason the sector's recent productivity performance has been poor. In short, the argument is that productivity growth has taken a back seat as the industry has increased capacity at the expense of efficiency (e.g. taking on new, less qualified and experienced employees and contractors). It is argued that the same dynamics will operate in reverse during downturns (i.e. productivity will rise as low productivity workers leave the industry during a downturn).

6. While this is likely to happen to a certain extent, there are also risks that the industry will lose experienced and highly skilled labour if there is a sharp or prolonged downturn. Industry participants worry about a repeat of the early 1990's recession which resulted in many young workers leaving the industry. This risk could be exacerbated if overseas labour markets are perceived as offering better long-run opportunities. A key challenge facing the sector is how to retain the best skilled and most productive workers during difficult economic times.

7. When analysed historically, the poor productivity growth of the sector is not just a feature of the most recent business cycle. Indeed, productivity growth has been below par since the late 1980s. Therefore, besides the immediate challenges posed by the current economic downturn, the sector faces a number of longer-term skills issues, such as the ageing of the workforce, low numbers of females in the workforce, low levels of literacy and numeracy amongst the workforce, low rates of training in a key occupations, long-term skill shortages across a range of

occupations and a lack of people with strong management and leadership capability.

8. Addressing these issues is likely to require concerted action on a number of fronts to:

- Minimise any adverse impacts on construction industry workforce capacity and capability during the downturn in building and construction activity
- Improve the attractiveness of the industry for new entrants and the existing workforce, for example through enhanced promotion of career opportunities and improved qualification pathways within and between occupations
- Improve the effectiveness of the industry training system, for example through enhancing the quality of training provision, improving coherence of national standards and the consistency of assessment
- Address long-term skills shortages and other skills deficiencies in the areas of workplace literacy and numeracy, leadership and management
- Ensure an appropriate interface between occupational licensing and systems for skills development and recognition

9. The above list is a sample of the issues that the Taskforce may choose to focus on in its work over the coming months.

10. A key initiative that the taskforce should be aware of is the development of the New Zealand Skills Strategy 2008, and associated implementation and action plans, by a tripartite forum comprising Government Ministers and officials, industry and union leaders. This strategy provides an over-arching framework and direction for work on skills issues. Key elements of the strategy, along with other skill-related initiatives underway in the sector, are set out in the appendix.

The Productivity Taskforce

11. The purpose of the taskforce is to oversee work to:

- develop a sector-wide skills strategy aimed at improving labour productivity
- explore issues with current approaches to the procurement of construction projects, and to develop a proposal for and improved approach that would be piloted, evaluated for promotion as an improved approach.

12. Draft terms of reference have been prepared for consideration by the Taskforce. It has been suggested that the taskforce may wish to form a working group to develop a construction sector skills strategy. It is envisaged that this work could encompass:

- stocktake and environmental scan of the current and future skill needs of the industry
- identification of the key labour and skills issues facing the sector taking account of both opportunities and threats
- evaluation of the performance of the current skills system, noting its strengths and weaknesses and any gaps
- recommendations on the purpose and goals for a skills strategy, priority actions, and how progress towards implementing the skills strategy will be monitored and evaluated.

13. This report represents an initial exploration of the first three of these points.

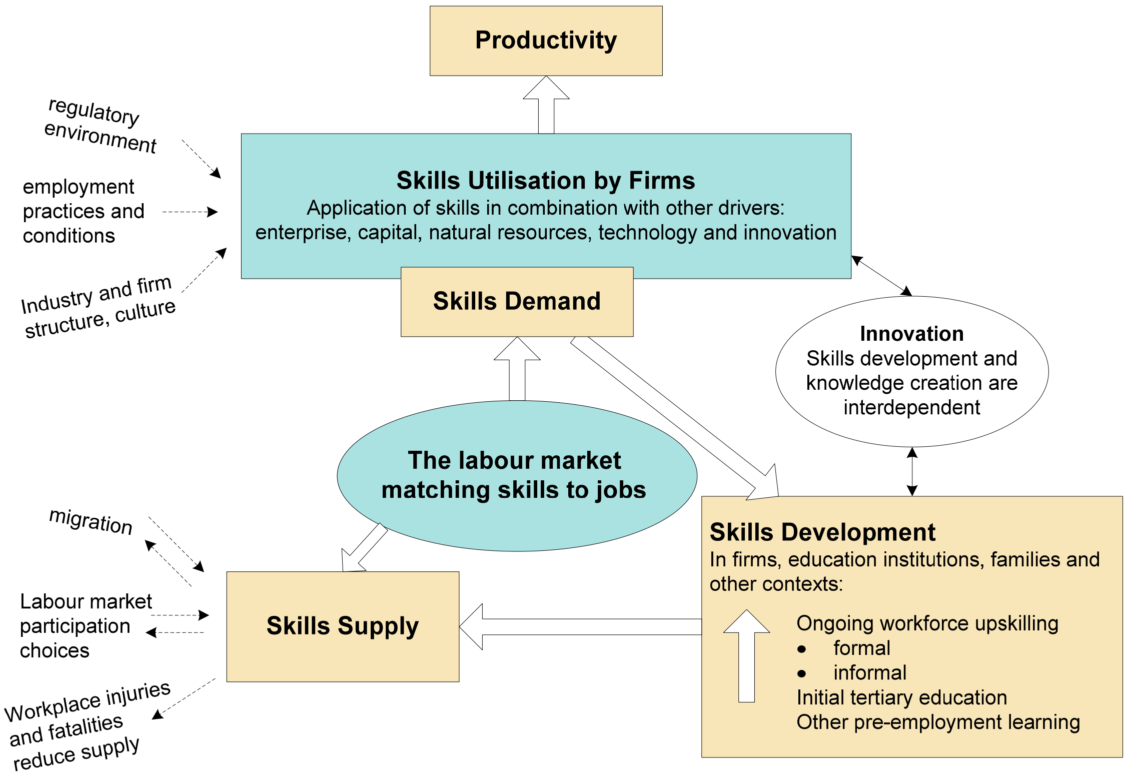
Framework

14. Figure 1 sets out how we think skills contribute to productivity at the firm and industry level. It identifies that the primary function of the labour market is to match skills to jobs and that a wide range of factors affect the supply of and demand for labour and skills. The framework highlights the important contribution of skills development (i.e. skill acquisition through formal and informal training) to matching skills to demand; improved skill utilisation by firms; to innovation and, ultimately, labour productivity.

15. It suggests the need for a strategic approach to addressing instances of persistent skill shortages. Increasing the number of people with advanced trade, technical and professional skills and qualifications is one part of the solution but is inherently long-term in nature. Other aspects include the quality and relevance of qualifications, retaining skilled workers in the industry's workforce, improving employment conditions (not just pay) and making best use of migration to meet immediate needs.

16. We have used this framework as a means of structuring this report. In particular, we use the framework to explore skills demand, supply, matching (with an emphasis on skills shortages) and utilisation, and skills development. We also implicitly use the framework when we identify the key skills issues facing the sector. We suggest that the taskforce would benefit from using this framework in its work.

Figure 1: Skills and Productivity Framework



Source: MartinJenkins (2008), adapted from MacCormick, J. (2008) *Working Smarter: Driving Productivity Growth through Skills*, New Zealand Treasury Productivity Paper 08/06.

