Comments on
2025 Opportunities to Improve Productivity of The Construction Industry Interim report

[redacted]

Dear Madam/Sir:

Thank you very much for your great effort in preparing the interim report. I would like to share my comments. As I aim to raise as many points as possible, please note that not all of my remarks are necessarily based on documented evidence. I appreciate your kind understanding in this regard.
If you have any questions or if there are topics you would like us to work on together, I would be very happy to discuss and collaborate with you.

Thank you.

Best regards,
[redacted]

Improving project selection and sequencing

1. **Whether internal to government mechanisms can help improve decision making, and if so, what has been successful in the past or in other jurisdictions.** (Summary, P39)
   - Significant fluctuations in demand are not desirable for the sustainable development of the construction industry. In Japan, for example, the establishment and implementation of medium- to long-term infrastructure development plans proved effective not only in delivering infrastructure facilities and restoring the national land from frequent natural disasters, but also in supporting the sustainable growth of the construction industry (Appendix 1).
   - The current project appraisal systems in Queensland appear to be well developed. It is therefore critical that government officers adhere strictly to the prescribed procedures. From my experience in Japan, strong political leadership has been highly effective in enabling government officers to make reasonable and transparent decisions regarding project selection (Appendix 2).

General procurement policies

2. **The benefits and costs of adopting standardised contracts regarding the Queensland Government Building and Construction Training Policy** (Summary, P40)
   - The following are my preliminary observations:
   - According to the NCVER report, apprentice completion rates in Queensland appear to be slightly higher than those in New South Wales and Victoria, suggesting that the Queensland system has certain strengths.
   - As noted by Civil Contractors Federation Queensland, “skilling targets or quotas are useful to ensure all of industry…” (p.108, Interim Report). Maintaining such quotas seems critical to prevent free riding within the system.
   - However, as criticised by Master Electricians Australia, “larger businesses working on government projects are incentivised to entice 3rd or 4th year apprentices from local small businesses, offering higher wages” (p.107, Interim Report). This indicates that “cherry-picking” remains a risk under the current system.
   - Potential measures to refine the system could include:
     - Weighting incentives towards new entrants,
     - Rewarding completions,
     - Aligning apprenticeships with recognised shortage areas (e.g., counting hours in shortage trades at a premium multiplier such as 1.5×).

Contractual arrangements

3. **How Queensland Government procurement policies provide benefits or costs?** (Summary, P42)
   - In Japan, one-sided contracts were widely used in public projects from the 1870s to the 1940s. An unintended consequence was that “clear economic calculation could never be realized in construction contracts.” The use of such contracts hindered the sound development of the construction business and industry. To address this, the

government worked persistently to replace one-sided contract clauses. The development and adoption of standardized contracts became one of the key measures to resolve this issue (Appendix 3).

Financial regulations

4. **Whether trust accounts have been effective in reducing cases of non-payment in the Queensland construction industry** (Summary, P50)
   - Construction insolvencies are a nationwide issue, but Queensland has a particularly visible history of builder collapses and unpaid subcontractors. This raises the question of whether the following relationship exists:
     Higher financial risk in the construction sector in Queensland (insolvency risk and non-payment to subcontractors)
     → Stricter regulatory or framework measures
     → Higher administrative costs
     → Negative perceptions of stricter measures.
   - If this relationship holds, the effectiveness of measures would depend on the underlying level of financial risk in the industry. Accordingly, I suggest that the following three issues be discussed together:
     a) Is the risk likely to increase further in the future?
     b) If so, how can the risk itself be reduced or mitigated?
     c) How should the protective framework for subcontractors be redesigned in response?

Modern methods of construction (MMC)

5. **The policies or practices that would allow the opportunities for digital technologies to be fully leveraged** (Summary, P42)
6. **Identified barriers that prevent widespread uptake of MMC and Barriers to the adoption of MMC in government procurement processes** (Summary, P51)
   - My impression is that trade training delivered through TAFE and RTOs remains largely traditional, focusing on carpentry, blockwork, and wet trades. By contrast, skills relevant to modern methods of construction (MMC) – such as modular assembly, digital modelling, quality assurance in factory settings, and logistics for large pre-manufactured components – are still only minimally reflected in current curricula.
   - This gap creates a risk: even if MMC adoption is promoted, contractors will encounter a skills bottleneck if training does not evolve in parallel.
   - To address this, I propose linking procurement incentives with skills development.
   - In the tendering process, contractors could be awarded additional technical points (e.g., 5–10%) for demonstrating credible MMC integration, including offsite manufacture, modularisation, design for manufacture and assembly (DfMA), and digital-to-factory workflows (Appendix 4).
   - Apprenticeships and Certificate III programs could also incorporate MMC modules, such as:
     – DfMA fundamentals, modular construction safety, and digital measurement;
     – Delivered in collaboration with prefab factories or MMC suppliers.
   - The objectives of this proposal can be summarised as follows:
     – Procurement reform provides a demand-side pull, encouraging contractors to adopt MMC in order to win bids.
     – Training reform provides a supply-side push, equipping apprentices & workers with the necessary MMC skills.
     – Together, these measures establish a reinforcing system where MMC adoption is supported not only by policy but also by industry capacity.

