Procurement and Financing Options for the Multi-purpose Sports Complex at Kai Tak

Final Report

10 August 2012

pwc

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1. Introduction

The Home Affairs Bureau ("the HAB") of the Government of the Hong Kong Special Administrative Region ("Government") has engaged PricewaterhouseCoopers Advisory Services Ltd ("Consultant" or "PwC") to identify the various forms of procurement and funding options ("Study") and assess their suitability for the Multi-purpose Sports Complex ("MPSC") development project ("Project"). Understanding the advantages and disadvantages of the various procurement options will help determine the preferred option (and the second preferred option) for the MPSC.

1.1. Project Context

The MPSC is a significant infrastructure development for Hong Kong. It is intended to be a "sports park" for Hong Kong, with a lively mixture of high quality sports facilities for public use, open space, park features and retail and dining outlets. As an integral part of the larger Kai Tak Development ("KTD"), the MPSC development is expected to create a vibrant ecosystem, which combines sporting and non-sporting events, commercial use, community participation and leisure opportunities, to stimulate community interest in sports and to support a 24/7 facility used all year round by the Hong Kong community. In addition, it will play an important role in enhancing Hong Kong's position as Asia's major events capital and a tourism centre:

- It is envisaged at present that the MPSC will include a main stadium with a seating capacity of 50,000, a secondary stadium with a seating capacity of 5,000, and an indoor multi-purpose sports arena, with a capacity of 4,000
- The MPSC will be designed to host a wide range of sporting activities, and will be supported by a range of commercial facilities to ensure its sustainability and viability.

1.2. Vision for the MPSC

The Government expects that the MPSC will help deliver the following outcomes and benefits for Hong Kong as a whole:

1.2.1. Promoting a sporting culture and engaging the community

The MPSC development will be a multi-facility site designed to stage major sporting and entertainment events, which is supported by commercial facilities that add vibrancy and ensures the economic sustainability of the infrastructure. Sporting venues will be made available to athletes and elite performers as well as local residents for sports participation.

1.2.2. Attracting major sports and entertainment events to Hong Kong

The MPSC is envisaged to provide a venue for major sporting functions (e.g. rugby or football tournaments) and social/entertainment events (e.g. religious functions, concerts), which is supported by commercial facilities that add vibrancy and ensures the economic sustainability of the infrastructure.

1.2.3. Providing commercial opportunities

The MPSC will provide commercial and retail opportunities to complement the new stadium, which will help ensure the MPSC's sustainability and vibrancy. In addition, there will be office space provided for sports associations and other sport-related organisations as part of the MPSC, thereby ensuring a core 'resident' population of the area. The successful implementation of the MPSC is expected to benefit nearby communities by increasing the influx of visitors to the area to stimulate the local economy.

1.3. Approach and Methodology

In conducting this Study we have applied a structured and logical approach to ensure objectivity and impartiality in our assessment. Details of our approach are set out below.

- Step 1 - Assessment of a Full Spectrum of Procurement Options

  We reviewed a full spectrum of procurement options (from traditional public works programme ("PWP") model, private sector participation ("PSP") models to pure commercial model – further details can be found in Section 2), and identified key lessons learned from relevant international case studies.

- Step 2 – Identification of the Preferred Procurement Options

  We consulted relevant stakeholders and potential market players to collect their views and concerns on the procurement and funding options appropriate for the Project.

  In addition, we discussed and agreed with the Project Steering Committee ("PSC") on the evaluation parameters and weightings that should be adopted when assessing the procurement options.

  Procurement option(s) which are unlikely to achieve the desired vision for the MPSC were discounted. A qualitative analysis for the remaining procurement options covering areas such as the contractual structure, the advantages and challenges was conducted. Based on the assessment of the risk allocation between the key parties, we developed the initial recommendations on the first and second preferred procurement options.

- Step 3 – Identification of the Preferred Funding Options

  The spectra of funding options that can be used in conjunction with the first and second preferred procurement options were identified. A qualitative analysis covering the allocation of key project risks and a quantitative analysis estimating the cost impact of each funding option (through an illustrative, high-level financial model) were conducted. An initial view on the preferred funding options underpinning the preferred procurement options was formed. Our initial view was then validated with stakeholders during the informal market sounding exercise (see Step 4 below for details) and, where appropriate, amendments were made to our recommendations.

- Step 4 – Informal Market Sounding

  Informal market soundings were conducted to help inform the deliverability of the preferred procurement and funding options and refine our initial recommendations. The interviewees include potential market participants such as financial institutions; engineering, procurement and construction companies; and facilities managers.

1.4. Caveats about the Financial Analysis and its Limitations

As part of this Study, a high-level and illustrative financial analysis was conducted to assess the cost impact of the funding options associated with the first and second preferred procurement options. The financial analysis is based on a set of assumptions (refer to Section 3.7.3 and Appendix A.2 for details) and specific caveats (refer to Section 0), and subject to changes and uncertainties.

When conducting the analysis, where possible, we have tried to use published and/or official information. Where this was not possible, for any anecdotal information collected, the information presented represents only estimates based on the available information.

We have assumed that the information provided to us by the Government and obtained through published sources to be accurate. However, using this information in our analysis does not indicate PwC's endorsement

or assurance over the accuracy of the information, and the reliability of the method of preparation. Also, the financial analysis does not constitute opinion or any other form of assurance.

PwC does not accept or assume any liability or duty of care for any other purpose or to any other person to whom this financial analysis is shown or into whose hands it may come save where expressly agreed in our agreement with the HAB for this Study.

The financial analysis presented in this report is not intended to replace the need for a more detailed financial analysis. We believe that the HAB would benefit from having a set of more accurate revenue, capital expenditure and operating expenditure figures for the MPSC development before making its final decision on the funding options to be adopted (further information on the analysis required can be found in Section 4.2.1).

1.5. Structure of the Rest of this Report

The remainder of this report has the following three sections.

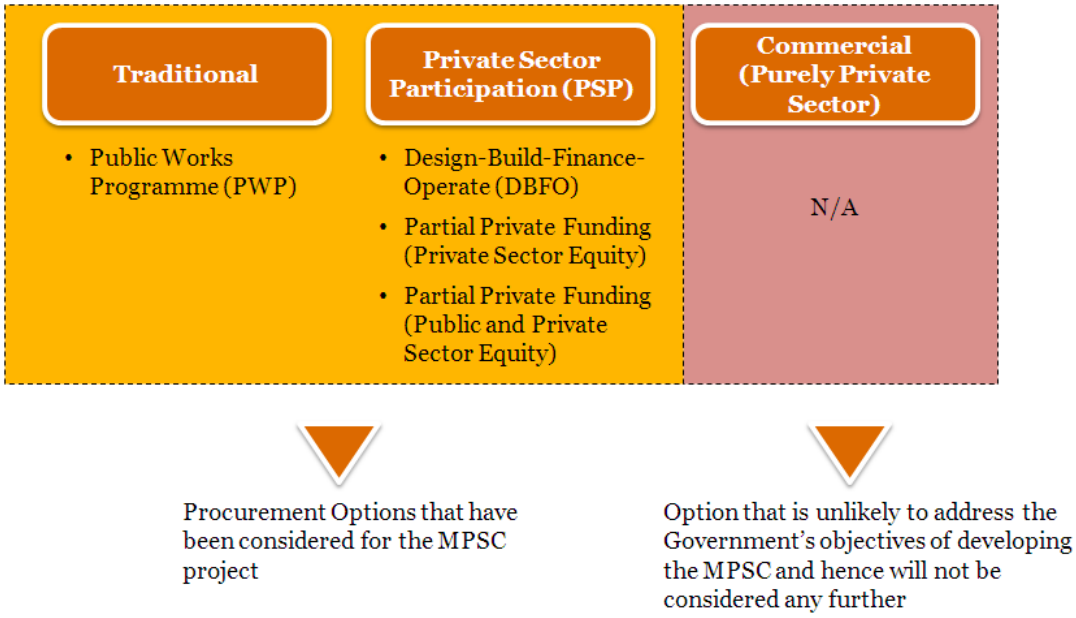
- Section 2 outlines details of the principal procurement models being considered in this study, including their contractual arrangements, ownership of assets, duration of contract, allocation of risks, and summary of key advantages and disadvantages associated with each model. In addition, this Section discusses the set of evaluation criteria and weightings, based on which the first and second preferred procurement options were identified.
- Section 3 outlines a spectrum of funding options that can be used for the preferred procurement options and the key areas for consideration when determining the preferred funding options. An assessment was made in respect of the allocation of key project risks, the cost implication and viability gap under different funding options. The preferred funding options were identified based on the assessment and supplemented by the findings from the informal market sounding.
- Section 4 summarises our recommendations and sets out the implementation issues.
- Appendices provide further details on the stakeholders consulted, the assumptions used in the indicative financial analysis and the assessment of the procurement options against the evaluation criteria.

2. Procurement Options

The principal procurement methods identified which are applicable to the development of the MPSC and discussed in this Report are as follows:

- Traditional Procurement Model or Public Works Programme ("PWP") Procurement Model;
- Private Sector Participation ("PSP") Procurement Model – there are three options within the PSP procurement model namely:
  - Design-Build-Finance-Operate ("DBFO");
  - Partial Private Funding ("PPF"), which has two variations:
    - PPF – Private Sector Equity[1] ("PPF(PE)");
    - PPF – Public and Private Sector Equity[2] ("PPF(PPE)"); and
- Commercial Procurement Model.

Figure 2-1: Range of Procurement Options



2.1. Public Works Programme

2.1.1. Overview

The Public Work Programme ("PWP") model is one where public authorities[3] undertake the design, build, operation and funding of the project. Such a structure may involve a management company to deal with certain project obligations or outsourcing of work streams to different companies to manage. However, while multiple

1 The term "Partial Private Funding – Private Sector Equity" replaces the term "Design-Build-Operate-Maintain" (or "DBOM"), which has been used in our previous reports, for the sake of clarity and consistency

2 The term "Partial Private Funding – Public and Private Sector Equity" replaces the term "Joint Venture" (or "JV"), which has been used in our previous reports, for the sake of clarity and consistency

3 Public authorities include government bureau, departments, and statutory authorities and organisations.

companies may be brought in to develop the project, the Government is ultimately responsible for driving the different parties to achieve their required milestones and managing the ultimate delivery of the MPSC and all of its operations. Any failure to achieve the set requirements will adversely affect the operations of the MPSC.

2.1.2. Ownership of Assets

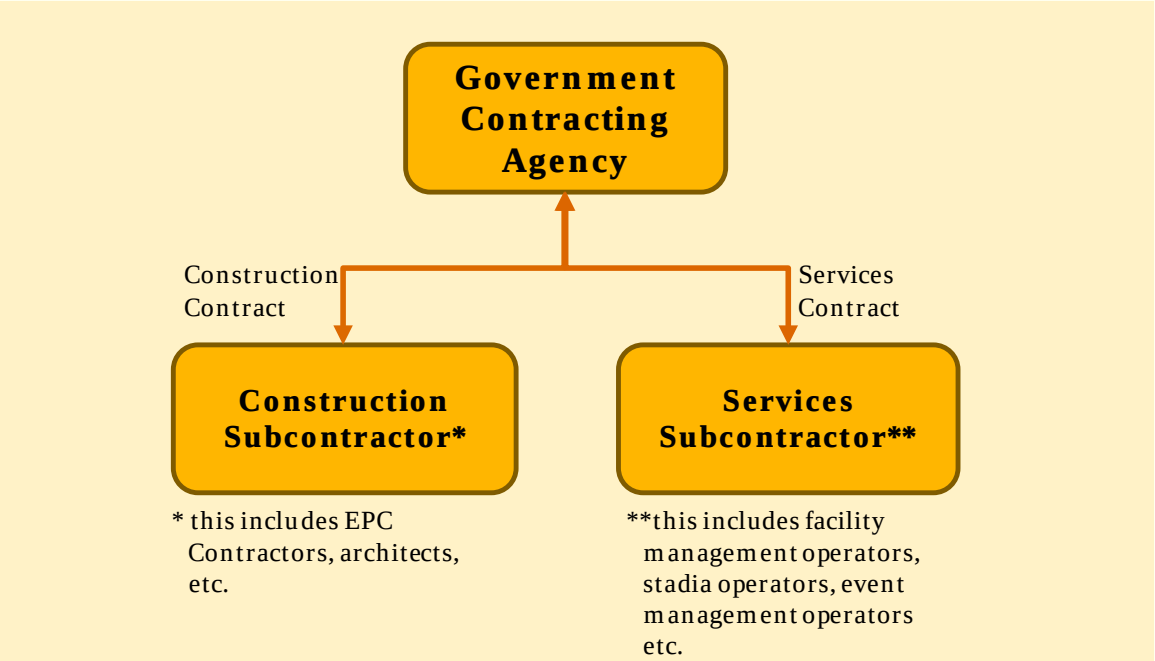
Under this model, all project assets are owned by the Government and there is no requirement for any sub-lease to be provided to any of the contractors.

2.1.3. Contractual Structure of PWP Model

The nature of the contractual arrangements under traditional procurement is expected to attract different contracting parties such as architects, construction companies, facilities managers, events programmers and venue operators. An important feature of traditional procurement is that the Government manages each of the contractors and the interfaces between them independent of each other.

The contractual structure for a traditional PWP is as follows:

Figure 2-2: Contractual Agreements under Traditional Procurement Model



Note: EPC stands for “Engineering, Procurement and Construction”.

A possible variation of the contractual structure discussed above is to combine the construction contract and the services contract into one single contract. This allows the Government agency to adopt an integrated procurement approach to covering the “design, build and operation” of the project, which is also one of the key features of the Private Sector Participation model (refer to Section 2.2 for details).

2.1.4. Risk Allocation under PWP Model

Under the traditional procurement model, all the risks reside with the Government. The table below shows the risks that are attributed to PWP.

Table 2-1: Risk Allocation under PWP Model

Risk Category	Details	Risk Owner
Construction Risk	Construction risk for the facilities is retained by the Government which is responsible for cost overruns that may occur e.g. due to a rise in material costs or delays in the construction timeline. The Government bears risks of potential construction cost overruns and slippages. Though this can mitigated through liquidated damages and other such provisions in the contract, a study conducted by Allen Consulting Group for the Government of Australia indicated that projects procured under the traditional model in Australia were run approximately 15% over budget[4]. Furthermore, where Engineering, Procurement and Construction ("EPC") Contractor is paid progressively for the construction based on certain milestones, the Contractor is unlikely to be incentivised to achieve accelerated completion of the MPSC.	Government
Operating Risk and Lifecycle Risk	Operating and lifecycle risk for the facilities is retained by the Government and it is responsible for the maintenance of the assets and ensuring that it hires the appropriate venue operators and facility management contractors. The level and quality of service performance are specified in the Management Contract. However, it should be noted that the risk of poor performance by venue operators and facility management contractors due to poor construction or inefficient design is retained by the Government, as it is unlikely that the Management Contractor would accept these risks. A study conducted by Mott McDonald for HM Treasury (UK) indicated that on an average, traditional O&M contracts tend to run approximately 41% over budget[5].	Government
Demand Risk	Demand risk for the facilities is retained by the Government. In its most conventional form, under a traditional procurement structure, the revenue streams accrue to the Government and a Management Contract fee is paid (by the Government) to the Management Contractor. Effectively, the Management Contractor will provide the specified quality and level of services for a fee. To further incentivise the Management Contractor, the management fee may be structured with a revenue-sharing component, allowing the Government to transfer an element of demand risk to the private sector.	Government
Interface Risk	Interface risk – There are two main types of interface risks that should be addressed in respect of the MPSC development, namely: 1) Interface with other facilities within the wider KTD – as part of KTD, the MPSC needs to connect and be integrated into the utilities and transport infrastructure network; and 2) Interfaces between the project participants – task sharing within a project often results in certain overlaps. This is referred to as an interface where the project participants are required to coordinate and	Government

4 A report to Infrastructure Partnerships Australia titled "Performance of PPPs and Traditional Procurement in Australia, Final Report", 30 Nov 2007, prepared by Allen Consulting Group

5 A report to HM Treasury titled "Review of Large Public Procurement in the UK", July 2002, prepared by Mott MacDonald

Risk Category	Details	Risk Owner
	share some tasks and obligations to ensure that the asset is built according to the specifications and services are provided meeting the key performance indicators. In the case of the MPSC, the project participants for the MPSC would include the design, construction, operation (e.g. facilities management, food and beverage providers, and event programming teams). Interface risk occurs at every stage of the project life. For example: - During construction - the interface risks may arise when the stadium has been built, but the indoor arena is still under construction and certain tasks in relation to security will be shared by the project participants; and - During operations - any faults in design and construction of the facility could result in inefficiencies in operations and facilities management. Under the PWP model, the Government fully retains both types of interface risk, and needs to manage all interfaces between the various contracts.	

2.1.5. Advantages and Challenges of PWP Model

Key Advantages of Procurement under PWP Model

- Delivery of Vision & Level of Government of Control – PWP procurement provides the government absolute authority in dictating the requirements of the Project through an input-based specification, and programme of events. This allows government control in shaping the development of the MPSC to meet its social objectives.
- Under this model, the Government retains full control of the MPSC and is in a position to respond immediately to changing circumstances during all phase of the life of the Project.
- Familiarity with the public and private sectors – PWP is a well understood procurement model in Hong Kong within the public and private sectors. The project participants are sophisticated, experienced and competent in delivering facilities under this procurement model. Additionally, the issues of quality, time and cost are manageable risks with established mitigation approaches.

Key Challenges in Procurement under PWP Model

- Timing – Traditional procurement may drag on due to:
  - The involvement of a larger number of Governmental entities, which will require more time and resources to organise and may need to work to other priorities; and
  - The need to secure the required policy and funding approvals, particularly in a situation where there are many competing infrastructure projects that require public funding.
- Value for Money – As the Project is financed by the Government the cost to develop the Project is also

Key Challenges in Procurement under PWP Model

the lowest. However, the estimated cost of traditional procurement needs to be adjusted to reflect the risks retained by the Government (e.g. construction risk, operations risk, interface risk etc.) throughout the life of the Project.

- Level of Risk Transfer – Since the public sector is responsible for driving the different parties contracted to develop and operate the project, it retains the risk of cost and time overruns; interface risk during construction; demand risk; operations risk; and life cycle cost risk during operations.
- Other – In PSP deals, the private sector lenders conduct a thorough Lenders' Due Diligence on the project to assess the commercial and financial risks of the project. When the Government funds the projects under the PWP model, the primary focus will be on achieving the intended social objectives, rather than ensuring the commercial or financial viability of the project. As such, the due diligence conducted by the Government may not cover all aspects that a Lenders' Due Diligence process would otherwise cover. For instance, projects established under the traditional procurement option may experience inefficiencies which may cause revenue leakage or cost overruns.

2.2. Private Sector Participation Procurement Model

This procurement model involves the partnership of the Government and the private sector to achieve a set of common objectives through efficient allocation of project risks. This procurement model aims to attract private sector finance and expertise to develop infrastructure assets and services in a holistic manner. The Government acts as the partner to expedite processes such as authority approval processes and safeguard public interests by guiding the strategic direction of the construction and operation of the facility.

Under this model, a service contract is established between the public and the private sector where the Government pays the private sector (typically a consortium) to deliver infrastructure assets and related services over the long-term. The private sector will design, build and operate the assets to specified standards over a longer contract period.

