Home Affairs Bureau

Detailed Financial Profile of the Procurement and Financing Options related to the Multi-purpose Sports Complex (MPSC) at Kai Tak

Final Report

September 2013

pwc

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1. Introduction

The Home Affairs Bureau (HAB) of the Government of the Hong Kong Special Administrative Region (Government) has commissioned PricewaterhouseCoopers Advisory Services Limited (PwC) to conduct a study (Consultancy Study) to assess the detailed financial profile of the procurement and financing options related to the Multi-purpose Sports Complex (MPSC) at Kai Tak.

1.1 Background to the Consultancy Study

The Government's policy objectives for sports development are to promote sport in the community, develop elite sports, and make Hong Kong a major location for international sporting events. However, Hong Kong's capacity for hosting major sports events is constrained by a lack of modern, multi-purpose venues. Currently when hosting major sporting events, Hong Kong relies heavily on ageing venues that do not meet modern-day requirements (e.g. the Hong Kong Stadium). The only indoor sports venue, which can host major events and has a capacity of more than 3,000 spectators, is the Hong Kong Coliseum.

Against this backdrop, the then Chief Executive of the Government announced in his 2006-07 Policy Address that a MPSC, fully equipped with world-class facilities, would be included in the Kai Tak Development (KTD). The development of an MPSC at Kai Tak was identified as a key development component in the Kai Tak Planning Review (2007). In the 2011-12 Budget, the Financial Secretary reaffirmed the Government's commitment to press ahead with the planning of the MPSC at Kai Tak. In his 2013 Policy Address, the Chief Executive described the planning of the MPSC as a priority.

The MPSC will be a "sports park" for Hong Kong, with a mixture of high quality sports facilities for public use, open space, park features and retail and dining outlets so that the wider public and visitors to Hong Kong can enjoy the park throughout the day, seven days a week.

1.2 Past MPSC Studies

HAB, the Civil Engineering and Development Department (CEDD) and the Architectural Services Department (ArchSD) commissioned a number of studies on the MPSC, including:

- Study on Requirements for Major New Sports and Recreation Venues (completed in 2000)
- Case for a Multi-Purpose Stadium in Hong Kong (completed in 2005)
- Multi-Purpose Stadium Complex at Kai Tak (completed in 2007)
- Technical Feasibility Statement (TFS) for the MPSC (completed in 2009)
- Event Profile and Economic Impact Assessment of the proposed MPSC (completed in 2010)
- Procurement and Financing Options for the MPSC (completed in 2012).

The study "Procurement and Financing Options for the MPSC" identified a number of procurement and financing options for the MPSC including the Public Works Programme (PWP) and Private Sector Participation (PSP) options.

1.3 Study Objectives and Scope

The objectives of the Consultancy Study are to:

- Facilitate the Government to assess the relative costs of viable procurement and financing options for the MPSC
- Inform the Government on the extent of allocation of project risks between the public sector and the private sector for different procurement and financing options, and the mechanism through which risks are shared between the public and the private sector.

The scope of work involves:

- Analysing viable procurement and financing options, which include options specified in the RFP, which are summarised below:
    - **Public Works Programme** in the form of the Government built and outsourced operations through:
        - a Management Contract (MC) – the "base case" for this Consultancy Study
        - a Revenue Contract (RC)
    - **Private Sector Participation** with private sector finance options covering Design-Build-Finance-Operate (DBFO), Partial Private Finance (PPF) and Joint Venture (JV) options
    - **Commercial Procurement** in the form of Land Tender Process.
- Formulating financial models for viable procurement and financing options for the MPSC based on the assumptions that take account of experience worldwide and the Hong Kong context (including the feedback received from the Expression of Interest exercise (from Jan to Feb 2013) in the development of the MPSC)
- Providing a detailed and quantitative assessment of the potential project risks under viable procurement and financing options for the MPSC, including their probability of occurrence and financial implications in dollar terms
- Recommending potential mitigation measures for high-level risks under viable procurement and financing options for the MPSC
- Providing a detailed financial analysis of the "full costs" of the viable procurement and financing options for the MPSC, suitably adjusted to reflect different project risks
- Making a recommendation as to which option for the MPSC would offer the maximum benefits for the Government in terms of the ability to achieve the

Government's vision and objectives; the level of risk transfer; value for money; Government's commitment; and delivery of project and timescale[1].

