AECOM

Submission to Productivity Commission Inquiry on Public Infrastructure

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1. Introduction

The strength of the Australian economy over the past decade led to a high demand and low supply construction labour force. Buildings and civil infrastructure projects had to compete for labour particularly against higher paying projects associated with the mining, oil and gas sectors.

In more recent years, the slowing of capital expenditure expectations in the resources sectors has resulted in the supply demand equation for trade labour shifting.

Structural changes in the Australian economy require both the public and private sector to deliver more with less. Productivity improvement opportunities are not isolated to the cost or output from labour alone. Other interconnected factors must also be considered to improve productivity in a holistic manner.

By example, the construction industry could significantly benefit from greater consideration towards manufacturing processes (on-site versus off-site), use of new technology and processes like Building Information Modelling (BIM), new procurement processes like Integrated Project Delivery and labour force agreements.

2. Trade Labour Force Entitlements, an International Comparison

The comparisons shown here are related to direct costs, however, the value derived from each respective workforce is not addressed in this paper.

Research conducted by AECOM across seven countries reveals significant differences in trade labour force entitlements. Factors reviewed include; days off per year, ordinary hours worked per week, typical stop work conditions and overtime rates.

The CFMEU Victorian on-site agreement and the current national award entitlements have been used as the benchmark for Australia. In comparison to the other six nations researched, Australia's labour force agreements are more prescribed across the industry as a whole than in any other nation researched.

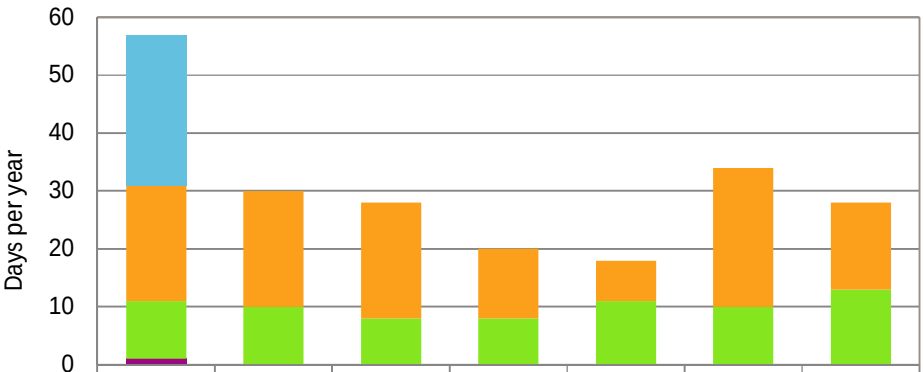
In all other nations labour force entitlements are independently agreed project to project. Naturally trends occur and contractors simplify administration costs by adopting similar agreements across multiple projects.

In contrast to Australia, among others, trade unions are illegal in the United Arab Emirates.

2.1. Days Off per Year

Annual leave and public holiday entitlements in Australia are in line with global trends, however, unique to Australia is the accumulation of time rewarded in lieu through Rostered Days Off (RDOs). In the construction industry, for the most part, RDOs are isolated to trades. During RDO days, non-trade labour (ie planners, architects, designers, consultants, etc) do not have days off. The measured impact of trade labour RDOs across the wider industry is not known.

Figure 1 – International comparison of trade labour construction working days off per year (excludes stop work due to inclement weather or industrial disputes)
Source: Based on AECOM market research



	Australia	New Zealand	UK	US	Singapore	UAE	South Africa
RDOs	26[1]	0	0	0	0	0	0
Annual Leave	20[2]	20[3]	20[4]	12[5]	7[6]	24[7]	15[8]
Public Holidays	10	10	8	8	11	10	13
Extras	1[9]						

Note: Data shown for an employee at end of first year of contract and based on average entitlements in absence of fixed agreements.