Labour market

7. **The underlying drivers, incidence and scale of issues in the training and apprenticeship system as they affect the construction industry** (Summary, P53)

<Preliminary Observation>

   - "Safety First" is widely taught as a core principle at RTOs and TAFEs.
   - Some RTOs have already expanded this focus by including units on respectful workplaces, mental health awareness, and diversity and inclusion.

<Proposed Guiding Principle: Human First>

   - I propose going beyond "Safety First" to adopt "Human First" as a guiding philosophy in trade training.
   - This principle recognises the individual as more than just a worker—emphasising mental health, career development, cultural respect, mentoring, support, and dignity at work.
   - By fostering this broader recognition of the person, the training system can strengthen workplace culture, directly improving apprentice completion rates and reducing attrition.

<Recommendation>

· It seems worthwhile to study the benefits of embedding “Human First” values into every trade certificate program by making respect, inclusion, and wellbeing compulsory learning outcomes.
· Embedding this principle could position RTOs and TAFEs not only as providers of technical training but also as leaders in shaping a healthier, more sustainable construction workforce.

8. Any other issues or considerations that should be identified in the recommendation (Summary, P53)

<Preliminary Observation>

· The construction industry in Queensland faces several challenges: an ageing workforce, a high number of serious injury claims (4,350 in 2022–2023), and low apprentice completion rates. These issues are also evident across the broader Australian construction industry.
· A key contributing factor appears to be the pervasive macho culture. Young workers, often teenagers, may feel pressured to “prove themselves” by lifting loads beyond their safe capacity. Bullying and hazing are also reported, where apprentices are pushed to “toughen up” or ridiculed if they raise concerns about fatigue, injury, or stress.

<Hypothesis>

· One of the fundamental drivers of this macho culture may lie in the way manual handling risk is currently managed.
· Under the WHS Act/Regulations and the Hazardous Manual Tasks Code of Practice, employers (PCBUs) are required to eliminate or minimise risks through risk assessment, task redesign, mechanical aids, and training.
· However, under this risk-based approach, supervisors still retain discretion—and in practice, this can result in pressure on young or inexperienced workers to carry more than is safe, reinforcing the macho culture.

<Proposal: Introducing Lifting Caps or Trigger Values>

· I suggest examining the benefits and costs of introducing a lifting cap (or “trigger values”) to reduce the role of individual discretion and shift responsibility from the worker to the system.
· This approach could:
  – Help weaken macho culture,
  – Reduce the incidence of physical injuries, and
  – Encourage the adoption of productivity-enhancing practices such as mechanisation, prefabrication, and improved logistics.
· As an example, the following trigger values could be considered for men:

Table 1: An example of trigger values for men

Load weight	Requirement	Rationale
>25 kg (single-person lift)	Prohibited – must use mechanical aid (hoist, trolley, crane) or team lift.	Aligns with international practice (≈UK HSE guideline & US NIOSH base constant). Sends strong cultural signal.
15–25 kg	Risk assessment required – consider posture, frequency, environment. Must demonstrate control measures (team lift, breaks, aids).	Encourages proactive planning, but still allows flexibility.
<15 kg	Generally low-risk, but still subject to risk management if awkward, repetitive, or extended reach.	Avoids “under the cap = always safe” mindset.

Appendices

Appendix 1. Comparative Lessons for Queensland from Japan's Long-Term and Disaster-Resilience Planning
Japan's history of infrastructure planning offers useful parallels for Queensland, particularly in managing demand volatility and embedding disaster resilience into policy.

1. The Value of Long-Term Planning

- In Japan, five-year sectoral plans once provided stable, predictable investment in infrastructure, well suited to the country's rapid economic growth during the mid-20th century.
- Although national sectoral plans were eventually abolished, some regions such as Shikoku continue to implement long-term (20+ year) highway network plans, which give local construction companies greater certainty and support industry stability.
    - **Lesson for Queensland:** Developing structured, multi-decade infrastructure pipelines—rather than relying heavily on ad hoc projects—could provide contractors with clearer visibility of future demand, helping to stabilise the workforce and encourage long-term investment in capacity.

