2 Identifying risk factors of boot procurement: a case study of Stadium Australia

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ABSTRACT

Private sector input into the procurement of public works and services is continuing to increase. This has partly arisen out of a requirement for infrastructure development to be undertaken at a rate that maintains and allows growth. This has become a major challenge for the construction industry that cannot be met by government alone. The emergence of Build-Own-Operate-Transfer (BOOT) schemes as a response to this challenge provides a means for developing the infrastructure of a country without directly impacting upon the government's budgetary constraints. The concepts of BOOT are without doubt extremely complex arrangements, which bring to the construction sector risks not experienced previously. Many of the infrastructure partnerships between public and private sectors in the past are yet to provide evidence of successful completion, since few of the concession periods have expired. This paper applies an identified list of risk factors to a case study of Stadium Australia. The most significant risks associated with Stadium Australia included the bidding process, the high level of public scrutiny, post-Olympic Games facility revenue and the complicated nature of the consortium structure.

Keywords: Build-Own-Operate-Transfer (BOOT), Case Study, Infrastructure, Risk Factors, Stadium Australia, Sustainable Procurement

INTRODUCTION

The objective of this paper is to identify and apply risk factors of Build-Own-Operate-Transfer (BOOT) procurement systems developed from reviewing relevant literature to a case study of a current Australian BOOT project. Over the last 15 years or so various research has been conducted into the field of risk management of various public-private sector joint venture projects, particularly the Build-Operate-Transfer (BOT) approach, in developing countries (Tiong, 1990, 1995; Tiong et al 1992; McCarthy and Tiong, 1991; Nielsen, 1997; Donnelly, 1997; Tam and Leung, 1999; Wang et al, 1998a, 1998b, 1999). However, there has been little research to date that has focused specifically on the management of risk factors of BOOT projects in Australia.

The BOOT method is a current innovation in construction procurement. In the BOOT procurement process, innovation is sought in fundamentally different ways and through different channels. Competition occurs later in the procurement process and covers a significantly enlarged scope. Tenders are required to compete for combined functions of design, finance, construction, maintenance and operations, a competition that expressly values innovation in each of these areas and in the integration of one or more of these areas. The opportunity to package basic project elements differently is a driving factor for innovation in the BOT or BOOT approach (Miller, 1997). The BOOT system has been implemented both globally and within the Australian Construction Industry. The rise in popularity is mentioned by McDermott (1999), who states that a significant development in construction procurement has been the rapid increase in the use of BOOT arrangements.

The private sector is playing an increasingly important role in this trend that has partly arisen out of a necessity for the development of infrastructure to be undertaken at a rate that maintains and allows growth. This in turn has become a major challenge for many countries, and particularly so where it is evident that these provisions cannot be met by government alone. The emergence of BOOT schemes as a response to this challenge provides a means for developing the infrastructure of a country without directly impacting on the government's budgetary constraints (Walker et al, 2000).

It became evident several decades ago that governments globally had major shortcomings in funding public works. The fundamental influences from these issues have developed the trends towards private sector involvement in the procurement of public works and more specifically infrastructure procurement strategies such as BOOT. According to Walker and Smith (1995), the infrastructures of 'developed' countries such as those of Western Europe, North America, Japan and Australia are under strain from two principal influences. Firstly, the existing and limited infrastructure is unable to keep pace with the growth of the country and secondly, is the demand for health and welfare due to an ageing population.

The NSW Government has an enviable reputation for working with the private sector in the provision of public infrastructure, particularly in relation to road, rail and Olympic infrastructure. A recent government Green Paper 'Working with Government – Private Financing of Infrastructure and Certain Government Services in NSW' attempts to capture this public-private sector joint venture opportunity in order to increase the benefits and comment on the issues and concerns (NSW Government, 2000). This is a welcome opportunity to broaden relationships between the public and private sectors that may involve innovative recommendations and the formulation of new policies.