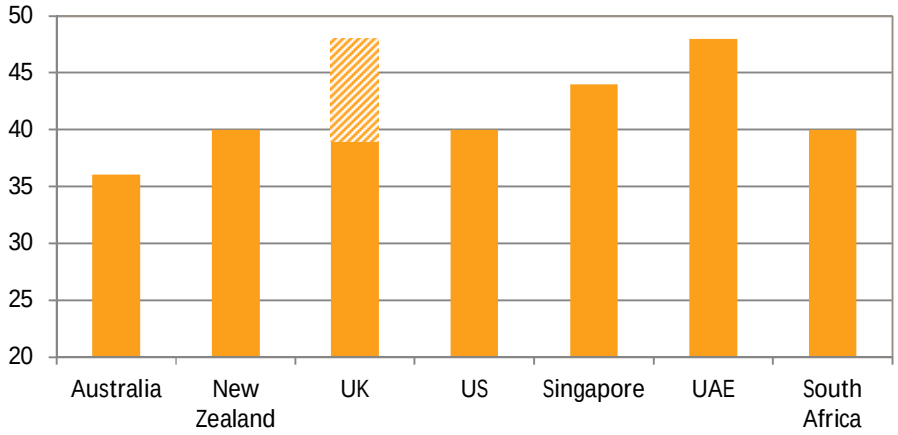
[1] *Australia*: Rostered Days Off based on 2014 CFMEU Victoria on-site 36 hour week agreement.
[2] *Australia*: Leave loading of 17.5% (only country with leave loading).
[3] *New Zealand* annual leave paid at the employees average hourly rate over the past 12 months.
[4] *European Union* Working Time Directive has minimum 20 days. CIJC and BATJIC working rule agreement has 29 days including public holidays.
[5] *United States* Federal law does not require that employers provide paid vacation; this is set by individual employers. Most union contracts include paid leave. Leave is paid by the union. Employers make hourly pay contributions to the union leave fund for each worker. Average annual leave is 12 days although 25% of workforce receive no paid annual leave or paid public holidays.
[6] *Singapore*: 7 days of leave on first year of service. Additional 1 day for every subsequent year until a maximum number of 14 days.
[7] *United Arab Emirates*: 2 days per month annual leave for any employee with more than 6 months but less than 1 year of service. 30 days annual leave for employment exceeding 1 year. Source: Ministry of Labour.
[8] South Africa: Must be taken over a consecutive 21 days (15 days leave, plus weekends, but excluding public holidays). If leave does not coincide with forced shutdown periods unpaid leave must be taken unless negotiated with employer.
[9] *Australia*: 1 paid day off per year to attend union picnic.

2.2. Trade Labour Hours per Week

At 36 hours, ordinary hours worked per week in Australia are the lowest of the countries reviewed. However, it is noted that additional hours are worked per week in order to accrue RDOs. On-site working week, including RDO accrual, is 40 hours. Hours worked beyond eight hours per day incur overtime rates.

In the other nations reviewed, hours worked beyond ordinary incur overtime penalty in replace of time in lieu accrual.

Figure 2 – International comparison of typical trade labour hours worked per week
Source: Based on AECOM market research



Notes

Australia: (5x8 hour days including 4 hours of RDO accrual) - CMFEU on-site agreement
New Zealand: Standard work week is 40 hours, but no minimum (or maximum) hours per week set at national level. Generally the terms are set by the contractors employing the labour.
UK: Range between 39 and 48 hours per week. Refer to: European Union Working Time Directive; CIJC working rule agreement; and BATJIC working rule agreement.
US: Some unions or individual companies may specify maximum or minimum hours outside of standard work week.
Singapore: Hours can be distributed across a 5 or 6 day week depending on the contract.
UAE: Maximum ordinary working hours is 8 hours per day for 6 days per week. During Ramadan, normal working hours should be reduced by 2 hours per day.

2.3. Stop Work Conditions

Stop work associated with inclement weather tends to consider relative normal conditions in each country. For instance, wet weather in the UK does not necessarily trigger a stop work condition, while in the UAE, working hours are adjusted to alleviate the impact of high temperatures. Australia is the only nation with conditions associated to a set temperature. In most other nations this is at the discretion of the safety representative or the relevant labour force department.

Figure 3 – International comparison of typical trade labour stop work conditions
Source: Based on AECOM market research