2. Disaster-Resilience as a Strategic Driver

- Japan, being highly disaster-prone, has repeatedly mobilised large-scale restoration programs after major events such as typhoons and earthquakes.
- Following the Great East Japan Earthquake, the government introduced the National Land Resiliency Plan, which has been extended multiple times. This plan not only protects communities but also sustains the construction industry by ensuring ongoing demand through resilience and recovery projects.
    - **Lesson for Queensland:** With its exposure to cyclones, floods, and bushfires, Queensland could embed disaster-resilience planning into its long-term infrastructure policy. This would provide dual benefits: safeguarding communities while giving the industry a stable and counter-cyclical source of work.

3. Dual Role of Restoration Projects

- In Japan, restoration projects serve a dual function: they are essential for public safety and regional recovery, and they act as an important source of investment for the construction industry.
    - **Lesson for Queensland:** Post-disaster reconstruction should be integrated into broader industry sustainability strategies, ensuring that emergency investments also build capacity, foster innovation (e.g., prefabrication for rapid rebuilds), and strengthen industry resilience.

Takeaway for Queensland:

- Japan demonstrates that combining long-term infrastructure planning with resilience-focused investment creates stability for industry and protection for communities. Queensland could adopt similar approaches—by developing structured long-term pipelines and embedding disaster-resilience strategies—to reduce volatility, improve preparedness, and support a sustainable construction sector.

Appendix 2. Lessons for Queensland from Japan's Shift in Project Appraisal
Japan's evolution in infrastructure governance offers several lessons that may be relevant for Queensland.

1. Moving Beyond Desktop-Driven Planning
Until around 2010, Japanese infrastructure projects were often prepared with limited user consultation, and budget discipline was weak. The culture of "born small, grow big" (understating budgets at the outset and allowing them to expand later) undermined transparency and efficiency.

- **Lesson for Queensland:** Avoiding "desktop-driven" planning requires embedding structured consultation with end-users and communities early in the project lifecycle. This can help ensure projects are not only technically feasible but also socially legitimate.

2. Political Leadership Driving Reform
When the Democratic Party took office in 2009, it was critical of wasteful projects and pushed the Ministry of Land, Infrastructure, Transport, and Tourism (MLIT) to reform. Under strong political leadership, systematic project appraisal was introduced: pre-, mid-, and post-appraisal stages, clear evaluation manuals, and mandatory oversight committees.

- **Lesson for Queensland:** Political leadership can be a catalyst for improving governance. By mandating independent oversight and multi-stage evaluations, government can enhance transparency and public trust in infrastructure spending.

3. Institutionalising Stakeholder Engagement

Japanese reforms required regional MLIT bureaus to establish Project Evaluation and Monitoring Committees, which reviewed cost-effectiveness analyses (including non-monetary effects) and debated project validity. For road projects, approval by the National Road Council required structured surveys of stakeholder views and comparison of multiple route/design alternatives.

- Lesson for Queensland: Formal mechanisms for stakeholder engagement—beyond ad hoc consultation—can improve decision quality, reduce opposition, and create greater accountability in project selection.

4. Embedding Rigorous Appraisal Across Sectors

The model was replicated in other ministries (e.g., Agriculture, Forestry, and Fisheries), embedding rigorous evaluation across multiple sectors.

- **Lesson for Queensland:** Applying consistent appraisal frameworks across infrastructure sectors can deliver whole-of-government coherence and prevent weak governance in some areas from undermining broader policy goals.

Takeaway for Queensland

Japan's reforms illustrate the benefits of shifting from top-down, desktop-driven planning toward rigorous, transparent, and participatory appraisal systems. For Queensland, adopting stronger staged evaluations, independent review committees, and formalised stakeholder engagement could strengthen governance, reduce risks of cost escalation, and build greater confidence in infrastructure delivery.

Appendix 3. History of Contract Management in Japan

Historical Context in Japan

- When Japan's new government was established in 1868, industrialisation became a national priority, and infrastructure development was critical.
- Until around the 1940s, government contracts contained highly **one-sided clauses**, for example:
  a) The payment period by the owner was unclear.
  b) If the owner unilaterally discontinued work or changed the design, no compensation was provided to the contractor.
  c) Damages to the contractor caused by the owner's delay (e.g., in material orders) were assessed solely by the owner.
  d) While penalties were imposed on contractors for default, there were no penalties for default by the owner.
  e) In case of disputes, the owner had unilateral authority to settle them.
- These clauses arose due to:
  i) an unstable government budgeting process,
  ii) the presence of many inexperienced or incapable contractors, and
  iii) the superior–inferior ("feudalistic") power relationship between client and contractor.
  (Strictly speaking, i) and ii) were necessary conditions, while iii) was a sufficient condition for one-sided contracts.)