The Skills Picture

Skills demand

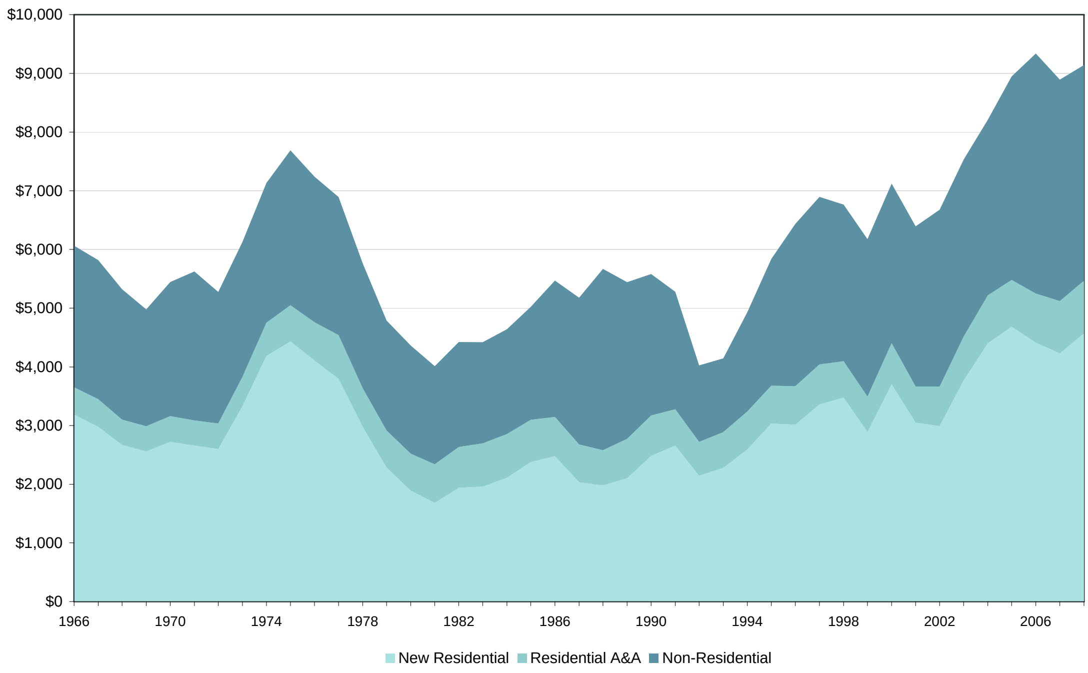
17. Considering the above model of the contribution of skills to productivity, our analysis of skill issues starts with consideration of a critical issue of demand for skills, and the factors that influence the nature and level of this demand.

The construction sector and its levels of activity

18. The construction sector is large, accounting for 7.5% of total employed persons, and 5% of Gross Domestic Product. The sector is highly fragmented, comprising mainly very small firms including self-employed contractors, and highly diverse, spanning residential building, non-residential building, civil engineering and construction trade services.

19. The sector has just come off the longest and strongest boom in New Zealand's recent history, as shown in Figure 2 below. Construction sector activity is strongly cyclical, with construction output and employment fluctuating by as much as one-fifth annually.

Figure 2: Annual Volume of Building Work Put in Place, 1995/96 $ million



Source: MartinJenkins (2008) based on Statistics New Zealand Building Activity Survey data.

Current market conditions and outlook

20. Current market conditions are relatively soft (particularly in the residential sector) and the real impact of the international credit crunch is extremely difficult to predict. However, based on a recent report by Infometrics[1], a few tentative predictions can be advanced:

- Construction sector output is projected to return to a 65-year low in 2008/09. Related to this, businesses 'own-activity' expectations are at a 17-year low.

- Pessimism is mounting about both residential and commercial activity, although confidence in commercial activity is tracking higher. Expectations of public sector work have started to ease, but are still above 2006 levels.

- As many experienced market participants have predicted, a correction has occurred to the prolonged housing boom and soaring house prices. This is particularly affecting Auckland.

- Tight credit conditions are likely to impact all the way through the supply chain, particularly affecting developers, their suppliers, and subcontractors. Indicators of cash-flow problems such as the total value of accounts outstanding for 90 days or more are showing a substantial increase. While bankruptcy numbers among trade workers remain relatively low, this has potential to change quickly.

- While winter is traditionally a slow season in construction, residential building activity has fallen sharply in Auckland in recent months, and there are indications of a softening in provincial areas, although rural activity has held up to date. Subdivision work has slowed significantly in all urban areas. Group home builders and spec-house developers and builders are under significant strain.

- There are conflicting expectations about the volume of residential alterations and additions, however Infometrics analysis is that it will remain weak for some time.

- While the non-residential building sector has performed strongly recently, the above market conditions are starting to slow activity and it is likely that activity in this sector will continue to soften. Some large private projects are being deferred for up to six months, although there are positive expectations for government-related building construction over the next one to two years, rural activity and, to a lesser degree, civil construction.

- As a result of the above market conditions, some consolidation within the sector is expected. Historical data suggests that larger firms tend to increase their market share as the industry endures a downturn.

21. There are indications that the current downturn is different from downturns in previous cycles:

- With greater international synchronisation of housing markets internationally, significant down-turns in the US and UK could have a knock-on effect on sentiment in New Zealand, intensifying downward pressure on house prices and, therefore, building activity.

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[1] Infometrics (August 2008) Residential Construction – where to from here?

- The unusually tight – and recently worsened - credit conditions, combined with the recent failure of property-related finance companies, are likely to increase costs of borrowing and risk aversion among property investors and their backers.

- Unlike previous cycles, there is not currently an over-supply in the housing market, so that, potentially, following a slow-down and period of housing price adjustment, underlying pent-up demand may translate into increased actual demand reasonably quickly, provided that overall macroeconomic conditions remain reasonably favourable.

22. The employment and labour productivity outlook is somewhat unusual for a down-turn. While the conventional view is that labour productivity improves during down-turns, as lower productivity workers exit, this is not expected to be the case in the short-term. Rather, because the labour market is still substantially tighter than during other downturns before the start of this decade, firms are expected to hold onto workers to a significant degree despite the anticipated drop-off of activity levels. As a result, productivity expectations are at their weakest level since 1986. This outlook, however, is dependent on shallow and relatively short-lived contraction. To the extent that the contraction is more severe and/or prolonged, a decline in the employment rate is expected. Due to high rates of overtime during the boom, the initial response of firms to the slow-down has been to reduce working hours for staff. Firms have indicated that, if they have to down-size they will rely on a mix of natural attrition and laying off unqualified or unskilled workers.

Factors influencing the demand for skills

23. Aside from the current market conditions and outlook, a number of longer term factors are expected to influence the nature and level of demand for skills in the construction sector:

- Changing technology will require increased computer literacy, increase the importance of basic literacy and numeracy in the workforce, and may lead to more specialism in the trades and a related need for more sophisticated supervisory/project management skills.
- Changing societal expectations and customer preferences will influence the nature of what is designed and built, and increase demand for knowledge and skills in thee areas of ‘green’ technologies, water conservation and energy efficiency.
- Demographic change, including New Zealand’s ageing population, and changing migration patterns will also impact on the workforce, potentially leading to acute skill shortages in certain key occupations and jobs. Demographic change also impacts on the nature of what is designed and built, and may lead to differential demand for skills across industry segments.
- A likely increase in government investment in infrastructure may lead to an increased demand for civil engineering related skills.
- Licensing of building practitioners is expected to influence the skills development and recognition system, and may lead to increasing specialisation.

Skills supply

Workforce size and occupational profile

24. The true size of the construction industry workforce is difficult to gauge. In June 2008, the construction industry employed approximately 109,000 people, of whom 100,000 worked full-time. However, this figure does not include working proprietors (20,900) or workers in construction services provided off-site, such as building design and inspection. The proportion of people working part-time in the industry is significantly below that for the economy generally.

25. Occupations in the industry with more than 5,000 people employed are builders (21,054); carpenters and / or joiners (10,791); electricians ((8,442); painters, decorators and paperhangers (6,954) and general labourers (6,858). These comprise 37% of the construction workforce, with the remainder composed of a large number of other occupations.