A key feature of the PSP model is the ability to achieve optimal risk transfer while harnessing private sector innovation through synergies between the design, construction, facilities management and events programming teams working together. This will enable the development of an outcome of higher quality and greater value than either party could achieve individually. Generally, the private sector adds value through its wider set of skills, private sector capital, and innovation and efficiency. The public sector has a key role in providing both regulatory and financial support to the commercial structure. The Government also leverages on its existing land bank and/or regulatory powers to ensure sufficient land is provided for the project.

There are a number of alternative PSP models that differ in respect of the degree of risk allocation and general involvement between the public and private parties throughout the lifespan of a project, including the level of finance provided by the relevant parties. We provide detailed discussions of three PSP models that are relevant for this Project, which are:

- Design-Build-Finance-Operate ("DBFO");
- Partial Private Funding – Private Sector Equity ("PPF(PE)"); and
- Partial Private Funding – Public and Private Sector Equity ("PPF(PPE)").

The three options have been presented such that there is one contract with the private sector which includes the **design, build** and **operate** elements.

2.2.1. Design-Build-Finance-Operate

2.2.1.1. Overview

The DBFO model achieves maximum risk allocation between the public and private sector, compared to the PPF(PE) and PPF(PPE) models. The DBFO contract establishes the context for the PSP project as a whole, its work and operating scope, payment and/or revenue share terms, land arrangements, liabilities etc. It is the key document establishing the risk transfer between the public and private sectors.

2.2.1.2. Ownership of Assets

Under the DBFO model, the assets are owned by the Government, but it has transferred the construction and operation risks to the private sector. The special purpose vehicle ("SPV") established for the specific project is granted a sub-lease for the land and the right under the PSP contract to operate and maintain the facilities to the required service level. At the end of the concession period the assets are transferred back to the Government.

2.2.1.3. Contract Term

A key consideration in determining the concession period is the ability to repay project debt and provide a reasonable rate of return acceptable to the sponsors/equity providers. Under the DBFO structure, the SPV provides financing upfront to develop the facilities. Thus, the concession is expected to have a longer term of at least 20 to 25 years to enable the private sector sufficient time to recoup its investment and achieve a reasonable return. Given the highest capital requirement on the private sector side amongst all of the PSP models, the DBFO model tends to have the longest concession period requirement.

2.2.1.4. Contractual Structure of DBFO Model

In a DBFO project, the SPV will not ordinarily have the capability or resources to perform its obligations under the PSP Contract (both in terms of financial resources and manpower). The SPV is a separate legal entity from the sponsors (i.e. equity providers) and cannot rely on the skill base and manpower of its sponsors without a contract for such services. It therefore will enter into subcontracts in respect of its principal obligations.

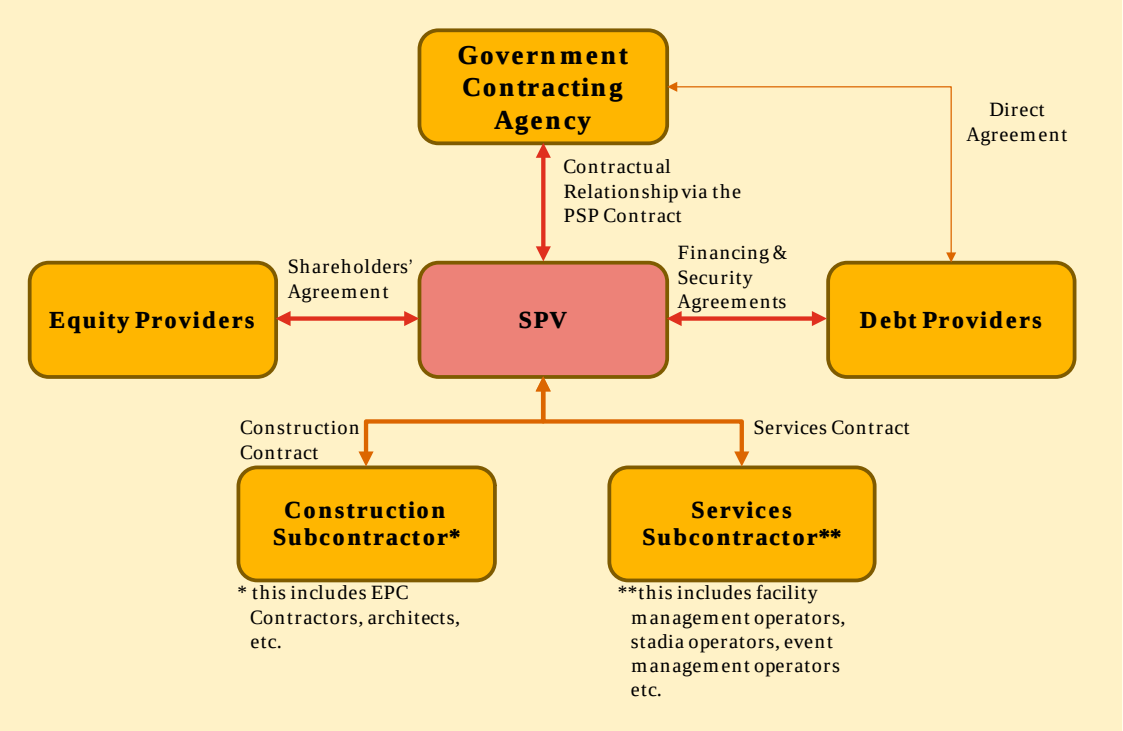
There will likely be at least two subcontracts – a construction contract and a services contract. How each bidder proposes to perform the obligations under the PSP Contract is a matter for the bidder to decide, and the SPV may elect to have more than two subcontracts. The terms of the subcontracts are mostly "back-to-back" with the PSP contract (i.e. they contain substantially similar provisions to those in the PSP Contract, except that the subcontract contains provisions that are between SPV and the relevant subcontractor).

Other contracts utilised in this procurement option include:

- Interface agreement – sets out the cooperation arrangements between sub-contractors during the construction and operation phase of the project. This is common in large scale DBFO projects to ring-fence the risk at the SPV level from costly disputes between sub-contractors;
- Direct agreement – is an agreement between the procuring authority and the private sector lenders, which affords these lenders an opportunity to step in a failing project and to rescue it prior to the Government terminating the contract and taking back the assets. Often in project financing arrangements where lenders provide debt on a "non-recourse" basis (i.e. no recourse to the assets themselves, only to the project cash flows), they will require rights from the Government to be able to rescue a failing project in order to protect their outstanding debt; and
- Financing agreement – sets out the terms and conditions of financing between the SPV and the lenders.

The agreements are illustrated in the figure overleaf, which depicts the contractual structure under the DBFO model.

Figure 2-3: Key Contractual Arrangements for DBFO Model



2.2.1.5. Risk Allocation under DBFO Model

The allocation of key risks under the DBFO contract reflects widely accepted norms in jurisdictions where PSP is widely used as a procurement method, such as in the UK, Australia, Canada and Singapore. The DBFO model is likely to transfer the greatest amount of risk to the private sector. These are set out below:

Table 2-2: Risk Allocation under DBFO Model

Risk Category	Details	Risk Owner
Construction Risk	Construction risk for the facilities is transferred to the private sector participants, who in turn manage the construction risk through a turnkey, fixed price and date-certain design and build contract for the facilities with a recognised EPC Contractor. The private sector effectively bears the risk of any slippages in the construction programme, resulting in delays and potential cost overruns (apart from those delays specifically caused by the Government's actions).	Private Sector
Operating Risk	Operating risk is transferred to the private sector. The project participants manage the risks through long-term service subcontract for the operations and maintenance of the facilities. The level and quality of service performance are specified in the PSP contract and cascade to the subcontracts. As the SPV has the responsibility to design, build, finance and operate the facilities, it is incentivised to ensure overall effectiveness and cost efficiency in operations and maintenance over the long term.	Private Sector
Lifecycle Risk	Lifecycle risk for facilities is transferred to the private sector in a classic PSP approach, where lifecycle considerations throughout the contract term are incorporated in the bid price. Lifecycle degradation could either lead to deductions / penalties being imposed upon the SPV for failing to meet service requirements or may result in lower revenues for the project	Private Sector

Risk Category	Details	Risk Owner
	participants through lower usage levels. Putting in place hand-back mechanics (i.e. design life and asset standards for the handover of the assets at the end of the concession term) is a key mechanism used by contracting agencies to help stop project participants avoiding lifecycle obligations (and increasing profits at the expense of the asset standards) at the end of the concession term.	
Demand Risk	It is envisaged that this procurement model will allow a sharing of revenue risks between the SPV and the Government. In this arrangement, the SPV is incentivised to perform and meet profitability targets in order to achieve its target Internal Rate of Return ("IRR"). When looking at demand and third party revenue risk for the MPSC, a number of factors will influence the degree of risk accepted by operators. These include: • Commercial revenues (such as retail rentals, car parking, etc) – generally operators are willing to take greater risk on these aspects as they can pass the risk to the end users; • Non-event income (i.e. day-to-day usage of facilities by the local population) – in the UK, operators are likely to accept this risk. In Hong Kong's current stadia, while venue operations may be outsourced, we understand that demand risk is retained by the Government; and • Event-based income is inherently more risky and difficult to predict, especially where events are targeted towards fulfilling the Government's social objectives. As a result, many operators will only take a limited risk on these aspects based on certain guaranteed events.	Government and Private Sector
Interface Risk	Interface risk is retained by the SPV. There are three main types of interface risks that the private sector needs to deal with, which we consider below. 1) Interface between the private sector and the Government – The private sector, represented by the SPV and the HAB, in its capacity as the procuring authority within the Government, will be working together throughout the concession period. It is important to recognise that both parties will inherently pursue their own objectives – i.e. the HAB has defined its social objectives, whilst the SPV will be driven by its commercial goals. However, the pursuit of these individual goals under the DBFO procurement model hinges on a mutual cooperation between the parties. Thus, it is to each party's best interest to work out a mutually beneficial arrangement in respect of events programming and the overall operations of the MPSC. This is achieved through careful structuring of the payment mechanism that will allow the HAB to achieve its social objectives, yet incentivising the SPV through an equitable revenue-sharing mechanism; 2) Interface between SPV and other Government agencies involved in the wider KTD – Under DBFO, it is the SPV that interfaces with the other	Private Sector

Risk Category	Details	Risk Owner
	Government entities and private sector parties involved in the wider KTD. It is important that the MPSC is integrated in respect of infrastructure, utilities and transport linkages within the wider KTD. Whilst this risk is borne by the private sector, it is to the HAB's interest to provide necessary support to the SPV in respect of coordination with relevant B/Ds involved in the KTD. 3) Subcontractor interface - the SPV is responsible for managing the potential challenges among the project participants to ensure the design integrates with the future operation and synergies are achieved. The retained interface risk borne by the Government is limited, such that it only intervenes when interface issues threaten to stall the project and consequently impacts upon the private sector's ability to serve its project obligations to the Government.	

2.2.1.6. Advantages and Challenges of DBFO Model

Key Advantages of Procurement under DBFO Model

- Enhanced project efficiency – The presence of private finance results in the conduct of a stringent and rigorous due diligence process, to determine the viability and profitability of the Project. This means that the Project procured under the DBFO model will be structured with the least inefficiencies possible to ensure viability of the Project. Furthermore, synergies are derived from the operator's inputs on design and construction.
- Level of Risk Transfer – Substantial risks are transferred to the private sector including interface, design, construction and demand risks.
- The Project is initially funded by the private sector. The Government pays the private sector a unitary payment that covers the capital cost for the development of the facilities and the operating cost over the concession period. Unitary payment commences upon completion of the project and is subject to deductions for poor performance. This allows the Government to stagger its payments over a longer period (e.g. 20-30 years) and provides an incentive for the private sector to perform.
- Timing – DBFO is potentially a shorter procurement process in Hong Kong compared to that of the PWP option, particularly in a situation where there are many competing infrastructure projects that require public funding, and multiple agencies are involved in the decision making and project implementation process. However, it should be noted that the involvement of private lenders under this model will require a thorough due diligence by lenders which may take some time to complete.
- Other –The Government's single-point-of-contact is the SPV, which is responsible for managing its subcontractors. This facilitates a streamlined approach to managing and monitoring the Project throughout the contract term from the Government's perspective. The SPV takes full responsibility for the performance of the Project in accordance with the required performance standards (as agreed with the Government) during the whole concession period.

Key Challenges in Procurement under DBFO Model

- Deliverability – This model requires private sector funding, which may prove a challenge in the current economic climate. Preliminary discussions with potential lenders suggest that any project without any support from the Government will be subject to higher margins and shorter tenor, given the current financial market conditions.
- Complex Legal Structure – The involvement of multiple parties with different responsibilities may result in a relatively complex legal structure. Project parties involved will need to understand the consequences of any breach in the contract terms, and how different parties are compensated.
- Level of Government Control – The level of the Government's control under the DBFO model is considerably lower than under the PWP model. While the Government will develop the output specifications for the project, its ability to dictate the day-to-day operations of the facility is limited. However, there will be a self-monitoring regime in place and the SPV is required to periodically report its performance to the Government. This enables the Government to actively monitor the SPV. In addition, the Government can stipulate that a governance arrangement be established such that important decisions (e.g. event programming) are discussed and agreed by both parties.
- Responsiveness to Stakeholders – The Government has limited experience and track record in using the PSP procurement models and would need assistance in conducting the process and drafting the appropriate specifications to ensure that its vision and social objectives are met by the private sector consortium.

2.2.2. Partial Private Funding – Private Sector Equity

2.2.2.1. Overview

PPF(PE) model is similar to the DBFO model, except that the PPF(PE) model allows for more government participation in providing project debt. The PPF(PE) model is used where the private sector is unable to raise the required funding due to an unfavourable debt financing market. This occurred during the 2008 Global Financial Crisis ("GFC") which saw projects being stalled due to the inability to finance infrastructure projects through the debt market. In such situations, the Government may step in and act as the lender, to support infrastructure projects by either filling a funding gap or enhancing financial viability by providing debt capital at discounted terms. Government debt is usually drawn to finance the capital costs of infrastructure. Under this model, equity would still be sought from the private sector to ensure some degree of risk transfer as "skin in the game".

The PPF(PE) model can provide better value for money than the DBFO model as the cost of Government debt/borrowing is usually less than commercial borrowing rates. This is the reason for the recent growth in the use of the PPF(PE) model in the UK. It should be noted that with the Government providing 100% debt to the project without credit wrap[6], it is essentially taking project risk similar to that of a traditional PWP procurement. The "cost" of this risk would normally be reflected in the margins charged by commercial lenders. It is important to note that the lower cost of the Government debt is offset by the added costs of risks that the Government bears as lender.

Should the Government assume the role of a private sector lender, it would have to conduct a robust due diligence on the project. The Government and its advisors would also undertake greater scrutiny of the subcontracts. In particular, the Government needs to assess whether the SPV has effectively passed on key risks to its subcontractors, adequate caps on liability are in place and there is equitable compensation on termination provisions.

[6] Credit Wrap generally refers to a form of financial guarantee/insurance provided by a third party, covering a specific loan or debt issuance. It aims to compensate the lender in the event of default by the borrower.

It should be noted that with the Government providing 100% debt to the project without credit wrap (see Section 3.4), it assumes project risk similar to that of a traditional PWP procurement.

2.2.2.2. Ownership of Assets

The assets are owned by the Government under this model, but the construction and operation risks are transferred to the private sector. The special purpose vehicle ("SPV") established for the specific project is granted a sub-lease for the land and the right under the PSP contract to operate and maintain the facilities to the required service level. At the end of the concession period the assets are transferred back to the Government.

2.2.2.3. Contract Term

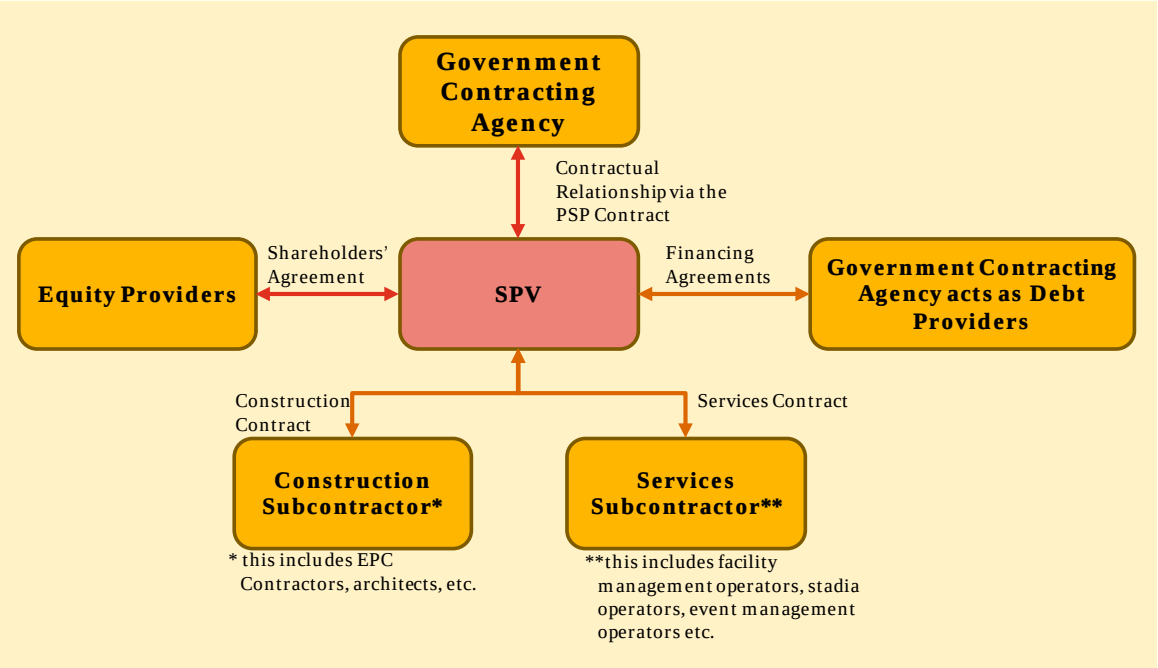
Similar to the DBFO model, the duration of the PPF(PE) contract is dependent on the ability of the SPV to repay government-provided debt and provide a reasonable rate of return acceptable to the sponsors/equity providers. Typically the PPF(PE) model (certainly in the UK) follows a similar contract term to the DBFO model being circa 25 years.

2.2.2.4. Contractual Structure of PPF(PE) Model

Similar to the DBFO contract, the PPF(PE) model will also see the presence of a SPV, which then discharges its obligations to subcontractors. Assuming that the Government acts as the sole debt provider, (i.e., the PPF(PE) model does not require external financing), the Direct Agreement and Financing Agreement are not applicable under such a model. However, a funding agreement between the SPV and the Government will be required. This agreement could be structured similar to a commercial financing agreement (except for interest margins) to facilitate refinancing at a later date. Thus, the Government would need to conduct a robust due diligence process similar to what banks would have done under the DBFO model. Further consideration must be given to the interest rate charged on government debt and any requirement for equity injection by the private sector.

The figure below provides a graphical illustration of the contractual arrangements under the PPF(PE) model.

