

16 July 2021

Inquiry into procurement practices for Government-funded infrastructure
House of Representatives Standing Committee on Infrastructure, Transport and Cities

1 The Issue

There is an inconsistency in the way infrastructure projects are currently procured.

The increase in infrastructure work in Australia over recent years has resulted in a lack of resources, poorly applied lessons learned from previous projects of a similar nature, and a lack of consistent benchmarks to validate the project. The scale, complexity, value of projects, and significant interfaces between contract packages and stakeholders creates the need for joint ventures, attracting complications on which systems to use, multiple reviews, how to resource, and the many different management styles among the many variables which add cost and complexity to infrastructure projects.

Presently, there is a lack of skilled professionals in Australia to deliver many components of infrastructure projects. It is often in the system/software side where infrastructure projects come undone. When budgets are established, the risks are often underestimated and understating the final cost is partially due to a lack of experience.

The common misconception is that the traditional approach of transferring the risk costs the client less money is not well-founded and incorrect. Neither the client nor the contractor during the developing of the budget and project bid phase can understand the extent of risk. Passing the risk to a contractor adds cost to the project, and ultimately when the project goes off the rails, the client will need to step in and help sort it out.

3 The Challenges

The following reflect the key challenges required to achieve improve procurement of government funded infrastructure and achieve greater cost certainty:

- Long Term Plan
- Complexity
- Stakeholders
- Change in Contractors Approach
- Market Capacity
- Procurement
- Level of Design
- Planning
- Industry Standards
- Risk
- Budget Development / Funding
- How to achieve cost certainty

3.1 LONG TERM PLAN

An integrated long-term infrastructure plan is required to improve the visibility of the project pipeline and establish confidence in the industry. A long-term plan can promote early identification of infrastructure needs and enable early planning, facilitating extensive front-end development to reduce risks during procurement and manage the project pipeline to meet the construction industry's capacity. In addition, a long-term plan enables contractors, consultants and sub-contractors to plan their business activity to support the long-term objectives of infrastructure development.

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Existing Australian contracting businesses need to scale to meet the demand, and the government needs to provide new contractor entrants with the opportunity to enter the market in anticipation of planned infrastructure spend.

The current challenge is that successive governments have had differing priorities in spending and project selection. Government support is needed in providing a long-term vision that can be carried through successive governments enabling the market time to support and respond to the changing needs in infrastructure.

Recommendation 1:

Government should establish an integrated strategic approach to infrastructure with a 30-year horizon that survives short term policies. This relates to the number as well as the scope of projects. The scope of a project should take into consideration the long-term requirement, rather than providing a short-term solution.

3.2 COMPLEXITY

Modern infrastructure projects are complex, very high value, with many third-party stakeholders, often multiple levels of government, and carry a high level of risk. The number of interfaces between contract packages and stakeholders is often extensive. For rail infrastructure projects, this includes interfaces with signalling and rolling stock, with many suppliers based overseas and challenged by an overheated market both in Australia and globally.

Not all complex interfaces are resolved and are often left to the contractors when going to market. The lack of standard reference design across the country to go to tender with is non-existent. A Standard reference design may exist in one state and not the other. There is no industry benchmark for the minimum level of design, and the design does not always resolve the key requirement issues (such as that of the Fire Authorities).

Governments are sometimes reluctant to spend money on design, as the contractor may have an alternative, (sometimes better) design solution, leaving it to the contractor to solve. However, there is insufficient time allowed during the tender period to enable contractors to resolve complex design issues. Contractors may be able to resolve constructability issues but may not be able to resolve all crucial design issues.

From a client's budgetary perspective, the initial budget and updates are based on limited information with significant qualifications and exclusions. As the scope of works has not been sufficiently resolved for the quantity surveyor to account for all the issues that go into developing the funding envelope. When contractors are brought into the process, the limited tender timeframe, invariably results in contractors submitting qualified offers in order to address the risks. This then creates a complex process to align the contractors' submissions with the risk items qualified. In the end, what the initial business case budget was based on is different to what the contractors are offering, resulting in the client requiring a greater contingency to cover the outstanding risk.

Recommendation 2:

Government should ensure that the risk allowance outside the base cost estimate (Contingent risk) is adequate to cover unforeseen circumstances, particularly complexity issues including interfaces between the contract packages, interfaces with key stakeholders and third parties, planning approval conditions, design development between the packages and regulatory requirements.