Demographics

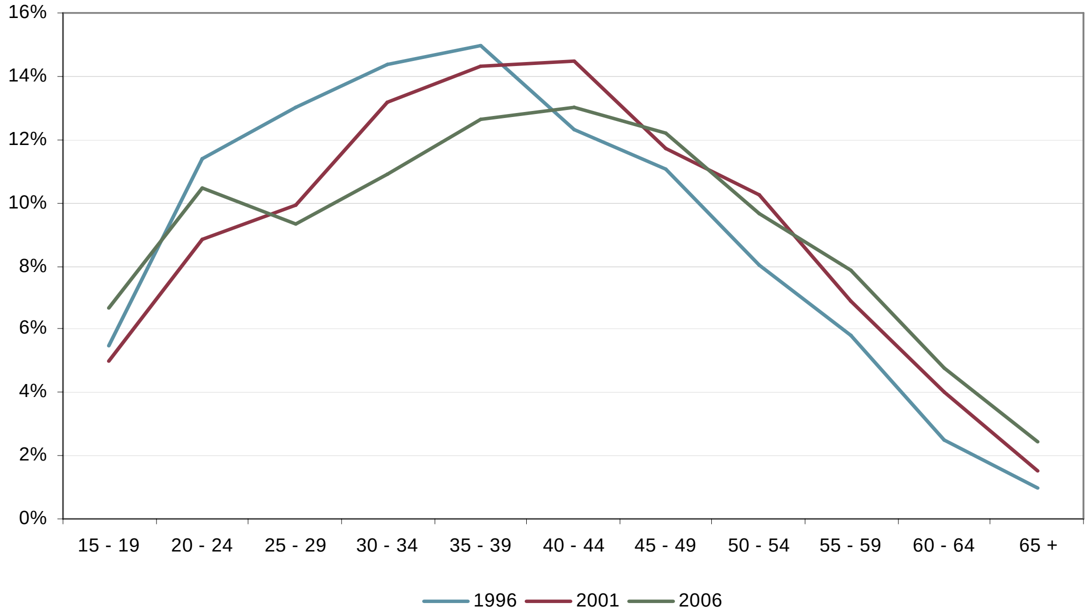
26. While women comprise around half of the New Zealand workforce, workers in the construction sector are overwhelmingly male. There is a long list of building occupations where women comprise less than 5% of the workforce, including electricians, plumbers, builders and plasterers. Women are most likely to work as landscape architects, resource management planners, draughtspersons, architects and general labourers, and one in three working proprietors are women.

27. The construction industry has a similar ethnic composition to the overall workforce, with slightly higher representation of New Zealand European and Maori, and slightly lower representation of Asians. New Zealand Europeans dominate all occupations, while Maori are over-represented in the manual occupations of labourers, concrete workers and building and related workers, but under-represented among construction and engineering managers.

28. In line with New Zealand's overall population, the construction sector work-force is ageing, and the average age in 2006 was 39.4. However, a pronounced increase in the proportion of 15 – 24 year olds working in the sector between 2001 and 2006 has largely off-set the increase in the proportion of older workers. While this is encouraging, there are also anecdotal concerns about flows through from tertiary education and training into employment, with engineers and apprentices in particularly being reported to emigrate in significant numbers immediately following qualification.

29. A concerning feature of the construction workforce is the "missing cohort" of 25-34 year olds, which can clearly be seen to emerge in the 1990s due to lower numbers of young people entering and remaining in the trades and apprenticeships during that period as indicated in Figure 3.

Figure 3: Changing Age Structure of Construction Industry



Source: MartinJenkins (2008) based on Statistics New Zealand Census data.

30. While there has been some reversal of this pattern in recent years, there appears to be relatively widespread concerns within the industry that employees between 25 and 35 tend to be relatively low-skilled and poorly qualified. A related problem is that a disproportionate number of site supervisors and other personnel in management positions are aged over 50. Because of the role this group plays in supervising and training staff, this ageing of the workforce – in combination with the short supply of qualified and skilled workers in their 30s-40s – represents a critical succession risk.

31. Considering particular occupations within the industry, it is clear there are differences in ageing patterns, which are likely to translate through into different skill shortage profiles. Occupations with a high proportion of people aged 60 or over include surveyors, builders' labourers, steel erectors, civil engineers, electrical engineering technicians and earthmoving machine operators. In contrast, occupations such as pile drivers and drillers, scaffolders, roofers, surveyors, plasterers, general labourers, concrete workers and glaziers have high proportions of under 30 year olds.

Skill and qualification levels

32. Around half of New Zealand's trades/construction industry workers are estimated to have below functional levels of document literacy and numeracy. While numeracy levels within the industry are similar to the New Zealand workforce as a whole, the proportion of people with low document literacy in the industry is considerably higher.

33. Industry participants have commented that these inadequate skill levels translate into: problems of incorrect product selection or installation leading to product failure; a barrier for realisation of some workers' leadership potential because they cannot advance if they are unable to complete required paper work or

perform relevant calculations (e.g. the volume of a concrete pour). Low literacy and numeracy levels are viewed by many in the industry as the single biggest factor influencing low productivity, with estimates of re-work in the building sector ranging between 3 and 5% of the total value of construction work, much of which is attributed to lack of basic education and training.

34. The construction sector workforce sector also has low levels of post-school qualification attainment. Less than half have a tertiary qualification and around 25 % have no formal qualifications at all. Only 9% of the workforce hold tertiary qualifications at degree level or higher, and these workers are mainly concentrated in architecture, engineering and management. There is some indication that relative skill levels in the industry have declined over time.

35. Another area of skill shortage relates to leadership and supervisory skills, particularly in terms of lead hands, foremen, superintendents and project managers. There is no reliable data on the level of these skills in the workforce at present and this is an area worthy of further exploration. However, the anecdotal evidence appears to be mirrored in the concerns of other countries. For example, the UK Construction Sector Skills Council identified leadership and management skills as the most pressing area of skill need for the sector in terms of improving productivity.

Income

36. The average median income of workers in construction occupations ($37,500) is slightly lower than the average for all occupations ($39,206), although the distribution of incomes is wide. One reason for this is the high number of number of low-paid labourers (average income of $25,986, 60% of the national median income) in the sector. Construction and engineering managers are the highest earners in the sector with median incomes almost double the national average. Architects, engineers, quantity surveyors, draughters and engineering technicians are also paid well above average.

Flows into and out of the sector

37. The construction sector has experienced significant work-force growth over the last eight years, with the number of jobs rising by more than 50,000 from 66,000 to approximately 120,000. This reflects an increase in the overall rate of labour participation within the economy, in addition to which strong demand and increased relative wages in the construction sector have attracted workers from other sectors.

38. Considering the turnover of both jobs and employees provides important insights into dynamics within the labour market. Data on job creation and destruction indicates that, over the last nine years, the construction industry has been better at creating jobs and no worse at destroying jobs than the economy as a whole. During the boom, the industry has also been relatively better at retaining workers than other industries. Job tenure patterns are very similar to those of the economy as a whole: typically short (6 months or less) for self-employed contractors with tenure rising with increasing firm size up to large firms. Firms with over 100 staff have similar employee tenure patterns to firms with 6 – 10 employees.

39. As noted earlier, the construction sector is ageing. Across all construction occupations, retirement is generally expected to occur at a rate of 1.6% of total persons employed per annum, but will be higher than average for those occupations with higher age profiles noted above.

40. Outward flow of workers from the sector can also occur through work-related injuries. While reported injury rates in the sector have reduced sharply in recent years, the industry's injury rate in 2006 was the fourth highest of any industry, and work-related ACC claims from construction industry workers represented 11% of all claims. In 2006, the construction industry also had the highest number of fatalities of any industry (23 cases).

41. Global workforce mobility in the sector is high, and Australia's recent commodities-fuelled construction boom has been of concern in this regard. More than 15,000 workers across six core construction occupations have left New Zealand to work in Australia since 2000.

42. While there has been significant inward and outward migration over the past two decades, and periods of both net inward and net outward migration, the overall effect of external migration has been negligible. While approximately 45,000 people have departed the labour force in six core construction occupations since 1992, this has been offset to a large extent by relatively strong inflows. Inflows have been particularly strong for architects, engineers and building frame and related trade workers (25,000 new workers over 17 years). Nonetheless, it is notable that since 2004 there has been a marked increase in permanent and long-term departures in construction occupations which has outweighed growth in arrivals. This is particularly concerning given the strong labour market conditions since 2004.