1.4 Approach to the Study

We have adopted a structured and logical approach to ensuring objectivity and impartiality in our assessment. Details of our approach are set out below.

1.4.1 Step 1 – Development of Assumptions

In this step we have:

- Reviewed responses to the Expression of Interest (EOI) exercise in the development of the MPSC (from Jan to Feb 2013) and other relevant information such as suggestions from the National Sports Associations (NSAs) in terms of potential events to be hosted at the MPSC.
- Discussed and agreed a set of assumptions underpinning the financial analysis. These assumptions were drawn from the responses to the EOI exercise, publicly available information and our market information.
- Developed two sets of event profiles, covering the base case and the best case scenarios, based on the information from previous MPSC reports and inputs from NSAs and HAB.

1.4.2 Step 2 – Risk Workshop

In this step we have:

- Prepared for and conducted a two-day Risk Workshop to facilitate discussions amongst the key project stakeholders on potential project risks relating to the MPSC project, their probability of occurrence and financial implications, and the preferred allocation under different procurement and financing options.
- Developed the Risk Register for the MPSC project, covering the procurement and financing options being considered in the Consultancy Study.
- Considered the appropriate risk adjustment factors to be used in the financial analysis, based on the input gathered during the Risk Workshop.

1.4.3 Step 3 – Assessment of Options

In this step we have:

- Conducted financial analysis (including a sensitivity analysis) for the various procurement and financing options based on the set of assumptions agreed with HAB, and estimated the opportunity cost of Government financing.
- Identified the procurement and financing option(s) which is (are) unlikely to be commercially viable (i.e. non-feasible) from the perspective of the private sector and therefore not considered further.

[1] Refer to Section 4.1 for further details on the evaluation criteria.

- Assessed the adjustments required to reflect the project risks retained by the Government under different procurement and financing options.
- Assessed, in both qualitative and quantitative terms, the feasible procurement and financing options against a set of evaluation criteria including the ability to achieve the Government's vision and objectives; the level of risk transfer; value for money; Government's commitment; and delivery of project and timescale.
- Recommended the preferred procurement and financing option for the MPSC based on the analysis.

1.5 Structure of this Report

The remainder of this report has the following sections.

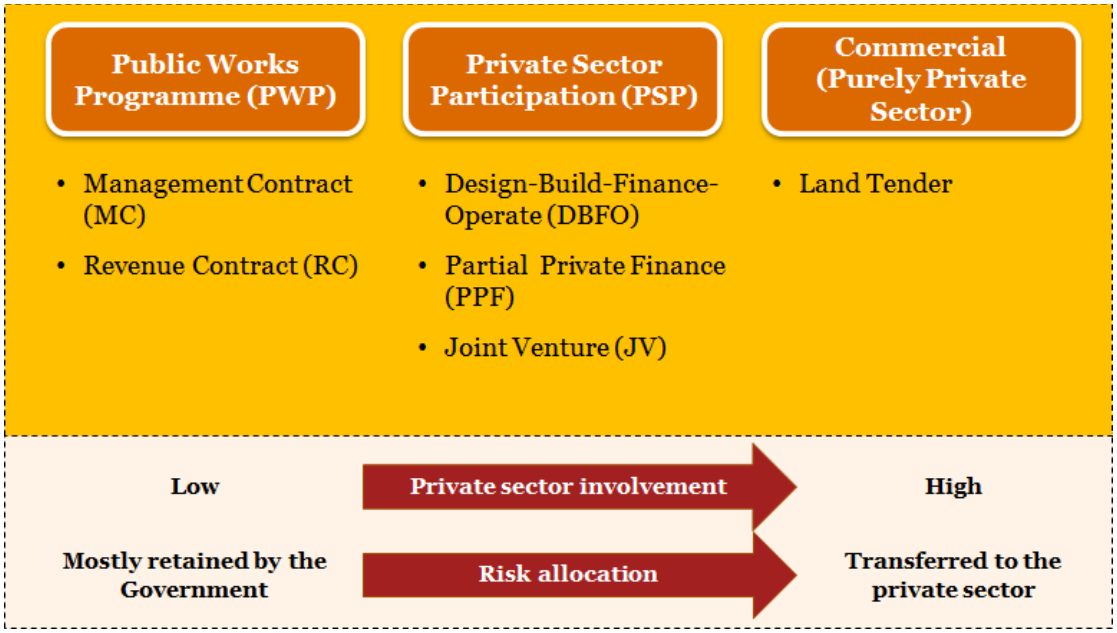
- **Section 2** provides an overview of the procurement and financing options considered during this Consultancy Study.
- **Section 3** provides an overview of the financial analysis and summarises the outputs including a sensitivity analysis on key assumptions. The analysis also identifies the procurement and financing options, which are unlikely to be commercially viable from the perspective of the private sector (i.e. non-feasible options).
- **Section 4** sets out the qualitative and quantitative assessment of the feasible procurement and financing options against a set of evaluation criteria including the ability to achieve the Government's vision and objectives; the level of risk transfer; value for money; Government's commitment; and delivery of project and timescale.
- **Section 5** summarises our recommendations of the preferred procurement and financing option for the MPSC and other considerations that the Government may need to address.
- **Appendices** provide further details on the:
    - Key attributes of the procurement and financing options that have a bearing on the way in which the financial models were structured
    - Two sets of event profiles representing the base case and the best case scenarios
    - Key assumptions used in the financial analysis, covering capital costs, revenue, operating costs, life cycle costs and financing arrangements
    - The total costs to the Government and the profit and loss (P&L) accounts at project level for the procurement and financing options.

