

BUILD-OWN-OPERATE-TRANSFER (BOOT) FOR WATER-INFRASTRUCTURE PROJECTS

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Restructuring procurement processes is one way to enhance project delivery systems to service the needs of the community while providing value-for-money outcomes. Procurement options, however, require ongoing review of relative effectiveness in delivering (public-sector) infrastructure facilities. Public-private partnership (PPP) procurement adds to a list of schemes that can be utilized to bring infrastructure projects to fruition. The effectiveness of a PPP in comparison with traditional procurement is investigated here by case-study project examination of Western Australia's first water-infrastructure project to be procured under a PPP scheme, using build-own-operate-transfer (BOOT) progression. Data was generated principally by designing/developing and conducting semi-structured interviews with the key stakeholders involved. The survey results show that the most significant factor in a decision to pursue a BOOT scheme, in comparison with traditional procurement, is the establishment of value-for-money (determined by a public-sector-comparator to provide a benchmark for evaluating private consortia bids). The work conducted here found that while BOOT schemes have extremely high bid costs that restrict tender participation, life-cycle considerations from a single consortium can offer cost advantages (through BOOT) in comparison to traditional procurement. Conversely however, the study found that if the procurement and delivery timeframes are factored in, traditional procurement is deemed more time efficient than PPP/BOOT. Indeed, currently mitigation of risk via bespoke contractual agreements for BOOT is (overly) complex and difficult to administer. Findings go towards part of the (public sector's) procurement assessment suite of tools for the realization of future infrastructure assets.

Keywords: Construction procurement, Restructuring procurement, Public-private partnership (PPP), Infrastructure-projects.

1 INTRODUCTION

Nations can be argued to attain economic development through the benefits that accrue from constructing new and retro-fitting existing infrastructure; the implementation of so-called public-private partnership (PPPs) to deliver such projects has been widely applied since its inception in the 1980s (Shen & Li 2002: 326), where it is argued by many local/state/national governments as a means of developing infrastructure without overly impacting on budgetary constraints (Jefferies 2006: 451). Extending PPPs, build-own-operate-transfer (BOOT) schemes similarly seek investment of a private consortium to finance, design, construct, own, operate and maintain a project for public use for a specific term. This is where private consortia collect revenue (from facility users) and, at the conclusion of a concession period (where revenue recaptures private

investment and returns profit to stakeholders) ownership ends, and title is transferred back to governments (Levy 1996).

It has been suggested that a partnership between the public and private sectors delivers efficiencies in time and cost, as well as unleashing private sector expertise and innovation to enhance/improve infrastructure assets and services (IPA 2008). However, it remains vital for the public sector to realize that the BOOT process is neither a simple solution to overcome funding problems from budget constraints, nor will it provide “free” infrastructure assets. There are benefits that can be harnessed from utilizing the private sector for project delivery, but there are also potential dis-benefits (e.g., high transaction costs and complex documentation, complex risk allocation between the private and public parties, the need to develop advanced contract management skills, and the need to develop techniques for assessing private consortia tender bids). Given these concerns, research into the applicability of the BOOT-type schemes in delivering local public infrastructure projects requires examination.

2 PROCUREMENT: TRADITIONAL VS. BOOT

Determining the most appropriate procurement method is a critical step in a project delivery process to best balance the control of project cost and risk against achieving project objectives/outcomes. A key issue to be addressed is which form of project delivery provides the best value for money in meeting the government’s service objectives. Benchmarking against traditional approaches and non-PPP procurement schemes (such as design/build and alliances, without private finance) is needed. Indeed while much investment in Australian public infrastructure has been, and is likely to continue to be, procured through ‘traditional’ means, local PPPs have been used to deliver several complex and significant public sector infrastructure projects. Relative effectiveness of procurement options requires investigation (at a planning stage) to ensure that the most appropriate method is selected to deliver the project, especially given suggestions that projects with a total value exceeding \$50 million have the potential to result in value for money through PPP delivery (IPA 2008). The level of expenditure should trigger evaluation of (PPP options) schemes as a potential preferred procurement method; Table 1 below summarizes the comparison between traditional procurement and PPP procurement.

Table 1. Comparison between Traditional procurement and PPP procurement.