43. In addition, while net inflows have been relatively neutral over the last two decades, this masks a number of significant underlying issues:

- The net flows of external migrants are volatile and, in peak years, these flows significantly impact on the labour market. High rates of departure can quickly give rise to short term skill shortages and can exacerbate genuine long-term skill shortages.
- Some occupations, such as labourers and building finishers and related trades workers, have not recorded significant net inflows at any time in the last two decades.
- There are differences in the age- and occupational-distribution of arrivals and departures, suggesting that inward migration is not a perfect substitute for outward migration. New labour sourced through immigration is unlikely to be as productive on average in the short-term as the labour lost through emigration.

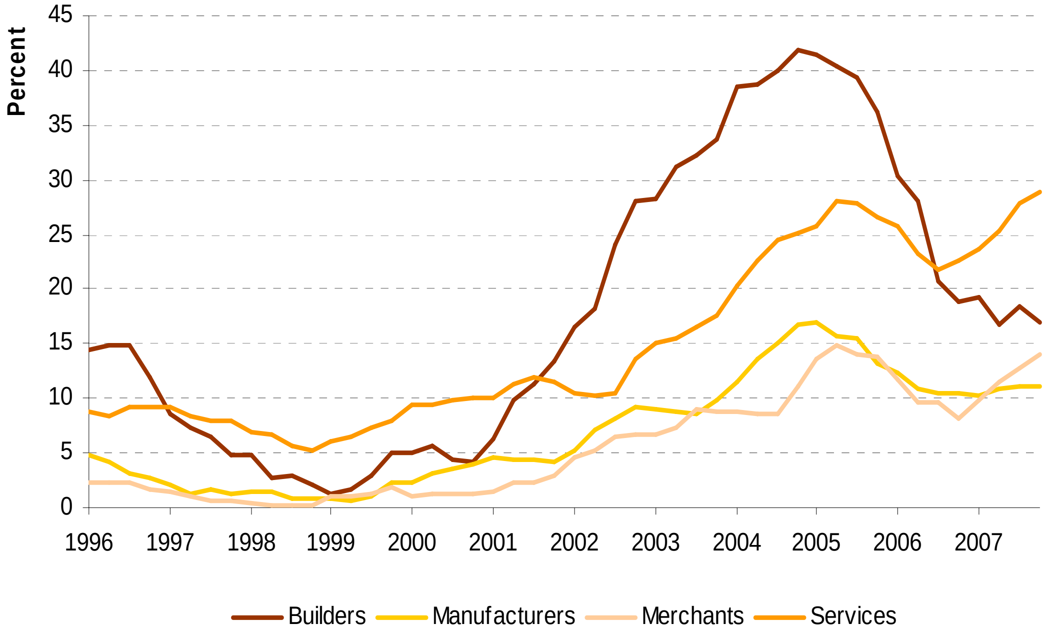
Skills matching and utilisation

Skill shortages

44. Skill shortages are gauged on the basis of a number of indicators such as self-reported measures of business growth constraints, job vacancy fill rates, the number of job vacancies as a proportion of total employment, relative changes in wage rates and employment growth rates by occupation.

45. Figure 4 shows that, in general terms, the construction industry experienced greater labour constraints during the boom than other industries:

Figure 4: Proportion of firms where labour is the main constraint



Source: Ministry of Education (2008) based on NZIER Quarterly Survey of Business Opinion.

46. According to official measures, sixteen construction occupations are considered to be in extreme shortage, with a further 13 in severe shortage. Reported fill rates worsened for 15 occupations (including fitters and turners, cabinet makers, bricklayers, plumbers and electricians) and improved for 9 occupations (including quantity surveyors and spray painters) between 2006 and 2007. Approximately 82% of building trades employees work in occupations on the official skill shortage lists.

47. Despite a paucity of detailed wage data by occupation, it is possible to discern that salary and wage inflation for building occupations has outstripped other occupations particularly since the late 1990s. Detailed Department of Labour research in 2005 shows that some trades experienced exceptionally high growth in average hourly wage rates in the 2004/05 year: plumbers, 9.4%; carpenters, 5.3%, electricians 4%.

48. Current forecasts predict that skilled workers will remain in relatively short supply across the industry in the foreseeable future. Skill shortages in the sector have been attributed to a number of factors:

- The drop in the number of young people entering the trades in the 1990s
- Low training rates for much of the 2000s relative to demand
- High rates of migratory out-flows, particularly in certain occupations
- The construction boom and associated high growth in demand for labour
- Perceived lack of attractiveness of some occupations.

49. Despite current market conditions, and some easing of construction activity, firms continue to report skill shortages in key areas such as staff with leadership

abilities to fill supervisory and lead-hand roles particularly in the residential sector. As noted above, these roles are currently dominated by older workers. If such people leave the industry in a significant or prolonged down-turn, this is likely to bring forward a significant erosion of skills, experience and business expertise. When combined with evidence of the missing young-middle aged cohort, the industry's capacity to train and develop young industry entrants would be significantly undermined under this scenario, putting capacity at risk ahead of any future up-swing in demand.

Boom-bust cycle and implications for skills

50. The boom-bust cyclical nature of the construction industry presents difficulties for matching skill and labour demand with supply across the cycle, particularly via skills training, given the long lead-times involved.[2] It also poses significant challenges for the industry in retaining workers during 'bust' times, particularly as the industry is characterised by complex and often ill-defined supply chain relationships that are wider and more dynamic than most in the industry understand.

51. Firms adopt a range of measures to mitigate the adverse impacts of a downturn in activity on their staff. However, in the event of a significant downturn, layoffs are likely. A key issue for the industry is how to retain workers within the sector during such troughs in activity. There may be a role for government here in relation to counter-cyclical stimulus in the event of a particularly steep or prolonged down turn, however this would need to be balanced with a need to maintain fiscal prudence and the quality of investment. Even if government investment in building activity did increase, this is likely to have implications for the balance of skills required in the workforce. The industry as a whole needs to think of measures it can take to mitigate the risk of loss of capability during a downturn.

52. The task-force could fruitfully consider construction sector workforce retention options, exploring issues such as these.

Skills utilisation

53. A critical part of the skills and productivity story is the way in which skills are used in the workplace. A wide range of factors influence the extent to which the industry can not only retain but get the best out of the skills of its workforce. These include factors internal to the firm such as organisational structural, culture, and systems and processes (including HR practices). There are also external factors such as the regulatory environment, the business and economic environment, and the pace of technological change and skill obsolescence. Several projects have been initiated under the banner of the New Zealand Skills Strategy 2008 to explore whether skills can be more effectively utilised in the construction sector. For example, Business New Zealand and the Industry Training Federation are developing a partnership between tertiary organisations and others focused on enhancing management and leadership skills in the building and construction sector. In addition, the Department of Labour and the Industry Training Federation have initiated a project to trial approaches to

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[2] Other factors that pose difficulties for maintaining the skills base include the relatively high cost of training skilled workers, the high level of self-employment and sub-contracting, and the sector's high occupational turnover.

working with firms to boost utilisation of skills and increase workplace productivity. The intention of this latter project is to provide evidence that supports ITOs to be more strategic in thinking about the ways in which skills – and skill development – can contribute to industry development. This question of how well skills are utilised in the sector has received relatively little attention to date, and this may be a worthwhile area of focus for the task-force.

The Skill Development System

54. Skills relevant to the construction sector are developed through a number of routes: schools; tertiary providers and Industry Training Organisations (ITOs). A number of initiatives underway within this system are aimed at trying to address the well-recognised skill issues within the construction sector, and the economy as a whole.

Secondary schools

55. Schools provide the basic educational grounding of the workforce, and as such, play a critical role in the skills picture in the construction sector. Under the "Schools Plus" banner, the Government is developing a number of initiatives to ensure young people stay in school, complete qualifications suitable to their needs and abilities, and make effective transitions to gaining further qualifications beyond school.