THE BOOT CONCEPT

The concept of private sector participation in infrastructure provision is not a new idea. Some of the key historical developments in pubic-private sector joint venture infrastructure projects are highlighted below (Smith, 1999):

- Industrial Revolution (1709)
- Water Distribution – Perier Bros, Paris (1782)
- Suez Canal (1869)
- Hong Kong Cross Harbour Tunnel (1972)
- Toronto Airport – Canada (1980's)
- Dartford Bridge – UK (1991)
- Western Harbour Crossing – Hong Kong (1997)

Projects such as the Suez Canal experience support the notion that the concept of private sector participation in infrastructure provision is not a recent initiative. It is, however, only in the last two decades that BOOT concepts have become high on many government agendas. Angeles and Walker (2000) identify Australian examples of this type of approach include the Sydney Harbour Tunnel, M4 and M5 tollways in NSW and the Ord River Hydro-Electric Scheme in Western Australia.

In the BOOT approach, the project is based on the granting of a concession, allowing a privately financed consortium to undertake the design, construction, financing, ownership, operation and maintenance of a facility for an agreed period of time. The concession agreement allows for an agreed fee for the service rate structure. The agreement then allows for fully transferring the ownership and operation of the facility to the private sector owner-operator for an agreed period of time. When this period of time elapses the facility is then transferred back to the public sector organisation at little or no cost (Walker and Smith, 1995). Most BOOT projects are first identified by the host government and in advertising or requesting for proposals, the host government asks for bids to have a particular project delivered on a BOOT basis (UNIDO 1996).

Financing a BOOT Project

Chege and Rwelamila (2001) state that the major difference between the financing of BOOT projects and the more conventional approaches is that lenders have only the project's expected cashflows to indicate its economic viability. These projects are mainly funded through the technique known as 'project finance'. Project finance helps new investment by structuring the finance around the projects own operating cashflow and assets, without additional sponsor guarantees.

Project finance varies from project to project and country to country as each project has its own unique mix of debt and equity. According to Walker and Smith (1995) there are three conception characteristics that relate to all BOOT related finance vehicles: 1) Government unwilling or unable to provide refurbished or new infrastructure; 2) Identification of an omnipotent need; and 3) Funding bodies comprehensively convinced of the potential for commercial success. Therefore, with 1) and 2) in place, 3) will follow.

In practice, most BOOT projects are financed on a limited recourse basis. Limited recourse financing is a financing structure in which the main source of debt repayment or equity return is the assets or returns that result from the project. The lender is relying on the project assets and cash flows for repayment and debt service. The deals are called 'limited recourse' when the sponsors' liability is limited to the amount they invested in the project if it fails (Walker & Smith 1995).

RISK MANAGEMENT IN PROCUREMENT

Identifying risk is an important step prior to risk analysis. In order to correctly manage risks through analysis, comprehensive identification at the preliminary stage is required (Salzman and Mohamed 1999a). In further support of this, and in making a subsequent connection with the issue of procurement, Akintoye and Taylor (1997) state that managing risk in an integral part of the procurement process.

Due to recent changes in the nature of asset planning and procurement strategies undertaken by the Australian Government, there has been greater importance placed on the need for incorporating risk management in project developments. Risk management is the process taken to identify potential risks, analyse their consequences and implement suitable responses which ensure that projects are completed successfully.

The NSW Government Department of State and Regional Development published its 'Guidelines for Private Sector Participation in the Provision of Public Infrastructure' in October 1997. These guidelines confirm the shift in attitudes toward asset planning and procurement by stating:

"The government aims to maximise private investment in infrastructure to the extent that this results in net benefits to the community beyond those from public provision. It also strives to promote an efficient allocation of risk between the public and private sectors to parties best able to manage them" (NSW Government, 1997).

These changes have indeed opened new avenues to government for the procurement of buildings and infrastructure. The utilisation of the BOOT concept is an example of the increased acceptance of these alternative forms of procurement (Jefferies, 2003).