2. MPSC's Procurement & Financing Options

In this section we provide an overview of the procurement and financing options considered during this Consultancy Study. Further details about the key attributes of the options can be found at Appendix A.

2.1 Overview

The key differences between various procurement and financing options include the degree of private sector involvement and the risk allocation (and thus the degree of risk transfer from the Government to the private sector). The diagram below sets out the key features of the procurement and financing options.



2.2 Further Details on the PWP Option

The PWP option will be used as the base case against which the PSP and the Commercial Procurement options will be assessed. As such, it is important to ensure that the base case used for the MPSC reflects the local context, i.e. the common practices associated with the procurement and operation of public sector infrastructure projects in Hong Kong.

We assume that the PWP option adopts a combined "design and build" approach. Upon completion of the construction of the MPSC, a private sector operator will be responsible for operating and maintaining the MPSC. This is similar to the Management Contract or Revenue Contract option – further details about these two options are set out below.

2.2.1 Management Contract (MC)

Under this option, the construction and operating costs would be funded by the Government. A milestone, fixed price, date-certain payment construction contract is entered into with a D&B contractor.

A management contractor would separately be contracted to manage and operate the facility in return for a service fee. This model allows part of the operating risks to be transferred to the private sector. The demand risk is retained by the Government.

As agreed with HAB, the Management Contract option represents the base case for this Consultancy Study.

2.2.2 Revenue Contract (RC)

Under this option, the construction costs would be funded by the Government. A milestone, fixed price, date-certain payment construction contract is entered into with a D&B contractor.

Similar to the Management Contract, a management contractor would separately be contracted to manage and operate the facility. However, unlike the Management Contract, the Government would not be required to pay a service fee to the management contractor under this option. Instead, the contractor would share the revenues generated from operating the facility with the Government. Therefore, the Government and the private sector share certain operating and demand risks under this arrangement.

The commercial viability of this option depends on whether the operating profit (i.e. operating revenue net of all relevant costs) realised by the operator represents a reasonable return against all of the commercial risks associated with operating and maintaining the MPSC.

2.3 Further Details – PSP Option

2.3.1 Design Build Finance Operate (DBFO)

Under the DBFO option, the Government assigns the development and operation of a project to a Special Purpose Vehicle (SPV). The SPV is typically a company formed by various consortium bidders (e.g. a construction firm, an event organiser, a facility management company) with expertise in developing and managing the type of facility concerned – in this case a stadium and associated facilities. As well as designing, building and operating the facility, under the DBFO option, the SPV raises the necessary financing for the Project to finance its development, through to commissioning.

