Not only one of the world’s most remarkable sports facilities but also the first Public-Private Partnership sport facility in China, the National Stadium for the 2008 Beijing Olympics Games has drawn much attention, received much help, produced much political debate and experienced multiple risks during its development and construction. But, at last, it was completed in time with good quality and at a reasonable cost. It played an important role in facilitating the success of the 2008 Beijing Olympics Games, giving an indelible impression to the world. This article reviews issues that arose during the stadium’s development and construction and considers the risks encountered and lessons drawn. The construction and management arrangement was widely considered to be a public-private partnership, but it is important to note that the so-called private side consisted of a mix of public, blended public-private and fully private organisations.

Key words: public-private partnerships, case study, risk, stadium, Olympics

Through August 2008 the world was treated to a mass of spectacular visual images showing the 29th Olympics in progress in Beijing. In order to meet the obligations specified in the Host City contract for the 29th Olympic Games that the Beijing People’s Municipal Government (BMG) had signed with the International Olympic Committee (IOC), the BMG decided to build the National Stadium, the so-called ‘Bird’s Nest’. This landmark building is sited inside the Olympic Green Park in northern Beijing City just outside the North 4th Ring Road. It is approximately 20 hectares in size and is the largest international standard multi-functional stadium in Beijing. The Bird’s Nest is now an iconic legacy of the Olympic Movement and a bright new spot in Beijing’s infrastructure. However, despite its spectacular debut as one of, if not the world’s, most sophisticated stadiums, the project, which was developed as a Public-Private Partnership, was not trouble-free. As both financing and technical issues became problematic, some key features of its original design, such as a highly complex retractable roof, could not be included in the finished building.

This article begins by identifying the public interest in organising and in developing sports facilities for the Games and shows how the public interest in the project was addressed. It then discusses issues related to the project’s development, partners and site, as well as relevant legislation, structure and financing. The conclusion discusses three major issues arising in the course of the project’s development: the disputes that arose; the impacts of cancelling the stadium’s retractable roof; and finally, the key risks involved and how they were managed.

Since the late 1980s, China has been encouraging private partners to co-invest in public sector infrastructure. This helps both to relieve the burdens on the government’s budget for developing the infrastructure needed to support fast economic growth and quality-of-life improvements, and to improve the efficiency of development. In the mid-1990s and then from 2003 onwards, there were two major boom-periods of infrastructure development. In the first
Many Hands, Much Politics, Multiple Risks

March 2010

The National Stadium for the 2008 Beijing Olympic Games

period, foreign investors played the major role. In the second period, state-owned enterprises featured as the principle players, thus enabling the government to retain more influence over these projects. Among the many sports facilities built for the 2008 Beijing Olympic Games, about one quarter, including the National Stadium, were developed using Public-Private Partnerships (PPP), reflecting the belief that such facilities could be developed and operated more efficiently that way.

The objectives of, or more exactly the public interest in the National Stadium, can be described at two levels. At the state level, the Olympic spirit was to be spread and popularised with the active participation of the 1.3 billion Chinese people. Although drawing on the experience of the host cities of previous Olympic Games, in order to maximise the economic and social benefits to China, the project emphasised predominately Chinese creativity in the organisation, management and marketing of the 2008 Games. The stadium was developed as a landmark building and milestone project, incorporating Chinese art and culture that would greatly help in both accelerating the modernisation of Beijing and in promoting national economic development across the rest of the country (designbuild-network.com 2009). Thus its planners hoped that the project
could help to maximise the positive impacts of the Olympic Games and bring a breakthrough in upgrading the capital city’s economic development, urban construction, social progress and its people’s living standards. During the development and operation process, it was expected that high-quality personnel would be trained and employed, and that advanced management concepts and expertise would be learned from other countries. The government itself was expected to adhere to the principles of openness, fairness, efficiency and honesty, and to set a good example in being innovative in systems, mechanisms and management. In short, the project would, and indeed did, help to create a new image of Beijing and China.

At the project level, the objectives were to obtain maximum profit in addition to meeting all the demands of holding the Games. The design, financing, construction, operation and maintenance of the project had to be carried out in accordance with these objectives. The National Stadium thus needed to meet all technical requirements and standards for the Games and to be developed with state-of-art technology. Further, competitions held within the National Stadium had to be well organised, with excellent services provided to all athletes participating in the Games. For the actual games period, the National Stadium would be capable of seating 100,000 spectators (including 20,000 temporary seats to be dismantled after the Games), and it would be used for the opening/closing ceremonies, track and field events and the football final of the Games.