Figure 2-4: Key Contractual Arrangements for PPF(PE) Model



2.2.2.5. Risk Allocation under PPF(PE) Model

Under the PPF(PE) model, the Government provides debt financing for the project, and effectively takes on some of project risks that were previously transferred to the private sector under the DBFO model. At the same time, the Government may impose terms and conditions (e.g. security packages) similar to that of private sector lenders, which help mitigate project risks. The summary of risks is discussed below:

Risk Category	Details	Risk Owner
Construction Risk	Construction risk for the facilities is shared by the Government and the private sector. Delays and cost overruns during the construction period may lead to liquidated damages imposed on the SPV, which results in additional costs. As lenders to the SPV, the Government retains project risk relating to cost overruns. Thus it is important for the construction risk to cascade from the SPV to the EPC contractor through back-to-back arrangements.	Government and Private Sector
Operating Risk	Operating risk for facilities is shared by the private sector and the Government. The private sector manages the risks through long-term service subcontracts for the operations and maintenance of the facilities. The level and quality of service performance are specified in the PSP contract. As the SPV has the responsibility to design, build, operate and maintain the facilities, it is incentivised to ensure overall effectiveness and cost efficiency in operations and maintenance over the concession period. However, since the Government assumes the role of the lender, any abatement for under-performance will impact on the SPV's ability to service its debt (to the Government). It is imperative to ensure that risks are sufficiently mitigated through back-to-back arrangements with relevant subcontractors.	Government and Private Sector
Lifecycle Risk	Lifecycle risk for facilities is shared between the private sector and the Government under the PPF(PE) model, where the Government acts as the lender. Lifecycle degradation could either lead to deductions / penalties being imposed upon the SPV for failing to meet service requirements, or may be reflected through lower revenues for the private sector as a result of lower usage levels. This will adversely affect the SPV's ability to service its debt obligations to the Government and risk mitigating measures need to be in place.	Government and Private Sector
Demand Risk	Demand risk for facilities is shared between the Government and private sector. The Government pays for the availability of the facilities, however, the SPV is incentivised to ensure profitable operations (i.e. through events programming and commercial/retail operations whilst still delivering the Government's vision of encouraging a sporting culture) to achieve the target return on investment.	Government and Private Sector
Interface Risk	Similar to the DBFO model, one of the key interface risks is the one that exists between the SPV and the Government. In the case of the MPSC, another level of interface risk is with the wider KTD. The MPSC will interface with stakeholders involved in the KTD, including the Kai Tak Office, utilities providers and transport developers. Failure by the private sector to manage interface risks will adversely impact the delivery of the MPSC. This, in turn, could adversely affect the SPV's ability to service debt provided by the Government. The construction and operations of the facilities are undertaken by the SPV	Private Sector

Risk Category	Details	Risk Owner
	under the PPF(PE) model (similar to the DBFO model). The SPV's subcontracts with the EPC contractor, operator and facilities managers need to ensure that all parties are jointly accountable for making the facilities available for use and meeting the required quality of services. The retained interface risk borne by the Government is limited, such that it only intervenes when interface issues threaten to stall the development of the MPSC and consequently impacts upon the private sector's ability to service its debt obligations to the Government.	

2.2.2.6. Advantages and Challenges of PPF(PE) Model

Key Advantages of Procurement under PPF(PE) Model

- Level of Risk Transfer – Under the PPF(PE) model, substantial risks are shared between the Government and the private sector. However, the risk allocation to the private sector is less rigorous than the DBFO model as the Government provides funding for the project. The Government retains project risks such as construction and operating risks. However, it represents a better model than the traditional procurement PWP model in terms of risk allocation.
- Enhanced project efficiency
    - The benefits of the DBFO model in cost efficiencies and risk transfer are preserved, with the cheapest whole of life cost optimised through construction and operation synergies, reinforced through performance and handback regimes.
    - The Government only pays for satisfactory delivery of services based on Output Specifications. Like the DBFO model, the PPF(PE) model incentivises the SPV to provide satisfactory service standards as agreed in the Output Specifications. Failure by the SPV to perform attracts deduction.
- Financial Appeal – Under the PPF(PE) model, the Government procures the Project, and provides project debt as the lender. The Project is less exposed to interest rate volatility and availability of private finance, particularly, given the current market environment with a looming Euro-debt crisis where there are uncertainties in raising the required debt finance for the Project.
- Timing – Procurement under PPF(PE) is envisaged to be shorter as compared to the DBFO model as private sector lender due diligence will not be required, and the additional time required for debt syndication negotiations will be saved. Also, PPF(PE) procurement may potentially be shorter than PWP. However, this will depend on the time required to obtain the necessary Government approvals to fund the project under the PPF(PE) model.
- Value for Money – The PPF(PE) model can provide better value for money than the DBFO model as the cost of Government debt/borrowing is usually less than commercial borrowing rates. However, this may not take into consideration the Project risks shared by the Government as a lender to the Project.
- Others – SPV is the single point of responsibility for the Government during the development and operations stages of the Project and is responsible for managing its subcontractors. This facilitates a streamlined approach to managing and monitoring the Project from the Government's perspective. The SPV takes full responsibility for the performance of the Project in accordance with the required performance standards (as agreed with the Government) during the whole concession period.

Key Challenges in Procurement under PPF(PE) Model

- Retained Project Risks – As the lender to the project, the Government assumes Project risks that private sector lenders take on under a DBFO structure (e.g. cost and time overruns if a delay occurs, operating risks). To mitigate this risk, the Government will need conduct rigorous due diligence for the Project. The Government will need to consider if it has the required resources with the correct expertise to conduct such an exercise.
- Level of Government Control – The level of the Government's control under the PPF(PE) model is considerably lower than under the PWP model. While the Government will develop the output specifications for the project, its ability to dictate the day-to-day operations of the facility is limited. That said, the SPV is required to periodically report its performance to the Government. This enables the Government to actively monitor the SPV. In addition, the Government can stipulate that a governance arrangement be established such that important decisions (e.g. event programming) are discussed and agreed by both parties.
- Responsiveness to Stakeholders – The Government has limited experience and track record in using the PSP procurement models and would need assistance in conducting the process and drafting specifications to ensure that its vision and social objectives are met by the private sector consortium.

2.2.3. Partial Private Funding – Public and Private Sector Equity

2.2.3.1. Overview

PPF(PPE) is an alternative to full privatisation in which the infrastructure is co-owned and operated by the public sector and private operators. Under this model, the public and private sector partners can either form a new company or assume joint ownership of an existing project company (referred to as Jointly-Owned Project Company, or "JOPC", in this Report) through a sale of shares to one or several investors.

As the JOPC has both the Government and the private sector acting as equity partners, the PPF(PPE) agreement will state the degree of participation and the management roles of each partner. The agreement highlights the capital contributions and other resources each party will contribute to the JOPC, as well as method and percentage of profit and loss sharing for the JOPC. Typically parties often share profits pro rata according to their respective equity interests. In cases where one company contributes more cash, however, that company may receive priority on the distribution of profits. The PPF(PPE) structure is often accompanied by additional contracts (concessions or performance agreements) that specify the expectations of the company.

In the case of a PPF(PPE) between the Government and private sector, conflicts of interest can often arise which may lead to adverse performance of the SPV. This directly affects the financial return for the Government. PPF(PPE) also requires extensive dialogue and cooperation between the public and private partners before the project is implemented.

2.2.3.2. Ownership of Assets

Under the PPF(PPE) model, the assets are owned by the Government, but the construction and operation risks are transferred to the private sector.

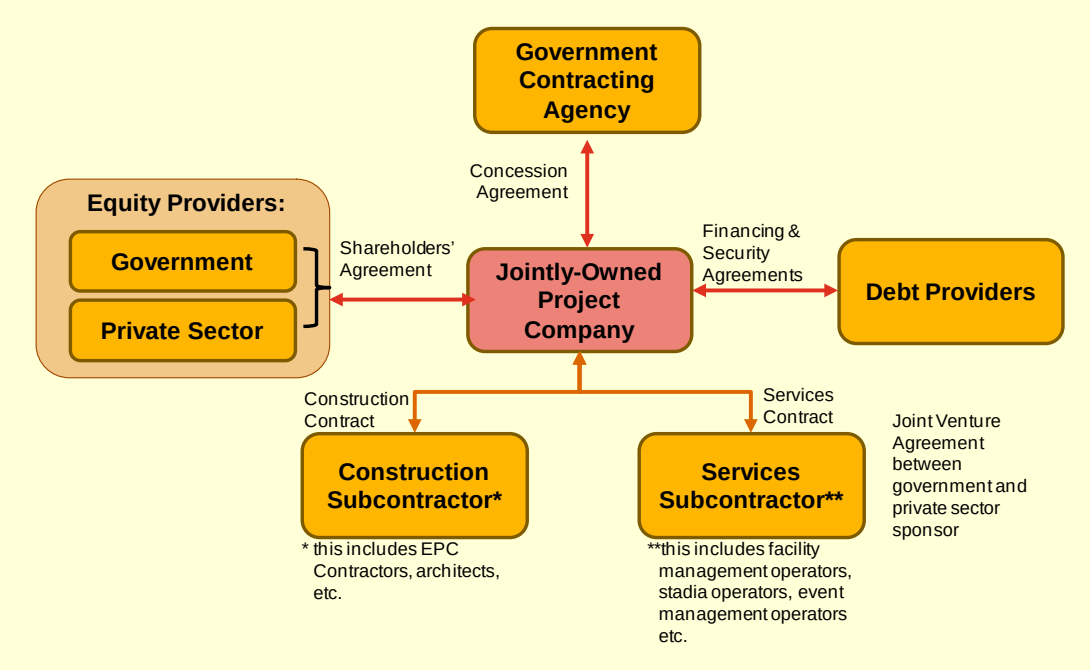
2.2.3.3. Duration of Contract

Similar to the DBFO model, the duration of the PSP contract is determined based on the ability of the SPV to repay any project debt raised by the JOPC and provide a reasonable rate of return acceptable to the equity providers (e.g. private sector sponsor and the Government).

2.2.3.4. Contractual Structure of PPF(PPE) Model

The figure below provides a graphical illustration of the contractual arrangements under the PPF(PPE) model.

Figure 2-5: Key Contractual Arrangements for PPF(PPE) Model



2.2.3.5. Risk Allocation under PPF(PPE) Model

Most of the key risks are shared between the Government and the private sector under the PPF(PPE) model. The allocation of key risks under this model is as follows:

Risk Category	Details	Risk Owner
Construction Risk	Construction risk for the facilities is shared by the Government and the private sector. This is because in the event of construction cost overruns or time delays, costs are borne by the JOPC. As equity providers to the JOPC, both the Government and the private sector are exposed to project risks.	Government and Private Sector
Operating Risk	Operating risk under this model is shared between the Government and the private sector. Any under-performance by the JOPC will impact upon its ability to repay any project debt raised and achieve the expected rates of return to its equity providers (i.e. the Government and private sector sponsor).	Government and Private Sector
Lifecycle Risk	Lifecycle risk for the facilities is shared between the Government and private sector, given their joint-ownership in the JOPC. Any asset degradation that will lead to performance deductions or decreased patronage of the facilities could adversely affect the JOPC's ability to service any project debt and achieve its expected returns. This will impact upon the Government to the extent of its ownership interest in the JOPC.	Government and Private Sector
Demand Risk	Demand risk for the facilities is shared between the Government and private sector, but this is dependent on their respective proportion of equity contribution. Under the PPF(PPE) model, if the Government and	Government and Private

Risk Category	Details	Risk Owner
	the private sector have equal share of equity, it implies that (i) any losses that resulted from the decreased patronage of the facilities and (ii) any upside potential resulting from increased patronage/demand for the facilities will be evenly shared.	Sector
Interface Risk	Interface risk is shared between the Government and the private sector, given their joint-ownership of the JOPC: • Interface risks exist between the JOPC and the procuring Government authority. In the case of the MPSC, the JOPC would need to liaise and work with the other governmental entities involved in the wider KTD. Under this structure, construction and operations of the facilities are undertaken by the JOPC. The retained interface risk borne by the Government (in its role as the procuring authority) is kept to a minimum, such that it only intervenes when interface issues threaten to stall the project. However, it should be noted that as an equity provider to the JOPC, the Government is still exposed to the interface risk borne by the JOPC. • Subcontractor interface – the JOPC bears the risk associated with the performance of its subcontractors to deliver the services required. Failure by the JOPC to manage this risk effectively will affect its ability to achieve the target equity returns.	Government and Private Sector

2.2.3.6. Advantages and Challenges of PPF(PPE) Model

Key Advantages of Procurement under PPF(PPE) Model
• Level of Risk Transfer – Under the PPF(PPE) model, the majority of risks are transferred to the JOPC but the Government shares this risk through its equity participation in JOPC. This means that the Government shares risks such as construction risks, interface risks, demand risks, etc. • Delivery of Vision – The PPF(PPE) model, like the DBFO and PPF(PE) model, brings innovation to the Project which results in cost effectiveness, but still ensures the delivery of vision and functionality of the MPSC. The PPF(PPE) model benefits from an effective collaboration between the operator and the builder to develop the Project and deliver the services required. • Timeline – Like the DBFO and PPF(PE) models, the PPF(PPE) model is potentially a shorter procurement process in Hong Kong than the PWP model, particularly in a situation where there are many competing infrastructure projects that require public funding. The government participation is limited to provision of equity, rather than the project operations. • Others – JOPC is the single point of responsibility for the Government during the development and operations stages of the Project and is responsible for managing its subcontractors. This facilitates a streamlined approach to managing and monitoring the Project from the Government's perspective.

Key Challenges in Procurement under PPF(PPE) Model

- Retained Project Risks – As the Government is an equity provider, it will share all the Project risks alongside the private sector. In addition, the incentive mechanism applied to the JOPC may ultimately penalise the Government as an equity sponsor.
- Commercial Appeal of Project Structure – Given that the Project is not financially viable, the Government may have to provide the private sector with considerable funding to entice them into a PPF(PPE) deal. While some bidders may see the Government as an equity provider as a favourable situation, others may consider otherwise.
- Level of Government Control – Under this model, the challenge will be for the Government to agree on the respective roles, responsibilities and risks taken between the PPF(PPE) partners. The Government should act as the partner (or a peer) to the private sector, and not assume a superior-subordinate relationship.
- Responsiveness to Stakeholders – Historically, there have been many JVs that have failed due to several reasons such as:
    - Loss of compatibility (as when one partner can no longer meet the expectations or demands of the other); and
    - Conflicting objectives (social/sports vs. profit).
- Such a breakdown in trust between the PPF(PPE) partners may cause the derailment of the Project.

2.3. Commercial Procurement

This procurement model is one where the private sector develops and funds the facilities without any involvement from the public sector (i.e. takes all commercial and financial risk of the project's success). Typically this is developed where venues are owned and operated by sports clubs, (such as the English Premier League clubs or major sports franchises in the USA) or through a land transaction, where a valuable piece of land (such as for residential purposes) is used to pay for the stadium build. Under such a model, the Government is not involved and the facilities are developed in a manner that enables the private sector to maximise its returns.

Adopting this model for the Project would restrict the Government's involvement and ability to determine the way in which the MPSC is operated. However, given that the MPSC seeks to achieve the Government's objectives, the Government would likely require a degree of involvement in events programming and operations of the MPSC.

In addition, based on the "Consultancy Study on Financial Feasibility of the Proposed Multi-purpose Sports Complex in Kai Tak", Nov 2006, prepared by Evans & Peck, the study confirms that a government subsidy is required during the construction and operating stages. Therefore, the MPSC is unlikely to be a commercially viable proposition that arouses sufficient interest for the private sector to develop the facilities on its own.

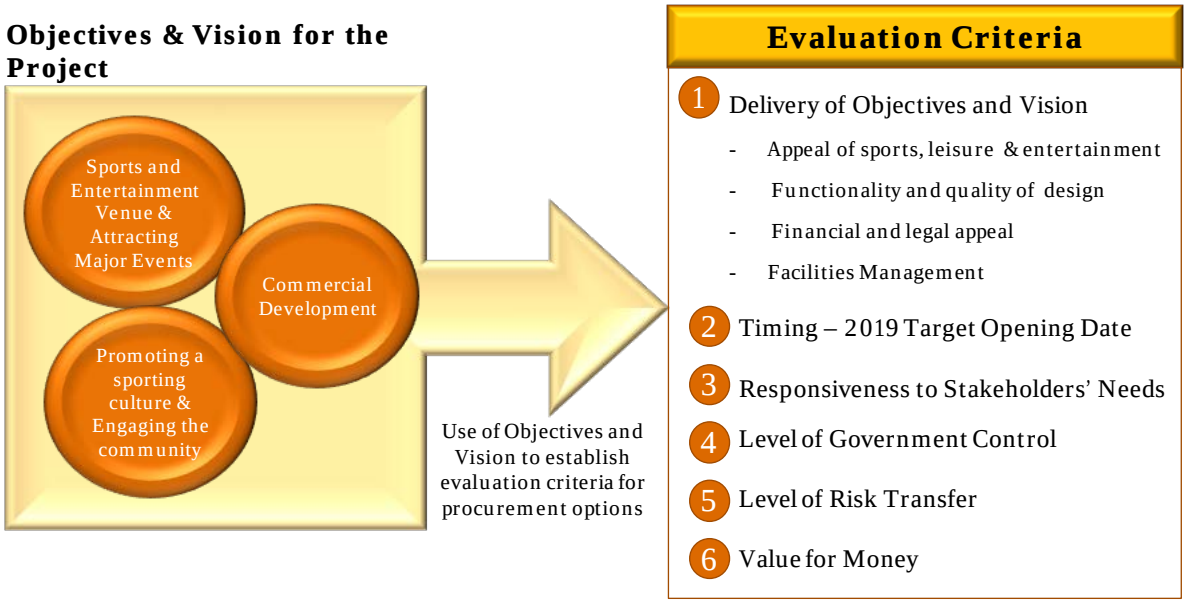
Accordingly, this procurement option is not suited for the Project and is not considered for further analysis in our Study.

2.4. Determination of Suitable Procurement Option

2.4.1. Development of Evaluation Criteria

A critical part of this Study was the development of a set of evaluation criteria taking into consideration the HAB and the key stakeholders' objectives and vision for the Project.

Figure 2-6: Establishment of Initial Evaluation Criteria



A brief description of the evaluation criteria is set out below.

2.4.1.1. Delivery of vision and objectives

The stakeholders have highlighted that there are four key aspects to these criteria:

- Creation of vibrant sports, leisure and entertainment appeal to attract the masses;
- Development of a facility that satisfies functionality and is quality in design;
- Development of a project that is deliverable in the current financial and legal environment ; and
- Development of a project that delivers efficient facilities management.

The procurement option chosen should allow for the Project to achieve the above stated vision and objectives.

2.4.1.2. Timing – Achieving 2019 target opening date

The 2019 Rugby World Cup will be held in Japan and there is an opportunity for Hong Kong to actively seek some pool games as part of the 2019 Rugby World Cup. The procurement option should consider the need for a relatively shorter procurement time.

2.4.1.3. Responsiveness to Stakeholders Needs

Stakeholders in the MPSC development include the Government, the community, the sports community, and the private sector. The evaluation of the procurement options will assess its flexibility to address the concerns of different stakeholders, through the contractual arrangements between the parties.

2.4.1.4. Level of Government Control

The level of control that the Government requires is a vital factor to consider in the evaluation of the preferred procurement option. The preferred procurement option should have the flexibility to allow a degree of control by Government in respect of design, construction programme, operations, event programming, etc, should this be required.

2.4.1.5. Level of Risk Transfer

Risk allocation is an important consideration in evaluating the preferred procurement option. Delivering a complex project of this nature will require a robust risk management strategy to ensure efficient operations over the long-run.

The preferred procurement option will need to ensure optimal risk allocation, where risks are appropriately allocated to the party that is best able to manage it.

2.4.1.6. Value for Money

The ability to achieve a value-for-money solution is another important consideration in determining the preferred procurement option for the MPSC. In particular, the ability to generate interest in the market and attract a sufficient number of quality bidders creates competitive tension during the bidding process. This will drive competitive bids that seek to offer value for money solutions.

