Home Affairs Bureau

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

Executive Summary

10 August 2012

pwc

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1. Introduction

1.1 Overview

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 and review the various forms of procurement and funding options ("Study") and assess their suitability for the development of the Multi-purpose Sports Complex ("MPSC") project ("Project"). We have evaluated the advantages and disadvantages of the various procurement options to help determine the preferred procurement and funding options (and the second preferred options) for the MPSC.

As a pre-cursor to this study, the HAB has conducted several other studies such as the Financial Feasibility Study[1] (2006, by Evans and Peck), the Technical feasibility Study (2009, by Architectural Services Department) and the Event Profile and Economic Impact Assessment Study (2010, by GHK). We have relied on the findings of these studies including the proposed facility mix, operational projections, capital cost etc. in conducting this study and developing our analysis regarding the procurement and funding options for the development of the MPSC.

1.2 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 which is 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 is envisaged to host a wide range of sporting activities, and will be supported by a range of commercial facilities to ensure its sustainability and viability.

1.3 Vision for the MPSC

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

- ***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, 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.
- ***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), bolstering Hong Kong's stature as an international events venue.
- ***Providing commercial opportunities*** – The MPSC will provide commercial and retail opportunities to complement the new stadium. In addition, there will be office space provided for sports associations and other sport-related organisations as part of the MPSC, thereby ensuring a

[1] The Evans and Peck Report concluded that the MPSC is not financially viable on a standalone basis. The projected revenue deficit for the operation of the MPSC is between HK$110M and HK$160M per annum based on the facility mix and event profiles anticipated in the same report.

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 which will stimulate the local economy.

1.4 Approach and Methodology

In conducting this Study we have applied a robust, structured and logical approach to ensure objectivity and impartiality in our assessment. Our approach is detailed 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 and identified key lessons learned from relevant international case studies.

- ***Step 2: Identification of the Preferred Procurement Options*** – We consulted relevant stakeholders 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. This process involved conducting a workshop to develop a ranking of six criteria according to their perceived relative importance and allocating a percentage score (out of a maximum score of 100%). Further details are provided in Section 2.

  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, and 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 to form an initial view on the preferred funding options underpinning the preferred procurement options. 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.

  As part of this Study, a high-level and illustrative financial analysis[2] was conducted to assess the cost impact of the funding options associated with the first and second preferred procurement options. 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.

- ***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 included market participants such as financial institutions; engineering, procurement and construction companies; and facilities managers.

2. Procurement Options

2.1 Overview

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

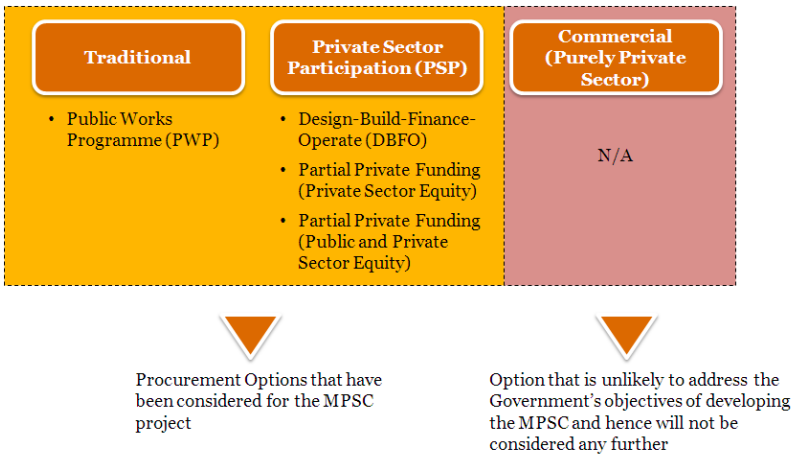
- Traditional Procurement Model or Public Works Programme ("PWP") Procurement Model;

- Private Sector Participation ("PSP") Procurement Model – there are three options within the PSP procurement model namely:

[2] 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.