3.3 STAKEHOLDERS / THIRD PARTIES

Over time infrastructure projects have become more complex, and industry participants such as contractors and consultants have taken on more roles surrounding the construction, operation and maintenance of these assets. This has significantly increased the stakeholder interaction required, such as with universities, hotels, storefronts through to schools and utility assets owners.

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The risks involved with negotiating access or working hours or working methods is left with the contractor with limited or no recourse. Contractors are asked not to engage with stakeholders during the bidding phase and are required to take ownership of the risk.

Key stakeholders benefit from early interaction with the relevant government agency as any concerns or limitations can be identified and considered during the initial planning phases. The government agency is better placed to make decisions and interact with other third-party entities to obtain commitments from stakeholders that will aid the procurement process and improve certainty during project delivery. Interface deeds between a government agency and third-party stakeholders should be agreed upon prior to going to the market seeking tenders. Obtaining interface agreements with public utility asset owners will be particularly beneficial given the risk scope, and limited influence contractors have. Most notably, non-contestable works where timeframes are often unknown at tender stage and once known during delivery inevitably leads to program changes and work requiring resequencing.

Recommendation 3:

Give the responsibility of engaging with each stakeholder (i.e. Councils and others affected by projects such as residential, commercial, universities and hospitals) or third parties (ie Fire Brigade and regulators) or other third party to either the government or contractor depending on which is best suited to control the risk.

Recommendation 4:

Government should engage stakeholders and third parties in the planning phase and put in place interface agreements prior to going to tender, particularly as often contractors are not allowed to engage with these organisations during the tender period.

3.4 CHANGE IN CONTRACTORS APPROACH

The contracting market on infrastructure projects has matured, and contractors today, mainly Tier 1, are not prepared to accept the risk transfers that were being placed on them 5-10 years ago. They will often not tender if there are too many tenderers and favour tendering where there is tender cost reimbursement—preferring collaborative contract models such as Alliances, rather than D&C (Design & Construct) and PPP (Public-Private Partnerships). It is not uncommon for shortlisted tenderers to pull out from a tender.

This has resulted in clients considering market sounding when deciding on their delivery strategy and the number of contractors being invited to submit a tender. The market also tries to influence what will be included and excluded from a package of work. Clients have been exploring the Tier 2/3 market. However, their financial capacity limits the size of the project that they can undertake, and they tend to be very slow at ramping up for a project. The use of many Tier 2/3 contractors on a project rather than a Tier 1 increases the number of interfaces that a client needs to manage and resource.

Recommendation 5:

Undertake market sounding with the contracting industry to inform the development of procurement (type of contract, i.e. D&C, PPP, etc.) and packaging (i.e. what scope of works to include, how many and size)

Recommendation 6:

To assist with ensuring that contractors are interested in a project, include provisions for bid contributions (i.e. paying the contractor for some of their tender costs).

Recommendation 7:

Government to provide interested parties with a 'Term Sheet' to see in advance of the format tender what the contract conditions are and the proposed allocation of risks. This manages the risk of shortlisted tenderers pulling out of the tender process when they receive the formal tender document and understand the risk transfer.

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3.5 MARKET CAPACITY

The Australian construction market has limited capacity and it is abundantly clear that there is a severe and likely protracted shortage of skilled expertise in all aspects of major horizontal infrastructure delivery within Australia. While there may be challenges to achieving a national approach in planning work to ensure the market is not flooded or starved of work, a more consistent, achievable level of work ensures growth of the industry and investment at maintainable levels to ensure reliable outputs.

When the workload exceeds capacity, the results are not in the client's interest through increased pricing. The real issue is the lack of resources to complete the work, resulting in firms having to pay additional costs to maintain and attract staff, putting pressures on the sector. This in turn impacts cost, time, and quality, which is detrimental to the industry.

It is evident that governments are also being impacted by the market capacity as they are attempting to secure hundreds of professionals from the market. It is apparent that all Australian projects are actively recruiting, and the market of available recruits is contracting.