After the Games, the National Stadium would be able to seat 80,000 spectators for special competition events (such as the World Track and Field Championships, World Cup Football Games, etc), various regular sports competitions (such as the Asian Games, Asian Track and Field Championship, Intercontinental Integrated Competitions, National Games, National Football League Matches, etc) as well as non-competitive events (such as art performances, group activities and commercial exhibitions, etc).

Based on a Build Operate Transfer (BOT) PPP model, the initial intention was that the Project Company had to bear the loss and profit of the project on its own. The BOT-style arrangement inevitably had great impact on design, financing, construction and operation. As the design and construction features would influence later operations, the Project Company had to negotiate during the construction period with enterprises potentially interested in operating and utilising the National Stadium after the Games. For example, it was suggested that after the Games the National Stadium would become the arena for the Beijing Guo’an Football Club. If this had come to fruition, it would have been an excellent guarantee for the Project Company’s cash-flow.

To help save the government’s budget, the BMG employed professional consultants to conduct detailed estimations and financial analysis for the project. Open competitive tendering was used to select the private partner and to help reduce the subsidy that the BMG had to provide. To ensure that the public interest was reflected in the project’s development and to improve effectiveness and efficiency in its management, the BMG authorised the Beijing State-Owned Assets Management Corporation (BSAMC) to be the major shareholder in the Project Company. While BSAMC held 58% of the total investment, the remaining 42% was financed by a mixed public-private consortium described as the CITIC Consortium. The public and private partners jointly set up the Project Company that was given responsibility for financing and constructing the National Stadium and also for its operation and maintenance for 30 years after the close of the 2008 Olympic Games.

To both meet the requirements of the Games and to take the public interest into account by ‘Hosting the Olympic Games Frugally’, the government set the main themes and slogans of the Games as: ‘Green Olympics’, ‘Hi-tech Olympics’ and ‘People’s Olympics’. In this way the government showed its desire to develop the project as a model of environment protection and sustainable development, requiring the stadium to be built safely, on time, within budget and to high-quality standards so as to reflect the public interest indicated by these themes.
The Case

Development Process

In October 2002, the BMG entrusted the Beijing Development and Planning Commission (BDPC 2002) to request all interested parties to apply for pre-qualification for the financing, design, construction and operation of the project. The key steps of the tendering process are summarised in Table 1.

At the opening of bids at the close of the tendering process, the BCEG Consortium was ranked first and therefore was most likely to be awarded the concession. But, as the BCEG Consortium consisted of too many partners (14 partners with different backgrounds), and each continued to promote its own interests, it proved very difficult for them to reach a common agreement with the BMG. After much negotiation with the BMG, the BCEG Consortium finally withdrew its bid. Due to the very tight schedule, the BMG then had to negotiate quickly with the second ranked bidder, the CITIC Consortium, which was then awarded the concession. This however resulted in a rushed and imperfect agreement that left several unsolved issues for further negotiation and these led to many future problems.

Project Partners and Structure

As noted above, the Tendering Administrative Authority for the project was the BMG, which then devolved responsibility for the process of tendering the project’s concession to BDPC. The Guoxin Tendering Corporation was then appointed by the BDPC as the Tendering Agent responsible for preparing the Invitation to Bidders (ITB) and for implementing all ITB activities.

As it is set up, the Project Company comprises both public and private parties. The primary public partner the Beijing State-Owned Assets Management Corporation (BSAMC) that was nominated by the BMG to represent the public side, and this contributed 58% of the total investment (see Figure 1). Founded in April 2001, the BSAMC has registered assets of 1.5 billion Renminbi (RMB)\(^1\), and is a unique organisation whose management and staff have a deep understanding of China and the city of Beijing. The BSAMC also possess rich experience in financing, asset management and capital operations.

The other partner is a mixed consortium composed by three companies: the state-owned China International Trust and Investment Corporation (CITIC); and the also state-owned Beijing Urban Construction Group Corporation (BUCEC); and the private Golden State Holding Group Cooperation (GSHGC). Their proportional equity in the consortium is 65%, 30% and 5% respectively. Together they possess much experience in the financing and construction of large construction projects.