- Design-Build-Finance-Operate ("DBFO");
- Partial Private Funding ("PPF"), which has two variations:
  - PPF – Private Sector Equity ("PPF(PE)");
  - PPF – Public and Private Sector Equity ("PPF(PPE)"); and

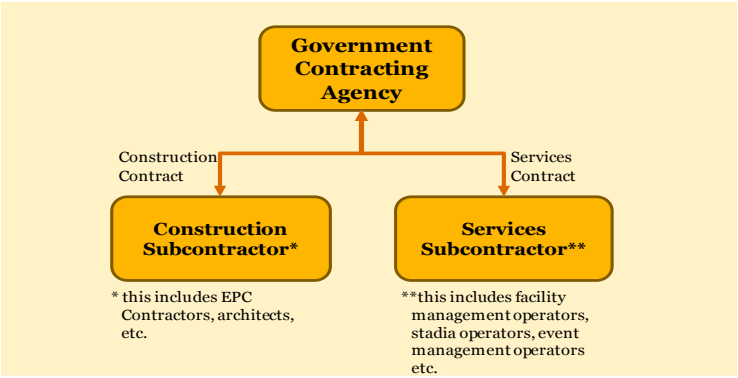
- Commercial Procurement Model.



2.2 Public Works Programme

Contractual Structure

The Public Work Programme ("PWP") model is one where public authorities undertake the design, build, operation and financing of the project and retain ownership of the asset. 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 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. The contractual structure for a traditional PWP is as follows:



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 cover the "design, build and operation" of the project, which is also one of the key features of the Private Sector Participation model.

Risk Allocation

Under the traditional procurement model, all the key project risks such as construction risk, operating risk, life-cycle risk, demand risk and interface risk reside with government. The government may be able to put in place mechanisms to mitigate or minimise these risks.

Key Advantages
The public sector has greater control over the project and is in a position to ensure that the social objectives are delivered. Further it is also in a position to respond immediately to changing circumstances during all phase of the life of the Project. Furthermore, 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.

Key Challenges
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. Further, 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, may delay the procurement and development of the project under the PWP framework.

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.

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.

2.3 Design-Build-Finance-Operate

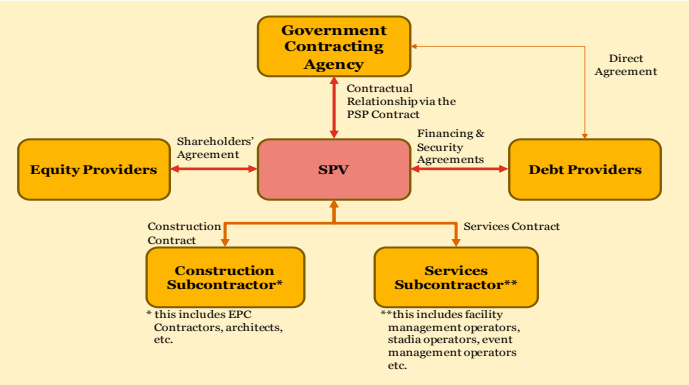
Contractual Structure
Under the DBFO model a special purpose vehicle ("SPV") is established for the specific project. It is granted a sub-lease for the land and the right under the PSP contract to operate and maintain the facilities to the required service level. At the end of the concession period the assets are transferred back to the government. Throughout the life of the PSP contract, the assets are owned by the government.

The SPV 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, it may elect to have more than two subcontracts.

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; 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.



Risk Allocation

Under the DBFO procurement model, most of the key project risks such as construction risk, operating risk, life-cycle risk, and interface risk are borne by the private sector participant as it is considered to be in the best position to manage these risks. However, the demand risk is typically shared between the government and private sector participant.

Key Advantages

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. Since, the SPV is the Government's single-point-of-contact, 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.

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.

Key Challenges

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.

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. Further, 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.

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.