The current approach to remedying the situation has been to address the client-side issues of staffing within difficult recruitment conditions through alternative or non-standard resourcing strategies including:

- Getting contractor(s) onboard early to relieve pressure on client resources
- Keep design going from when a contractor is nominated as preferred contractor to actual award of the contract, as this can be several months it, allows the preferred contractor to maintain design resources and momentum, rather than having a gap between being nominated as the preferred contractor and being awarded the contract
- Early payment to preferred contractor to mobilise resources before formal award of contract
- Non-exclusive Subject Matter Expert (SME) contracts. Allowing experts to advise the client but not be prohibited from providing advice to other participants in the project so long as probity issues are addressed. This is being seen as an innovative change that will alleviate the stress in the market.

Recommendation 8:

Government should undertake research on an achievable baseline of work which identifies the market capacity for consultant, contractor, and sub-contractor. Followed up with regular one-on-one discussions on an achievable level of growth for the industry to develop a long term consistent, market endorsed approach.

3.6 PROCUREMENT

Current procurement processes have compressed the planning and development phase, often overlapping with the tendering and project execution phases. This creates a challenge in that many design and scope of work items are not fully developed. This may include site investigations and design that are still ongoing during the tender phase, or some cases are being passed onto the contractor to complete. This increases risks that are unresolved and results in highly qualified pricing or budget overruns during construction.

Alliance and collaborative procurement models have become more prevalent and provide a mechanism for dealing with these issues. These have been successful at allowing accelerated execution of projects. Project values around \$3-5Bil are appropriate to attract tier 1 contractors to enter two-party Joint Ventures to tender and deliver. Tier 2 contractors are generally attracted to projects between \$200 and \$500 million.

Improved procurement processes and outcomes should include longer-term planning. More time spent during the design stage advancing the design and longer engagement with stakeholders and the community will assist to resolve many of the issues and risks associated with the project. Procurement models can then be tailored to include these risks.

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Market soundings have become more common in recent years and allow all participants opportunities to respond to a government's proposal. The relevant government is then provided with the maximum opportunity to engage a broad range of contractors and consultants across the tiers.

Recommendation 9:

Government should engage with industry to communicate project requirements and understand contractor issues. This should inform the procurement strategy which should be established early in project planning, to ensure that necessary approvals are obtained.

3.7 LEVEL OF DESIGN

There is a difference in the level of design when engaging with the market on infrastructure compared to building construction projects. On a building project, when the design is less than 50% the contract used is more aligned with a collaborative approach such as Early Contractor Involvement (ECI), enabling the development of the design with the client and contractor working through the risk before Guaranteed Maximum Price (GMP).

On infrastructure projects, a concept design (typically 10%-30% on road projects) or a reference design (~30%, on rail projects) has historically been on a fixed price approach. More recently, rail projects in some States have moved to a collaborative approach. The procurement strategy includes engaging with the market through a "market sounding period" to ensure the proposed procurement/package is attractive to the market.

There is limited capacity for contractors to bid on works, and having a contractor withdraw from the process is not in the project's best interest. There is still a resistance from some governments to adopt a collaborative approach as used in some States. There remains that faction of people within (or engaged by) government agencies with the perception that it is better to pass the risk over the fence and maintain the historical approach. However, experience has shown that these risks ultimately end up with a client who often has to step in to ensure the delivery of a project to meet a timeframe, with costs becoming a secondary consideration.

The client, having spent much time on the project, is in the best position to resolve key design issues. A contractor in the tender phase is unlikely to have time and is often not allowed to contact many key stakeholders to establish design, planning, and interface issues. A contractor should be able to establish items such as constructability.

Recommendation 10:

Government should develop the design sufficiently to resolve key design issue, obtain planning approvals and have interface deeds in place prior to the award of contracts.

3.8 PLANNING – TIME

Planning a project and optimising the program has the most significant impacts on cost. A lesson learnt on infrastructure projects is that by reducing the timeframe results in a better cost outcome for both the client and contractor. On some projects, delays in approvals and shortage of commercial resources procurement can be on the critical path. Therefore, introducing a long-term planning approach; allowing for early identification of requirements planning approvals and interface deeds to be completed ahead of the procurement process.

Brownfield rail-works are often undertaken within a limited window i.e. midnight to 5 am. These works are known as possessions/occupations (ie when the rail corridor is shut down and passengers are required to bus between stations). The dates for possession/occupations are critical and planned many months in advance. If they are missed this has a significant impact on the construction program as it could be another 3-6 months before the next occupation/possession becomes available.