RISK IN BOOT PROJECTS

According to Salzmann and Mohamed (1999), within the BOOT consortium there are many risks that need to be addressed in order to ensure that investment into the project is viable. These risks are heightened in international BOOT projects as they depend on a combination of commercial, political and economic factors. The potential risks and rewards for an international BOOT project are therefore great.

It was Tiong (1990) who initiated much of the research into risk factors inherent in BOT projects. These factors are also relevant to BOOT projects. Literature frequently refers to his

work, and in many cases finds its foundations on the technical, financial and political risk categories first described by him. Tiong (1990) considered the political category of risk to be the most significant and difficult to manage. Tam and Leung (1999) agreed with the assessment of 'political risk' as being the most difficult to deal with and at the same time identified 'technical risk' as being comparatively the easiest to manage.

Woodward et al (1992) divided BOOT project risks into the classifications of global and elemental risks. Elemental risks are those specific to a particular project and global risks have a wider range of influence.

Global risks
1. Political – Government, technology
2. Legal – Framework, type of agreement
3. Commercial – Market, input, currency
4. Environmental – Impact, ecological

Elemental risks
1. Technical – Physical conditions, construction, design, technology
2. Operational – Operation, maintenance, training
3. Financial – Form of financing, evaluation, ownership, return, currency
4. Revenue – Demand, toll/tariff, development

This logic, although using different terms, is similar to that produced by UNIDO (1996) where General (or Country) risks and Specific Project risks were identified.

Ma et al (1998) provided additional development and identified five main risk categories under the headings of political, construction and completion, market and revenue, operating and financial risks. The authors suggest that the identification, management and allocation of these risks is best served by the undertaking of comprehensive feasibility studies.

Risk Typically Borne by the Public Sector
When a government first embarks on a project procured by the BOOT approach, it may be necessary for a certain level of government support to be given towards minimum levels of demand and therefore revenue. Most project related risks can be transferred to the private sector, however the risks of demand and revenue could in some facilities, expose the private sector to more risk than deemed acceptable. The level and type of risk borne by the public sector tends to be an important indication to the financial community and therefore potential investors, of the government's commitment to the project.

Political risks of delays and cost increases caused by the government or their authorities, including delays in obtaining required approvals, permits and licenses, are normally considered to be borne by the government. Some agreements allow for prolongation of the concession period in the event of these things occurring. Risk associated with taxes, tariffs or customs duties being increased or imposed as part of a general increase or imposition is sometimes addressed in the project agreement by way of a compensation clause. This means that the ultimate risk of cost consequence remains with the public sector. As no government can give the guarantee that such taxes or duties will not be imposed or increased, and if there is no such compensation clause, then the project company assumes the risk by adding informed cost estimates into their feasibility (UNIDO, 1996).

Risk Typically Borne by the Private Sector
The public sector will obviously want sponsors to bear a significant part of the project risks. UNIDO (1996) identifies the following risks typically borne by the project sponsors through the project company:

Construction and completion risks
This category includes the responsibility for all project development costs, construction cost overruns and the cost of delays.

Operating risks
The risks of a failure to operate or maintain the project in accordance with the project agreement are borne by the sponsors. To ensure that the project operator is performing satisfactorily, government, sponsors and lenders normally require monitoring and measurement of its performance.

Currency and interest rate risk
A range of capital market instruments such as options, futures and swaps are available for the management and hedging of currency and interest rate risks. Where there are many capital market participants, each party seeks to transform its risk exposure into one that matches its own risk-reward profile. This exists when complimentary pairs of participants can achieve their desired risk-reward profile by swapping their respective exposures.

RISK FACTORS

At the uppermost level, basic risk allocation for the individual BOOT project is defined in the project agreement between the project company and the host government awarding the concession. The importance of comprehensive risk analysis in large and complex BOOT infrastructure projects helps to establish financial and technical feasibility and allocates risks through the agreement of suitable and equitable contract clauses and insurance. Subsequently, a more positive and rational risk-taking attitude results from a carefully prepared risk analysis as the risk takers know where they stand.