CITIC was formally established on 4 October 1979 by Rong Yiren, former Vice President of the People’s Republic of China, and was based on the initiative and approval of Deng Xiaoping, chief architect of China’s opening-up and economic reform. CITIC has since grown into a large trans-national conglomerate. It now owns 44 subsidiaries (mainly banks) including those in Hong Kong, the United States, Canada, Australia, and New Zealand. The corporation has established representative offices in Tokyo, New York and Frankfurt and its core business ranges from the financial industry, through to industrial investment and service industries. CITIC, having been elected by the consortium partners as their leader was given charge of coordinating the bid preparation and submitted the bidding document and related materials jointly with its two partners. CITIC also undertook the role of being the consortium’s legal person for the National Stadium project, representing the consortium during the negotiations with the BSAMC.

BUCEC is a large and comprehensive group that constructs industrial and civil buildings, municipal works, metros, expressways and airports and it also undertakes many real estate development and urban infrastructure projects. BUCEC, as the largest construction group in Beijing, possessed the critical local know-how and expertise needed by the consortium. Selected by the State Council of China as one of the ‘120 Companies of State-Owned Large Enterprises for Pilot Reform’, BUCEC which now
Table 1. Tendering Process of the National Stadium for the 2008 Beijing Olympic Games

<table>
<thead>
<tr>
<th>Step</th>
<th>Date</th>
<th>Participants</th>
<th>Activities</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invitation to bidders</td>
<td>28 October 2002</td>
<td>BDPC</td>
<td>Inviting bidders to apply for pre-qualification and submit bids</td>
<td>Seven consortia apply for pre-qualification, of which five are qualified</td>
</tr>
<tr>
<td>Field inspection and pre-bid meeting</td>
<td>30 April 2003</td>
<td>BDPC and potential bidders</td>
<td>Q&amp;A after bidders have finished field inspection and review of the bidding documents</td>
<td></td>
</tr>
<tr>
<td>Bidding</td>
<td>Deadline on 30 June 2003</td>
<td>The CITIC, CSCEC and BCEG Consortium</td>
<td>Submitting response to the bidding documents and competitive bids</td>
<td>One bidder quits due to substantial failure to respond to the bidding documents</td>
</tr>
<tr>
<td>Bid opening</td>
<td>30 June 2003</td>
<td>Supervisory personnel of BOCOG, representatives of bidders, tendering agent</td>
<td>Opening of bids and Announcement as to the successful bidder</td>
<td>Top two successful bidders, named as the BCEG Consortium and the CITIC Consortium</td>
</tr>
<tr>
<td>Initialling of Concession Agreement and National Stadium Agreement</td>
<td>Before 5 July 2003</td>
<td>BDPC and the BCEG Consortium, the CITIC Consortium</td>
<td>The bid being given to the CITIC Consortium</td>
<td>The BCEG Consortium dropped out due to failure of its projected members to reach a Consortium Agreement</td>
</tr>
<tr>
<td>Signing of the Concession Agreement and the National Stadium Agreement</td>
<td>9 August 2003</td>
<td>The CITIC Consortium with BMG and BOCOG</td>
<td>Signing agreements and preparing for the registration of the Project Company</td>
<td>In accordance with Chinese laws, the CITIC Consortium has to form the Project Company with BSAMC</td>
</tr>
<tr>
<td>Establishment of the Project Company</td>
<td>September 2003</td>
<td>The CITIC Consortium, BSAMC, GSHGC and BUCGC</td>
<td>Registration of Project Company</td>
<td>Site acquisition before the registration</td>
</tr>
</tbody>
</table>

Note: BDPC — Beijing Development and Planning Commission
CITIC — China International Trust and Investment Corporation
BUCGC — Beijing Urban Construction Group Corporation
GSHGC — Golden State Holding Group Corporation
BSAMC — Beijing State-owned Assets Management Corporation
BOCOG — Beijing Organising Committee for the Games of XXIX Olympiad
BCEG — Beijing Construction Engineering Group
CSCEC — China State Construction Engineering Corporation
Figure 1. Project Structure of the National Stadium

Note: BDPC – Beijing Development and Planning Commission
CITIC – China International Trust and Investment Corporation
BUCGC – Beijing Urban Construction Group Corporation
GSHGC – Golden State Holding Group Corporation
BOCOG – Beijing Organising Committee for the Games of XXIX Olympiad
CICI – CITIC International Contracting Inc.
CGG – CITIC Guoan Group

has some private shareholders, also ranks seventieth in the ‘Top 500 Enterprises of China’. As the largest construction enterprise in Beijing, BUCGC was strong technologically and was led by a reliable and youthful management team. Equipped with the most modern equipment, BUCGC can work above and/or underground and over the last 40 years it has accumulated considerable experience in steel structure construction. The scope of its constructions has covered airports, sports stadiums, bridges, civil buildings, and so on.