DBFO projects are highly leveraged to finance project costs. Upon commencement of commercial operations, the Government makes a unitary payment to the SPV to cover the whole-life-project cost including capital expenditure (Capex), operating expenditure (Opex) and lifecycle costs. As such, abatement regimes are structured, where unitary payments are at risk for poor performance.

2.3.2 Partial Private Finance (PPF)

Under the PPF option, the private sector provides equity funding and the Government provides a certain proportion of the project funding upfront as a loan[2] to the SPV, with a possibility of some debt financing being sought from the private sector so as to allow for a degree of risk transfer and to incentivise good performance by the contractor. Given (at least) that part of the loan is provided by the Government, the Government and private sector participant(s) share the risks.

2.3.3 Joint Venture (JV)

The JV option has a number of variations and the one considered in this Consultancy Study has similar arrangements as that of AsiaWorld-Expo as agreed with HAB. This option requires joint equity from the Government and private sector party (or parties as the case may be) to fund the full amount of project costs, resulting in the absence of debt requirements. A joint venture company (i.e. the SPV) will be formed by the Government and the private sector party, which is also responsible for the design, build and operation of the facility. The Government may supervise and monitor the consortium through the SPV. This option also allows the Government to transfer part of the project risks to the private sector. However, as the Government is a "shareholder", one must question the level of residual risk that remains with the Government as a shareholder under this option.

2.4 Further Details – Commercial Procurement Option (Land Tender)

One form of the Commercial Procurement option is a land tender. This option assumes that a private sector operator deploys its own resources to build and operate the MPSC on the site which is under a land lease from the Government. All the operating revenue from the MPSC would accrue to the contractor, while the Government receives a land premium from the contractor.

The commercial viability depends on whether the operating profit (i.e. operating revenue net of all relevant costs) realised by the operator represents a reasonable return against all of the commercial risks associated with financing, building, operating and maintaining the MPSC.

It is highly unlikely that this option would succeed as the project costs would likely outweigh the net revenues generated by the project.

[2] We note that as a general rule, only public organisations, non-departmental public bodies and other delivery agents of public services are eligible for loans provided by the Government from the Loan Fund ("LF"). Only under exceptional circumstances (with justifiable reasons) would government loans be extended to an entity which operates on a full cost recovery or commercial basis (e.g. the SPV under the PPF option). Even under these circumstances, the Government typically demands commercial rates of interest and concessionary rates may only be granted if there is strong justification. Should the Government decide to pursue this option, we expect that extensive (and potentially lengthy) discussions with relevant stakeholders (such as the Finance Committee of the Legislative Council) will be required before a consensus on implementation can be reached. Therefore, it may be challenging for the Government to implement this option under a tight schedule.

3. Financial Analysis

This section summarises the outputs of the financial analysis including a sensitivity analysis on key assumptions. The analysis also identifies the procurement and financing options which are unlikely to be commercially viable from the perspective of the private sector (i.e. non-feasible options).

3.1 Overview of the Financial Analysis

The process adopted for the financial analysis is set out below.

1. Financial models were prepared for all of the procurement and financing options being considered.
2. A set of base costs (Base Costs) for the MPSC project was produced based on a set of assumptions agreed with HAB. An initial screening of the options was performed to identify non-feasible options, i.e. those that are unlikely to be commercially viable from the private sector perspective. These options, if any, would not be considered any further in the assessment.
3. Sensitivity analysis has been conducted to examine how the variation of a particular assumption will impact the Base Costs under the agreed set of assumptions. The analysis has focused on key parameters only, such as Capex, Opex and inflation.
4. Appropriate risk adjustments to the Base Costs were made – see Section 3.2 for further details – and a set of risk-adjusted, total costs (Total Costs) to the Government were then produced, reflecting the values of the key risks that would be retained by the Government under different options.

   Note that we have valued the key risks retained by the Government and assumed these to have the same degree of financial impact across all procurement and financing options.
5. All costs presented in this section are quoted in Net Present Value ("NPV") terms as at April 2016 when the construction of the MPSC formally commences. The nominal figures are discounted at a rate of 7.64%[3] unless otherwise stated.