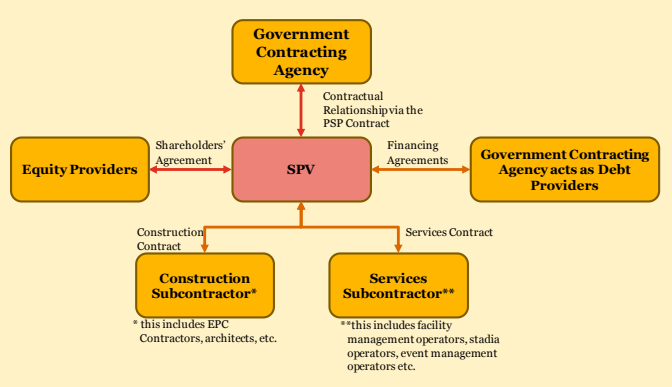
2.4 Partial Private Funding – Private Sector Equity

Contractual Structure

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".

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.

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



Risk Allocation

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.

Key Advantages

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.

The enhanced project efficiencies achieved under the DBFO model are preserved in the PPF(PE). Further similar to the DBFO model, the SPV acts as a single point of contact and 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.

Under the PPF(PE) model, the Government procures the Project, and provides project debt as the lender, thereby shielding the project from the uncertainties currently affecting the financial markets. Further, 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.

Key Challenges

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.

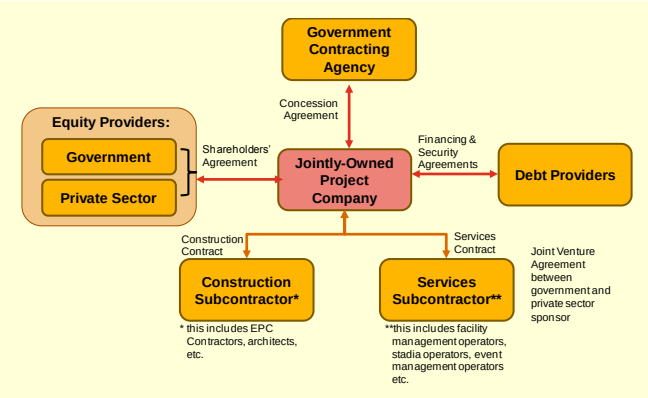
Similar to the DBFO model, the Government has limited experience and track record in using the PSP procurement models and would need assistance in conducting the process and drafting specifications to ensure that its vision and social objectives are met by the private sector consortium. Furthermore, as in the case of the DBFO model, the level of the Government's control under the PPF(PE) model is considerably lower than under the PWP model as it is not able to dictate the day-to-day operations of the facility is limited. That said as in the case of the DBFO model, structures and policies can be put in place to enable the Government to have adequate and appropriate oversight of the project.

2.5 Partial Private Funding – Public and Private Sector Equity

Contractual Structure

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



Risk Allocation

Under the PPF(PPE) model, most of the key risks are shared between the Government and the private sector as the Government is an equity holder in the JOPC.

Key Advantages

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.

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. Furthermore, 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.

Key Challenges

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. 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).

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. Furthermore, as the Government is an equity provider, it will share all the Project risks alongside the private sector and the incentive mechanism applied to the JOPC may ultimately penalise the Government as an equity sponsor.

2.6 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.

2.7 Determination of Suitable Procurement Option

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.

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	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	**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

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.
    - 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.
    - 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.

  Taking all these points into account, the project timeline from feasibility to operating can be shortened by adopting the DBFO/PPF(PE) models.
- 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.
- 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 light of the constraints and specific considerations of the market. This is further discussed in Section 3.8 of this Executive Summary.

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.

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

- ***Budget Horizon*** – In financing a complex infrastructure project such as the MPSC, it is important to understand the Government's budget horizon. The preferred funding option should consider the relevant budget horizon available for financing 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 financing model for the MPSC.
- ***Government's Commitment over Long-term Payment Streams*** – 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.
- ***Risk Appreciation in Government*** – The preferred funding option will be impacted by the Government's risk appetite. For example, where the Government provides financing, 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.
- **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.