56. Secondary schools offer pre-employment programmes leading to certificates on the National Qualifications Framework, such as the "B Constructive" programme in the construction sector. Upwards of 100 secondary schools are offering the programme at present. The programme was developed by six Industry Training Organisations in the construction sector and leads to a new practice-based qualification covering a range of construction industry skills. It is primarily workshop based and aims to build skills and an understanding of all trades in the construction industry, along with developing literacy, numeracy and communication skills, and has close links with the NCEA and Technology curriculums.

57. The Government is currently piloting a Youth Apprenticeship Scheme in 20 secondary schools, which will be available to all secondary schools by 2011.

Tertiary providers

58. A number of different types of tertiary providers range from publicly owned institutions such as institutes of technology and polytechnics, universities and wananga (higher education institutions focused on indigenous education for Maori people) through to private training establishments. In recent years there has been some blurring of the roles of the different types of providers (e.g. polytechs and universities competing in the provision of undergraduate and post-graduate degree programmes). There are a wide range of construction-related initiatives underway within tertiary providers, including a number of streams of tertiary provision focussed on encouraging Maori youth into the sector.

Industry Training Organisations

59. Industry Training Organisations (ITOs) play a pivotal role in the sector. The current approach to industry training in was introduced by the government in the Industry Training Act 1992, which superseded the former apprenticeship and farm cadet systems. It was intended to provide a basis for extending the benefits

of structured industry training to a wider range of people and industries than the traditional ‘trades training’ occupations which had been the sole beneficiaries of government industry training funding to that point. While structured training of the ‘apprenticeship’ type has continued since 1992 in a broadly similar way in industries where they were established, it is widely perceived that they were terminated in the 1990s.

60. ITOs are funded by government through the Tertiary Education Commission (TEC) and industry to:

- provide information and advice to trainees and their employers
- set national skill standards for their industry under the National Qualifications Framework
- develop and arrange education and training for their industry
- arrange assessment of trainees and monitor education and training quality
- provide leadership on behalf of industry on skill and training needs.

61. In recent years, the Government has re-launched the apprenticeship concept, and has introduced Modern Apprenticeships, which include funding for a mentor for each apprentice, whose job is to actively facilitate learning and support the apprentice through to completion of the qualification. The scheme is more expensive than other types of structured training, and for this reason the number of its participants is strictly limited, although the number of participants has been progressively increased since its introduction.

Qualifications and recognition of skills

62. Under the National Qualifications Framework, which takes a standards-based competency approach, learners are assessed by recognised tertiary providers for evidence of performance against a set of criterion-referenced standards. The qualifications framework recognises skills relevant to the construction sector on a spectrum ranging from basic literacy and numeracy skills, through to both technical skills and generic skills such as health and safety, first aid and supervision skills. Three different types of qualifications exist, reflecting the different pathways for their development:

- ITO-developed qualifications
- Non-university provider qualifications (private providers, institutes of technology and polytechnics)
- University qualifications: while these are considered to be part of the National Qualifications Framework, the New Zealand Vice Chancellors Committee has the power to approve degrees and universities have the power to develop degree courses, and to confer degrees when they judge suitable criteria have been met.

Recognition of prior learning

63. The bulk of the debate around skills tends to centre around evidence of skills through attainment of qualifications. However, it is important to acknowledge that skills and qualifications do not necessarily equate to the same thing. Qualifications are a mechanism to measure skill levels, but the correlation between the two is unlikely to be exact.

64. In recent years, international debates about skills have begun to turn to the question of how to assess and measure non-formal learning – both for individuals and in the population as a whole. It is thought that this would be a better measure of workforce capability than qualifications-based data. However, it is early days, and no robust alternative to qualifications measurement has yet been developed.

65. For individuals, a common approach internationally has been to develop systems for Recognition of Prior Learning (RPL). The National Qualifications Framework allows for Recognition of Prior Learning, through NZQA approved assessors. In practice, we understand that Recognition of Prior Learning assessments are relatively rare in New Zealand and abroad. This is largely because the cost of assembling the required evidence or undertaking the assessment exercise tends to be relatively high, and can in some cases involve similar costs to study fees. It has been argued that tertiary providers, who tend to be the bulk of approved assessors, have little incentive to provide cost effective Recognition of Prior Learning, since there is greater financial benefit in attracting a student course placement rather than merely a qualification attainment.

Funding

66. Under the current approach, government funding levels for all tertiary provision are negotiated between the TEC and Tertiary Education Organisations (TEOs), a term which encompasses tertiary providers (i.e. universities, polytechnics, wananga, private training establishments) and ITOs. These negotiations occur around TEO Investment Plans.

67. Publicly owned tertiary providers such as universities, polytechnics and wananga receive a higher level of government contribution per student overall than private providers and ITOs. ITOs, as industry-owned entities, are expected to generate their own funds directly from industry, to balance the Government's contribution.

68. The financial position of various ITOs differs markedly and has done so historically. We understand that some construction sector ITOs are relatively financially secure, while others – particularly small ITOs – tend to struggle financially. The financial position of the wealthier ITOs provide them with choices not necessarily available to others, such as enabling them to develop arrangements as they see fit outside of Government-funded programmes (for example, 100%-ITO funded training) .

69. The TEC has evolved its mechanisms for determining government funding for tertiary providers to a more streamlined set of requirements in the form of an Investment Plan. These plans set out proposed volumes of education and training activity for the upcoming period. Providers are required to consult with stakeholders (both communities and industry), particularly at the local regional level, as a basis for determining the nature and level of their proposed provision. This is intended to encourage all tertiary providers to increase their responsiveness to their communities and local industry.

Occupational Regulation

70. A number of occupations in the sector have registration systems, some mandatory and others voluntary. Registration is mandatory for architects, engineers, plumbers, gasfitters and drain-layers and electrical workers. Some industry bodies have set up voluntary quasi-registration arrangements such as the Registered Master Builders Federation and the Certified Builders Association of New Zealand. These schemes vary in their design but most have a number of interactions with the skills development system, whether in relation to qualification required for registration, systems for recognising prior learning, or requirements for ongoing learning.

71. In addition, the Department of Building and Housing is implementing a voluntary scheme for licensing building practitioners (the LBP scheme). In 2007, licence classes were introduced for design, site management and carpentry. From 2008 onwards, it is intended to establish licence classes for external plastering; roofing; bricklaying and block-laying; concrete structure; steel structure; and building services. The Building Practitioners Board has been established to administer the LBP scheme.

72. There are a number of touch-points between the LBP scheme and the skills development system:

- Licence applicants are assessed against competency-based standards for the relevant licence class – in one sense the assessment process is a regime for recognition of prior learning and a licence can be thought of as a pseudo-qualification representing a particular bundle of skills & competencies.

- Relevant qualifications (including overseas qualifications if verified by NZQA) can be used as evidence in support of applications for a licence class. It is important to note, however, that a relevant qualification by itself is not sufficient for gaining a licence in any licence class. Nor are qualifications essential and, in practice, an applicant can become licensed without qualifications.

- One of the key aims of the licensing of building practitioners scheme is to increase skills and knowledge in the industry and a key element of this is the requirement for skills maintenance or ongoing professional development as a condition for staying licensed.

- Related to this, providers of education and training can apply to become approved course providers.

73. A number of industry stakeholders expressed concerns that licensing should be linked to more tightly to qualifications rather than being treated as a separate assessment. A 2005 study by NZIER for the Building and Construction ITO (BCITO) also investigated industry perceptions of the impact that licensing would have on the skill system and concluded that it would present opportunities and challenges for both industry and the training system. In particular, it noted an expectation from industry that qualifications would align with the licensing structure. It was also expected that a greater degree of specialisation was likely to result from licensing, possibly because workers might perceive an increased cost (and risk) of working outside of their core area of specialism. Licensing was also seen by many as likely to result in an even greater premium on generic skills

such as project management, supervision and problem-solving. This is because site supervision is seen by many in industry as the lynch-pin of the new regime.