Australia	Stop work at 35degC unless air-conditioned. Stop work in wet weather. Covered walkways must be provided. Average of 12 weather related disruptions per year.
New Zealand	No national 'stop work' conditions, although Occupational Safety and Health mandates safe work environments. Varies depending on location and type of work. Generally extreme heat and cold will trigger stop work, but no set limit. Rain can stop work, but that is more for protection of materials than workers.
UK	No national 'stop work' conditions, although UK Health and Safety Executive and other legislative mandates require safe working environments and site specific assessment of unsafe conditions. Wet weather not necessarily a stop work condition. No max temperature.
US	No national 'stop work' conditions, although Occupational Safety and Health Administration mandates safe work environment criteria. This depends on location and type of work being performed. Generally speaking heat (and cold) will trigger stop work, but not at a set limit. Rain can stop work, but it is more to protect materials than workers.
Singapore	Stop work orders issued at the discretion of employer. Unsafe work to be reported to the Ministry of Manpower. Demerit points used as a deterrent on employers. Haze is a prominent inclement condition. On occasions masks are issued to protect worker's health.
UAE	During the summer months workers in direct sunlight are entitled stop work for 2.5 hours from 12:30pm-3:00pm, however, there are many exceptions that to justify work that cannot be stopped due to 'technical reasons'. Employers are required to provide shaded areas during this break period.
South Africa	Employees report for work and wait for 2 hours before being sent home on rain effected days. If rain starts during work, the same applies (2 hours wait before allowed to go home). This is not necessary the case with all construction companies.

2.4. Overtime Rates

Australia has the most favourable overtime rates that are incurred after working a 40 hours week (which includes four hours of RDO accrual).

Figure 4 – International comparison of typical overtime rates
Source: Based on AECOM market research

Australia	2x standard rate over 8 hours per day with meal allowance after 1.5 hours. - CFMEU Victoria Agreement
New Zealand	1.5x standard rate for first 4 hours, 2x thereafter. (common practice)
UK	Monday to Friday first four hours after completion of normal hours at 1.5x standard rate, thereafter at 2x until start of following day, Saturday at 1.5x until completion of first four hours and thereafter at 2x standard rate, Sunday 2x until starting time on Monday morning - CIJC Work Rule Agreement
US	Federal law mandates construction workers receive overtime at a minimum of 1.5x standard rate for any hours worked above 40 per week. Individual union contracts can also have different arrangements.
Singapore	Overtime not less than 1.5x the standard rate.
UAE	Minimum of 1.25x standard rate. If overtime is between 9:00pm and 4:00am, rate is increased to 1.5x. Actual overtime may not exceed two hours per day unless work in necessary to prevent substantial loss or serious accident or to eliminate or alleviate its effects.
South Africa	1.5x standard rate on an ordinary day. 2x on Sunday and public holidays.

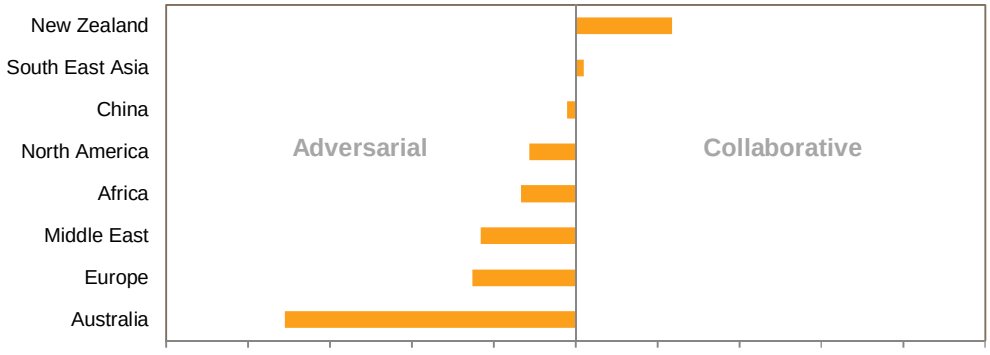
3. Perceptions on Industry Collaboration

In 2011, AECOM conducted a global survey of leading industry practitioners who were asked to rate their perspective towards industry collaboration in their home country. Australia's New Zealand neighbour topped the ranking on perceived collaborative working environments, yet Australia ranked the lowest. This self-view of our industry reveals productivity improvements might not only be linked to industry reform but also a shift in our cultural behaviour.

3.1. Global Sentiment Survey Results

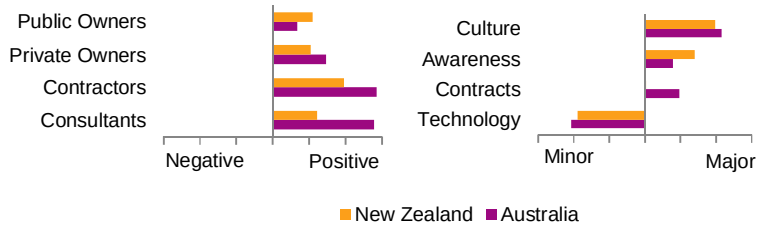
Although the findings are based on perceptions of industry participants rather than quantifiable metrics, it is undeniable that Australia significantly trails other countries surveyed.