Although the difference between project success and disaster is more complex than managing or not managing risk (Smith, 1999), it appears that the track record of successful projects would have been greatly improved if more companies had included risk as an integral part of the project control and quality system.

The following list of risk factors is a summary of the key issues that were identified during the review of the literature:

- Foreign Exchange and Interest Rate Fluctuations
- Market
- Form of Financing
- Income/Revenue
- Cost Overrun
- Underdeveloped legal framework
- Underdeveloped fiscal framework
- Political Instability
- Creditability of Host Government
- Corruption
- Political Opposition
- Construction Difficulties
- Completion Delays
- Physical Conditions
- Poor Design
- Inappropriate Use of Technology
- Operation
- Inexperienced Stakeholders
- Demographic Change
- Environmental Impact

RESEARCH METHOD

In their consideration of research methods, particularly within the construction field, Fellows and Liu (1997) comment that a case study yields deep but narrow results. The possibility of the case study results being 'narrow' is accepted in that they are restricted to the case study project in question. The case study project will serve to test the validity of the risk factors identified from the related literature, and the established case study framework acts as a sound foundation applicable to BOOT projects in general.

Yin (1984) noted that the single case study method is an appropriate application where the case in question represents an extreme or unique case or that the situation has not previously been the subject of detailed scientific investigation. A single case study has been selected as the most appropriate means for the research reported in this paper. Collection of evidence for the case study was achieved by reviewing project documentation and reports and an informal interview process with senior management from both the public and private sector bodies of the project consortium. The risk factors identified from the literature are tested and validated through the case study interview process with key project participants.

The project selected for the case study is the Stadium Australia project at Homebush Bay, Sydney, NSW. The project was a result of Sydney's successful bid for the 2000 Olympic Games. Stadium Australia was selected as the focus for the study because of the following:

- It satisfied requirements of being major infrastructure project procured under the BOOT concept. In the main, previous BOOT schemes have been used to procure large-scale traditional economic infrastructure developments such as toll-roads.
- Information was readily available and was assisted by the high profile and topical nature of the project. The representatives and managers of the projects expressed their willingness to be interviewed and to provide hard, factual information.
- Much of the available literature on the general topic consists of overseas experiences and foreign projects. For obvious geographical reasons, it is more logical to investigate a project that is close to the researchers study and work base.

When the interview process began, the project had only recently completed the construction phase and was in the early stage of operation. Therefore, most issues were still fresh in the minds of the project participants and these key personnel were still relatively easy to contact. A 3-stage interview process was conducted with senior project participants from both the Public and Private Sector. These included the Director of Stadia (NSW Government) and the Construction and Finance Director (Main Contractor).

PROJECT BACKGROUND: STADIUM AUSTRALIA

Following the announcement on 24 September 1993 that Sydney had won the right to host the games of the XXVII Olympiad, work began on the planning and development of the facilities. The Olympic Co-ordination Authority (OCA) was established on 30 June 1995 by the New South Wales (NSW) State Government to oversee the process. The NSW Government issued a call for proposals in August 1994 for private sector investment in the new Olympic stadium facility. This call was framed around a BOOT delivery scheme with an intention for the Government to shortlist successful tenderers (Magub and Hampson, 1999)

Contractual Arrangements

It was not until August 1996 that the OCA awarded the proposal to design, construct and operate the facility to the 'Australia Stadium 2000' consortium. The Stadium Australia Trust and OCA signed the project agreement in September 1996 (Stadium Australia Group 1996a). Although the stadium evolved as a result of Sydney's successful bid for the 2000 Olympics, the A$615 million project is now being run by Stadium Australia Management as a classic BOOT scheme.