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Therefore, in terms of program, it is necessary for the project team to know exactly where they are and not rely solely on information provided by contractors. They need to be an informed client, settle the scope, and develop an appropriate integrated program that provides the best outcome for all.

Recommendation 11:

Government clients need to have planning capability, rather than relying on programs from contractors. This will ensure that the government client is an 'informed client.

Recommendation 12:

Government clients need to have an integrated program for project works. (for rail projects this includes both the civil works and the systems, assurance, and commissioning aspects of the project).

Recommendation 13:

Government should agree on physical progress every month with the contractors.

3.9 INDUSTRY STANDARDS

There is a significant difference between the approach to vertical construction (buildings) and infrastructure. Vertical construction uses a standard approach with elements (refer to the Australian Institute of Quantity Surveyors Cost Management Manual 2021), whereas Infrastructure construction has no standard. Having no industry-standard Work Breakdown Structure (WBS) or Cost Breakdown Structure (CBS) has led to agencies developing their own WBS and CBS. For example, road infrastructure authorities typically have a CBS which is specific to their specifications. Secondly, most rail and metro infrastructure clients have bespoke approaches, limiting the ability to extract data, benchmark design/cost, validate, and track the budget along the project lifecycle.

In addition to not have a consistent WBS and CBS, there is no Standard Method of Measurement (SMM), which makes it difficult trying to ensure everyone understands what the description of work is representing. Having clarity around this would give contractors and sub-contractors assurance to clearly understand the scope of work, save time, and ensure everyone is pricing on the same basis. One SMM available is the Civil Engineering Standard Method of Measurement (CESMM4), which has been well-established for over 35 years as a standard in other countries for preparing quantities in civil engineering work. In Australia, AS 1181-1982 is no longer acting as a standard not being updated for ~40 years. The AIQS has undertaken a comparison between CESMM4 and AS 1181-1982. Although both CESMM4 and AS 1181-1982 cover many of the elements in Infrastructure projects, CESMM4 is more recent and supports BIM/ DE.

Building projects usually adopt a Cost Management approach to establishing the budget and managing the costs throughout the project. There is not always a similar approach to infrastructure projects. Quantity Surveyors may establish the cost estimates but often other disciplines such as engineers look after the costs. Cost Management / Planning is required to ensure the scope, budget and time is managed effectively. To achieve cost certainty, a consistent approach is required from project to project.

Recommendation 14:

Government should establish a standard approach to developing cost estimates with standard Work Breakdown Structures and Cost Breakdown Structures (similar to the standard elements in the building sector).

Recommendation 15:

Government should adopt a standard method of measurement such as CESMM4.

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3.10 RISK

Risk needs to be allocated to the party best placed to manage that risk, and some inherent risks needed to be retained by the project owner. The industry cannot be expected to take on risks that are often too difficult to quantify at the tender stage.

Traditionally government agencies have engaged the industry through lump-sum contracts or re-measurable rates contracts transferring a range of risks to the contractor. The other more common form of contract is the Public-Private-Partnership (PPP). These contracts often contain performance components that may include patronage or long-term maintenance provisions.

There is a disconnect between the initial project budget and what contractors include in their tenders. The standard approach in establishing a budget is often agnostic of contractual risk (varying from project to project with non-standard contracts), latent conditions and risk allocation. If a standard risk allocation matrix was prepared at the project's inception with cost and time considerations and applied to the project budget, a more robust budget would be achieved, preventing project delays when the contractor submits their offer. Focusing on de-risking the project as early as possible would also lower the overall cost and build confidence within the industry.

Most infrastructure contracts are bespoke, or utilise a standard form contract which has been significantly amended, resulting in most risks being pushed onto the contractor (who is often not the entity best placed to manage the risk). There is much greater use of standard contracts with known and more equitable risk allocations in other countries. Complicating the process is a client who is unwilling to accept a non-conforming tender with qualifications.

Size and value of the projects require Tier 1 contractors to compete against one another to provide the client with several submissions. However, this is being hindered when the proposed risk apportionment is not fair and equitable during the tender stage due to Tier 1 contractors stepping back, resulting in fewer options for government.

There are strategies available to manage some of the risks including a Geo-technical baseline to be provided to the contractors during the tender period. If there is a difference from the baseline, then an adjustment will be made. It all starts with having A standard Risk Pro-forma should be developed for each infrastructure sector (ie road, rail, water). Identification and management of the risks, incorporating lessons learned is the foundation to mitigating risk.