Figure 5 – Survey of relative views on industry collaboration
Source: AECOM 2013 Blue Book (Global Construction Sentiment Survey)



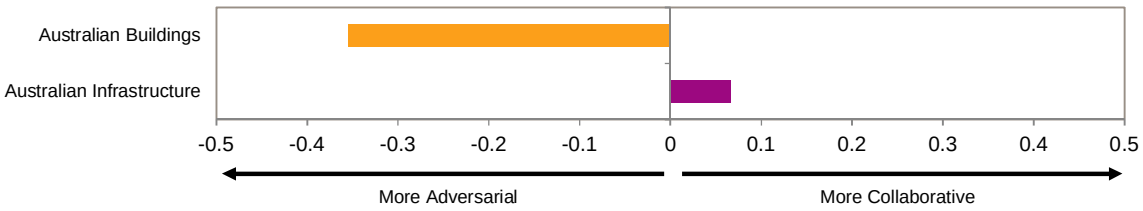
However, there is a strong willingness across the entire industry to improve collaboration with the leading barriers that need overcoming being culture and awareness. The later can be addressed through similar government initiatives as the UK BIM mandate (refer www.bimtaskgroup.org).

Figure 6 - Willingness and barriers to improved collaboration
Source: AECOM 2013 Blue Book (Global Construction Sentiment Survey)



An example of the impact of more collaborative contracting is shown when comparing the buildings and civil infrastructure markets in Australia. The adoption and industry exposure to alliance contracting in civil infrastructure projects has had a notable impact on the perceived levels of collaboration in the sector.

Figure 7 - Comparison between Australian buildings and civil infrastructure markets
Source: AECOM 2013 Blue Book (Global Construction Sentiment Survey)



4. Consideration for Wider Productivity Improvement, Barriers and Opportunities

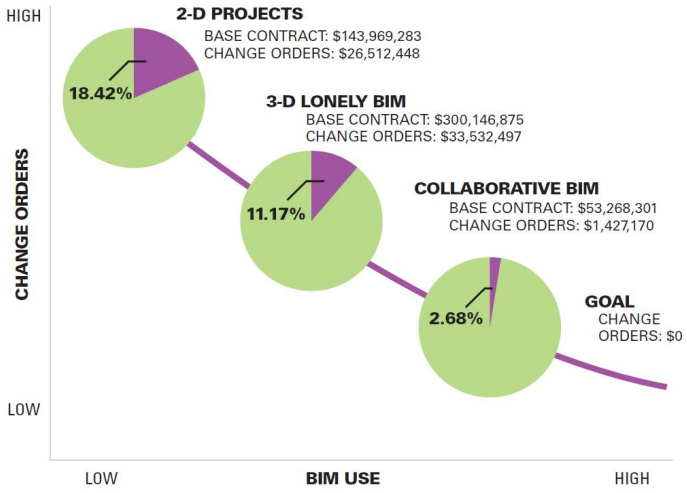
Design and Consulting Labour Force

Demand for design resources has diminished significantly in the last 12 months resulting in pockets of unemployment. These resources may leave the industry, never to return, creating significant supply issues when the property sector recovers and could temper productivity.

Enhanced Process and Technology (Building Information Modelling)

The industry is always looking for creative labour and cost saving innovations. The use of Building Information Modelling is escalating rapidly. This has the potential to radically change the cycle of design through construction and ownership. The lines between traditionally discrete components will become blurred and the benefits of fully integrated delivery are beginning to be witnessed.

Figure 8 – Measured productivity improvements associated with the adoption of improved collaboration through the adoption of BIM
Source: McGraw Hill



"A study by [US construction contractor] J.C. Cannistraro of 408 projects valued at $559 million shows how, in the big picture, BIM saves money as the team gets more collaborative."

Procurement

Alternative procurement models, similar to the risk-reward model in civil infrastructure alliance contracting, could yield significant productivity improvements for the buildings industry. The growing use of Integrated Project Delivery, predominantly in the US, is refocussing goals and methods of operation. Once established and operating effectively the benefits of delivering projects faster, on budget and of intended quality exceed those of more established procurement models and should be considered for the Australian market.