The OCA granted the Stadium Australia Trust the Trust Lease on the completion date of the stadium, being March 1999. The term of the Trust Lease expires on 31 January 2031. On the lease expiry date, the ownership and operational rights of the project transfers to the NSW Government for nominal consideration. Stadium Australia Management is therefore the operational entity of the group which generates revenue from operation of the facility. From this revenue Stadium Australia Management is required to meet certain operating expenses. The Sublease obliges Stadium Australia Management to make quarterly fixed and variable rental payments to the Trust. The

rental income received by the Trust is used to meet payments to the major maintenance reserve, the principal and interest obligations under the debt documents, administration expenses and payment obligations to the government under the Trust Lease and the Project Agreement (Stadium Australia Group 1996a).

Project Finance

The financing of Stadium Australia has broken a number of barriers because of a unique set of structures and an innovative approach. The Stadium Australia Group is a publicly listed entity founded on its ability to raise both debt and equity. Of the initial A$550 million investment, the public float raised A$350 million. The float was unsuccessful in that it finished short, but from a stadium viewpoint, it didn't make an enormous difference because the underwriters paid the shortfall (Jefferies et al., 2002). The project is stated to have a total development cost of A$615.2 million (Stadium Australia Group 1996b).

Equity funding for the project was raised via gold and platinum investors, founders and commercial investors. The capital structure of the Trust and Stadium Australia Management was such that at financial close, investors would hold or be obliged or entitled to subscribe for approximately 97.3 million units in the Trust, and an identical number of shares in Stadium Australia Management (Stadium Australia Group 1996b).

Stadium Australia was the first Australian Stock Exchange (ASX)-listed lifestyle product and also the first triple-stapled listed product. Stapled products involve add-ons which are designed to make the overall product more attractive or to suit the particular needs of the project. In the original float offerings, gold and platinum packages involved three things: Olympic ticket; membership entitlements; and equity investment. Thus, the recognition of a triple-stapled product. Each unit in the Trust is stapled to a share in Stadium Australia Management. The ability to attract equity investors into a BOOT project is only a component of the overall financing requirements. Ability to raise debt and attract organisations willing to offer these arrangements is the other significant component. The primary debt funding for Stadium Australia was a Construction Loan Facility and now a Term Loan Facility. ANZ Bank and ABN AMRO agreed to provide a A$161 million Construction Loan Facility to the Trust under the terms of the Construction Loan Facility Terms Sheet (Jefferies et al., 2001).

Operational Revenue

The future financial success of the Trust and Stadium Australia Management depends substantially on their ability to generate corporate hospitality revenues and membership subscriptions. The achievement of these revenue targets will depend on the number and type of events held at Stadium Australia. Revenue generated from corporate hospitality and membership subscriptions over the 32 year concession period, need to be adequate to cover interest payment, debt repayment, dividends on equity investment, operational costs and ideally a sufficient profit margin. Corporate hospitality and fees from Stadium Australia Club are expected to contribute approximately 65% of the revenue of Stadium Australia Management in the year ending 30 June 2002. Food and beverage sales, merchandising, event rentals and signage rights since the Olympic period form part of the operating revenue (Stadium Australia Group 1996b).

CASE STUDY RESULTS

The 'ticks' in the following table identify which particular risk factor is applicable to the relevant party managing the risk factor in question:

	Party Bearing/Managing The Risk Factor			
Risk Factor	*Project Company*- Stadium Australia Trust	*Contractor* - Obayashi, then Multiplex	*Other private sector project participants* - Ogden IFC, Gardner Merchant et al.	*Host Government* – Olympic Coordination Authority (OCA)
Construction time overrun		✔		
Construction cost overrun	✔	✔		
Design Risk	✔	✔		✔
Operational cost overrun	✔		✔	
Latent conditions		✔		
Changes in taxes/laws	✔			✔
Market Risk	✔		✔	
Industrial relations		✔	✔	
Bidding risk	✔			
Corruption	✔			✔
Political backdown				✔
Existing infrastructure	✔			
Raw material supply		✔	✔	
Inflation/Interest rate	✔	✔		✔
Financing	✔	✔	✔	
Country risk	✔			
Force Majeure	✔	✔	✔	✔
Operation failure	✔		✔	
Market competition	✔		✔	✔
Project performance	✔		✔	
Operational safety regs	✔	✔	✔	
Warranties and guarantees	✔	✔	✔	
Project lifespan/Life cycle	✔	✔	✔	✔
Native Title/Land Claim	✔	✔		✔
Operating expenses	✔		✔	
Discretionary termination	✔	✔	✔	
Documentation Risk	✔	✔	✔	✔
Ticket/Membership rights			✔	
Environmental impact	✔			✔
Approval processes	✔	✔		✔
Project complexity	✔	✔	✔	
Legal framework	✔			✔
Political (in)stability	✔			✔

Table 1: Stadium Australia Risk Factor Framework – established during the Case Study interview process

CASE STUDY DISCUSSION: KEY RISK FACTORS

Construction and Cost Overrun

Ultimate responsibility for managing construction, and subsequently any construction related overruns, are borne by the contractor, Multiplex. The contractor was ultimately responsible for cost overrun by way of fixed price, lump sum Design and Construct (D & C) contract. The project company was responsible for the cost overrun associated with their initiated changes and variations or for items outside the D & C scope. A contingency amount of A$1.0 million was included in the funding plan for the possible offset of overruns in development costs, pre-opening costs and/or financial costs.

Design Risk

Multiplex bore the substantial portion of design risk under the D & C contract. The Government and project company bear some risk in that the design brief is correctly prepared and interpreted. A risk was identified that the completed Stadium Australia differed from the conceptual plans provided for in the Design Brief. Detailed design was not finalised until some time after financial close. If the completed Stadium Australia did not comply with the design brief, the OCA had a right to terminate the project agreement. Design risk was very clear as far as the OCA was concerned. The interview process with the OCA project team indicated that the impact of a design change on construction costs or by operating cost, which are the two main risk areas, is not a risk that the Government will carry. They don't carry it on the basis that they have already specified the design and performance outcomes.

Changes to Inflation, Interest Rates and Foreign Exchange

Any risks associated with inflation, interest rates or foreign exchange are borne by various parties, particularly the private

sector consortium. The Works Adjustment Deed had provision for contract adjustments due to interest rate fluctuation between the tendering of the project and the signing of the project agreement. In order to reduce interest rate risk the interest rates on the Construction Loan Facility and the Term Loan Facility were set and fixed at Financial Close for the term of their respective arrangements.

Post-Olympic Games Reconfiguration
The reconfiguration work includes the removal and replacement of part of the north and south stands, the construction of roofs over the north and south stands, the removal of the athletic track and the relocation of the lower seating bowl. There is a risk that this reconfiguration work could interrupt and impact the commercial operations of Stadium Australia. To mitigate this risk, the Head Contract requires Obayashi to undertake the reconfiguration works in such a way as to minimise disruption to the operation of Stadium Australia. In order to prevent minimum disruption to stadium events, the final part of reconfiguration will not now be complete until 2003.

Industrial Relations
Any risk relating to industrial relations are borne by Multiplex throughout the construction and development phase of the project and the Operations and Maintenance (O & M) contractor throughout operational phase. A completion risk existed where dates may not have been met due to industrial action. Such an event would have allowed the OCA to terminate the Project Agreement and/or make the Trust liable for liquidated damages. Some mitigation was provided under the Head Contract where the Trust passed the risk of liquidated damages to Obayashi, and then in turn to Multiplex. The payment of a special 'Olympic Project' site allowance was a further risk mitigation factor where terms were agreed between Multiplex and the relevant Trade Union before construction began.