Improved understanding of risk can be achieved through early contractor involvement, leveraging the industry's experience in executing similar work. Furthermore, data collection on outturn costs and analysis could be used to benchmark contingencies required at the business case.

Recommendation 16:

Project risk allocated to the contractor should be managed through an appropriate reimbursable mechanism.

3.11 BUDGET DEVELOPMENT & FUNDING

Establishing a robust accurate project budget at day 1 is nigh on impossible for large, complex infrastructure projects as project budgets typically evolve through the development of the scope, contract, risks, stakeholders, and planning consent. Project budgets and timeframes are often announced too early and for political gain before the project has been scoped without the necessary diligence to validate the budget and program. Compounding the problem are governments that are unwilling to adjust the budget/timeframe or scope as the project evolves. If possible, it would be better to hold off such announcements until a robust project budget has been established.

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Government Agencies frequently express concerns at significant cost differences between the Business Case funding approval and final outturn cost. On the surface this may be a valid concern. However, once you start peeling back the layers, the increases are based on a poorly developed initial baseline not addressing the project risks or scope.

When standard designs are provided, there is still significant uncertainty with existing conditions, constructability, and market forces which impact time and cost. The exploration and resolution of project risk will reduce the impact of budget and scope variations, contractors are providing comparable tenders, and provides the government more clarity in selecting the most suitable partner.

Where the scope of work is subject to interpretation or qualification, it becomes difficult to align the government's budget/program to the contractor's offer—making it difficult to recommend the most suitable tenderer. By not aligning each of the contractors' submissions to the scope government's will be selecting tenderers on a more subjective basis rather than a qualitative basis. The result is that the best contractor may not have been selected, making it more difficult to hold them accountable for something the government has been unable to evaluate completely. This invariably results in increased project costs in the long run.

During the tender period a number of unresolved items remain which contractors are required to identify and work through, resulting in Requests For Information (RFI's) from contractors seeking clarification. This leads to numerous Addendums being issued, which is reflective of an inadequate design, scope, planning and risk documentation.

Adoption of Cost Control, ensuring the scope, budget and time is managed effectively. It is vital to have a qualified expert commercial manager control the process from day 1 through to completion, not just milestones. An approach of setting a budget at day 1 with a substantial contingency without consideration of the risks should be discouraged.

Factors impacting project costs:

- Change in government – Political parties will occasionally change the location of a project based on an electoral seat preference rather than the best location.
- Change in Location – project location changed as a result of alternative preferred site.
- Clarity of project brief
- Contract
- Timing of project to the market (pipeline of work)
- Appointment of the project and design team (do they help or hinder the process)
- Enhancement / Changes in level of design
- Identification/mitigation/allocation of risk:
- Procurement
- Stakeholders
- Contamination
- Services (Utilities)
- Existing Structures
- Geo-Technical Survey – Develop a baseline as a contract document.

Recommendation 17:

A base level Scope of Work (Design and Documentation) should be established prior to going to tender. The level of design and documentation needs to be consistent and at LOD200, enabling contractor firms tendering for projects to provide accurate costing and risk assessment.

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Recommendation 18:

Budgets should be adjusted as project information is developed, and or value engineering adopted and as the design and ground conditions are explored to ensure the project is providing value for money.

4 PROCESS NEEDED FOR COST CERTAINTY

Providing cost management services for Infrastructure projects requires a broad range of professional skills and experience, including an understanding of:

- experience with similar projects and contracts
- the level of design and identification of deficiencies in documentation;
- all risks associated with the project, i.e. latent conditions, constructability, procurement, escalation,
- a consistent approach to work breakdown structure and associated cost breakdown structure and format of cost estimate; and
- validation through benchmarking of design, pricing and production metrics
- qualifications, assumptions and exclusions to provide a complete budgetary approach and align pricing during the project's development at and reconciliation with contractors.

Quantity Surveying covers a wide range of competencies, not just cost estimating, and the infrastructure sector does not always use the full range of quantity surveying services effectively. Often the service is ad hoc and not a full cost management service.

The following competency shown below illustrate how the Quantity Surveyor is utilised overseas more effectively compared to Australia.