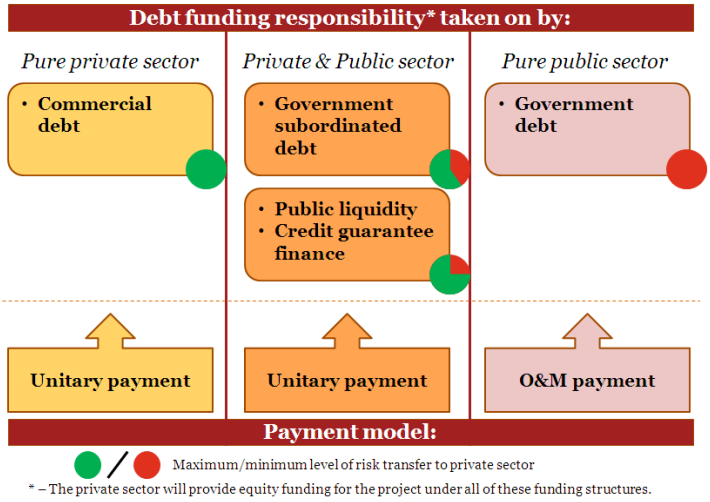
The combination of these factors will impact on the funding mechanism for social infrastructure projects and these will be considered in evaluating the funding option for the Project.

3.2 Overview of Funding Options

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 below.



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.

Under pure private financing, majority of the project risks are transferred to the private sector participants. However, Demand Risk is retained by the Government - where the MPSC will not achieve forecast patronage under government events, demand risk is borne by the Government.

Third-Party Revenue Risk is shared between the Government and private sector. 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".

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

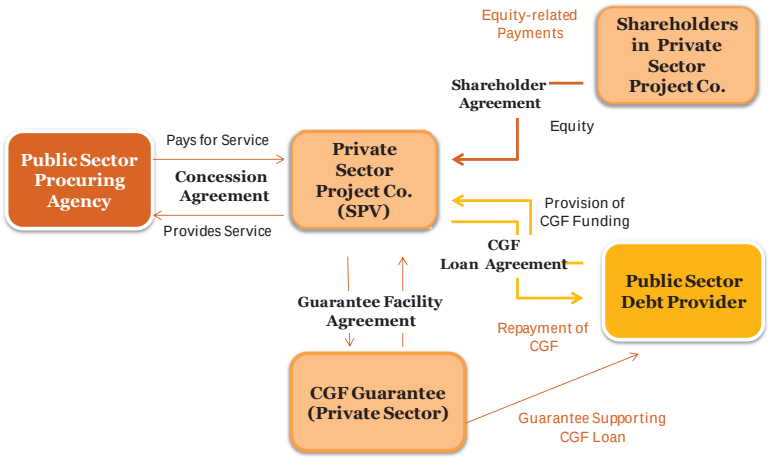
before any dividend is distributed to equity holders. As such, the subordinated debt will have medium to long term maturity, with repayments occurring at the contract term (i.e. concession period). However, there is opportunity of refinancing under favourable market conditions, allowing government to recycle capital.

Under the Government subordinated debt funding model, all the project risks will be shared between the Government and the private sector as the Government acts as a lender to the project.

- *Credit Guarantee Finance ("CGF")* – 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 CFG 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.

Under the CGF funding model, the Government is shielded from a majority of the risks such as Construction Risk, Operations Risk etc. However, Third Party Revenue Risk is shared between the Government and the private sector.

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



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 debt could be structured on commercial lending terms or preferential lending terms[3]. It would be expected that the private sector provide equity funding for the Project under this structure.