Environmental Risks
Under the Project Agreement, the Trust bears the risk of contamination on the Stadium Australia construction site. A review of potential contamination risk identified a number of soil contamination issues. As a consequence, a remediation action plan was developed to deal with the issues. The remediation action plan was reviewed by an independent Engineer who concluded that provided the remediation action plan was effectively carried out, the site would be suitable for the construction of the stadium. Furthermore, the responsibility for the remediation action plan was passed on to Obayashi by the Trust under the Head Contract, who in turn transferred this risk and responsibility to Multiplex under the D & C Agreement. The risk of poor environmental management or perhaps a bad choice of site (environmentally) may be a private or public sector risk depending on contractual arrangements and was particularly important given
Sydney's bid for the Olympics as the 'Green games'.

Native Title and Artefacts
A risk was identified as to tenure and usage with respect to the land upon which Stadium Australia is built. The Government indemnifies the Trust against any native land claim. If however a claim is based on artefacts or archaeological items found, then the Trust bears this risk. The Project Agreement stipulates that the OCA will indemnify the Trust for losses the Trust incurs because of a native title application. If an application had been successful, it would have obviously derogated substantially from the Trust's rights to use the site. The indemnity did not extend to losses incurred by the Trust as a result of a native title application which was materially based on the existence of artefacts on or around the Stadium Australia land. Risks relating to such an application were passed on to Obayashi under the Head Contract and in turn, Multiplex under the D & C Agreement.

Surrounding and Supporting Infrastructure
It was expected that most spectators would use public transport to travel to and from Stadium Australia, particularly during major events. During the Olympics, the OCA was responsible to the Trust for the provision of certain transportation infrastructure to the Homebush Bay area. The OCA prepared a transportation strategy plan as part of the Homebush Bay Masterplan. The risk identified here was non-completion, i.e. if the plan was not implemented as set out in the Masterplan or not implemented by the completion date. Further risks included travel times to and from Stadium Australia that depended on the time of day, mode of transport and the number of people within the Homebush Bay area. The consequences for Stadium Australia of an inadequate support infrastructure are serious, as it impacts upon likely attendance and in turn the attractiveness to potential hirers, resulting in revenue shortfalls.

Competing venues
The risk exists that competitive venues, such as the Sydney Football Stadium (SFS), Sydney Cricket Ground (SCG), Parramatta Stadium or even future stadia, draws hirers and subsequently events away from Stadium Australia. The risk posed by a new competing venue is partially mitigated under the Project Agreement. The OCA undertook to enter into good faith negotiations with the Trustee and Stadium Australia Management for compensation in the event that a Government-controlled entity undertakes or assists in the development or redevelopment of a competitive stadium having over 25,000 seats and within 50km of the Homebush Bay area. For any compensation claim to be successful, the new competitive venue must have a material adverse effect on the Trust's ability to carry out the project, repay debt, make distributions or pay dividends.

This risk was managed by ensuring that the SFS and the SCG were specifically mentioned in the project agreement, in that they have limitations on the extent to which they can redevelop. For example, if the government does choose to compete decides to redevelop the SFS going beyond the maximum figure mentioned in the Project Agreement (48,000 seat maximum for the SFS which is currently 42,000) then this would trigger competition, subsequently triggering a of range of compensation negotiations.

Bid Preparation Risk and the Approval Process
The Project company and participants bear the considerable time and cost consequences associated with bidding risks such as bid feasibility, preparation and subsequent presentation. The

nomination of preferred tenderer status after the initial bids were cut to three tenderer's attempted to minimise wasted private sector involvement.

In terms of risk involved in the approval process, the promise of efficient processes assists the likelihood of success. Slow and inefficient approvals are a risk borne by the project company. A comprehensive Development Application (DA) was submitted by the the OCA and an efficient approval process meant that consent was given on 8th August 1996 before the project agreement was signed in September 1996.