GSHGC is an international group company specialising, amongst other things, in municipal infrastructure construction, environmental protection and renewable energy development. It has offices and subsidiaries in the United States, France, Spain, Canada and China.

There were also two other organisations providing project management advice to the Project Company: Vinci Construction Grands Projets (VCGP) and Bouygues Batiment (BYB). VCGP is part of the French Vinci Group, the largest group for construction and associated services in the world, and it is active in civil and building construction and related services (toll roads, airports, car parks, bridges and stadiums). BYB is part of the Bouygues Group, a major French conglomerate with activities in construction, services, telecom...
media. Vinci Group and Bouygues Group are also shareholders in the Consortium Stade de France (CSDF), a first-of-its-kind PPP for a sports facility. The expertise and know-how of VCGP and BYB in the design, financing and construction of a sport and cultural venue, and that of CSDF for the management and operation of such a facility, brought considerable value and competitiveness to the Project Company. Figure 1 illustrates the project structure for the National Stadium.

The Project Company was thus formed by strong partners with complementary strengths. It was expected that with this arrangement the project’s objectives could be met more easily and the public interest protected. This was particularly so as both BSAMC and BUCGC are wholly state-owned while CITIC is partially state-owned, representing both the government and the society. The remaining shareholders mix public, private and blended public-private ownership, with the private side contributing world-class expertise and efficiency. From the analytical point-of-view, however, these arrangements increased complexity because the so-called private side includes several organisations that are themselves either public organisations or public-private mixes.

**Project Scope and Location**

The huge size of the stadium and its objectives to serve both the Olympic Games and the community afterwards, have been explained earlier. However, as well as the stadium, the project required also convenient public transportation: there is a subway station 500m away on the stadium’s northwest side, two bus stops 500m away on its west side and 300m away on southeast side respectively.

**Government’s Supports and Incentives**

In the absence of a BOT/PPP law in China, several polices were adopted by the Chinese central government and the BMG so as to meet their obligations in the National Stadium case. For example, on 23 January 2003 the Ministry of Finance, the State Administration of Taxation and the General Administration of Customs jointly issued ‘Notices on Taxation relevant to the 29th Olympic Games’ (State Administration of Taxation 2003). These notices provided many tax incentives that included making imported equipment for the stadium free of customs and value-added tax. Most sales-taxes related to the stadium were waived too. Further, some other policies that the BMG adopted for the project required coordination of its departments. For example, the ‘Tendering Regulations for Concession of Urban Infrastructure Projects in Beijing’ (BDPC 2005) which specify the detailed requirements of the tendering process and the ‘Concession Regulations for Urban Infrastructure Projects in Beijing’ (BDPC 2006) which specify the project types allowed for concession and related key rules, were implemented by BMG on 1 September 2006 and 1 October 2003 (modified on 1 March 2006) respectively. The document ‘Some Suggestions (36 clauses) on Developing Private Economy’ issued by the State Council on 24 February 2005 also gave strong encouragement to private investment in infrastructure using project finance (ie, BOT/PFI/PPP) schemes and allowed private enterprises to invest in all public and infrastructure projects including power plants, roads, airports, harbours, rail, gas, water, waste treatment, etc, that were formerly undertaken only by government or state-owned companies.

BMG granted the Project Company the right to invest in, finance, design, construct, operate, maintain and repair the stadium on the terms and conditions of the Concession Agreement. That agreement provided that the Project Company, BMG and Beijing Organising Committee for the Olympic Games (BOCOG) would enter into the Stadium Agreement under which the stadium would be made available to BOCOG for the holding of the Test Competitions and Test Events, as well as for the Olympic Games and Paralympics Games. The Stadium Agreement specified each party’s rights and obligations in relation to those events in detail.

According to the Concession Agreement, CITIC partners (as the Bidder) was required to obey the relevant construction rules of the IOC and BOCOG during both the bidding process and the investment, design, construction,
operation and transfer stages of the project. In the event of any discrepancy arising between the International Sports Federations and the BOCOG, IOC would be requested to make the final decision. The relevant rules, however, were not supposed to restrict the Organising Committee for the Olympic Games from proposing supplementary clauses or imposing higher requirements if necessary.