Value for money is also achieved by optimum risk allocation, reducing the cost and time of procurement and streamlining the procurement process.

2.4.2. Evaluation of Procurement Options

2.4.2.1. Ranking of Criteria

The Consultant conducted a workshop with the Project Steering Committee and relevant B/D[7] to discuss the procurement options and the criteria for selecting the preferred options for the development of the MPSC. A critical part of the process was obtaining their support in developing the weighting for the criteria. This process involved ranking of six criteria according to their relative importance and allocating a percentage score (out of a maximum score of 100%). The results of this exercise are presented in the table below.

Table 2-3: Procurement Options Evaluation Criteria

Criteria	Weighting
Delivery of Vision and Objectives	30%
Value for Money	20%
Responsiveness to Stakeholders	15%
Level of Government Control	15%
Level of Risk Transfer	10%

[7] Project Steering Committee members include representatives from the Home Affairs Bureau, the Leisure and Cultural Services Department, the Civil Engineering and Development Department, the Architectural Services Department and the Major Sports Events Committee (under the Sports Commission). Representatives from the Financial Services and Treasury Bureau and the Economic Analysis and Business Facilitation Unit/Financial Secretary's Office were invited to participate in the workshop to provide their advice on the Consultancy Study.

Criteria	Weighting
Timing - Achieving 2019 target opening date	10%
Total	100%

2.4.2.2. Determining the first and second preferred procurement options

Determination of the first and second preferred procurement options is derived based on the agreed criteria and their relative weighting. This involved a three-pronged approach as follows:

1) Developing a scoring matrix to ensure a systematic approach to the evaluation process;

2) Applying the relative weights under each criterion; and

3) Under each criterion, assigning a score for each procurement option based on its relative merit with respect to other options, based on experience and relevant international practices.

The results of our analysis are summarised in the following table. Appendix A.3 sets out the detailed evaluation of the procurement options against the six criteria discussed in Section 2.4.

Table 2-4: Evaluation of Procurement Options

Criteria	Weighting	Procurement Options Scoring (out of 5)			
		PWP	DBFO	PPF(PE)	PPF(PPE)
Delivery of Vision and Objectives	30%	3	5	5	4
Timing - Achieving 2019 target opening date	10%	3	4	4	3
Responsiveness to Stakeholders	15%	3	4	4	3
Level of Government Control	15%	5	3	4	4
Level of Risk Transfer	10%	2	5	3	3
Value for Money	20%	2	4	4	3
Final Score[8]	100%	3.0	4.25	4.2	3.45

Scoring is based on the following scale:

1) Very Low Likelihood of Occurrence
2) Low Likelihood of Occurrence
3) Neutral
4) High Likelihood of Occurrence
5) Very High Likelihood of Occurrence

[8] The final score calculated for a procurement option is the sum of individual weighted scores associated with each criterion (i.e. the absolute score multiplied by the corresponding weighting). Take PPF(PE) as an example, the final score is equal to (5x30%)+(4x10%)+(4x15%)+(4x15%)+(3x10%)+(4x20%) = 4.2.

2.4.3. Initial Recommendations on the Preferred Procurement Options

The DBFO and PPF(PE) models are deemed to be the first and second preferred procurement options, respectively. These initial recommendations are supported by the results from the scoring system, where the DBFO and PPF(PE) models obtained the highest scores.

These two options are more preferable than the PWP model and the PPF(PPE) model in the following areas:

- **Delivery of vision** – PSP procurement models in the form of DBFO and PPF(PE) incentivises the private sector to address the Government's objectives, while bringing in private sector innovation, transferring substantial level of risks and maximising commercial opportunities;
- **Timescale** – all four procurement options would take considerable time to execute and further consideration must be given to the Government's objective of ensuring the MPSC is developed by 2019. Broadly speaking there are three key stages in a typical procurement process for a project prior to operation – feasibility/design development, procurement and construction. The PWP and DBFO/PPF(PE) models tend to have different timescales, as explained below:
    - Feasibility/Design development – typically the PWP model is likely to take longer as the project is usually developed to a more detailed stage (e.g. through an input-based specification) prior to going out to procurement. Depending on the decision making processes this can also lead to PWP taking longer especially if extensive discussions on the design is required before any decisions can be made. For the DBFO/PPF(PE) models only the broad specification and key outcomes on which the private sector are expected to deliver are identified in this phase.
    - Procurement – the DBFO/PPF(PE) models usually takes longer than the PWP model to complete the procurement process because (i) the procurement covers a wide range of work including design, build, operation and maintenance; and (ii) the project is usually not as well advanced (e.g. finalisation of the design) when compared with the situation where the project is procured under the PWP model. That said, under the DBFO and PPF(PE) models, delays attributable to the procurement process may be mitigated by using an Advance Works Agreement[9]. In addition, a streamlined approach for the PPF(PE) model can be adopted during negotiations given that private finance is not required and private sector lenders will not be a party to the negotiations.
    - Construction – the DBFO/PPF(PE) model will usually result in a shorter construction period and be delivered on time because the private sector operator takes full responsibility for the future operation, so any delays will adversely impact on its ability to make a return on the project. The operator is, therefore, incentivised to ensure that the construction is undertaken in the shortest possible time. There is no such incentivisation measure under the PWP model.

  Taking all these points into account, the project timeline from feasibility to operating can be shortened[10] by adopting the DBFO/PPF(PE) models. Perhaps a more important consideration for the Government is that the project timeline is likely to be more certain by adopting the DBFO/PPF(PE) models as the risk (of delay) sits with the private sector.

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9 An "Advance Works Agreement" refers to a legally binding contract entered into between the preferred bidder and the procuring authority which authorises the preferred bidder to commence specific works (i.e. "Advance Works") on a project before financial close. If financial close was not achieved, the procuring authority reimburses the preferred bidder for the actual costs incurred in performing the Advance Works. Advance Works Agreements, therefore, can be used to mitigate, to a certain extent, delays associated with the public sector procurement process and help ensure delivery of the project in accordance with the planned project timeline.

10 Given that DBFO/PPF(PE) models have not been used in Hong Kong for infrastructure projects similar to the MPSC, we are unable to corroborate or validate our assessment with Hong Kong specific information.

- **Responsiveness to Stakeholders Needs** – whilst the PWP and PPF(PPE) models potentially provide scope for greater responsiveness to stakeholder needs, there is the potential to build in appropriate governance mechanisms (such as Event Programming Committee) to the DBFO and PPF(PE) options to ensure that these objectives are met;

- **Level of Government Control** – mechanisms such as the Output Specifications, Payment Mechanism, and the Event Programming Committee provide the Government a significant degree of involvement to steer the project such that it meets its social objectives. For instance, to ensure that the Government's objectives and vision are duly addressed under the DBFO and PPF(PE) models, the Government may establish an Event Programming Committee, which is a joint committee consisting of members from the Government and the private sector operator, to discuss and agree on the event calendar for the MPSC. This arrangement balances the interests of the Government and the operator in terms of holding events with social benefits vis-à-vis commercial value.

  In addition, the DBFO and PPF(PE) options provide scope for the private sector to negotiate the level of charges that will allow them to achieve their commercial objectives;

- **Level of Risk Transfer** – The DBFO model achieves maximum risk allocation. As the lender to the Project under the PPF(PE) model, the Government assumes Project risks that the private sector lender takes on under the DBFO model, which may be mitigated to a certain extent by imposing certain covenants used by private sector lenders. Both PWP and PPF(PPE) models, reflect sub-optimal risk allocation compared to DBFO; and

- **Value for Money** – under DBFO and PPF(PE), the synergies achieved by integrating procurement of the various subcontractors (i.e. design, construction, venue operations and facilities management subcontractors) is envisaged to provide better value for money.

Our initial recommendations of the preferred procurement and funding options were subsequently discussed and validated with potential market participants (through the informal market sounding exercise) to identify if any refinements or changes were required in the light of the constraints and specific considerations of the market. This is further discussed in Section 4.1.

It is important to recognise that a common feature of the two preferred options is the use of an integrated procurement approach to cover the "design, build and operation" (i.e. DBO) of the MPSC. Therefore, to ensure the highest standards of management of the MPSC, it is crucial to develop the MPSC as one project with one management agent responsible for the DBO, regardless of how the MPSC development is eventually procured and funded[11].

[11] This requires a well structured contract with a robust performance management regime to ensure that the "design and build" operators are properly incentivised to work with the stadium operator and to maintain the required performance standard of the infrastructure during the whole concession period.

3. Funding Options

The Government and the private sector play a vital role in infrastructure funding. In cases where infrastructure projects are financially viable without any government assistance, it is likely that the private sector on its own initiative will invest in such projects.

In the case of the MPSC, where there is a focus on sporting events to enhance a sporting culture in Hong Kong, careful consideration of events programming is required. Whilst commercial events may draw higher profitability, the Government's social objectives need to be considered in developing a balanced mix of facilities and events programming. For example, the events programming mix that will achieve the highest profitability could compromise the overall social objectives set by the Government, and vice versa.

In our analysis of the funding options, we have:

- Defined the key areas for consideration in determining the preferred funding option;
- Identified a spectrum of potential funding options in conjunction with the preferred procurement options;
- Estimated the cost impact of the funding options by developing a high-level illustrative financial model based on information contained in previous reports developed for the HAB; and
- Conducted an informal market sounding exercise to assess market response to the Project and the deliverability of the funding options.

3.1. Key Considerations in Analysis of Funding Options

3.1.1. Budget Horizon

In funding a complex infrastructure project such as the MPSC, it is important to understand the Government's budget horizon. For a shorter budget horizon, the focus tends to be on project cost, largely consisting of capital expenditure (i.e. usually over a shorter period say 5 years), whereas a longer budget horizon allows the whole-life-cost of the infrastructure (i.e. over a 20-30 year period based on the economic life of the asset) to be considered.

The preferred funding option should consider the relevant budget horizon available for funding of the Project. It is important to understand the constraints facing government in respect of its budgeting such that these are addressed when developing a suitable funding model for the MPSC.

3.1.2. Political and Other Considerations

3.1.2.1. Government's Commitment over Long-term Payment Streams

Given that the MPSC is not likely to be commercially viable, it will require subsidy or support from the Government over the long term. It is important to consider the Government's willingness to commit to future payment streams over a longer period (i.e. 20-30 years), in determining the preferred funding option for the MPSC.

In particular, the involvement of private sector capital in financing the construction of the asset will require long-term commitment and certainty by the Government to continue providing the required level of subsidy or support to the MPSC. Failure by the Government to provide the private sector with such certainty over the long-term would adversely impact the project's ability to attract private capital.

It is important to note that projects that are fully funded by the public sector are exposed to changes in the political landscape. In particular, changes in government's priorities and decisions over providing the required level of subsidy for the project.

3.1.2.2. Risk Appreciation in Government

The preferred funding option will be impacted by the Government's risk appetite. The Government's perspective on the allocation of key risk items such as demand, design, construction, operations, maintenance, interface and lifecycle among other things need to be considered when evaluating funding options. For example, where the Government provides funding, it assumes project risks that the private sector bears under a purely private-sector financed model. As such, an assessment of the resulting risk allocation under the various funding options is conducted as part of our analysis.

3.1.2.3. Market Considerations

The 2008 Global Financial Crisis created significant uncertainty in the debt markets. It also reduced liquidity and increased financing cost by substantially changing the debt structures used for infrastructure (lower gearing, shorter tenor debt and higher interest margins).

The current uncertainty regarding the European debt crisis has led to many European banks pulling out of infrastructure lending or imposing more stringent conditions when providing such finance.

The combination of these factors will impact on the funding mechanism for social infrastructure projects and these will be considered in evaluating the funding option for the Project.

3.2. Overview of Potential Funding Options

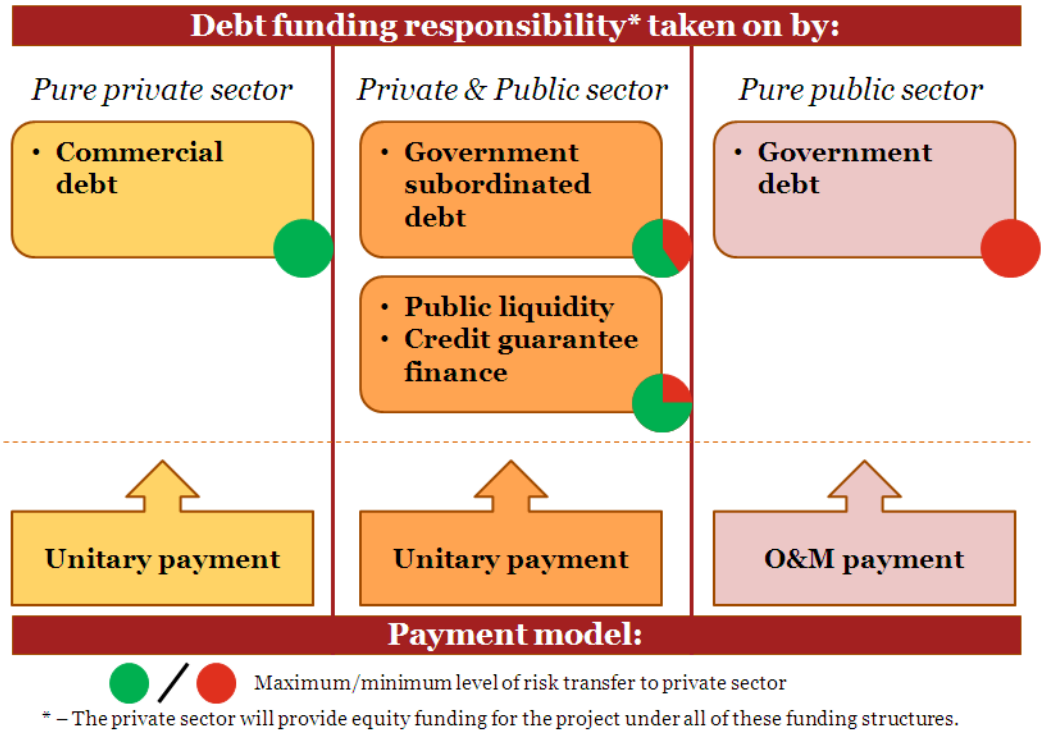
3.2.1. Overview

As discussed in Section 2, the DBFO and PPF(PE) models are identified as the preferred procurement options for the MPSC. These procurement options may take the following sources of finance:

- Pure private sector sources of finance;
- A combination of public and private capital; and
- Pure public finance.

The spectrum of potential funding options considered for the preferred procurement options i.e. the DBFO and PPF(PE) models are shown in the figure overleaf.

Figure 3-1: Spectrum of Potential Debt Funding Options to be used in conjunction with DBFO and PPF(PE)



3.3. Pure Private Sector Funding

Under a purely private-financed model, private sector funding is provided principally by sponsor equity, commercial debt or project bonds.

Subject to satisfactory performance of the SPV, the Government will need to provide unitary payments for the private sector to cover the equity returns and the interest/coupon and principal repayment of the commercial debt or project bonds used to finance the MPSC (revenue would be generated by the events, but this would be insufficient to cover equity returns and debt repayment).

Abatements to the unitary payment for non-performance by the SPV will adversely impact the SPV's ability to achieve its target equity returns and service its debt obligations. This provides a strong incentive for the private sector to deliver the asset and provide the required range of services.

Table 3-1: Allocation of Project Risks under Pure Private Sector Funding

Key Project Risks – Pure Private Sector Funding		Risk Owner
Design	Inefficiencies in design that will impact upon construction, operations and maintenance.	Private Sector
Construction	The facilities are not built to specification. Under the DBFO model, the Government will not commence payment unless the asset is accepted by the Government and operations have commenced.	Private Sector
Operations	In the event that the SPV performs poorly, where the facilities are not available or the services fail to meet the key performance indicators, payment due to the SPV will be at risk, in accordance with the abatement regime established for the Project.	Private Sector

Key Project Risks – Pure Private Sector Funding		Risk Owner
Lifecycle	Inadequacy in design or construction quality resulting in higher than anticipated maintenance and refurbishment costs.	Private Sector
Demand	Where the MPSC will not achieve forecast patronage under government events, demand risk is borne by the Government, through availability payments. Key performance indicators (KPIs) are specified for events programming to incentivise the private sector to deliver a robust events programming plan.	Government
Third-party Revenue	Increased patronage associated with events will drive third-party revenue (i.e. commercial revenues from food, beverage and retail). Third party revenue could be shared between the Government and the private sector to incentivise the private sector to increase returns by holding events and creating a vibrant facility. This enhances the private sector's investment returns and provides an opportunity for the Government to achieve a return for its "investment".	Shared
Interface	Interface risks occur at various stages of the Project, namely: 1) between the Government and private sector; 2) the MPSC Project vis-à-vis the wider Kai Tak Development; and 3) interface between various subcontractors (i.e. between the design, construction and operations) during the development and operations phases.	Private Sector

3.4. A Combination of Public and Private Sector Funding

A combination of public and private sector finance may be used under the PPF(PE) model. Whilst the public sector and private sector both play a part in funding the MPSC, there are varying degrees of involvement between the public and private sectors that will influence the degree of risk transfer under each model.

This model is based on the premise that government funding could be used to either substitute or supplement private finance. It is critical to consider the optimal level of private sector finance to ensure that the private sector has sufficient "skin in the game" in this model. There are two principal concepts when considering a combination of public and private sector funding, namely through Government subordinated debt and the use of Credit Guarantee Finance ("CGF"), which are explained below.

- **Government subordinated debt** – The public sector contribution to the project funding may be structured as subordinated debt, while the private sector provides senior debt and equity. Subordinated debt will only be repaid after the SPV has met its obligations to senior lenders, but before any dividend is distributed to equity holders. As such, the subordinated debt will have medium to long term maturity, with repayments occurring at the contract term (i.e. concession period). However, there is opportunity of refinancing under favourable market conditions, allowing the Government to recycle capital.
- **Credit Guarantee Finance** – The use of CGF allows the Government to provide liquidity for the MPSC by lending to the SPV or by means of cash advances. The loan provided by the Government will be repaid only upon completion of the project, while repayment and performance is guaranteed by the private sector lenders who "insure" performance and take on project risks. The key elements of a CGF transaction are as follows:

- The Government will provide funds to the facility under the terms of a loan agreement to be entered between the government and the private sector (i.e. SPV);
- These loans will be repaid after the completion of the facility, in accordance with the loan repayment schedule as agreed by the SPV, the Government and the Guarantor; and
- In consideration for providing this loan facility, the Government will receive an unconditional repayment guarantee from the Guarantor, i.e. in the event of SPV's poor performance, the Guarantor is required to step in and provide payments to the Government.

The figure below provides an illustrative framework for the CGF financing model.