Industry concerns about the skills development system

74. Concerns expressed in reports and by industry participants we spoke to include:

- Literacy levels of both new entrants to the workforce from school, and of the current workforce. *A number of companies are investing in providing literacy and numeracy training to employees, supported by the Department of Labour Upskilling Partnership Programme, and the TEC-administered Workplace Literacy Fund, both of which assist firms to establish and finance provision of literacy, language and numeracy training.*

- Mixed views about overlapping provision between the 'managed apprenticeships' offered by polytechnics and industry-based apprenticeships facilitated and funded through ITO. *This issue is currently under review by a Ministerial taskforce that includes representatives from both industry and the tertiary education sector.*

- The perceived 'dismantling' of the apprenticeship training scheme in 1992 which, in combination with the early 1990s recession, contributed to the 'missing cohort' of workers currently aged 30-40.

- Perceived excessive fragmentation and lack of leadership within the training system, which is seen at risk of capture by interest groups. Some view the funding of industry training as exacerbating this fragmentation, by creating competition between ITOs for trainees, emphasising 'bums on seats' and detracting from a focus on quality of training. Some issues have also been raised in relation to the quality of some ITO consultation with industry, particularly with larger construction firms. *The Tertiary Education Commission is currently seeking to address this issue by encouraging ITOs to form industry-based clusters, such as the Built Environment Training Alliance (BETA).*

- Concerns about the suitability of qualifications, including the length of initial engineering degrees; the integration of design qualifications; the structure of the Diploma in Construction Management; and a lack of career paths within industry. *A number of initiatives are underway seeking to address these issues, including work by the ITO, Infratrain, to review qualifications in civil engineering in terms of career paths; develop a qualifications pathway on asset management; and develop a national certificate in contract management. In addition, the Institute of Professional Engineers of New Zealand (IPENZ) is in discussion with ITOs about how integration between qualifications might be achieved. Career path and supply issues are also being addressed in a joint IPENZ / TEC initiative aimed at developing a skills strategy for engineering.*

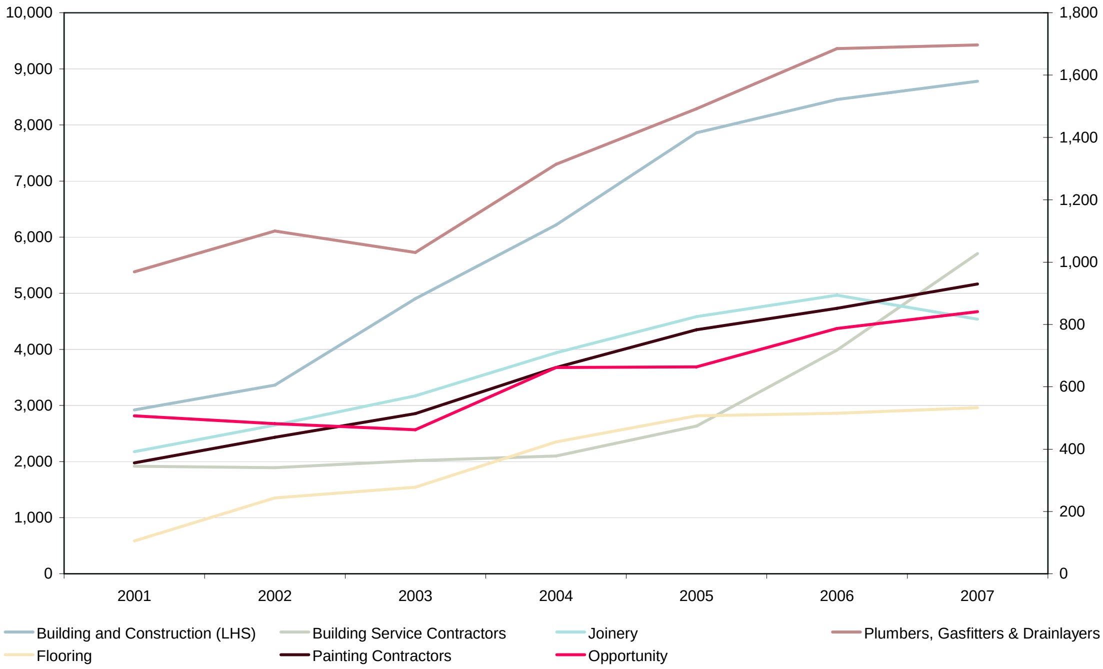
75. Notwithstanding the above, a 2005 report by NZIER for BCITO concluded that the industry appears to be *reasonably comfortable* with the training system and there is not an appetite for wholesale changes to the training system. NZIER found that employers are either working within the constraints of the current system or coming up with their own solutions. The report concluded that apprenticeship training is particularly well supported, notwithstanding that there are opportunities for improvement in relation to apprenticeship structure and

support, awareness and selection of the most suitable off-job training options, greater consistency of assessment against standards, and simplification of the range of models. The report also emphasised the importance of aligning the qualifications framework to the licensing scheme for building practitioners.

Participation in skill development

76. The number of participants in industry training and modern apprenticeships more than doubled between 2001 and 2007. Figure 5 shows the overall trends. The BCITO has been the main contributor accounting for more than 50% of ITO trainees and apprentices.[3] Similarly, the number of people attaining national certificate level qualifications increased by over 40% between 2003 and 2007, reflecting the increased participation in the preceding years. Two ITOs (BCITO and Infratrain) accounted for over 70% of National Certificates Awarded.

Figure 5: Participants in Industry Training by ITO



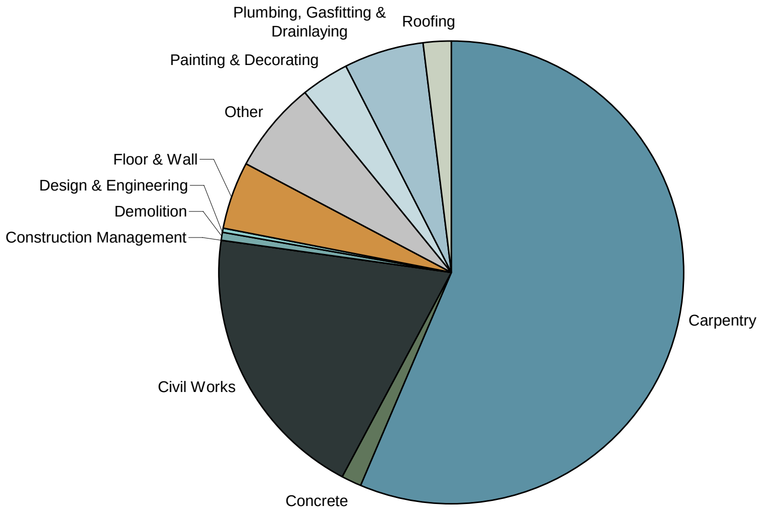
Source: MartinJenkins (2006) based on Ministry of Education data.

77. The majority of industry trainees are studying towards qualifications in carpentry (56%) and civil works (19%) with the remainder spread across qualifications relating to flooring and wall construction, plumbing, gasfitting and drainlaying, roofing and other areas (see figure 6). The qualification-level of training varies across occupations. For example, most training in civil works is at level 1-2 whereas the vast majority of carpentry is at level 4.

78. In terms of the demographic composition of trainees, nearly all trainees (95%) are male and this has remained fairly consistent since 2001. Approximately four out of every five industry trainees and apprentices are of European/Pakeha ethnic origin. The age of trainees has remained fairly constant over this period, with around one fifth aged between 15 and 19 and just under half aged between 20 and 29. One in twenty trainees are aged 50 or over.

3 Note the differences in scale. LHS refers to left hand scale.

Figure 6: Enrolments in National Qualifications for Construction ITOs, by Field of Study



Source: MartinJenkins estimates using Ministry of Education data.

79. As mentioned earlier, indications are that firms looking to lay off staff will focus in the first instance on unskilled or unqualified workers. Data from the BCITO shows that, as at June 2008, total apprentice numbers were down only slightly from a year earlier. However, the number of apprentice discontinuances reported by BCITO is up 14% on a year ago. There is a risk that young people who are unable to obtain a placement and complete their training requirements will become disillusioned and leave the industry.