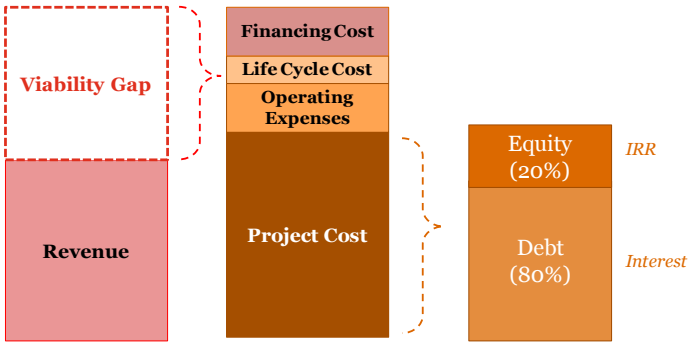
[3] The government loans to infrastructure projects typically charge lower interest rates as compared to private sector loans so as to enhance the financial viability of infrastructure projects that are deemed to have justifiable social benefits. On the contrary, it is normal business practice for commercial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

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 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 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.

3.6 Supporting Structures

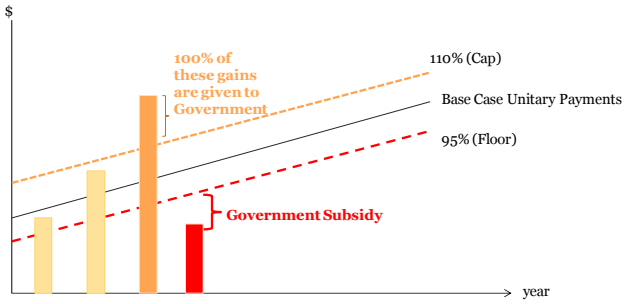
- ***Viability Gap Funding*** – The Viability Gap is the difference between the forecast revenues and whole-life expenses including an assumed reasonable rate of return which investors are likely to require from this project. MPSC's revenue streams are unlikely to be sufficient to cover the project costs, 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 below.



- ***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.

  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. 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.



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

- ***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. 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.

3.7 High-level Financial Analysis of Funding Options

Overview and Assumptions

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.

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

- ***Capital expenditure (Capex)*** – HK$19.7 billion (at Sep 2010 price level, as uplifted from 2009 price) 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. Some key financial assumptions are detailed below.

Parameter	Assumptions
Gearing ratio (D/E)	80/20
Equity IRR	12.0%

Parameter	Assumptions
All in interest rate (Senior Debt)	5.94%
All in interest rate (Subordinate Government Debt)	3.94%

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.

Caveats

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 4.3 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.

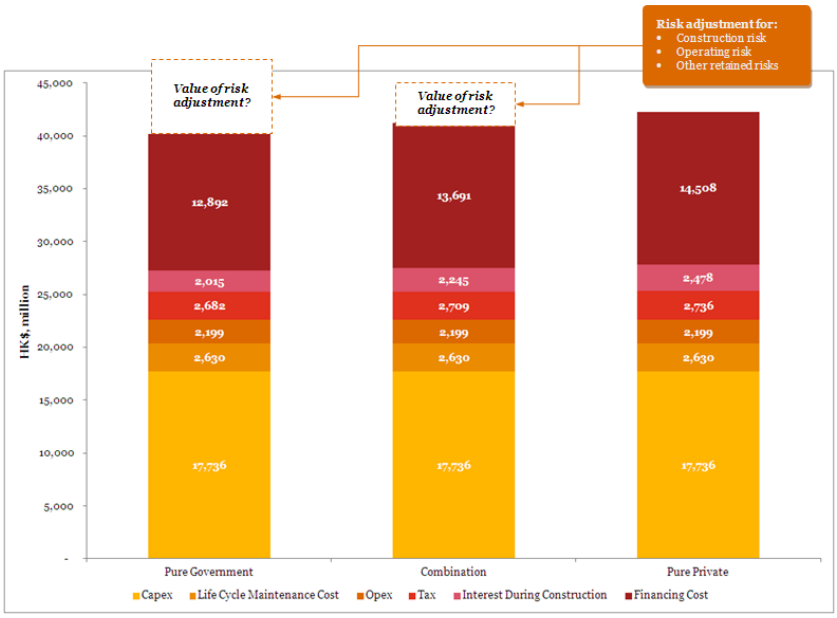
Cost Implications and Risk Adjustment

This section discusses the results of the financial analysis assessing the whole-life costs[4] 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 commonly adopted for infrastructure appraisals in Hong Kong.