Figure 3-2: Framework for the CGF Financing Model

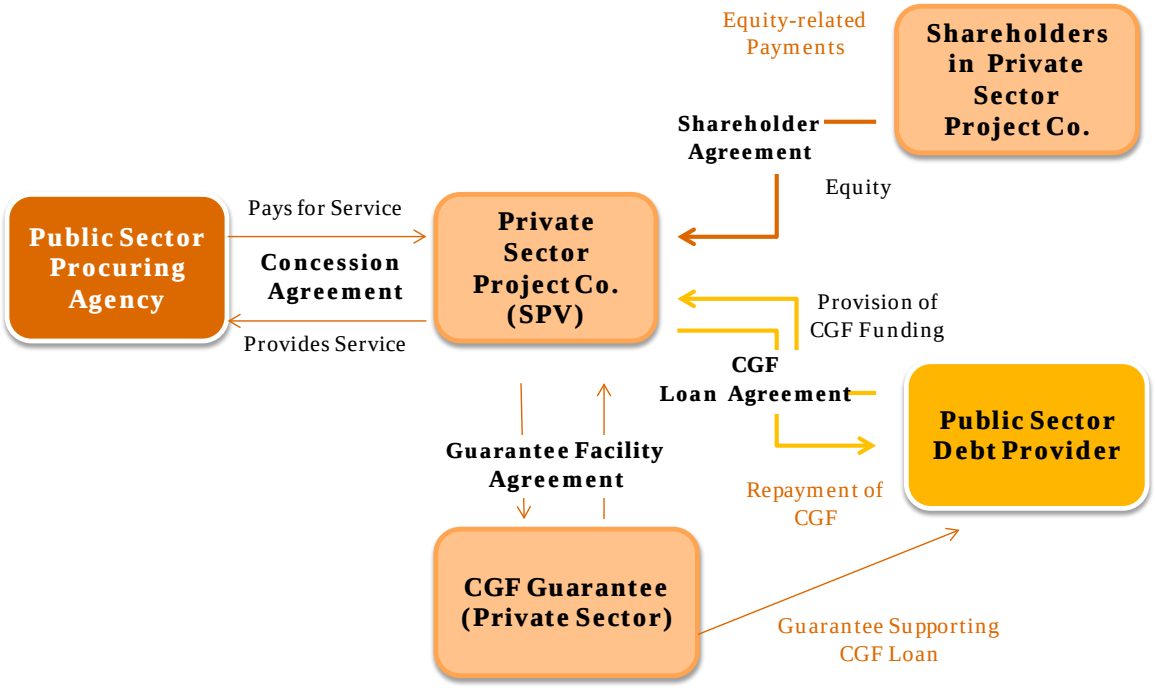


Table 3-2: Allocation of Project Risks under combination of Public and Private Funding

Key Project Risks – A Combination of Public and Private Sector Funding		Risk Owner
Design	Inefficiencies in design that will impact upon construction, operations and maintenance.	Shared
Construction	The facilities are not built to specification. • Government subordinated debt • CGF	 • Shared • Private Sector
Operations	In the event that the SPV performs poorly, where the facilities are not available or the services fail to meet the key performance indicators. • Government subordinated debt • CGF	 • Shared • Private Sector
Lifecycle	Inadequacy in design or construction quality resulting in higher than	

Key Project Risks – A Combination of Public and Private Sector Funding		Risk Owner
	anticipated maintenance and refurbishment costs. • Government subordinated debt • CGF	 • Shared • Private Sector
Demand	Where the MPSC will not achieve forecast patronage under government events, demand risk is borne by the Government, through availability payments. Key performance indicators (KPIs) are specified for events programming to incentivise the private sector to deliver a robust events programming plan. • Government subordinated debt • CGF	 • Shared • Private Sector
Third-party Revenue	Increased patronage associated with events will drive third-party revenue (i.e. commercial revenues from food, beverage and retail). This enhances the private sector's investment returns and provides an opportunity for the Government to achieve a return for its "investment". • Government subordinated debt • CGF	 • Shared • Shared
Interface	Interface risks occur at various stages of the Project, namely: 1) between the Government and private sector; 2) the MPSC project vis-à-vis the wider Kai Tak Development; and 3) interface between various subcontractors during the development and operations phases. • Government subordinated debt • CGF	 • Shared • Private Sector

3.5. Public Sector Funding

Under the PPF(PE) option, equity is provided by private sector while debt is provided by the public sector for the funding of the MPSC. This funding option is applicable where the private sector is unable to provide debt funding due to a liquidity crunch e.g. during the GFC or a project that does not support debt leverage. In such situations, the use of public sector debt to fund transactions at commercial rates or preferential interest rates may be considered.

This funding option is based on the premise that Government funding could be used to substitute private sector lending. Pricing for provision of public sector debt could be structured on commercial lending terms or

preferential lending terms[12]. It would be expected that the private sector provide equity funding for the Project under this structure.

As the MPSC is effectively funded by the Government, it is taking the same level of risks private sector lenders would be taking on. Thus, it is important for the Government to consider the following in assessing the provision of public sector debt:

- **Conduct of a robust due diligence process** – The public sector will need to step-up its evaluation of project risks akin to banks' evaluation processes. The Government will also need to enhance its due diligence at the project level, which includes an assessment of the subcontractor arrangements entered into by the SPV. As a lender, the Government is exposed to the performance risk of the SPV, such that liability caps and other security provisions need to be examined in greater detail. It is imperative for the Government to conduct the same level risk of assessment, financial analysis and due diligence that a private sector lender would require;

- **Security packages and covenants** – It is important for the public sector to assess the risk it is assuming when providing public sector debt. As such, the Government should then be entitled to the security packages and covenants imposed by the private sector lenders. For example, private sector lenders would require adequate liability caps at the subcontractor level to keep residual risk at the SPV to a minimum. Banks also impose contractual restrictions within the financing documents as a means to manage their lending risk. These mechanisms set minimum standards on the borrower's (in this case, the SPV) future performance. These covenants are typically structured such that penalties or an acceleration of the loan payment is required in the event these covenants are breached. The severity of the covenants required increases in proportion to the perceived risk of the borrower; and

- **Financing documents** – The Government will need to ensure that the financing documents provide clear provisions for termination under various events (for example the Government default, contractor default and force majeure, among others). These provisions may include the right to rectify and step-in before default scenarios, which are similar to those imposed by the private sector lenders to mitigate risks associated with project financing in private-financed deals.

Table 3-3: Allocation of Project Risks under Public Sector Funding

Key Project Risks – Pure Public Sector Funding		Risk Owner
Design	Inefficiencies in design that will impact upon construction, operations and maintenance.	Government
Construction	The facilities are not built to specification.	Primarily the Government
Operations	In the event that the SPV performs poorly, where the facilities are not available or the services fail to meet the key performance indicators. Under the public sector loan funding option, the Government assumes performance risks that a private sector lender takes on under the pure private sector funding model.	Primarily the Government
Lifecycle	Inadequacy in design or construction quality resulting in higher than anticipated maintenance and refurbishment costs.	Primarily the Government

[12] The government loans to infrastructure projects typically charge lower interest rates as compared to private sector loans so as to enhance the financial viability of infrastructure projects that are deemed to have justifiable social benefits. On the contrary, it is normal business practice for commercial lenders to charge margins (or interest rates) which fully reflect the premium for project risk (the "cost" of this risk).

Key Project Risks – Pure Public Sector Funding		Risk Owner
Demand	Where the MPSC will not achieve forecast patronage under government events, demand risk is borne by the Government, through availability payments. Key performance indicators (KPIs) are specified for events programming to incentivise the private sector to deliver a robust events programming plan.	Primarily the Government
Third Party Revenue	Increased patronage associated with events will drive third-party revenue (i.e. commercial revenues from food, beverage and retail). Third party revenue is shared between the Government and the private sector. This enhances the private sector's investment returns and provides an opportunity for the Government to achieve a return for its "investment".	Shared
Interface	Interface risks occur at various stages of the project, namely: 1) between the Government and private sector; 2) the MPSC project vis-à-vis the wider Kai Tak Development; and 3) interface between various subcontractors (i.e. between the design, construction and operations) during the development and operations phases. Interface risks at various stages of the project are managed by the SPV. However, failure by the SPV to mitigate such risks could adversely impact upon its ability to service its debt obligations to the Government.	Primarily the Government

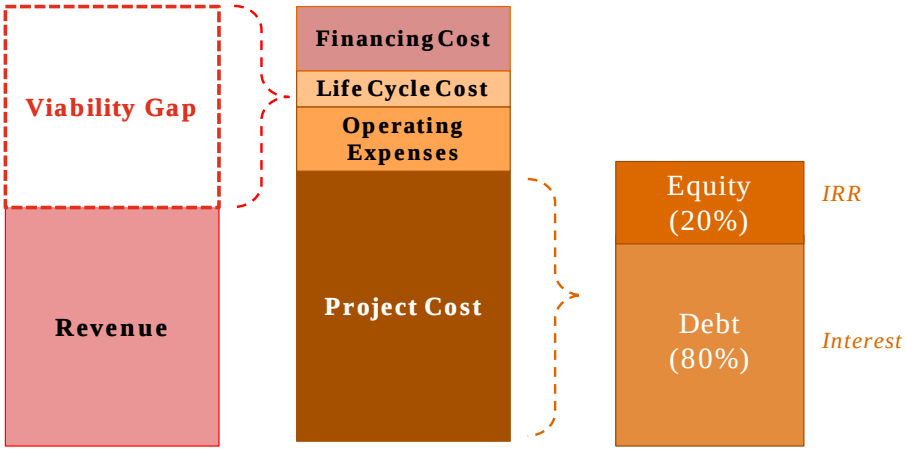
3.6. Supporting Structures

3.6.1. Viability Gap Funding

The Viability Gap is the difference between the forecast revenues and whole-life expenses including an assumed reasonable rate of return which investors are likely to require from this project. The MPSC is highly capital intensive and it is unlikely to be commercially viable on its own as confirmed in the Evans and Peck Report (2006).

MPSC's revenue streams are unlikely to be sufficient to cover the project costs, which include the capital investment and financing costs during construction period, operating costs, lifecycle costs and financing costs during operations period. Hence, there will be a need to provide the SPV with additional government support in the form of an upfront capital (or an ongoing nominal payment) to bridge the viability gap as shown in the figure overleaf.

Figure 3-3: Use of Viability Gap Funding



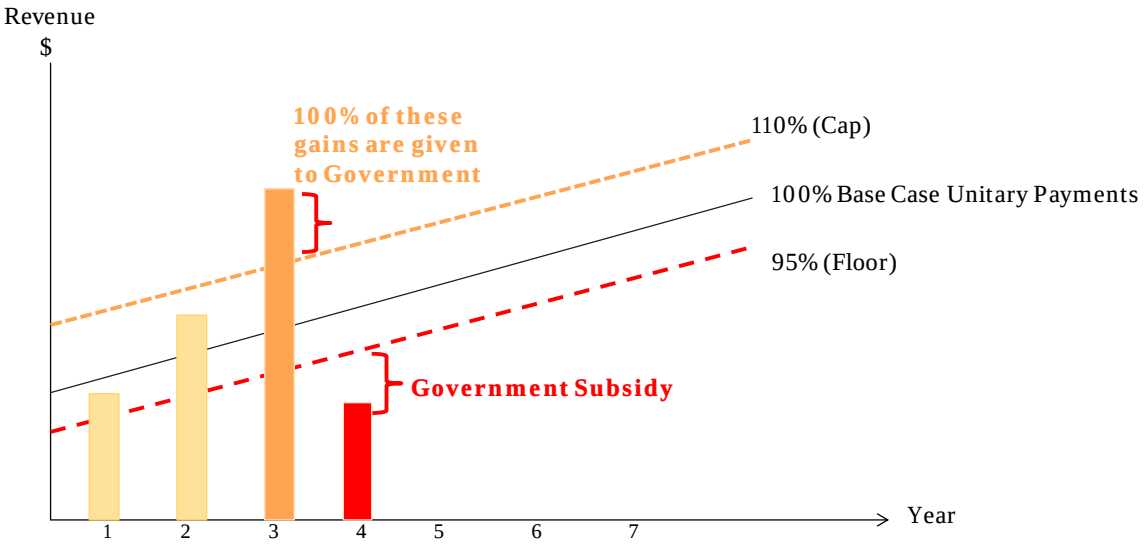
3.6.2. Cap-and-Floor (or Minimum Guarantees)

The cap-and-floor support structure is used to allow public sector and private sector to share demand risk in infrastructure projects.

At financial close, the private sector would have provided the Government a revenue profile based on the base case revenue forecast profile. Once the project enters into the operation phase, the actual revenue profile may differ from the forecast profile. This cap-and-floor structure allows both the public and private sector to share the revenue impact, in the event the actual revenue profile is vastly different from the forecast profile (or the assumption the revenues are market based).

For instance, if the actual revenue profile is between 95-110% of the forecast profile, the private sector takes the demand risk and either absorbs the losses or gains that result in the downside and upside case respectively. However, if the actual revenue profile is below 95% level of the forecast profile, the Government would need to provide a subsidy such that the private sector earns at least 95% of the revenue forecast at financial close. Conversely, if the actual revenue profile exceeds 110% of forecast revenue profile, the private sector is required to give the revenues beyond 110% of the base case forecast revenue profile to the Government. The illustration in the figure below shows the sharing of demand risk.

Figure 3-4: Cap-and-Floor mechanism



The 95% level is deemed to be the floor i.e. the lowest level of forecasted revenue profile at which the private sector will take demand risk, while the 110% is the cap i.e. the highest level of forecast revenue profile at which the private sector will take demand risk. Beyond the cap and floor, the Government will take on the demand risk. This cap-and-floor structure is also otherwise known as the Minimum Guarantee as the Government provides the private sector a certain level of revenue, regardless of the demand for the infrastructure.

As 100% of the gains beyond the cap will be allocated to the Government, it incentivises the private sector to ensure that it does not put in too low a bid during the bidding stage. While this may result in the particular bidder being appointed for the development of the MPSC, it also means that it loses out on the upside revenue potential.

Alternative cap-and-floor structures may be negotiated between the private sector and the Government depending on the Project and the negotiated payment mechanism.

3.6.3. Capital Contribution

Capital contribution refers to the capital funding injected into a project to supplement private sector funding, without any expectation of a return or any repayment. Capital contribution seeks to provide liquidity support to a project and effectively reduce the net cost of private financing, whilst maintaining a level of risk transfer and deriving synergies from operator inputs into the development of the facility.

The ability to retain the same level of risk transfer to the private sector (as in projects purely financed by private sector) requires careful consideration of timing (i.e. when the contributions are made) and the quantum (i.e. how much capital will be contributed by the Government). It is critical to structure the timing and determine the appropriate quantum of capital contribution to ensure effective risk transfer at the construction phase.

Some of the infrastructure projects in Australia were adversely affected due to high borrowing costs and low liquidity during the GFC. In some cases, the public sector provided capital contribution to reduce the amount of privately financed debt. For instance, the Gold Coast Rapid Transit Project in Australia adopted a state capital contribution as a means to improve value for money given the relatively higher post-GFC credit margins demanded by private lenders. The resulting structure developed for this project achieved an effective risk transfer by requiring the private lenders to provide half of the debt quantum before drawing on any capital contribution.

3.7. Financial Analysis of Funding Options

3.7.1. Overview

The funding options identified in conjunction with the DBFO and PPF(PE) models (i.e. the first and second preferred procurement options, respectively) include:

- Pure government funding;
- Combination of private and government funding; and
- Pure private funding.

Each funding option is assessed based on the cost impact, estimated Viability Gap (“VG”) and its deliverability in the current financial market situation. A high-level qualitative assessment of deliverability of the funding options is carried out based on an informal market sounding exercise, where we obtained preliminary feedback from potential market participants.

3.7.2. Caveats

As part of our analysis, we have developed a **high-level** and **illustrative** financial model based on following assumptions:

- **Capital expenditure (Capex)** – based on the Technical Feasibility Statement for Multi-Purpose Stadium Complex at Kai Tak, Dec 2009, the Architectural Services Department (ASD).
- **Revenue, operating expenditure (Opex) and lifecycle costs** – based on the Financial Feasibility of the Proposed Multi-purpose Stadium Complex in Kai Tak, Nov 2006, Evans and Peck.
- **Other financing assumptions** – based on the results of the informal market sounding.

It should be noted that:

- A key limitation on our analysis is that the Capex and Revenue/Opex figures do not completely align. This is because the original facility mix used in estimating the Revenue/Opex figures in the 2006 Evans and Peck Financial Study is different from that anticipated in the 2009 ASD Technical Feasibility Statement.
- The indicative and illustrative financial analysis conducted for this study should not be seen as a substitute to update the Financial Feasibility Study of the proposed MPSC that was undertaken in 2006, which would include a review of the costs and revenue streams associated with any new proposed facility mix.
- Our analysis does not include a risk-adjusted financial model analysing the development costs of the MPSC procured under the traditional PWP (refer to Section 3.7.5 for further details).
- For ease of comparison, only the capital structure and associated financing costs were varied, while the assumptions regarding capital expenditure, operating costs, life cycle maintenance costs and revenue remain the same across funding options.

3.7.3. Assumptions and Scenarios

The section below discusses the key assumptions that have been adopted in the high-level financial model.

Table 3-4: Project timetable

Project Timetable	
Construction start date	1 Jan 2014
Operation start date	1 Jan 2019
Concession end date	31 Dec 2038

With respect to cost assumptions, the following cost categories are reflected in the high-level financial model:

Table 3-5: Project costing assumptions

Cost item	Assumption	Source
Capex	HK$19.7 billion (at Sep 2010 price level, as uplifted from 2009 price)	Architectural Services Department (2009)
Opex	NPV HK$1.9 billion	Evans and Peck Report (2006)
Life Cycle Cost	1 % of Capex per annum	Evans and Peck Report (2006)

Cost item	Assumption	Source
Tax payable[13]	16.5% tax rate	Hong Kong Inland Revenue Department

Note: Architectural Services Department (2009) refers to the Technical Feasibility Statement for Multi-Purpose Stadium Complex at Kai Tak, Kowloon City District; and Evans and Peck (2006) refers to the Consultancy study on Financial Feasibility of the Proposed Multi-purpose Stadium Complex in Kai Tak.

The financing assumptions are provided in the table below.

Table 3-6: Financing assumptions - general

	Assumptions
Gearing ratio (D/E)	80/20
Equity IRR	12.0%
Upfront fee[14]	2.50%
Commitment fee[15]	1.00%
Debt Service Cover Ratio	1.20x

Table 3-7: Financing assumptions - interest rates

Interest rates	Senior debt	Subordinated Government debt
Base Rate	1.79%	1.79%
Tenor	10 yrs, with 1 yr tail	10 yrs, with 1 yr tail
Interest Margin (Construction & Operation)	4.00%	2.00%[16]
Liquidity Premium	0.15%	0.15%
All in rates	5.94%	3.94%

[13] Tax adjustments should be made to the financial analysis for the pure government funding as well as the combination of government and private funding options so that a like-for-like comparison could be made with the pure private funding option.

[14] Upfront fee is the fee paid by a borrower to a syndicate of banks for arranging a loan. The fee is often tiered, with the agent bank receiving a larger amount as a consideration for structuring the loan and/or underwriting larger amounts and thereby assuming greater risk. Upfront fees paid to syndicate members are almost always a function of commitment size. The upfront fee is typically structured as a percentage of the sum committed to the loan.

[15] Commitment fee is a fee lenders charge their borrowers for unused credit or credit that has been promised at a specified future date. In the case of large infrastructure projects, the SPV will only drawdown the loan on a need-to basis, in line with expected construction costs in the near future. Thus, the lenders charge a commitment fee on the unused quantum of loan. It is typically computed as a percentage of the unused loan amount for each period.

[16] Our discussions on potential funding options do not intend to pre-empt any decisions of the Government or the Legislative Council in relation to the availability of public loans (e.g. Loan Fund) to the private operator for the MPSC. For comparative purposes of the financial analysis, we have made reference to relevant international experience in relation to government lending for infrastructure projects.

The financing assumptions above are concluded based on interviews with potential lenders through the informal market sounding exercise conducted by PwC in early 2012.

Revenue assumptions were obtained from the Evans and Peck Report (2006). These assumptions include forecast of event and other income and ancillary income.

Subordinated debt is a loan that ranks below senior debt, in respect of claims on assets or earnings. In the event of liquidation or default, senior debt is paid first. Thus subordinated debt is more risky and commands a higher premium and is typically more expensive than senior debt.