A wide variety of ‘charters’, ‘contracts’, ‘agreements’ and ‘guidelines’ existed to facilitate work on Olympic sites generally and the Beijing sites in particular. Within these documents, various government supports and incentives were provided to facilitate the implementation of BOT/PPP-mode facilities and, in particular, of the Beijing Olympic Stadium, as detailed below:

• BMG provided land at very low cost – certainly much lower than the 10,000 RMB per square metre required for other land nearby;
• While BMG contributed 1.8154 billion RMB (58% of total investment of 3.13 billion RMB), it would not receive any dividend from the project;
• BMG provided the necessary infrastructure connections to the site (water, electricity and roads, etc) and gave considerable help and assistance in creating convenient conditions for the construction and operation of the stadium. For example, BMG issued a special passport to the Project Company that permitted the easy movement of the large steel structure components needed for the stadium;
• During the Test Competitions/Events and the Olympic Games, BOCOG agreed to pay fees to the Project Company. BMG also undertook to cover all expense of special equipment used for the opening and closing ceremonies. This was because such equipment could not be used for daily operations after the Games had ended; and
• During the 30-year concession period, BMG is not allowed to develop a new competitive stadium nor to expand any existing competitive stadium in the northern area of Beijing.

Basic Deal Structure

The Concession Agreement between BMG and the Project Company was signed on 9 August 2003. Under this agreement, the Land Administrative Authority of BMG offered the Project Company the land use rights of the project facilities site (collectively, the ‘Land Use Rights’), without the need for the Project Company to pay a land premium or supporting infrastructure construction fee. This, however, was on the condition that the Project Company carried the first-level land development expenses (RMB 1,040 per square metre) of the Project Facilities Site.

For the Project Company, its responsibilities included investing, financing, designing and constructing the stadium and thereafter, operating, maintaining and repairing it throughout the stipulated term. The Project Company also would make the stadium available to BOCOG for the holding of Test Competitions and Test Events and the Olympic Games. During the stipulated period, the BOCOG would have to pay to the Project Company an amount determined as follows: the actual operation fee minus the daily operation fee. The daily operation fee is the project’s operation fee when it doesn’t hold any games. The Project Company is required to transfer the stadium at no cost to either BMG or to its nominated transferee at the expiration of the concession period, which was stipulated as starting from the Completion Date of 31 December 2006, and, subject to various conditions for earlier termination, ending on 31 December 2038.

To generate income, the Project Company could collect revenues from the project in relation to: payments from television, radio and other media organisations; sponsorship; advertisements; franchising; renting commercial space eg, offices, boxes, parking lots, restaurants, supermarkets and hotels, etc; gate and ticket sales; sport and performance events, etc; and the selling of the naming right (brand) after the Olympic Games. The Project Company would receive all such revenues for the duration of the concession except that, during the Olympic Games period, the Project Company
would only receive the rent fee paid by the BOCOG.

As far as competition for hosting events etc, in the post-Olympic market is concerned, the Project Company must compete with other existing stadiums. As many of these are obsolete and none is as big as the National Stadium, competition from other large stadiums during the concession period is expected to be minimal. If a new stadium becomes necessary, the BMG will negotiate with the Project Company and, in accordance with the concession agreement, the Project Company will be compensated accordingly.

Sources of Finance

As noted earlier, there was some disagreement about the sources of finance for the stadium at the time that the consortium was being selected. The government thought the proposed proportion being allocated to government was too high. It therefore tactically chose the BCEG Consortium. When that consortium dropped out, however, the government had no choice but to negotiate with the CITIC Consortium. Finally, the current proportions of equity were agreed. The reduction of government’s contribution of equity from 65.98% to 58% was certainly good for the government’s use of public money, reflecting the government’s endeavour to protect the public interest (see Table 2).

The non-equity financing of the project consisted mainly of loan money from banks. The Project Company believed that those domestic commercial banks showing strong interest in the project possessed good financing capacity in both domestic and foreign currencies. It was therefore confident that the required funds could be raised from domestic commercial banks. Table 3 compares the original, ie, during the bidding, and finally-agreed proportions of various sources of funds.

The bank loan is the senior debt with a tenure of 16 years, which includes a four year drawdown and a six year grace period. The principal will be repaid in equal instalments on a quarterly basis from 2010, with interest being paid quarterly and commencing from the first drawdown.