80. Given that training programmes take up to four years to complete, now may be the necessary time for the industry to increase training numbers to respond to an expected pick-up in demand in 2012 (Infometrics, 2008). However, firms need sufficient levels of work to take on and train apprentices and there is little confidence that the necessary work will be available over the next year. Apprentice start-up numbers from BCITO are down 18% on a year ago. In general, good quality data on qualification completion rates is not available and there would be merit in undertaking future work to address this gap. Anecdotally, completion rates are poor in the sector, particularly for apprenticeships because there is little incentive on firms to support completion, once the main firm benefits of training have been realised.

81. Earle (2008) studies the link between changes in the supply of graduates with occupationally relevant qualifications and the level of unmet demand within those occupations. His main conclusion is that there are limited areas where there is a clear case that increasing the number of people attaining qualifications would likely contribute to reducing skill shortages. These areas include engineering (all levels), architecture (diploma) and building (certificate, diploma). In addition, there may be merit in increasing attainment levels in relation to architecture (bachelors and above) and building (bachelors and above), although in these areas the quality and relevance of provision and working conditions may also be important to address.

A strategic approach to addressing the issues

82. There taskforce has an important role to play in contributing to the development of an effective skills strategy for the sector, building on a range of activities already underway in the sector. An effective approach will require:

- A comprehensive approach to the drivers of skill deployment and utilisation within the sector, such as the range of broad areas canvassed in this report
- Engagement of key influencers in the sector
- Building as far as possible on existing forums, research and activities focused on the issue in the sector.

Summary of key issues for further exploration

83. A number of the issues currently facing the construction sector have been identified in the course of this report. In some cases, current government and/or industry action is underway seeking to address them. In most cases, current and planned actions appear partial relative to the systematic nature of the issues.

84. In most industries in the economy there is no centre of gravity for considering strategic issues that affect the industry as a whole. ITOs have been encouraged by the Government to step into this role in a facilitative capacity. The construction sector, on the other hand, currently enjoys the unique opportunity of both a taskforce of industry leaders and a department of state charged with a range of responsibilities in relation to the sector. Together, the two construction sector bodies can potentially make a critical contribution to galvanising action to tackle skill issues that affect productivity of the sector, working effectively with other key stakeholders for government and industry.

85. Key issues identified in this report include:

Skill demand, matching and utilisation

- There is limited capacity for employers to substitute capital for labour.

- Building design is becoming more complex, with an increasing range and sophistication of building materials, which in turn requires new techniques, such as use of modular materials and pre-fabrication off-site.

- Increased compliance requirements have also increased sophistication of demand for skills.

- The industry is currently experiencing a downturn in demand for building activity, and there are risks that this will become more significant and prolonged than originally expected because of the global credit crunch. As such, the full effects of current market conditions on employment are yet to be felt and a key issue for the sector is how to minimise any adverse impacts on construction industry workforce capacity and capability during the downturn.

- Related to the above point, there are risks that in the downturn a focus on maintaining industry investment in training takes a back seat, potentially leading to future skill shortages once demand picks up.

- Some features of the building industry are thought to decrease its attractiveness to high quality potential entrants, including long hours, hard working conditions, and relatively low wages (particularly compared to recent Australian equivalents).

- There are widespread concerns about turnover of newly-qualified people, particularly in the engineering and carpentry fields, and while wages have increased in New Zealand, there is wide recognition that pay rates in Australia in particular can still be substantially higher.

- An under-researched area is the extent to which the industry is effective at utilising the skills of its workforce, and whether there are any particular issues that could be addressed to better retain skilled workers in the sector.

Skill supply

- In trade occupations, the missing cohort of apprentices in the 1990s is making its effect felt now, with well qualified cohorts in both early adulthood and higher age groups nearing retirement. Sandwiched between these two groups is a relatively low base of skilled workers with supervision experience. This cohort would, historically, have provided the base for well-qualified supervisors, leading hands and trainers.

- There are significant concerns about literacy and numeracy levels of younger work-force entrants, along with lack of work-disciplines or ‘work readiness’.

- Skills in supervision and leadership are considered to be in short supply relative to demand. These include business and management; project management; quality assurance (linked to licensing requirements) and mentoring. To some extent, the increased need for supervision and mentoring capability has been linked to the above concerns about the calibre of younger work entrants.

- Under-representation of women and non-European ethnicities in most of the industry potentially hampers its ability to adapt easily to skill and labour shortages.

- In some trade occupations, there is a low supply of work-force entrants due to perceived unattractiveness of those occupations. In occupations such as engineering, there is significant over-representation of New Zealand Asian students, with disproportionately few New Zealand European students. This is thought to reflect a lack of interest in science among the majority of school students. Some consider the building industry has not been effective in promoting itself.

- There are some concerns about a loss of skill flexibility in the carpentry occupation due to increased specialisation and use of pre-fabrication techniques, and use of labour-only gangs.

- External migration flows have significantly impacted on the labour market at times during the last two decades. Some occupations have not recorded significant net inflows at any time in the last two decades. Volatility in annual arrivals and departures has also contributed to skill shortages.

Skill development

- The cyclical nature of the construction industry presents challenges to the training system supplying a sufficiently steady supply of trained job-seekers to meet demands over time.

- The industry is reasonably comfortable with the training system, and apprenticeship training on the whole is well supported, although some concerns were expressed about a 'bums-on-seats'/profit-making mentality among ITOs, at the expense of quality and responsiveness to employers. There also appears to be concern that the level of competition and 'patch protection' between various parts of the training system impact negatively on the quality of skill development on offer to industry.

- The industry had anticipated strong alignment between qualifications and the licensing structure, which has yet to emerge as a feature of training system. To some degree, the strong investment employers have made in qualifications recently is seen as being due to assumptions about this alignment, and there is a risk that drop-off could occur.

- There is mixed support for the various ITOs in the industry, with BCITO in particular being relatively widely viewed as being effective on the whole.

- Concerns about the effectiveness of the overall skill development/recognition system include:
  - A need for more structure and support in apprenticeship
  - A need for clearer structure for qualifications, and interlinkages between qualifications where competencies overlap or are interdependent. Lack of clarity can make it difficult for employers and potential trainees to access information required for informed choices.
  - Need for greater consistency of standards required in practical training and competency assessment within occupational qualifications.
  - Concern that there are variable levels of provision across different occupational areas, with large-volume areas being well provided for, but smaller volume areas receiving insufficient attention.

- In the carpentry occupation, there are mixed views about the dual apprenticeship model (the BCITO on-job-based apprenticeship and the provider-based CBANZ supported 'managed apprenticeship'), with some considering the diversity is appropriate as it responds to diverse employer preferences, while others would prefer a more standardised approach.

- The Unit Standard approach of the National Qualifications Framework continues to be viewed by at least some in the industry with scepticism. Concerns include that learning is being compartmentalised; the focus is on assessment rather than learning; and that it generates mediocrity rather than excellence.

Proposed areas for focus

86. Issues raise in this report suggest there are potentially significant issues for the taskforce to explore in four inter-related areas: system-level leadership; qualifications; quality issues; and addressing critical skill gaps.

System-level leadership

a. Building a more coherent industry 'voice' on requirements for skill development (volumes and content of provision)

   - How can the sector more efficiently communicate its skill development needs to the tertiary system? Is there potential to build on the approach currently being taken by IPENZ with the TEC?

b. Skill matching, retention and utilisation within the sector

   - What actions could the sector take to minimise the adverse impacts on workforce capacity of a significant and/or prolonged downturn in construction activity? Related to this, how might the sector mitigate the risks of a reduction in industry training during the downturn? How might this be led and co-ordinated?

   - What response can the sector take to some generic workforce capacity issues facing it, such as low workplace literacy and numeracy; high injury and fatality rates; strong gender disparities; the need to adapt to an increasingly multi-ethnic work-force?

   - What strategies need to be put in place by the sector to improve the attractiveness of the industry for new entrants and the existing workforce?