However, subordinated debt could also be used by the public sector as a means of reducing funding costs and providing funding support to a project. Subordinated government debt could be provided at subsidised rates (lower than senior debt). In the UK, the Public Works Loan Board provides subordinated government debt that is up to 2% lower than commercial debt, to selected projects.

Table 3-8: Operation revenue assumptions

	Source	Assumptions
Operating revenue	Evans and Peck Report (2006)	Appendix 9 – Operational Model Consolidated Operational Projections for Stadia & Arena (excluding Swimming, Bowling & Skating)
Ancillary revenues (Commercial Centre and Offices for Sports-related Organisations)		Appendix 7 – Key Assumptions
Ancillary revenues (car park)		Appendix 7 – Key Assumptions Pro-rated for 1,120 spaces

The cost and revenue information in the Evans and Peck Report were based on 2006 prices, which have been escalated to 2011 prices as reflected in the financial model.

A detailed description of the assumptions used in the financial model is provided at Appendix A2.

3.7.4. Cost Implication

This section discusses the results of the financial analysis assessing the whole-life costs[17] under each funding options in Net Present Value (NPV) terms, not taking into account inflation (i.e. real). The discount rate of 4.00% is used to calculate the NPV which we understand is adopted for Hong Kong Government infrastructure appraisals, e.g. HKIA Master Plan 2030 Technical Report[18]. In addition, this section and the ones that follow should take note of the caveats made in Section 0.

[17] The capex figure of HK$17.7B as shown in Figure 3-5 is the discounted net present value (at a discount rate of 4%)of the capex figure of HK$19.7B assuming a construction period of five years (with the cost breakdown assumed to be: 5%, 10%, 20%, 40% and 25% respectively, according to the 2006 Evans & Peck Report).

[18] The 10% discount rate used by HSBC in the HKIA Financial Report is the nominal discount rate, with the underlying real rate at 5% (assuming an inflation rate of 5%). The indicative financial model developed for this study is presented in real terms and we have used a real discount rate of 4%, which is generally in line with the assumptions adopted by HSBC.

The cost implications of the following funding options are presented in the figure below:

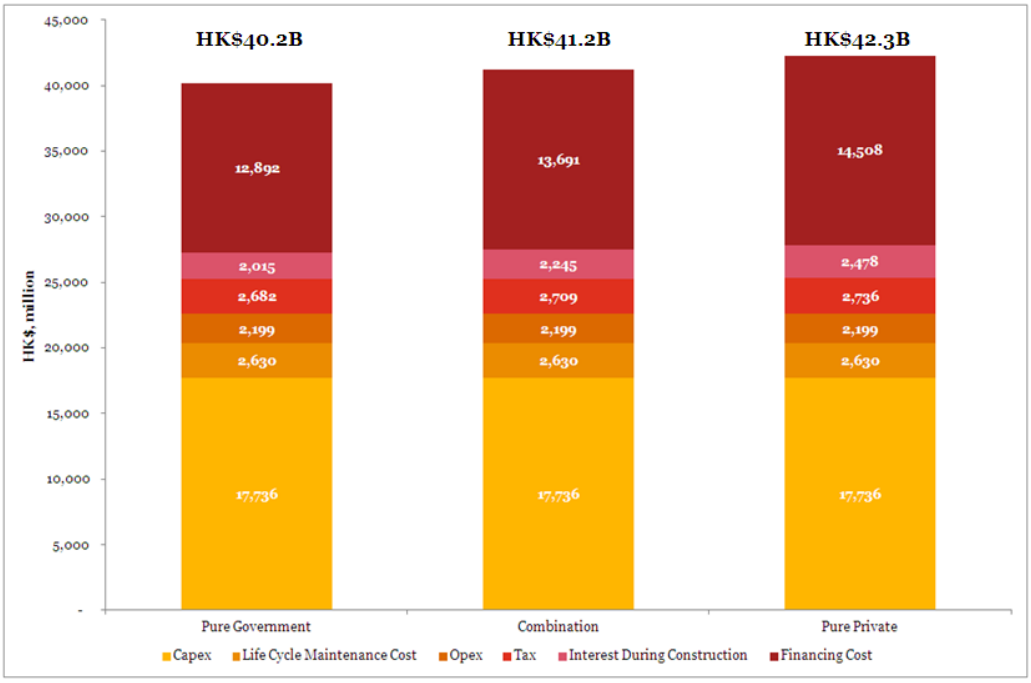
- Use of pure government funding (as in the case of the PPF(PE) model);
- Use of pure private sector debt (as in the case of the DBFO model); and
- Combination of debt sourced from both public and private sectors.

To ensure comparability the same assumptions regarding capital expenditure, operating cost and life cycle maintenance costs, and target blended equity Internal Rate of Return (IRR) of 12.0% are used across three funding options.

This analysis seeks to assess the effect of varying funding structures used under each of the funding options on the overall cost profile of the Project. Thus, the only differences between the funding options are the interest during construction ("IDC"), financing costs (i.e. the interest expense at the operating phase) and taxes.

Please note that this indicative analysis is not risk adjusted. Therefore it does not reflect the true cost to the Government of each option as the costs associated with the risks retained by the Government is not estimated.

Figure 3-5: Illustrative comparative cost implication without risk adjustment



The results of the illustrative financial analysis indicate the following:

- Pure government funding provides the cheapest financing cost among the three funding options, resulting in a whole-life cost of NPV of HK$40.2 billion, due to the lower margins charged by the Government;
- A combination of government and private funding provides the second cheapest financing cost amongst the three funding options resulting in a whole-life cost of NPV of HK$41.2 billion;
- Pure private sector funding as used in the DBFO procurement option projected the highest financing cost, resulting in a whole-life cost of NPV of HK$42.3 billion; and
- A differential between the lowest financing cost versus the highest financing cost is $2.1 billion.

Based on the project finance experience in the United Kingdom, the interest rate of public debt is approximately 2% lower than that of the private sector debt. The high interest rate associated with the private sector debt results in an increasing financing cost with a higher proportion of debt being sourced from the private sector.

The financial model results suggest that government funding yields the lowest financing cost, followed by the combination of public and private funding and then the purely private financing model.

3.7.5. Risk Adjustment and Quantification

3.7.5.1. Impact of Risk Adjustment

In order to fully understand the cost implications of each model, PwC recommends that the Government undertakes an exercise that looks to quantify the risks. The effect of risk on project costs is substantial. In pure-private-financed deals large amounts of risk are transferred to the private sector – i.e. in the event of the risks occurring, the Government would not be exposed to such risks. In pure-public-financed deals, the risks would be primarily borne by the Government.

The actual cost to the Government of the pure-public-financed option is therefore going to be substantially higher than the estimated figure of HK$40.2 billion as shown in Figure 3-6 below. However, it is envisaged that the cost to the Government of a pure-private-financed deal would not be substantially higher than the estimated figure of HK$42.3 billion as this represents a private sector bid, which incorporates a risk premium (for the risks transferred to the private sector) and any risk (e.g. construction cost-overruns) that would be borne by the private sector, rather than the Government.

The basic principle adopted in the PSP framework for procurement is that specific risks should be allocated to the party that is best able to manage and mitigate that risk. In this instance, this could be either the private sector contractor or the Government or the risk should be shared if neither party can manage the risk. By allocating risk to the party best able to manage the risk, the end-cost of the procurement should be reduced, providing better value for money to the Government than traditional procurement.

There is a fine balance to strike in transferring risk to the private sector contractor or the Government retaining it. When risk is allocated to the private sector contractor, it will incorporate a risk price (as part of its bid to the Government) that would cover the cost of the risk if it occurred. This risk cost should be less than the cost to the Government if the Government were to retain the risk, as the private sector contractor should be able to manage the risk more effectively. If the Government attempted to transfer risk to the private sector contractor that it is unable to manage, the cost of the procurement through the PSP framework would increase significantly as the private sector contractor would incorporate a significant risk buffer into its pricing – a higher premium for taking risks that it is unable to manage.

3.7.5.2. Risk Quantification

There is a need to value specific risks based on the perceived cost of the risk to Government, on the assumption that the MPSC was to be developed by the Government using traditional procurement. This process of risk quantification is an integral part of assessing the relative cost of the relevant funding options for the MPSC.

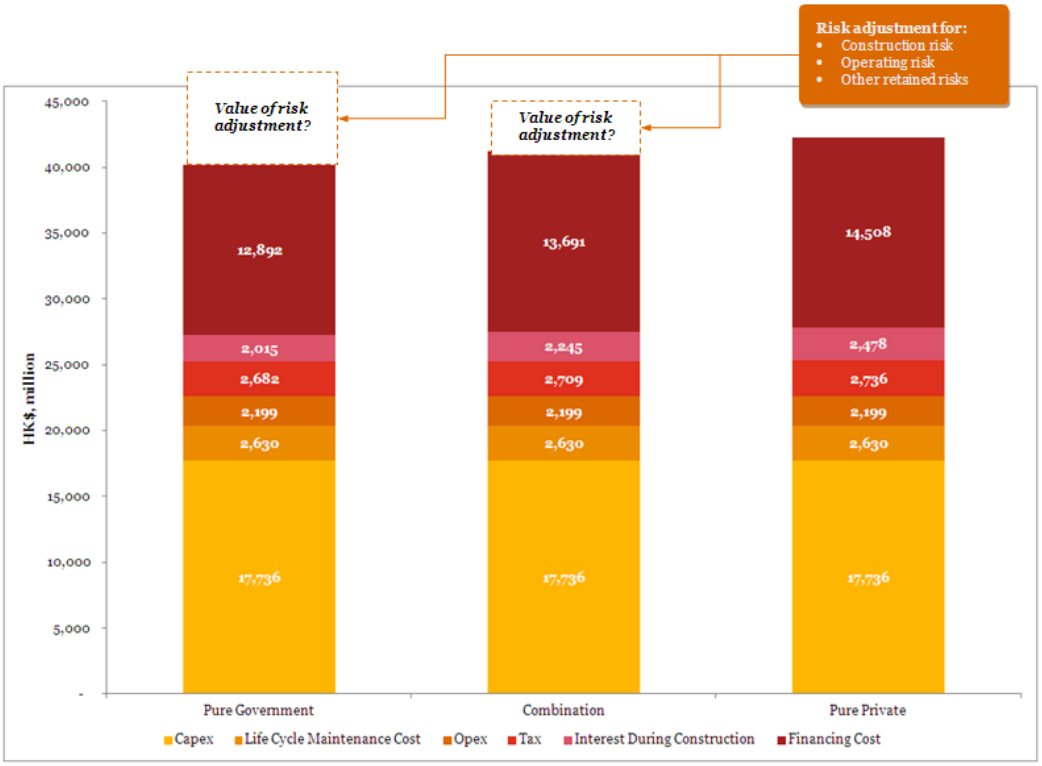
Thus, to obtain a complete and accurate understanding of the cost of procurement of MPSC through the different approaches, it is essential to quantify the key risks and develop a risk adjusted financial analysis comparing the results across each option.

The process of quantifying risks involves:

- Identifying project risks;
- Identifying the risks transferred to the private sector (e.g. design, construction, operations, lifecycle, etc) and those that are retained or shared;
- Determining the probability of the occurrence of such risks; and
- Determining monetary impact of such risks where possible (e.g. typically expressed as a percentage of the NPV of the capital expenditure, operating cost and lifecycle cost).

Following the quantification of risks, an adjustment to the pure government and combination funding options will be made based on risk allocation. Figure 3-6 below presents an illustrative representation of the potential impact of the risk adjustment, which is envisaged to result in a higher cost for the pure government and combination funding options.

Figure 3-6 – Illustrative Comparative Cost Implication with the Impact of Risk Adjustment

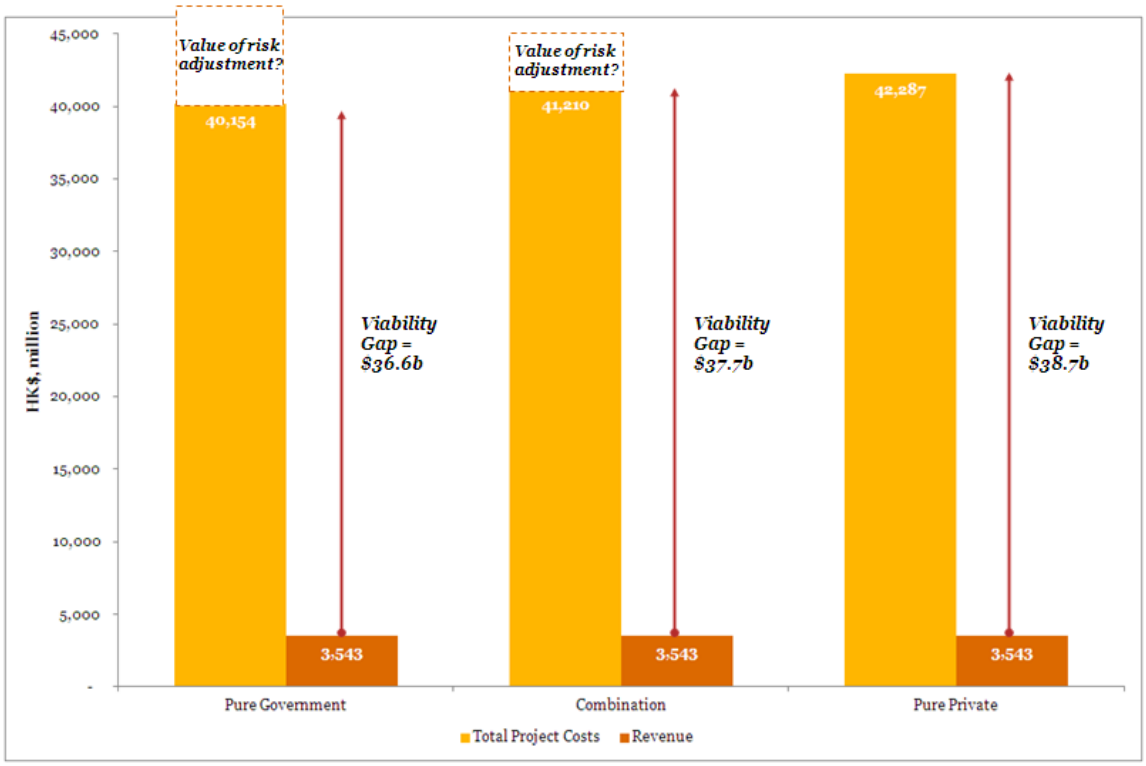


3.7.6. Viability Gap (VG)

The VG is the difference between the forecast revenues and whole-life expenses including an assumed reasonable rate of return which investors are likely to require from the project. The MPSC is highly capital intensive and it is unlikely to be commercially viable on its own, as confirmed in the Evans and Peck Report (2006). The same study suggested that the NPV of the projected revenue (uplifted to 20011 prices) over the project life is approximately $3.543 billion. This revenue figure is insufficient to support a project cost of $19.7 billion. Thus, it is clear that the project is not viable and will most certainly require government subsidy.

The estimates of the VG are presented in the figure overleaf.

Figure 3-7: Illustrative Estimated of Viability Gap



Note: the illustrative of VG in the figure above is shown in NPV terms.

The financing costs associated with the funding options directly affect the respective amount of the VG. This is clearly illustrated in the results of the financial analysis showing that using pure government funding yields the lowest VG at $36.6 billion, while pure private funding yields the highest VG at $38.7 billion. However, this viability gap is likely to look different when risk quantification and allocation is added to the analysis.

3.7.7. Deliverability and Market Responses to the Proposed Funding Options

The current European debt crisis has adversely affected the financial markets in Asia, particularly in project finance, which used to be dominated by European banks. Historically, European banks have played a prominent role in financing projects in Asia. With the looming uncertainty in the financial sector, a number of European banks face significant limitations in terms of participating in infrastructure deals.

The "void" left by the European banks is filled, to a certain extent, by the Asian focused banks, which have begun investing more aggressively in infrastructure projects in the region. That said, the liquidity available for financing projects remains tight (i.e. a liquidity crunch). This, in turn, results in the quantum of debt being reduced and banks imposing more stringent conditions when providing project finance (e.g. shorter tenors, higher margins and more stringent debt service cover requirements).

The following points summarise the key issues impacting the deliverability of the proposed funding options, based on feedback gathered during the informal market sounding exercise.

- Low liquidity – The retreat of European banks from financing infrastructure projects has a considerable impact on the amount of liquidity in the debt markets in Asia for project financing. Some of the leading financial institutions that have participated in the informal market sounding raised concerns regarding the ability of banks to raise the required debt quantum (i.e. HK$ 19.7 billion) to develop the MPSC under current market conditions;

- Competitive allocation of funds – Given the limited liquidity, funds allocation is going to be competitive. The MPSC will be competing with other projects in the region and globally for investment capital. In the current market environment, it is likely that investors' investment hurdles rates will be higher (than the pre-2008 GFC levels);
- Potentially high cost of borrowing – Some of the banks have indicated that even if there was interest in lending to the Project, the pricing is likely to be higher, resulting from higher cost of funds and lower liquidity;
- Shorter debt tenors – The banks who have participated in the informal market sounding have indicated that tenors have been substantially reduced to 10-12 years and in very select cases, up to five years. The shorter debt tenors put a strain on project cashflow as debt is to be repaid within a shorter period. Shorter debt tenors can also give rise to refinancing risk where bullet repayments are expected, as the debt is maturing earlier than the concession period. Given the quantum of debt required for the Project, it is unlikely that the private sector will be able to manage this risk, which means support from the Government will be required. For instance, the financing deal that was closed in 2010 for the Singapore Sports Hub includes a refinancing guarantee from the Government to support the project; and
- The Government as lender – With respect to the pure public funding option and the combined public and private funding option, market participants have raised concerns over the practicalities of the Government dealing with termination and step-in rights when it has a dual role (as in a lender and a procuring authority). The role of the Government as a lender also gives rise to potential inter-creditor issues between the Government and private sector lenders.

3.7.8. Determination of Preferred Funding Options

In determining the preferred funding options, the following parameters have been considered:

- Ability to achieve effective risk transfer to benefit from private sector innovation and synergies;
- Cost implication prior to risk adjustment; and
- Deliverability of the funding option (given the current market condition).

The detailed assessments of the three funding options against these parameters are set out in the preceding sections and are summarised in the table below. Note that the assessment has not taken into account any risk adjustment.

Table 3-9: Evaluation of Funding Options

Parameter	Funding Options		
	Pure Government Funding	Combination of Government and Private Funding	Pure Private Funding
Ability to Achieve Effective Risk Transfer	○	◑	●
Cost Implication (prior to risk adjustment)	●	◑	○
Deliverability	◑	●	○

Legend:

● Most effective risk transfer / low cost implication / likely to be able to deliver by the market

○ Less effective risk transfer / high cost implication / less likely to be able to deliver by the market

Our assessment suggests that:

- Pure private sector funding option provides the most effective risk transfer to the private sector;
- Pure government funding option has the lowest cost impact (prior to risk assessment) since Government's fund is cheaper than private finance; and
- Combination of government and private sector funding option is considered to be most deliverable in today's market, given that there has been some interest in the market to provide private funding subject to the Government agreeing to provide some forms of support (e.g. subsidy) to the Project.