Competency	Australia	Overseas (UK & SA)
<ul style="list-style-type: none"> • Overall 	<ul style="list-style-type: none"> • QSs mainly involved with cost estimating/planning with other consultants including PMs and lawyers providing contract and post contract services • QSs not always consulted early in project lifecycle • Ad hoc cost estimating/planning service • Limited range of services provided 	<ul style="list-style-type: none"> • QSs more involved in lifecycle of project from pre-contract to post-contract, including claims & disputes • Full cost planning/management service • Wide range of cost and contract management services provided • Broader range of QS education and training, particularly in contracts

5. RECOMMENDATIONS

The following is a summary of the AIQS recommendations:

Long Term Plan	<p>Recommendation 1: Government should establish an integrated strategic approach to infrastructure with a 30-year horizon that survives short term policies. This relates to the number as well as the scope of projects. The scope of a project should take into consideration the long-term requirement, rather than providing a short-term solution.</p>
Complexity	<p>Recommendation 2: Government should ensure that the risk allowance outside the base cost estimate (Contingent risk) is adequate to cover unforeseen circumstances, particularly complexity issues including interfaces between the contract packages, interfaces with key stakeholders and third parties, planning approval conditions, design development between the packages and regulatory requirements.</p>
Stakeholders & Third Parties	<p>Recommendation 3: Give the responsibility of engaging with each stakeholder (i.e.Councils and others affected by projects such as residential, commercial, universities and hospitals) or third parties (ie Fire Brigade and regulators) or other third party to either the government or contractor depending on which is best suited to control the risk.</p> <p>Recommendation 4: Government should engage stakeholders and third parties in the planning phase and put in place interface agreements prior to going to tender, particularly as often contractors are not allowed to engage with these organisations during the tender period.</p>
Change in Contractors Approach	<p>Recommendation 5: Undertake market sounding with the contracting industry to inform the development of procurement (type of contract, i.e. D&C, PPP, etc.) and packaging (i.e. what scope of works to include, how many and size).</p> <p>Recommendation 6: To assist with ensuring that contractors are interested in a project, include provisions for bid contributions (i.e. paying the contractor for some of their tender costs).</p> <p>Recommendation 7: Government to provide interested parties with a 'Term Sheet' to see in advance of the format tender what the contract conditions are and the proposed allocation of risks. This manages the risk of shortlisted tenderers pulling out of the tender process when they receive the formal tender document and understand the risk transfer.</p>
Market Capacity	<p>Recommendation 8: Government should undertake research on an achievable baseline of work which identifies the market capacity for consultant, contractor, and sub-contractor. Followed up with regular one-on-one discussions on an achievable level of growth for the industry to develop a long term consistent, market endorsed approach.</p>
Procurement	<p>Recommendation 9: Government should engage with industry to communicate project requirements and understand contractor issues. This should inform the procurement strategy which should be established early in project planning, to ensure that necessary approvals are obtained.</p>
Level of Design	<p>Recommendation 10: Government should develop the design sufficiently to resolve key design issue, obtain planning approvals and have interface deeds in place prior to the award of contracts.</p>

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<p>Planning & Time</p>	<p>Recommendation 11: Government clients need to have planning capability, rather than relying on programs from contractors. This will ensure that the government client is an 'informed client.'</p> <p>Recommendation 12: Government clients need to have an integrated program for project works. (for rail projects this includes both the civil works and the systems, assurance, and commissioning aspects of the project).</p> <p>Recommendation 13: Government should agree on physical progress every month with the contractors.</p>
<p>Industry Standards</p>	<p>Recommendation 14: Government should establish a standard approach to developing cost estimates with standard Work Breakdown Structures and Cost Breakdown Structures (similar to the standard elements in the building sector).</p> <p>Recommendation 15: Government should adopt a standard method of measurement such as CESMM4.</p>
<p>Risk</p>	<p>Recommendation 16: Project risk allocated to the contractor should be managed through an appropriate reimbursable mechanism.</p>
<p>Budget Development & Funding</p>	<p>Recommendation 17: A base level Scope of Work (Design and Documentation) should be established prior to going to tender. The level of design and documentation needs to be consistent and at LOD200, enabling contractor firms tendering for projects to provide accurate costing and risk assessment.</p> <p>Recommendation 18: Budgets should be adjusted as project information is developed, and or value engineering adopted and as the design and ground conditions are explored to ensure the project is providing value for money.</p>

Sincerely,

Grant Warner
Chief Executive Officer
Australian Institute of Quantity Surveyors