Traditional Procurement	PPP Procurement
Short-term design and construction contracts (two to four years)	One long-term contract integrating design, build, finance and maintenance
Input-based specifications	Output-based specifications
Government retains whole-of-life asset risk	Private sector retains whole-of-life asset risk
Government is typically liable for construction time and cost overruns	Private contractor is typically responsible for construction time and cost overruns
Government operates the facility	Private sector operates the facility
Handover quality may be inconsistent with maintenance/operational quality	Performance standards in place; payments decreased if services not delivered to contractual requirements; end-of-term handover quality defined

3 SUGGESTED BENEFITS: BOOT SCHEME

Giving detailed specifications to (traditionally-procured) contractors has been argued to reduce opportunities for innovation; this design/build approach alongside efficiencies from greater accountability and financial discipline has been argued by supporters of BOOT projects as a potential benefit for the scheme (Arndt 2000). Private-sector bodies have been argued to have access to a broader range of sources of capital, compared with governments. They can seek funding both locally and internationally and have access to a range of bonds to which the government does not have access (Arndt 2000: 4); utilization of structured financiers has been argued to spread the risks associated with a project to investors, whereas governments are generally restricted to issuing guaranteed bonds, and hence pass on all project risks to taxpayers (Arndt 2000). Traditional models of infrastructure procurement, separate the design, construction, operation and maintenance contracts of a project. This often results in disjointed outcomes, due to all parties involved having to participate in complex arrangements, with contractual obligations restricting operations. In comparison, BOOT projects present a uniform consortium responsible for asset realization on a “whole of life” basis. This paper examines procurement options assessment in more detail.

4 METHODOLOGY

A mixed-methods approach was adopted to obtain primary data, and this entailed a qualitative/quantitative analysis of a case study project. The West Australian project of the Mundaring Water Treatment Facility (MWTF) is the latest public infrastructure project in Western Australia to be procured under a public-private partnership, in particular a build-own-operate and transfer scheme. The contract value of the project is Aus\$300million, and somewhat indicates a shift away from more (traditional) competitive alliance procurement schemes of late. Semi-structured interviews were conducted with representatives from the key stakeholder groups involved; all interviewees have managerial positions in the organizations, and are responsible for the key decisions and practices adopted by their respective companies.

5 RESULTS AND DISCUSSION

5.1 The Value-for-Money Approach

At the center of any decision to pursue a PPP in preference to traditional procurement is the establishment of value for money (VFM) to the public sector from doing so. In determining which procurement scheme will offer more VFM, the public sector uses a tool known as a public sector comparator (PSC), discussed in the paragraph below relating to the case study project. A Water Corporation representative indicated in an interview that the public-sector comparator benchmark was utilized during the project planning stage of the Mundaring water treatment facility (case study project). He explained that a competitive alliance, which is considered a traditional procurement scheme, was selected as the PSC, due to the success of the two relatively recent desalination plants in Western Australia procured under this scheme. Based on this experience, the Water Corporation deemed that a competitive alliance scheme would be

the most suitable option to act as the PSC, providing the highest value for money out of all the possible traditional schemes.

The Water Corporation representative stated that the findings of the value-for-money comparison between the PSC and PPP bid are deemed commercial in confidence, and no details could be provided regarding the assumptions made during the process. They were able to reveal, however, that the total present value cost of the winning bid put forward by the “HW” private consortium outperformed in the PSC by ~10% (across Aus\$300M) in whole-of-life cost saving while technically providing the same outcome as the competitive alliance reference project underpinning the PSC – arguing value for money as evident in this case study project.

5.2 Project-Cost Comparison

The findings suggest that PPPs are incredibly expensive to bid, with costs approximately 1% of the project cost. The high bidding costs are due to a) lengthy and complex tendering arrangements, and b) post-tender negotiations resulting from overly optimistic public sector comparators, large numbers of stakeholders involved in the project, and the complex web of contracts and financial structuring required to bind them together. In comparison, traditional procurement bidding costs are much more cost-effective due to more straightforward tendering arrangements, a fewer number of project stakeholders, and less complex contractual arrangements.