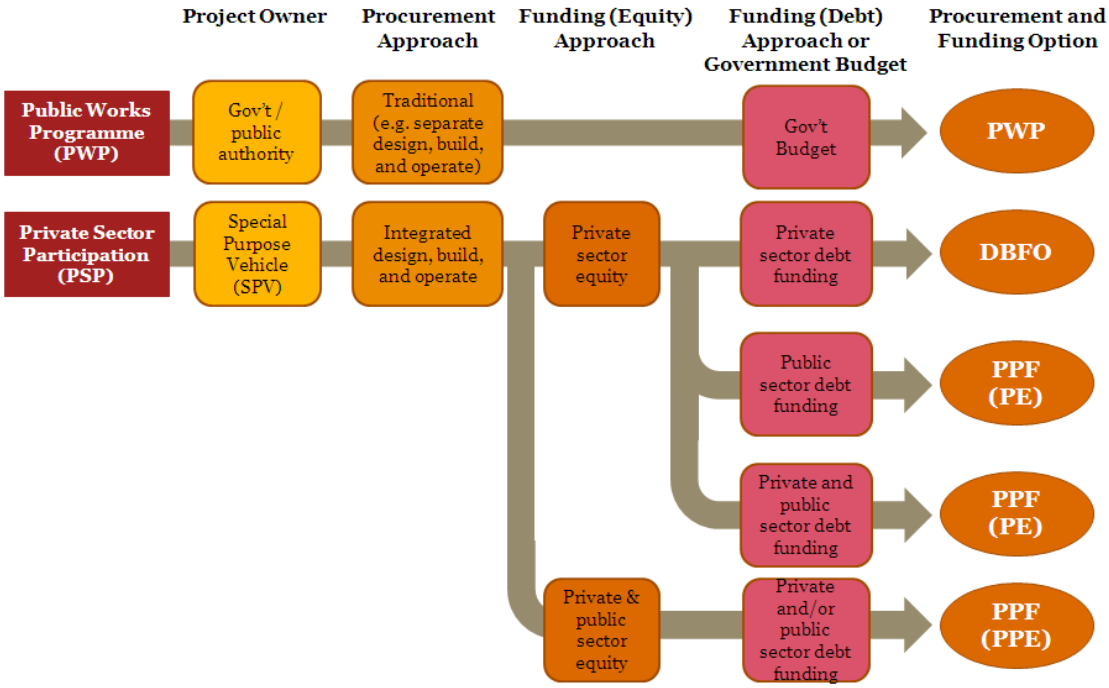
Therefore the first preferred funding option is the combination of government and private funding with pure government funding as the second preferred funding option.

4. Recommendations and Way Forward

4.1. Procurement and Funding Options

Over the course of the study, we examined the full spectrum of procurement and funding options (as shown in the figure below) and identified the first and second preferred procurement and funding options taking into consideration the Government' s vision and objectives for the MPSC.

Figure 4-1: Overview of the Procurement and Funding Options Considered



A structured approach is used to identify the preferred procurement and funding options:

- A set of evaluation criteria was developed to determine the preferred procurement and funding options reflecting the priorities of the Government. Using these criteria, the initial recommendations of the preferred procurement and funding options are:
    - The DBFO and PPF(PE) models – as the first and second preferred procurement options respectively for the development of the Project.
    - A combination of government and private funding; followed by pure government funding – as the first and second preferred funding options used in conjunction with the DBFO and PPF(PE) models.
- Our initial recommendations were then discussed and validated with potential market participants through the informal market sounding exercise. This was to ensure that the most up-to-date market situation and trends were taken into account before finalising our recommendations. There were a couple of key messages from the informal market sounding exercise:
    - The 2008 GFC and the current European Debt Crisis present some challenges in raising the required capital from the private sector. This is due to the liquidity constraints facing some European banks, the higher cost of borrowing and more stringent borrowing terms imposed by banks. As a consequence, raising the required quantum of debt solely from the private sector may

be challenging and expensive particularly for an infrastructure project as large as the MPSC with the capex estimated at HK$19.7 billion.

- The private sector is interested in the MPSC development, provided sufficient funding support (e.g. viability gap funding) is obtained from the Government to (i) provide a stable revenue stream for the Project and (ii) to ensure that there is a higher degree of certainty in terms of recouping the debt lent to the SPV.

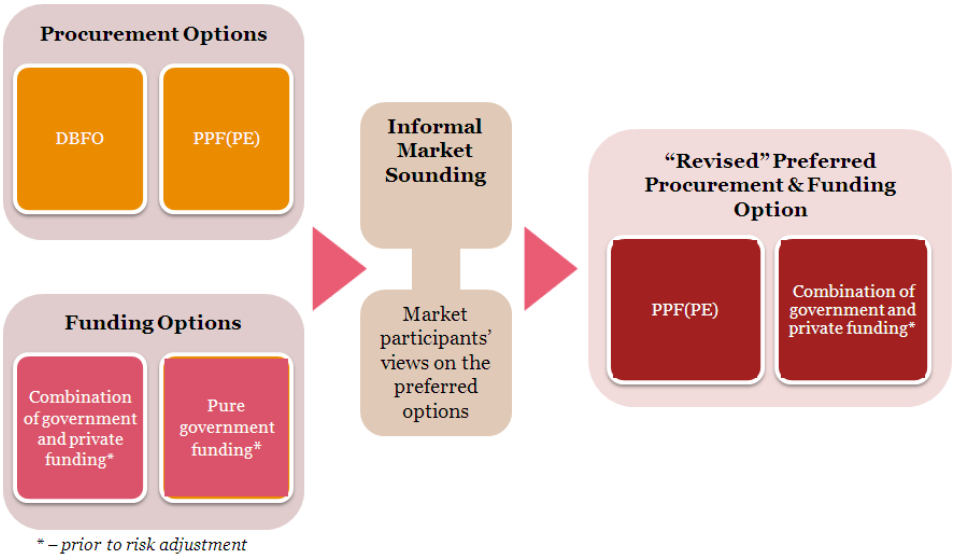
4.1.1. Preferred Options

Taking into account the findings from the informal market sounding exercise and our assessment of the specific requirements of the MPSC development, we suggest that the PPF(PE) procurement model, funded by a combination of government and private sector debt, represents the preferred procurement and funding options, as shown in the figure below. The key advantages of the preferred options include:

- Substantial risks are shared between the Government and the private sector (note: the Government retains certain project risks such as construction and operating risks).
- Project efficiency is enhanced through construction and operation synergies, reinforced by performance and handback regimes. The Government only pays for satisfactory delivery of services based on Output Specifications, which in turn, incentivises the SPV to provide satisfactory service standards in accordance with the Output Specifications.
- Financial appeal (to the private sector) – the Government acts as the lender (or one of the lenders) for the Project. As a result, the Project is less exposed to interest rate volatility and availability of private finance, particularly, given the current market environment with a looming Euro-debt crisis where there are uncertainties in raising the required debt finance for the Project.

We believe that the proposed, preferred options represent a pragmatic solution for the Government under an uncertain economic environment to achieve effective risk transfer and harness private sector innovation and synergies to realise commercial benefits from the MPSC, while meeting its social objectives and vision. It is important for the Government to continuously review the preferred funding option during the tendering process and explore various possibilities of structuring its funding support to diversify project risk even further, for instance, by increasing the amount of private sector debt (to an extreme, allowing the private sector to provide all of the debt funding required by the SPV, i.e., a DBFO option).

Figure 4-2: The preferred procurement and funding options



4.1.2. Fall-back Procurement and Funding Options

Given the uncertainty of the financial market today, it would be prudent to plan for the unfavourable scenario where the private sector funding (in terms of equity and debt) is severely constrained. We propose, therefore, the Government considers using PWP (with an integrated "DBO" procurement approach) as the fall-back option on the assumptions that the Government:

- may face difficulties in securing private sector equity and/or debt in the future
- is less concerned about transferring project risks
- prefers to focus on achieving social objectives and retaining full project control
- is prepared to pay a premium in terms of accepting all the project risks in order to meet these objectives.

4.2. Implementation Issues

4.2.1. Risk-adjusted Financial Model

4.2.1.1. Risk Quantification

The illustrative financial analysis incorporated in this report does not include risk quantification. The effect of risk on the total project cost could be substantial. In order to acquire a more holistic view on the 'full cost' of procuring the MPSC under the key procurement and funding options considered in this study, a risk-adjusted financial model should be developed to assess and reflect the monetary value of the risks retained by the Government. This will facilitate the assessment of value for money and the relative 'full cost' of the Project developed under the PWP model as compared to the DBFO and PPF(PE) models.

To this end a risk assessment workshop can be conducted in order to identify, assess and quantify potential risks and its impact on cost and timing (to achieve key project milestones). The workshop would facilitate detailed discussions on risks and its impact upon cost and timing and how these may be mitigated. It should include members from the HAB, ASD and other B/Ds (where appropriate) to discuss:

- possible risks at every stage of the Project – from pre-Financial Close through to operations;
- probability of the risks occurring;
- whether these risks can be mitigated; and
- any impacts they may have on the Project (i.e. do they result in additional cost or time delays).

The estimated values of risks are usually expressed as a percentage of relevant project cost and revenue items. They will form the basis of risk adjustments in the financial model.

4.2.1.2. Updated Operational Projections

The operational projections (e.g. third party revenues, operational costs and life cycle costs) associated with the MPSC development should be updated in light of the finalised facility mix and revised capital cost estimate, which are expected to be developed by the Architectural Services Department, before proceeding to the risk assessment workshop. This allows the costs of developing the MPSC, the quantum of capital and/or operational subsidies required by the private sector as well as the estimated values of project risks to be more accurately assessed.

4.2.2. Preparing the Local Market

A critical success factor for the development of the MPSC is active participation of private sector contractors and operators locally and internationally. Informal market soundings have been undertaken with contractors to gauge their interest. It is clear that the MPSC is already on the radars of the local and international construction sport facilities operators and project management companies. Specifically, on the MPSC development:

- Depending on their background and experiences there are a range of views as to the contractor's preferences on how the Project should be procured from PWP (e.g. a traditional 'Design and Build' Contract) through to DBFO and PPF(PE) (an output-based specification to a consortia of constructor and operator).
- The contractor's appetite for equity participation appears to be lukewarm. This is mainly because equity investment is not their core business but also partially due to the questions over the commercial proposition for the Project and how revenue risk is shared.
- There were no conclusive views as to whether the Project should be procured as one contract or split into parts – i.e. separate contracts for the different venues. All interviewees suggested that putting in place smaller contracts would enable a broader range of market players to participate but this would also increase risks (e.g. interface risk, operations risk) and the complexity of the Project[19].
- Construction inflation is running at a high level and contractors may prefer to deal with this risk by utilising a sharing mechanism with the Government – this is harder to achieve under a DBFO structure.
- Operators recognise the value of the project and are supportive of the facility mix, in particular the 50,000 seat capacity. Their view is that there are a limited number of events which could command a crowd of greater than 50,000. They do identify that the design and stadium hire charges of the Stadium should ensure that the stadium can be used effectively with events down to 10,000 spectators.
- They supported the ancillary facilities and welcomed the concept of a community focus as opposed to elite and high performance use.
- Operators were open to any type of procurement, including PWP, DBFO, or PPF(PE) although they were keen that the operator is brought in early in the process to enable them to influence and guide the design. They also identified the need for the content (events, commercial sponsorship, programming) to be developed so that the design and operation is led by the content as opposed to trying to fit content into a design and operating structure.

Despite these concerns, the construction and sports facilities operating market is generally enthusiastic about the Project and open to the Design-Build-Operate type of procurement models (although they have limited experience in bidding and operating in this way). In addition, they suggest that the Project will likely attract three consortium bidders (i.e. with venue operators, lenders, construction companies, etc) whichever way it is procured.

When the HAB's strategy is developed and decisions are made in respect of the procurement and funding approach for the MPSC, it is imperative that the HAB establishes and maintains good communications with potential market participants. This is to allow the participants time to prepare and form consortia that have appropriate capabilities to add value to and deliver the Project.

4.3. Implementation Roadmap

An indicative implementation roadmap associated with the preferred procurement and funding options (i.e. the DBFO and PPF(PE) models) is set out below for reference.

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[19] Our proposed procurement and funding options assume that the three venues concerned (i.e. the Main Stadium, the Secondary Stadium and the Indoor Sports Arena) are grouped under a single project so as to maximise synergies and improve management/operation efficiency.

Key Stage	Indicative Activities	Key Challenges
Pre-procurement Phase		
1) Mobilise Project (Completed)	• Establish a dedicated team within the HAB to oversee the development of the MPSC • Secure initial policy support for the development of the MPSC • Establish site availability at Kai Tak • Conduct initial needs analysis, financial feasibility study, economic impact assessment, event profiling, informal market testing, and procurement and financial options (this study)	• Previous studies undertaken by the HAB in relation to the MPSC (e.g. financial feasibility, facility mix) were based on a set of different design parameters and as such they should be revised and updated where necessary (e.g. feasibility study, facility mix, capex and opex figures)
2) Update Business Case	• Review the need of updating the facility mix as proposed in the Technical Feasibility Study conducted by ASD in 2009 • Update operational projections (e.g. projected revenues, operating costs) based on the confirmed facility mix • Review the need of updating the economic impact assessment	• There is a need to update the business case, but, the facility mix for the MPSC has not been finalised before updating the business case (as the facility mix will drive costs and revenues) • There is insufficient information or data to support financial and operational projections • Key assumptions and parameters have not been discussed and agreed
3) Conduct Risk Assessment	• Conduct risk workshop • Identify and quantify risks	• A structured risk assessment framework is not used to support the assessment • Project risks are not properly prioritised to identify key ones that could substantially impact the project • There is insufficient information or data to quantify risks • Key assumptions and parameters have not been discussed and agreed
4) Prepare risk-adjusted financial model	• Identify the risks retained by the Government and assess the monetary values associated with these risks • Prepare a risk-adjusted financial model reflecting the risks retained by the Government	• The risk profile and allocation associated with the project has not been agreed • There is insufficient information or data to quantify risks • Key assumptions and parameters have not been discussed and agreed

Key Stage	Indicative Activities	Key Challenges
5) Secure Necessary Approvals	• Identify and obtain the necessary policy and funding approvals required to proceed with the procurement process[20]	• A prolonged period of discussions and approval process is required, especially when multiple bureaux and departments are involved
Procurement Phase		
6) Initiate Expression of Interest (EOI) Exercise	• Determine detailed transaction and commercial arrangements • Prepare Market Awareness Brochure (MAB) and Preliminary Information Memorandum (PIM) • Initiate the EOI exercise by organising an Open Day locally and/or internationally	• It may be difficult to cover the full range of participants locally and internationally in the exercise • If not marketed widely to international organisations, the exercise may result in limited responses or responses only from organisations with little expertise • Information provided (or presentation of information) in the exercise is insufficient to generate interest in the market
7) Conduct Pre-Qualification (PQ)	• Prepare PQ documents • Establish and agree evaluation criteria and the associated weightings • Establish bid evaluation organisation (e.g. Bid Evaluation Committee) and process • Conduct PQ Exercise • Select pre-qualified bidders	• It may be difficult to structure the PQ exercise to adequately reflect the range of participants (e.g. individual companies or consortia) • The evaluation of the organisations can be challenging with the range of different organisations (e.g. construction, funders, operators, event promoters, etc.) • Evaluation criteria, process and organisation are not established or agreed
8) Issue Request for Proposal (RFP)	• Finalise the RFP documents • Issue RFP • Conduct feedback and clarification sessions • Organise data room • Evaluate proposals according to the agreed criteria and identify the preferred bidder[21]	• The tender document is unclear or ambiguous around key areas such as output specifications, risk allocation and performance management regime • Evaluation criteria, process and organisation are not established or agreed • Insufficient time is allowed for bidders to form consortia and

[20] Refer to Annex C of "An Introductory guide to Public Private Partnerships (Second Edition)", published by the Efficiency Unit of the HKSAR Government

[21] The Government may wish to select more than one bidder (say two) for negotiations, subject to relevant procurement regulations, resources available to support the process and other constraints. This arrangement allows the Government

Key Stage	Indicative Activities	Key Challenges
		prepare quality proposals • The Government does not have a dedicated team to handle logistics, respond to enquiries, provide clarifications etc • Back-up (or contingency) plan is not in place or insufficiently robust to cover the different possible scenarios (e.g. insufficient number of quality bids)
9) Negotiate Contract and Award Contract	• Negotiate with the preferred bidder • Finalise project documentation • Award contract	• Parties involved in negotiations have unclear objectives and/or unrealistic expectations on negotiation outcomes (e.g. anticipating a one-sided contract only seeks to protect one party) • Parties unable to agree key contract terms such as risk allocation, revenue sharing mechanism, viability gap funding, performance management and penalty, termination and transfer, IP rights • Back-up (or contingency) plan is not in place or insufficiently robust to cover the different possible scenarios (e.g. negotiations could not be concluded)

A high-level estimate of the likely timetable is:

- Stage 2 to Stage 7 will take about 12 months; and
- Stage 8 and Stage 9 will take another 12 months.

The figures mentioned above are for reference purposes only and exclude time required for securing various approvals along the process, which can vary substantially.

to fine-tune its requirements (after initial evaluation of the proposals received) and obtain the respective "best and final offer" from these bidders before making the final decision.

5. Glossary of Terms

Term	Definition
CFG	Credit Finance Guarantee
Consultant	The consulting team led by PricewaterhouseCoopers Advisory Services Ltd
DBFO	Design-Build-Finance-Operate
DBOM	Design-Build-Operate-Maintain
EPC	Engineering, Procurement and Construction
FM	Facilities Management
GFA	Gross Floor Area
GFC	Global Financial Crisis
Government	The Government of the Hong Kong Special Administrative Region
HAB	Home Affairs Bureau
HKSAR	Hong Kong Special Administrative Region
IRR	Internal Rate of Return
JOPC	Jointly-Owned Project Company (under the PPF(PPE) model)
JV	Joint Venture
KPI	Key Performance Indicator
KTD	Kai Tak Development
MPSC	Multi-purpose Sports Complex at Kai Tak
O&M	Operation and Maintenance
PPF(PE)	Partial Private Finance (Private Sector Equity) (or DBOM-equivalent)
PPF(PPE)	Partial Private Finance (Public and Private Sector Equity) (or JV-equivalent)
PPP	Public-Private Partnership
PSP	Private Sector Participation
PwC	PricewaterhouseCoopers Advisory Services Ltd
PWP	Public Works Programme
SPV	Special Purpose Vehicle
VfM	Value for Money
WKCD	West Kowloon Cultural District

6. Appendices

A.1. List of Stakeholders Consulted

We would like to express our appreciation to the following individuals and government officers for their input and feedback during the stakeholder consultation and informal market sounding.