Before the tendering, the Project Company obtained letters of commitment from three banks, the Industrial and Commercial Bank of China, China Construction Bank and China CITIC Bank. All these banks, however, expressed doubts about the project’s financial viability. After they knew that the project might be cost-overrun and the retractable roof cancelled, they were even more doubtful of the project’s financial viability. The banks and BMG therefore asked the shareholders of the consortium (CITIC, BUCGC and GSHGC) to replace the Project Company as the borrower of the money. The shareholders were reluctant to do this, leading to extended negotiations between the banks and BMG.

Discussion on Some Major Issues

Three major issues arising during the course of this project are now discussed.

The Disputes in the Project

From the beginning, various disputes arose among the Project Company’s partners. First, as all partners wanted to gain from the profits of the construction work of the project, any profits were to be divided into three parts for CITIC, BUCGC and GSHGC according to each company’s proportion of the equity in the Project Company. A direct result of this arrangement was that the Project Company failed to establish good, independent control over the construction. Second, due to the project’s structural characteristics and the detailed design not being ready at the time the contract was agreed, the contractor could only sign a Unit Price Contract with the Project Company. The BUCGC, as the general contractor, then seemed to pay more attention to its own profit, time and safety issues than to the interests of the consortium as a whole. Construction cost overruns resulted and, most difficult, when delays were incurred mainly by the design changes necessitated by the cancellation of the retractable roof (see further below), the BUCGC asked for a technical-measures fee to accelerate the construction schedule.
Table 2. Comparison of Original and Final Proportions of Equity

<table>
<thead>
<tr>
<th>Shareholders</th>
<th>Original (during bidding)</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion in Consortium</td>
<td>Proportion in Project Company</td>
</tr>
<tr>
<td>BSAMC</td>
<td>65.980%</td>
<td>762,100</td>
</tr>
<tr>
<td>CITIC</td>
<td>65%</td>
<td>22.113%</td>
</tr>
<tr>
<td>BUCGC</td>
<td>30%</td>
<td>10.206%</td>
</tr>
<tr>
<td>GSHGC</td>
<td>5%</td>
<td>1.701%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 3. Comparison of Original and Final Sources of Fund

<table>
<thead>
<tr>
<th>Source of Fund</th>
<th>Original (during bidding)</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion in total investment</td>
<td>Amount (RMB million)</td>
</tr>
<tr>
<td>Government Contribution</td>
<td>65.98%</td>
<td>2,286.29</td>
</tr>
<tr>
<td>Equity Capital from Consortium</td>
<td>11.34%</td>
<td>392.94</td>
</tr>
<tr>
<td>Bank Loan</td>
<td>22.68%</td>
<td>785.89</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>3,130.00</td>
</tr>
</tbody>
</table>

There were also disputes between the Project Company and the BMG. First, the original design of parking spaces was for 2000 cars. But then the BMG asked the Project Company to cut out 1000 spaces because it wanted to construct a large parking lot for the whole Olympic area. As a result, the parking spaces for the stadium would not be sufficient for its needs. Many people therefore would have to park their cars in the BMG parking lot and walk to the stadium. Second, BMG asked the Project Company to reduce the commercial areas in the stadium. Third, BMG asked the Project Company to cancel the retractable roof. All of these reduced significantly the Project Company’s projected sources of revenue. Finally, even though it changed the design itself, BMG set a tight deadline and still required the Completion Date to be before 31 December 2006. There was thus not enough time for an economic reconsideration and, in view of the strict deadline, the financial closing date was set at 15 December 2003. In the event, the actual date was delayed for about two months and, just after the concession agreement was signed, the BUCGC had to enter the site to commence construction.

The design, and the changes to it, also presented a substantial problem for the Project Company. Although the BMG did not own the copyright for the National Stadium’s design, it had asked the Project Company to follow it nonetheless. In consequence, the Project Company’s status was weak when negotiating with the design consortium and there was a danger that this would result in the design not being good enough for proper commercial use. Usually a Project Company is the owner of such a facility and it is the design consortium that should satisfy the Project Company’s requirements. But, as the stadium was required for and by the 2008 Olympic Games, the BMG had played a bigger role in deciding on the blueprint than would normally happen. This, therefore, constrained the Project Company’s ability to maximise the commercial and efficient use of the stadium.
The Impacts of Cancelling the Retractable Roof