Political Risk
Political risk was offset by both State and Federal Governments in that they were very supportive of the project given the country's responsibility in staging the Olympic games. By virtue of the concession period however, all BOOT projects will see changes in administration and this is a risk that the private sector can 'gamble' on in accepting exposure. Greater political stability and support will aid in success and management of risk. Any political backdown or failure to honour guarantee's was managed by the project agreement making provision for indemnification of the private sector.

Operating revenue
If the type or number of events in the targeted schedule are not met and the price and volume targets for merchandise, food and beverage, signage, event rental and corporate hospitality are not achieved, then the revenue generated from Stadium Australia Management would be reduced. As a result, rates of return for investors and debt repaying ability would be adversely affected.

The interview process identified this as one of the significant risks applicable to the project. The patronage, or revenue, risk of being able to attract the events and the people to the stadium is significant. However, there is a good underlying logic as to why it ought to work in terms of long term operation. Stadium Australia provided 110,000 seats for the Olympics and 80,000 post-Games. The SFS and SCG seat around 40,000 each. In comparing a 40,000 capacity stadium to one with an 80,000 capacity, the larger stadium achieves much better economies of scale in terms of providing double the capacity while at the same time operating costs are not twice that of the smaller stadium.

Stadium Australia also has to compete with other cities for certain events. This may well effect its' long term operating viability. The interview process with the Public Sector representative (OCA) identified this. A business such as the stadium has to worry about both local and national competition. For example, when considering a finals series of a national competition or even international sports event then Stadium Australian is not only competing with local venues, it is also competing with Melbourne, Brisbane et al.

Transfer of the Facility
Some transfer issues of the BOOT procedure stipulates warranty requirements for a certain period of time post-transfer. This provision may serve as a motive for ensuring adequate 'up-keep' in the final stages of the concession period. The contractor bears the risk of the usual warranties and structural guarantees.

CONCLUSION

Risk factors identified from literature have been applied to a current BOOT project case study, Stadium Australia, and a project specific risk factor framework has been established. The risk factors can be used to raise awareness of BOOT project risk issues at an early planning stage. The framework considers issues from all perspectives throughout the construction and development phase through to the operational and eventual transfer phase.

While reviewing relevant literature, risks of a political, legal and commercial nature were identified as the most significant as they are all issues that the project company has little or no control over. In developed countries such as Australia, where legal systems are well tested and proven to be very reliable, concession companies can undertake to carry most risks while receiving very little guarantees in return. This logic was proven correct in the context of the case study project. The majority of other risks identified while reviewing the literature were relevant to varying degrees on the Stadium Australia project.

Beyond the issues specific to both the literature and the case study project, there were several risks considered unique to Stadium Australia. They centred upon the issue of Olympic Games tickets and membership rights associated with equity investment. The consequences associated with the Olympic Games, such as cancellation, boycott or event re-programming, are issues not usually associated with typical BOOT projects for obvious reasons.

The most significant risks identified with Stadium Australia include the following:

- Bidding risk, where substantial financial investment was spent during the tender and negotiation stage, in the hope of being awarded the right to develop the project.
- From a building perspective, the technical, environmental and construction related risks were of significant concern. It was noted that the risk profile of the project was probably exacerbated by the high level of public scrutiny and profile associated with staging of the 2000 Olympic Games. This is supported by the measures and conditions imposed, such as extreme completion guarantees, discretionary termination clauses and the required $215 million payment to the OCA at financial close for drawing down progress claims.
- Market risk regarding the ability to continue to attract the events, and subsequent necessary attendances, to the stadium. The ability to successfully manage market risk has a direct impact upon its operation and will also depend upon the Stadium's success over competing venues.
- The risk issue of the ability to raise both debt and equity given the innovative financing methods and extremely complicated consortium structure.

The emergence of BOOT schemes provides a means for developing the infrastructure of a country without directly impacting on the government's budgetary constraints. The principles embodied in this form of public-private sector partnership is now established worldwide as a significant means of developing public services such as infrastructure. The case study project has shown evidence of the management of risk factors required for a sustainable operation.

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