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 financing 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.

[4] The capex figure of HK$17.7B as shown in figure below 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).



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 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.

Please note that this indicative analysis above 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. 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 the figure above. However, it is envisaged that the cost to 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.

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.

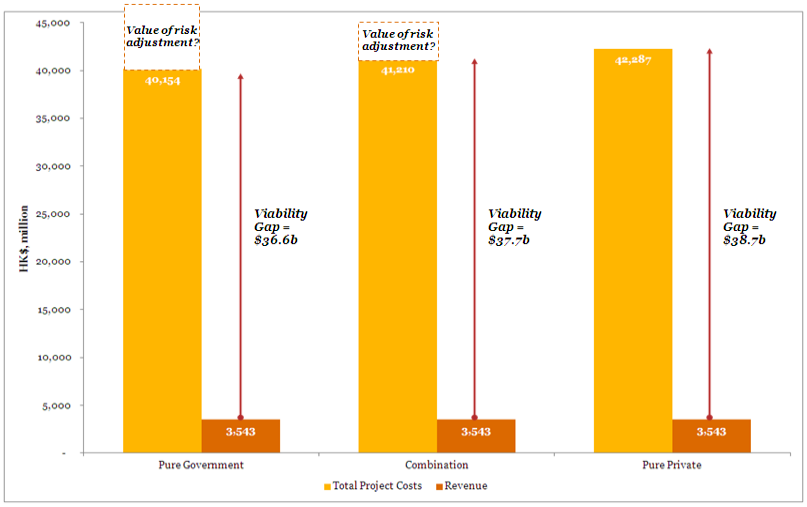
- The process of quantifying risks involves:

- 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. The figure above 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.

Viability Gap

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 2011 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 figure below provides an illustration of the estimated VG under different funding options.



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.

3.8 Deliverability and Market Responses to Funding Options

- ***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 as the debt is maturing earlier than the concession period. It is likely that the private sector will require support from the Government. For instance, the financing deal that was closed in 2010 for the Singapore Sports Hub includes a refinancing guarantee from the Government; 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.

3.9 Determination of Preferred Funding Option

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.

Parameter	Ranking of Funding Options		
	Pure Govt. Funding	Combination of Govt. 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.

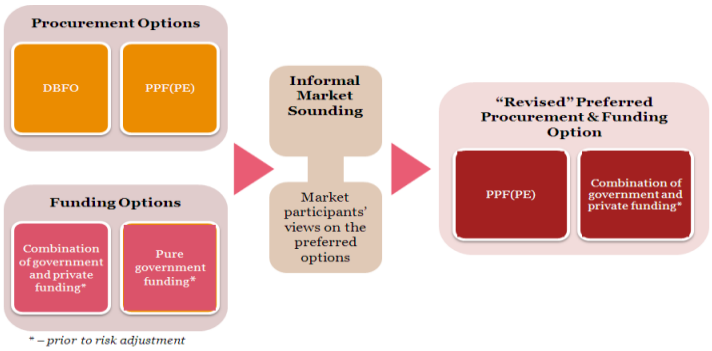
4. Recommendations and Way Forward

4.1 Preferred Procurement and Funding 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 overleaf. 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 debt funding required by the SPV, i.e., a DBFO option).



4.2 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.

4.3 Implementation Issues

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.

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.

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[5].
- 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

[5] 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.

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). 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.