Qualifications

c. Qualification pathways within and between occupations:

   - Where are the gaps in career paths within and between occupations and how might barriers to career advancement and be addressed?

   - What 'staircases' could be built between occupational qualifications that could enrich the flexibility of the workforce and, therefore, the sector's capability and performance?

d. Coherence of qualification content

   - Where are the points of disjunction between sector-wide expectations of occupational competency and those working within those occupations, and how might these be resolved?

   - Is there a need to adjust processes and systems for qualifications development and approval to ensure wider industry and employer needs and requirements are factored into decision-making?

e. Alignment between occupational licensing and the qualifications framework

- Are current efforts sufficient to ensure coherence between occupational licensing and the qualifications framework? What more needs to be done to improve alignment, including in relation to recognition of prior learning?

Quality issues

f. Quality of training provision (provider issues and ITO purchasing decisions)

- What is the sector's view of training provision quality in New Zealand (either generic issues or problems common across training in the sector and identification and prioritisation of quality issues in particular types of providers or occupational areas)? What can be done to enhance the quality of training provision?

g. Consistency of assessment against standards

- What is the sector's view of assessment quality and consistency in New Zealand (either generic issues or problems common across training in the sector and identification and prioritisation of quality issues in particular types of providers or occupational areas)? What can be done to enhance the quality and consistency of assessment?

Critical skill gaps

h. Literacy and numeracy training (pre-employment and in employment)

- How can the construction industry work together with government to better tackle literacy and numeracy levels in work-force entrants and the existing work-force?

- How should this work be prioritised and why (for example, are there particular occupations that should be targeted first, or particular regions of the country; or types of firms?)

i. Advanced trades training

- How can the task-force provide impetus to the development of more effective career paths within the sector – particularly ensuring timely completion of a coherent suite of higher-level qualifications to encourage development of skills?

j. Leadership and management skills

- Where are the areas of most critical leadership and management skill gaps in the sector?
- What does the sector need to do to ensure a sustainable flow of effective managers and leaders into the future?

Appendix: Skill-related initiatives already underway

New government initiatives

The New Zealand Skills Strategy

The New Zealand Skills was launched earlier in 2008 and is a joint initiative of a tripartite forum, comprising government Ministers, officials, Business New Zealand, the New Zealand Council of Trade Unions, and the Industry Training Federation. The New Zealand Skills Strategy Action Plan 2008 states that it "aims to build a shared understanding of the challenges New Zealand faces in meeting the demands of a growing economy, so that we can reach a consensus about priorities for action and develop solutions that will result in real progress through a shared commitment to implement agreed actions.

Following public consultation, the forum has developed an action plan, which is currently being implemented. Its five goals are:

Goal 1: Improve the use and retention of skills to transform work and workplaces

Goal 2: Increase employer and worker awareness of their skills and needs

Goal 3: Influence the supply of skills through a more responsive education and training system

Goal 4: Develop a unified approach to defining, valuing and measuring skills

Goal 5: make the most of the available workforce by supporting everyone to work, through skills development and supportive workplace practices.

Areas for action in 2008 have been identified as follows:

- Improve management and leadership capability in organisations to better develop and use skills:
- Increase the literacy, language and numeracy skills of the workforce
- Create a better match between workers' skills and industry and regional needs
- Support young people currently in the workforce to increase their skills and engage in relevant training.

Under the strategy, a number of actions in the construction sector, or of potential relevance to it, are currently being developed. These include:

- A project led by Business New Zealand and the Industry Training Federation to develop a partnership between tertiary organisations and others focused on enhancing management and leadership skills in the building and construction sector.
- The Manufacturing Action Group is using the framework of the Skills Strategy to pursue skills initiatives in the manufacturing sector.
- Collaboration between the Institute of Professional Engineers (IPENZ), the Association of Consulting Engineers New Zealand (ACENZ) and the Department

of Labour to investigate the demand, supply and matching of skills in the engineering sector. The aims of the project are to provide information on the professions and develop a shared understanding in the engineering sector of its challenges and opportunities relating to workforce skills. The Department of Labour has advised that a report from the project is due in May 2009.

Addressing overlapping provision

The Minister of Tertiary Education established in 2008 a Ministerial task-force aimed at addressing overlapping provision, for example, funding of apprenticeship through two routes: 'managed' apprenticeships provided through institutes of technology and polytechnics; and apprenticeships purchased – at a lower level of government funding – through ITOs. The task-force comprises representatives of the Industry Training Federation, the Institutes of Technology and Polytechnics of New Zealand (ITPNZ), some Chief Executives of ITPs and ITOs (including BCITO; and TEC officials. The task-force has focused to date on how to move the ITO and ITP sector towards a better working relationship, examining opportunities and incentives, and its current focus is on developing an action plan.

Relevant research and strategy development

Skills Strategy research

Under the Skills Strategy, a number of areas of relevant research are currently being advanced, as a basis for further development and refinement of the Skills Strategy:

- Research into the trans-Tasman labour market, aimed at learning more about the dynamics of the trans-Tasman labour market overall, and possible levers to influence it. Areas of focus include skills shortages in different sectors; comparison of pay and work conditions; and the role of labour market and other factors in motivating movement to and from Australia.

- Exploring issues relating to small and medium enterprises accessing industry related training and relevant subsidies.

- A stock-take of the amount and level of training directed towards management and leadership training.

- Development of a National Employer Skills Survey, focused on improving understanding of the issues facing employers in terms of recruitment, skills gaps and training.

Industry Training Organisation strategic leadership

The Tertiary Education Commission has been, and is currently, funding Industry Training Organisations (ITOs) – including a number in the construction sector - to undertake research on skills supply and demand to inform their leadership roles, and strategy development. These are outlined below.

Strategy development

The Building and Construction ITO is being funded for three years to develop a construction industry skills strategy describing detailed strategic training plans for BCITO sub-sectors and each of their trades and sub-trades.
Opportunity Training (cranes, scaffolding and rigging) is also develop a skills strategy to identify current and future skill and training needs to inform planning and delivery of future education and training (1 year).

Research

ITOs are also undertaking a number of research projects and research-related activities as follows:

- BCITO commissioned NZIER to complete a qualitative analysis of skills and training issues in the building and construction industry in 2006.
- Infratrain is building internal research capability to develop industry training plans (21 months)
- Plumbing, Gasfitting, Drainlaying and Roofing ITO: is researching skills shortages and workforce needs and establish a monitoring system to track changes and progress over time (3 years).
- NZ Flooring ITO is researching, piloting and evaluating best practice to transform industry learning practice (3 years).

Research already completed by ITOs on supply and demand issues includes:

- The Joinery ITO commissioned NZIER to research the take-up of training in the glass industry, possible barriers to training take-up and identify ways those barriers may be overcome (2006).
- Opportunity Training commissioned Infometrics reports on:
  - the employment profile and future demand for crane operators (May 2008)
  - The employment profile and future demand for scaffolders and riggers (May 2008).

Qualifications review and development

Infratrain is being funded by TEC to undertake a number of areas of qualifications development addressing concerns in the construction sector:

- Researching the requirement for a suite of post-graduate certificates in specialised civil engineering to provide a career path beyond the National Diploma (1 year)
- Develop a qualifications pathway leading to an NQF Level 8 National Diploma in Asset Management (2 years)
- Develop a National Certificate (NQF Level 5) in Contract Management that meets the needs of industry and provides a flexible career pathway (1 year).

Development of ITO clusters in key industries

As part of its measures to boost ITO sector leadership, the Tertiary Commission has facilitated the development of a number of ITO clusters. In the construction sector, the Built Environment Training Alliance (BETA) has been established. The alliance comprises the Building and Construction ITO; the Painting and Decorating ITO; the Flooring ITO; Infratrain NZ; the Joinery ITO; Plumbers, Gasfitters and Drainlayers ITO. BETA has received TEC funding to:

- develop and use the demographic / skills forecasting model designed to provide ITOs in BETA with information to enable them to provide strategic leadership to the tertiary education system and industry (3 years)
- develop school qualifications focused on glass and joinery.