At first, the Chinese government wanted to create for the world a new image of China. It thought that all the Olympic Games gymnasiums and sports facilities should be landmark buildings and milestone projects. Since the beginning of 2004, however, the government became more practical, realistic or perhaps more sensitive to other internal political considerations. It thus shifted its emphasis to the need to build a ‘Harmonious Society’ with more concern for ordinary people. Since many ordinary citizens thought several of the original designs for the Olympic Game gymnasiums might be too luxurious and likely to create post-Games budget problems, the BMG began to modify most of its designs so as to meet the new official slogan of ‘Host the Olympic Games Frugally’ (Xinhua News Agency 2004, 2005). Although this decision was good for the long term, changing the designs halfway resulted in a waste of both time and money. For example, after the original design of the National Stadium was released, many Chinese architects and engineers wrote to the government suggesting cancellation of the retractable roof so as to save money and accelerate the construction schedule (CCTV 2008). Further, by reducing the weight of the roof and the complexity of installation and operation, they believed that this would improve safety during the construction and operation of the stadium. After a thorough study and critical debate, the government finally did accept to cancel the retractable roof, but this decision had many pros and cons.

For example, the cancellation of the roof reduced the load of the steel structure and therefore saved both at least 2,000 tons of steel material that would have been used for the supporting structure and about 1,700 tons of steel for the retractable roof itself. In addition, after the re-design, it was expected that there could be many other economies: for example, it was estimated that the cancellation saved roughly 400,000,000 RMB in total, though this estimate may have been a little optimistic.

The steel structure for the unique wide-span retractable roof would have been very complex and very hard to install with both the roof and its supporting structure each weighing 1,700 tons. As originally conceived the roof would have been as big as a football ground, covering the entire open space of the stadium structure, moving along a fixed rail on the permanent roof as it opened and closed. The contractor explored many ways to install it, but each of these would have cost too much and may not have been very safe. After the roof’s cancellation, the contractor installed the rest of the stadium’s steel structure much more easily and cost-effectively.

Since the cancellation of the retractable roof represented a very major design change, many other features needed to be redesigned, especially the steel structure and the film system. Almost all the steel structure designs needed to be renewed or redrawn. As a result, the design consortium claimed 40,000,000 RMB for redesigning the project which was almost one-third of the primary design fee (120,000,000 RMB).

Given the many disputes over the proposed cancellation, the BMG invited various experts to discuss and evaluate the situation before finally requesting the design consortium to begin the redesign process. But all this took time, and the contractor sometimes had to stop construction and wait for the architects to provide new construction drawings. The changes delayed the construction schedule for about six months and led to huge cost overruns. The main contractor BUCGC therefore claimed compensation fees. The Project Company, however, argued that these delays were caused by the BMG, and that the BMG should bear the additional costs. The disputes were still under negotiation even when the Games were held but were settled finally at the end of 2008 with the BMG bearing most of the cost.

The impact of cancelling the retractable roof affected the potential post-Olympic operations and revenue in three main ways. First, as opening and closing the roof should have carried an operation fee, the Project Company would no longer have that source of income. Against this though, related high maintenance costs could be saved. Second, without the ability to close the roof the National Stadium loses its
attractiveness as an all-weather stadium. As only an open-air stadium, it becomes much less suitable for renting out to the exhibition, cultural and tourism markets. Third, the cancellation reduced the stadium’s brand value. Having been planned as the only large stadium with a retractable roof in China, the Project Company thought it would be the most famous stadium in China and that many big companies would be attracted to bid for the rights to name the project. After the cancellation of the roof, the stadium had no obvious unique characteristic relative to other large stadiums and the Project Company began to worry about the brand value of the project.

**Other Risks in the Project**

The Institute of International Engineering Project Management of Tsinghua University carried out a risk assessment study of the sport venues for the 2008 Olympic Games (Fang, Zhu and Wang 2008). From this study various critical risks associated with the National Stadium project were identified. These included risks related to the irrational construction schedule, cost overruns, the small size of the potential market for the post-Olympic utilisation of the National Stadium and the Project Company’s lack of experience in operating a large-scale stadium.

First, for example, the timing for the construction schedule was always very tight, with only about three years allowed between the signing of the Concession Agreement and BMG’s required construction completion date. Construction planning took much longer than expected because of the high technological standards required, the complexity of functions to be served by the building, and the extra half-year needed for design revisions after the cancellation of the retractable roof. To complete on time was therefore extremely problematic.