Stakeholders
Mr Timothy FOK Tsun-ting, GBS, JP (President) Mr Kenneth FOK Kai-kong (Hon. Deputy Secretary General) *Sports Federation & Olympic Committee of Hong Kong, China*
Mr. William KO Wai-lam, BBS, MH (Chairman) Mr Terry SMITH (Vice Chairman) Mr Karl KWOK Chi-leung (Member) *Major Sports Events Committee*
Mr TONG Wai-lun, MH (Chairman) *Community Sports Committee*
Mr Brian LEUNG Hung-tak (Chairman) *Hong Kong Football Association*
Dr Trisha Leahy (Chief Executive) Ms Margaret Siu (Head, Coaching Support Services) *Hong Kong Sports Institute*
Mr Zia Azeez - First Vice President, Structured Finance Asia Pacific Mr Jun Palanca - Head of Export & Agency Finance, Structured Finance Asia Pacific *Sumitomo Mitsui Banking Corporation*
Mr Charles Ho - Vice President, Utilities and Infrastructure Finance, Asia *ING Bank N.V.*
Mr Nicolas Borit (Managing Director) Mr Frank Ha (Executive Director) *Dragages Hong Kong*
Mr Sam Houston (Executive Director) *Gammon Construction Limited*
Mr Alfred Leung (Strategy & Development Director) Mr Peter Weiley (Operations Manager) *Leighton Contractors (Asia) Limited*

Stakeholders
Mr John Jo Hammill (Operations Director) Ms Penny Hubbard-Brown (Director, Hong Kong) Mr Mark Richards (Director) *Mace Limited*
Mr Jean Yves Coulot (Regional Commercial Director – Asia Pacific) *adpi*
Mr Andrew Georgiou (Chief Operating Officer) Mr Adrian Staiti (Senior Vice President – Stadia and Arenas) *World Sport Group*
Mr Jonathan McKINLEY, JP (Deputy Secretary for Home Affairs) Mr Benjamin MOK (Principal Assistant Secretary (Recreation and Sport)) *Home Affairs Bureau*
Ms Joyce Ho (Principal Assistant Secretary (Treasury)) *Financial Services and the Treasury Bureau*
Miss Elley MAO, JP (Principal Economist) *Financial Secretary's Office – Economic Analysis and Business Facilitation Unit*
Mr. WONG Lop Fai (Chief Project Manager) *Architectural Services Department*
Mr Stephen TANG Man Bun, JP (Head, Kai Tak Office) Mr TUNG Hiu Kwong (Senior Engineer) *Civil Engineering and Development Department*
Ms Margrit LI Lai-Fan (Assistant Director) Ms Kane LI Choi Wing-Kwan (Chief Leisure Manager) Ms Maggie PANG (Senior Manager – Stadia/Marketing) Mr Albert YIP Wai-Chi (Senior Leisure Manager) Mr Hing Keung YUEN (Manager – Hong Kong Stadium) *Leisure and Cultural Services Department*

A.2. Financial Model Assumptions

Introduction

This section provides details regarding the key assumptions used in developing the high-level, illustrative financial model, which analyses the potential funding options for the proposed Multi-purpose Sports Complex (MPSC) at Kai Tak.

Data Sources

Inputs and assumptions for the Financial Model were mainly drawn from the previous consultancy reports provided by the Home Affairs Bureau (HAB), including:

- Architectural Services Department (2009) – Technical Feasibility Statement for the Multi-purpose Sports Complex at Kai Tak, Kowloon City District; and
- Evans and Peck (2006) Consultancy Study – Financial Feasibility of the Proposed Multi-purpose Sports Complex at Kai Tak, Final Report.

Where the information is not available, publicly available information such as the Hong Kong Census and Statistics Department was used where appropriate. For instance, economic and financial assumptions were sourced from:

- Hong Kong Census and Statistics Department;
- Bloomberg; and
- Information collected from informal market sounding carried out by PwC in early 2012.

Project timing

The key milestone dates for the Project as contemplated in the Financial Model are as follows:

Project timetable	
Modelling start date	01-Jan 2014
Price base	2011
Concession period	25 years
Construction period	5 years
Construction start date	01-Jan2014
Construction end date	31-Dec-2018

Assumptions used in analysing the financial options

The financial model provides illustrative results for the following funding options discussed in the report:

- pure private sector funding, as used in DBFO procurement;
- combination of government and private sector funding, as used in PPF(PE) procurement; and
- pure government funding, as used in PPF(PE) procurement.

Summary of modelling assumptions

The financial model incorporates the following assumptions:

	Pure public sector funding	Combination of public and private sector funding	Pure private sector funding
Capital Expenditure	$19.7 billion		
Operating expenditure	In proportion to Capital Expenditure		
Life Cycle Maintenance Cost	1% of Capex p.a.		
Cumulative Inflation (between 2006 and 2011)			
Non-staffing	20.7%		
Staffing	27.8%		
Discount Rate			
Discount rate	4.0%		
Financial assumptions			
Gearing ratio	80.0%		
Shareholder IRR	12.0%		
Share equity to Pure Equity	80:20		
Proportion of senior debt (private sector) of total debt	0%	50%	100%
Proportion of subordinated debt (public sector) of total debt	100%	50%	0%
Upfront fee	2.50%		
Commitment fee	1.00%		
DSCR	1.20		
Repayment profile	Sculpted		
Interest rates			
Base Rate	1.79%		

	Pure public sector funding	Combination of public and private sector funding	Pure private sector funding
Senior Debt			
Tenor	N/A	10 yrs	10 yrs
Credit Margin (Constructions)	N/A	4.00%	4.00%
Credit Margin (operations)	N/A	4.00%	4.00%
Liquidity Premium	N/A	0.15%	0.15%
Subordinated debt			
Tenor	10 yrs	10 yrs	N/A
Credit Margin (Constructions)	2.00%	2.00%	N/A
Credit Margin (operations)	2.00%	2.00%	N/A
Liquidity Premium	0.15%	0.15%	N/A

Capital expenditure

According to the previous technical feasibility report provided by the HAB, the model adopts the capital expenditure of the MPSC as HK$18,806 million at September 2009 price level. This figure has been inflated to $19,700 million as of 2011 level in the financial model based on information provided to us by HAB.

- The capital expenditure was estimated based on the scope of construction comprises:
- One 50,000-seat Main Stadium;
- One 5,000-seat Secondary Stadium;
- One indoor Sports Arena, including a 4,000-seat Multi-purpose Main Arena;
- A 400-seat Multi-Purpose Ancillary Arena
- Supporting facilities for the entire MPSC including:
    - 1,120 car parking spaces;
    - Hostel of at least 7,200 m^2;
    - Office area of at least 10,000m^2 for sport-related organisation; and
    - Commercial area of at least 31,500 m^2 for ancillary areas such as office area, catering, retail, etc.

In essence, this estimate figure was constructed by a bottom up approach which considered the following items:

- Design and Related Services (based on D&B mode);

- Ground Investigation and other survey studies;
- Construction works (including design by D&B contractor);
- Other cost charged to project vote; and
- Contingencies.

Construction S-curve

The construction cost breakdown for the five years is assumed to be: 5%, 10%, 20%, 40% and 25% respectively, based on information provided in the Evans and Peck Report (2006).

Lifecycle maintenance cost

Life cycle maintenance cost assumed to be one percent of the capital cost per annum based on information provided in the Evans and Peck Report (2006).

Operating revenue

The Financial Model captures two main revenues as suggested by Evans and Pecks Report (2006), namely:

- Event and other income – the case of Consolidated Operational Projections for Stadia & Arena (excluding Swimming, Bowling & Skating Facilities); and
- Ancillary income:
    - income from District Commercial Centre and Offices for Sports-related Organisations; and
    - car park income (reduced, pro-rata from 1,500 spaces to 1,120 spaces as per the revised facility mix).

All the figures were originally priced at 2006 level and inflated to 2011 level for the modelling purpose. The financial model assumes the operations will reach steady state by year 5[22]. Thus operational projections for subsequent years will be the same as year 5.

Operating expenditure

Similar to the operating revenue, operating expenditure data was sourced from Evans and Peck Report (2006) – Consolidated Operational Projections for Stadia & Arena (excluding Swimming, Bowling & Skating Facilities).

All the figures were originally based on 2006 price level and inflated to 2011 level.

Economic assumptions

Information provided by the HAB in relation to construction cost was based on 2011 figures whilst the operational data was based on 2006 figures. Thus, the operational projections were escalated by an inflation factor to reflect the price increase from 2006 levels to 2011 levels. The table below presents the total inflation adjustment.

[22] The revenue for any new facility will grow in the initial years as the facility increases its activity and attracts more events and users – this is common in the industry. As a result we have used the figures in the 2006 Evans & Peck Financial Feasibility Report which indicate a steady operating state after 5 years.

Dataset	Total inflation adjustment	Source of data
Revenue and Operational expense (excluding staffing)	20.7%	Table 052: Consumer Price Index – Composite Consumer Price Index
Staffing	27.8%	Table 024: Nominal Salary Indices (A) for Middle-level Managerial and Professional Employees Analysed by Selected Industry Section (June 1995 = 100) – Building and Construction and Related Traders

Note: Based on data retrieved from Hong Kong Census and Statistics Department (2012) in February 2012.

The endorsed discount rate of 4% per annum which used to estimate the Net Present Value is in line with the general Hong Kong Government Infrastructure discount rate.

Financing details

The following assumptions with regards to financing were adopted in the financial model:

- Target return for equity investment – 12%, reference to the estimated IRR of a private sector consortium responsible for managing a sports stadium (comparable to the proposed MPSC);
- Gearing Ratio – 80%, based on informal market sounding conducted in early 2012;
- Financing charges – based on a 10-year debt tenor, with a tail of one year. i.e. all debt repayment is completed by the end of 9th year of operation;
- Interest rate – assumptions are drawn from the informal market sounding exercise conducted in early 2012 except the base rate, which was based on the 10 years Hong Kong Dollar Swap rate as of 10 February.

Debt repayment structuring

Cash sweep approach has been applied in the basic financial structure i.e.100% of cash flow available for debt service is used to repay senior debt and then subordinated debt.

Tax and Accounting assumptions

Tax rate is assumed to be 16.5% as per the statutory tax rate in HKSAR. Capital expenditures are assumed to be depreciated in a straight-line over 25 years.

Dividend

Dividend is only paid when there is both positive cash flow and positive retained earnings.

As discussed above, any surplus cash in the SPV will first utilised to pay off the principal of the debt to accelerate the repayment. After the senior and subordinated debts are repaid, then all free cash flow will be paid out as dividends.

A.3. Detailed Assessment of the Procurement Options Against the Evaluation Criteria

Each of the identified procurement options is evaluated against the six criteria discussed in Section 2.4 of this report.

Model Criteria	PWP	DBFO	PPF(PE)	PPF(PPE)
Delivery of Vision and Objectives	The Government has full control over the design, construction, operations, and financing of the MPSC, having full discretion over the events programme and facility mix that will best achieve its vision and objectives. However, the Government needs to articulate clearly its requirements through an input-based specification to ensure that a complex facility such as the MPSC development is supported by a robust events programming to achieve its vision. The Government may face challenges in delivering the vision and objectives of the MPSC if the input-based specification is unable to address the complexities of operating the MPSC. In addition, the Government will incur unnecessary operating costs if the input-based specification is "over-specified".	The Government will need to clearly articulate its desired outcomes which will be reflected in the Output Specification, as well as other mechanisms such as through an Events Programming Committee. Participation or representation by the Government on the Events Programming Committee will ensure that the interests of the public sector are safeguarded. It is important to achieve a balance between the delivery of HAB's objectives of promoting a sporting culture in Hong Kong and the need to derive commercial revenues to ensure the long-term viability of the MPSC. The private sector is incentivised to meet its target returns, while seeking to achieve the Government's objectives.	The Government will need to articulate clearly its desired outcomes that will be reflected in the Output Specification, as in the case of DBFO. Similar to DBFO, PPF(PE) facilitates access to private sector input and innovation in order to ensure that a complex facility such as the MPSC development is supported by a robust events programming. The private sector is incentivised to meet its target returns, while seeking to achieve the Government's objectives. However, it should be noted that failure by the private sector to meet the Government's objectives will attract deductions from the unitary payment. In turn, this will adversely affect the private sector's ability to service its debt obligations to the Government.	There is often a potential conflict between the Government and the private sector. The Government will seek to meet its social objectives, while the private sector seeks to maximise commercial returns from the MPSC. To avoid this, the objectives and vision will need to be clearly articulated and agreed in the PPF(PPE). Similar to DBFO and PPF(PE), the PPF(PPE) procurement option facilitates access to private sector input and innovation in order to ensure that a complex facility such as the MPSC is supported by a robust events programming. However this access has to be facilitated by the JOPC.

Model Criteria	PWP	DBFO	PPF(PE)	PPF(PPE)
Timescale	Based on discussions with HAB and other stakeholders, the probability of achieving a 2019 target date for the completion of the MPSC is considered low under the PWP approach. We understand that projects delivered under the PWP approach often have high risk of delays due to the level of involvement and decision making process of multiple governmental departments. Further, save for externally set timelines (such as completion of the MPSC for a major event such as the Rugby World Cup in 2019), there is no real pressure on the Government to expedite its decision-making process on matters relating to procurement. This could lead to a protracted procurement process.	There are multiple parties from the private sector consortium involved during negotiations including subcontractors and lenders. Lenders would also require time to conduct the necessary due diligence prior to financial close[23]. A typical DBFO procurement process would take 18-24 months at a minimum and may take longer depending on the complexity of the transaction. However, there are ways to mitigate the slippage in timelines, such as having an Advance Works Agreement to enable the preferred bidder to start work prior to financial close in order to achieve the delivery timeline for the MPSC.	Under PPF(PE) procurement, there is one less party (compared to DBFO) from the private sector consortium involved during negotiations. Since there will be no private sector lender/banking group, PPF(PE) is envisaged to take less time to complete. However, it should be noted that the Government should conduct a rigorous due diligence process, akin to that conducted by the private sector lenders.	Depending on the parties' ability to resolve conflicting objectives between the Government and the private sector, the timescales are comparable with PPF(PE). It should be noted that there is the potential for the timescale to be extended if there is significant disagreement between the Government and the private sector.
Responsiveness to Stakeholders	Provides scope for input from various stakeholder groups to be considered throughout the development and operating phases of the MPSC. However, the Government needs to	Under a DBFO, the stakeholders' inputs are incorporated in the bid documents (i.e. Project Agreement and Output Specification) at the bid stage. There is limited scope for	Under a PPF(PE) model, stakeholders' inputs are incorporated in the Bid Documents, including the Output Specification and Project Agreement (similar to DBFO). There	Under a PPF(PPE) structure, shareholders' inputs should be incorporated in the technical specification that form part of PPF(PPE) agreement. Any changes to

[23] It refers to a stage in a financial agreement where terms and conditions have been satisfied (or waived), all legal documents executed, and draw-downs become permissible.

Model Criteria	PWP	DBFO	PPF(PE)	PPF(PPE)
	evaluate the impact of the various decisions it makes on the development of the MPSC, whenever a stakeholder requires his / her input to be considered. It is vital that the HAB have the capacity and the authority to prioritise various stakeholder needs and inputs into the project.	stakeholders' inputs to be incorporated after the bid submission as this may result in a change of risk allocation. There is a degree of flexibility during the development and operations phase of the MPSC (as set out in the Project Agreement). However, it should be noted that post financial close, any additional input from stakeholders will have to be assessed as this could result in a variation. Responding to stakeholder inputs under a DBFO will generally require a formal review and approval process as set out in the Project Agreement.	is limited scope for stakeholders' inputs to be incorporated after the bid submission as this may result in a change of risk allocation. The Project Agreement would incorporate a degree of flexibility during the development and operations phase of the MPSC. However, it should be noted that post financial close, any additional inputs from stakeholders will have to be assessed as this could result in a variation. Responding to shareholders' inputs under a PPF(PE) will require a formal review and approval process as set out in the Project Agreement. This is similar to the DBFO model.	the specification will need to be agreed by all parties.
Level of Government Control	The MPSC is owned by the Government, and thus it is able to control all aspects of the works, ranging from the construction to the operation of the project. The Government manages all the subcontractors/project parties engaged to deliver the facilities and provide the required services.	Whilst ownership of the facilities is retained by Government, its level of control during the development and operations of the MPSC will be limited to the reporting and notification provisions under the Project Agreement. The Government will have to rely on the provisions (i.e. Payment Mechanism and abatement regime) set out in the	Similar to DBFO: • Whilst ownership of the facilities is retained by the Government, its level of control during the development and operations of the MPSC will be limited to the reporting and notification provisions under the Project Agreement;	Whilst ownership of the facilities is retained by the Government, its level of control during the development and operations of the MPSC will be limited to the requirements under the PPF(PPE), which typically would be more control than a DBFO but less than the PWP. There is scope for a higher degree of control by the Government over the

Model Criteria	PWP	DBFO	PPF(PE)	PPF(PPE)
		Project Agreement. There is a risk of altering the agreed risk allocation (as set out in the Project Agreement) if the Government seeks to have more control than what it is entitled to under the Project Agreement.	• The Government will have to rely on the provisions (i.e. Payment Mechanism and abatement regime) set out in the Project Agreement; and • There is a risk of altering the preferred risk allocation set out in the Project Agreement if the Government seeks to have more control than what it is entitled to under the Project Agreement. However, under the PPF(PE) model, the Government is likely to have a higher degree of control over the development of the MPSC and the private sector contractor, given that its role as debt provider. As funder to the project, the Government is assuming project risk (similar to that of a private sector lender). Thus, it would be reasonable for the Government to impose the same security packages and covenants as a private sector lender would be entitled to if they were financing the MPSC. These covenants are specified in the financing agreement between the	development of the MPSC (vis-à-vis its private sector partner) under a PPF(PPE) model. However, this will require the Government providing more capital and management direction, which effectively means taking higher risks.

Model Criteria	PWP	DBFO	PPF(PE)	PPF(PPE)
			Government and the SPV.	
Level of Risk Transfer	There is very limited or no risk transfer to the private sector. All risks are retained by the Government. The Government has full responsibility of driving the various contracted parties to achieve their required milestones otherwise it will result in monetary loss and/or mismanagement of the stadium. For example, when interface issues arise between the construction and facilities management contractors, there is a high probability that the Government will need to step in and resolve disputes between these two parties.	Maximum risk transfer is achieved under DBFO, including key risks such as design, construction, operations, lifecycle and interface risk. For a project of this nature, it is expected that the demand risk will be retained by the Government under the DBFO procurement option. However, there is potential to transfer some third party income risk to the private sector, particularly for predictable activities, such as commercial revenues and community use of the facilities.	Under PPF(PE) procurement, the Government assumes ALL the project risk borne by the private sector lender in a DBFO. A key risk item that the Government will need to be concerned with is performance risk. However, the Government may manage this risk by adopting similar strategies that private lenders use such as establishment of Parent Company Guarantees, limitation of liabilities, etc. Whilst demand risk is typically retained by the Government under the DBFO procurement option, in this case, underperformance by the private sector contractor will attract payment deductions. This may adversely affect the private sector's ability to meet its debt obligations to the Government. There is, however, the potential to transfer some third party income risk to the private sector, particularly for predictable activities, such as commercial revenues and community	The Government assumes the same level of risk as the private sector, where performance failure of the MPSC would translate to the Government being penalised as an equity partner.

Model Criteria	PWP	DBFO	PPF(PE)	PPF(PPE)
			use of the facilities.	
Value for Money	This requires the Government to deliver the MPSC at a satisfactory standard within budget limits. This may be achieved, but equally the MPSC could experience time delays, resulting in cost overruns. It is important to assess the Government's previous track record of delivering projects and its capacity to monitor the progress during the construction phase and manage a range of subcontractors at the operating phase.	If optimum risk allocation between the Government and the private sector is provided, the private sector is incentivised to provide a value-for-money solution under a competitive tender process. The private sector is also incentivised to enhance the commercial viability of the MPSC by generating third party revenues, which the Government will share.	Under a competitive tender process, the private sector is incentivised to provide a value-for-money solution. However, a VfM solution will hinge on an optimum risk allocation between the Government and the private sector. The private sector is incentivised to enhance the commercial viability of the project by generating third party revenues, which the Government will share.	Value for money under the PPF(PPE) procurement option is achieved when the JOPC is able to deliver the MPSC at a satisfactory standard within budget. However, any time and cost overruns will adversely impact both the Government and its PPF(PPE) partner. Thus, the PPF(PPE) Agreement should enable effective project management and delivery of value for money in the procurement of the design, construction and operation.