A follow-on effect of high bidding costs is that it is highly restrictive on who amongst the industry can afford to bid for projects. Many potential participants find that the bid costs are prohibitive to tender for the project, and so they decline to participate. High bidding-costs restrictions become an important feature of public projects in attempts to maximize opportunities for local industry. In addition, the whole-of-life cycle consideration by a single private consortium typical of this BOOT scheme represented an overall cost advantage, in comparison to traditional procurement (where the contracts are separated between design/construct and maintenance), which respondents say introduces inefficiencies and difficulties for the private parties to reconcile objectives.

5.3 Project-Timeframe Comparison

As alluded to above, the bid regime of a BOOT project is a very long process due to complex tendering arrangements, large numbers of stakeholders involved in the project, and the complex web of contracts between parties. In comparison, traditional procurement has a more simple tendering arrangement, has a lesser number of stakeholders in the project, and uses standard forms of contracts. Data gathered suggests that there is no significant difference in the length of delivery time between a PPP scheme and a traditional scheme, as both will ensure that the design and construction stage is as time efficient as possible. Therefore these two schemes are comparable on this basis. If the procurement and delivery times are both taken into account, traditional procurement is deemed by respondents to be more time efficient, as the bid regime is a much shorter process.

5.4 Project Quality Comparison and Risk

While findings suggest that the quality of the project achieved under a BOOT scheme is comparable to the quality expected of a traditionally-procured project, risk allocation in PPP projects is fundamentally different. In the case of traditional projects, the public sector purchases an asset from private sector contractors and consultants whose liability is limited to the design and construction of the asset. In contrast, under a PPP scheme, the public sector accepts no asset-based risk, and does not pay, or is entitled to reduce payments and compensations if the service is not delivered to the specified standards, as defined in the service agreements.

The transfer of risk from the public to private sector should occur under circumstances when the private sector is best placed to manage the risk. In this way, the risks are most effectively managed and mitigated, as complete responsibility and control lies with each member of the consortium. The members of the consortium receive a financial incentive to accept the risk and this incentive acts as a catalyst to inject risk management techniques into the project so that the consortium members can capitalize upon the financial incentive offering(s). The public sector accepts the demand risk for the service provided, via fixed availability payments to the Consortium for performance of the plant, as outlined in the contract agreement.

5.5 Contractual Comparison

Public-private partnership contracts and associated delivery and construction agreements are bespoke agreements. These contracts are complex and difficult to administer and it is an aspect of the PPP scheme that is perhaps sub-optimal. The high bid costs and long bid regime discussed in sections 5.2 and 5.3 above result from such complex bespoke arrangements.

6 CONCLUSION

The growing acceptance of alternative project delivery and finance methods for infrastructure procurement involving public and private sector partnerships implies that governments will increasingly face the choice of whether to use this form of procurement, or alternatively use a traditional procurement scheme.

The build-own-operate-and-transfer scheme's future applicability will be influenced by its ability to deliver infrastructure for the public sector at best value for money, without directly impacting on government's budgetary constraints or on the state government's triple-A credit rating. This study therefore focused on an assessment of the relative effectiveness of the BOOT scheme, compared with traditional procurement in the provision of public infrastructure.

A local BOOT project, the Mundaring Water Treatment Facility, was studied to ensure that the research findings are applicable to local industry. Findings and research conclusions have been made based on the responses from the five key interviewees who represented the three major stakeholders of the Mundaring Water Treatment Facility. The most significant factor in a decision to pursue a BOOT scheme in comparison with traditional procurement is the establishment of value for money, which is determined by

the public sector through the use of a public sector comparator. BOOT schemes have extremely high bid costs restricting who in industry can afford to bid for the project. However, the whole-of-life-cycle consideration by a single consortium typical of a BOOT scheme represents a cost advantage in comparison to traditional procurement. If the procurement and delivery timeframes are both taken into account, traditional procurement is deemed more time efficient. The quality of projects delivered under both schemes were found comparable. The transfer of risk from the public sector should occur under circumstances when the private sector is best placed to mitigate the risk effects. The bespoke agreements typical of a BOOT scheme were found to be very complex and difficult to administer.

The findings of this report reaffirm that procurement-option assessment must be used when the public sector considers future asset development.

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