Second, there was little past Chinese experience to draw on to cope with the many innovations in the building. Not least, such innovations included the complex multiple welding required for the Bird’s Nest’s innovative 3D steel frame and the use of transparent inflated ethylene tetrafluoroethylene (ETFE) cushions for the roofing. This complexity, combined with inexperience, caused major fabrication, installation and maintenance problems that led to huge cost over-runs, the consequences of which are still being worked through today.

Third, the long term market for the stadium was always going to be problematic. Only non-commercial large-scale events will ever take place there and, to build the image of the stadium both nationally and worldwide, these events must be widely publicised. If the market should prove to be smaller than that forecast, then the Project Company would be likely to sustain a big loss. This has become a major issue since the Olympics. First, the Beijing Guo’an soccer club, which was supposed to become based in the stadium after the Olympics, pulled out on the grounds that it would be too embarrassing to hold matches in front of a normal crowd of only 10,000 spectators or less in a stadium designed for 91,000. Second, the major events hoped for have not materialised. Thus in 2009, apart from a production of the opera Turandot to celebrate the first anniversary of the opening of the Olympics, the only other major event scheduled is the Race of Champions, due to be held towards the end of the year. (Demick 2009; ABC News 2009). Plans for the stadium announced by the Project Company in early 2009 suggest that the venue will be turned into a major shopping mall and entertainment complex over the next few years. In the meantime, it is costing US$9m to maintain each year.

Fourth, to develop a market of national users of the National Stadium, excellent relationships need to be established with a variety of public and private cultural, sporting and media organisations, and the patronage of corporate sponsors needs to be secured. The Project Company, however, had never operated a stadium before. Although it entered into an agreement with Stade de France to help it to acquire relevant knowledge and experience, the high consultation fee itself became problematic and led to the termination of this agreement. The Project Company has thus been left alone in developing the necessary expertise.

These circumstances all entailed huge risks for the Project Company, and indeed for all parties involved in the project.
Concluding Discussion

The National Stadium was the main stadium for the 29th Olympic Games, where the spectacular opening and closing ceremonies, the track and field competitions and the football final game were all held. Building the stadium in time for the Olympics was therefore imperative and its actual construction was a major triumph of construction. But, as is the case with most stadiums in the world, it was highly unlikely that the stadium could ever gain sufficient revenue from its own operations to be economically self-sustaining. To make the National stadium viable for PPP application, the BMG provided much support and many incentives that included contributing 58% of the total investment, but without asking for a return.

The public and private sector partners, as authorised by the BMG, then jointly set up a Project Company. This organisation was then given the responsibility for the financing, construction, operation, and maintenance of the stadium and for transferring it back to the BMG when the 30 year concession period ends. As the project developed, however, several disputes arose between the partners that resulted in problems which the private and the public sides had to solve collectively. This was because no single party either wanted to, or could solve the negative impacts alone. As CITIC and the BUCGC are both large state-controlled or stated-owned enterprises, they not only had to undertake the project on time for the Olympics and that required much re-negotiation between the different partners but they must now carry on to find new solutions to the longer term problems and risks that continue to plague the stadium.

Reviewing the project, the following lessons can usefully be learnt. First, government support and commitment are vitally important for projects of this kind; without such support most such projects will lack any prospect of viability.

Second, a project’s scope should be very well defined before signing agreements or contracts. Not only a Project Company’s shareholder agreement, but also the design and construction contracts, should be formulated clearly so as to avoid future disputes. While short term national prestige and pressure may press for speedy development, concerns about long term public interest do require that such projects are based on a sound contractual footing.

Third, all concerned parties should share common project objectives in pursuing overall efficiency and cost containment during the whole project life cycle. If one partner is ever concerned with acquiring profits or revenue from some parts of the project only, then the viability and integrity of the project as a whole is likely to suffer.

Fourth, proper risk management is critical. In particular, the private sector’s interests should be aligned with those of the public sector and there should be clear and strong contractual arrangements as well as enforcement of risk management arrangements.

Fifth, when disputes appear, re-negotiation among partners and especially with government, is sometimes more efficient and effective than seeking mediation, arbitration or pursuing a lawsuit. Certainly, re-negotiation was essential in the case of building the National Stadium on time. Re-negotiation may also be essential for ensuring that in the years ahead the iconic ‘Bird’s-Nest’ remains a functioning and viable tribute to China’s successful economic and social development.

Endnote


References


Many Hands, Much Politics, Multiple Risks

March 2010

© 2010 The Authors
Journal compilation © 2010 National Council of the Institute of Public Administration Australia