Consequences

- Contractors often responded by prioritising relationships over performance. As Furukawa (1963) observed:
  "We contractors can easily get profit if we receive a job by courteously bowing to the owner" (Figure 1).
- Kawashima & Watanabe (1950) summarised the consequence:
- "Clear economic calculation can never be realized or exist in construction contract."
- Watanabe (2006) described two resulting vicious cycles: a feudalistic system of contracting and an industry prone to uncertain ability and speculative business practices (Figure 2).

Figure 1. Contractor's Apologetic Response

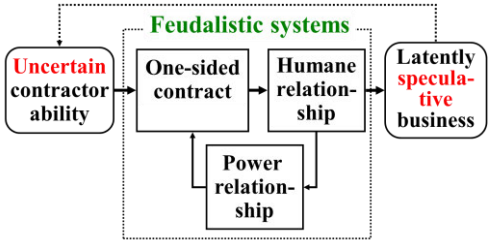

Figure 2. Unintended Consequence of Vicious Cycle

Reforms

- From the 1950s, the Central Construction Council was established. Correcting one-sided contracts became a key priority, and standardised covenants were developed.

· While not all one-sided clauses could be eliminated at once, steady reforms gradually replaced them, strengthening fairness in contracting and supporting the sound development of the industry.

Takeaway for Queensland

· Japan demonstrates that one-sided contract conditions can undermine industry culture and sustainability, but that steady, standardised reform can reverse these effects. Queensland can learn from this history by prioritising balanced contracts as a lever for building a healthier, more resilient construction sector.

Appendix 4. Policy Recommendation: Using Procurement Incentives to Promote MMC in Queensland

Rationale

· The adoption of modern methods of construction (MMC) is essential for boosting productivity and addressing workforce and capacity challenges in Queensland's construction industry.
· Procurement processes can play a powerful role in accelerating MMC uptake. One effective mechanism is to award additional technical points in tender evaluations to bidders who credibly commit to using MMC approaches such as offsite manufacture, modularisation, and digital-to-factory workflows.

Challenge

· A key difficulty is determining how much weight should be assigned to MMC in bid evaluation.
· The conventional approach, often based on the Analytical Hierarchy Process (AHP) and expert judgment, introduces an element of subjectivity. This may weaken transparency, reduce stakeholder confidence, or fail to reflect the true balance of costs and benefits.

Innovation

· Watanabe et al. (2025) propose a method that applies a Stackelberg game model to procurement weighting.
· Instead of relying purely on expert opinion, the model formulates an optimisation problem: it maximises the benefit to the awarded bidder, while ensuring that the public owner also achieves maximum benefit.
· This approach allows for more objective and systematic determination of weights when introducing new technologies such as MMC.

Application to Queensland

· The Stackelberg-based model is flexible and can be tailored to:
  – Specific technologies (e.g., modular construction, digital modelling, or prefabrication logistics), and
  – Specific policy objectives (e.g., productivity gains, workforce skilling, sustainability).
· By applying this model, Queensland could:
  – Provide transparent and evidence-based incentives for MMC adoption,
  – Reduce reliance on subjective judgment in procurement weighting, and
  – Create a reinforcing system where policy (demand-side pull) and skills development (supply-side push) drive sustainable adoption of MMC.

Recommendation

· Queensland should consider piloting a Stackelberg-model-based procurement framework for selected government projects. This would enable a transparent and evidence-based method of awarding technical points for MMC integration, helping to accelerate innovation while ensuring public value is maximised.

References

[1] Furukawa, O., Construction Industry in Japan, Iwanami Shinsho, 1963 (in Japanese).
[2] Kawashima, T. and Watanabe, Y., Construction Contract Theory, Nihon Hyoron-sha, 1950 (in Japanese).
[3] Watanabe, T., A Study on Characteristic Analysis of Bidding and Contract Systems in Japanese Public Works and Its Reform from the Viewpoints of Risk Management, from the Viewpoints of Risk Management, Doboku Gakkai Ronbunshuu F (Journal of JSCE, F). 62, 4, p. 684-703, 2006 (in Japanese).
[4] Watanabe, R., Watanabe, T, and Skitmore, M., Evaluating the implementation of innovative technology in Japan's bidding system: a dynamic Stackelberg game theoretical analysis, Construction Management and Economics, 10.1080/01446193.2025.2493324, 2025.