3.2 Risk Adjustment

The key objective of risk-adjusting the financial model is to ensure comparability of the Total Costs of the MPSC project to the Government under different procurement and financing options. This is because the effect of project risks (and thus the allocation of risks) on the Total Costs for different options can be substantial.

We have discussed and deliberated on the allocation and the high-level quantification of risks at the Risk Workshop. The Risk Register (refer to Appendix C) was developed

[3] The discount rate is determined using the cost of Government Infrastructure Projects estimated at 4.0%, and adjusted for the envisaged operating period of the MPSC of 30 years using the Consumer Price index ("CPI") (i.e. the inflation rate) of 3.5% as a proxy. It is calculated based on the following equation: (1+4.0%)* (1+3.5%)-1 = 7.64%.

to capture the key findings from the Risk Workshop. The risk quantification was determined based on the probability of occurrence and the relevant costs or revenues being impacted by such risks. As a key principle agreed with HAB, only risks that have a medium to high probability of occurrence and cost impact were considered in our assessment of the Total Costs to the Government.

3.2.1 Establishment of Base Costs

Before conducting the risk adjustment exercise, the first step is to determine the Base Costs that the Government will assume under the PWP, PSP and Commercial options. This is the net present value (NPV) of the projected cashflows under the various procurement and financing options, taking into account the following elements:

- **Capex** – is expected to be fully met by private sector equity and debt, and/or Government's funding.
- **Opex** – includes a baseline element (which accounts for operating costs that would have been incurred irrespective of the number of events or programmes staged at the MPSC) and an event-related element.
- **Other costs** – include:
    - Lifecycle costs associated with major overhaul or upgrading of the infrastructure
    - Debt financing costs (only applicable to PSP and Land Tender options)
    - Land premium (only applicable to the Land Tender option).
- **Equity return** – represents the financial return sought by the private sector on the equity it invested in the MPSC project.
- **Revenues** – consist of event-related revenues (e.g. those directly generated from the use of the MPSC's facilities, commission on merchandise) and non-event-related revenues (e.g. naming rights, rental).

The Base Costs to the Government can be estimated by considering the difference between what the Government pays and what it receives under different procurement and financing options:

Options	Government Pays	Government Receives
PWP		
MC	• Capex • Management contract fees (to cover Opex) • Lifecycle costs	• All event-related revenues • All third-party revenues[4] ("TPR") • Taxes paid by its contractors (e.g. the EPC[5] contractor and management contractor)

[4] Including non-event-related revenues.
[5] EPC stands for "Engineering, Procurement and Construction".

Options	Government Pays	Government Receives
RC	• Capex • Lifecycle costs	• The Government's Operating License Fee, which is a function of the EBITDA (the analysis assumes that the Government receives 15%[6] of the EBITDA received by the management contractor) • Taxes paid by its contractors (e.g. the EPC contractor and management contractor)
PSP		
DBFO	• Unitary payment (to cover Capex, Opex, lifecycle costs, financing costs and equity return)	• The Government's share of TPR • Taxes paid by the SPV • Taxes paid by the subcontractors of the SPV
PPF	• Unitary payment (to cover Capex, Opex, lifecycle costs, financing costs and equity return) • Under this Option, the Government provides a portion of debt at sub-market rates to the SPV (or Project Company)	• The Government's share of TPR • Taxes paid by the SPV • Taxes paid by the subcontractors of the SPV • Interest charges on the proportion of debt provided by the Government
JV	• Unitary payment (to cover Capex, Opex, lifecycle costs and equity return) • Under this Option, the Government provides a significant portion of equity (or 95% of total Project costs required) to the SPV (or Project Company)	• The Government's share of TPR • Taxes paid by the SPV • Taxes paid by the subcontractors of the SPV • Return on the proportion of equity provided by the Government
Commercial		
Land Tender	• Nil	• A land premium from the private sector

Once the Base Costs are established, they are risk adjusted by taking into consideration the values of risks retained by the Government.

[6] The sharing ratio is a subject of negotiation between the Government and the management contractor. For comparative purposes, we have assumed that the amount of the Government's Operating License Fee under the RC option is broadly the same as the Government's share of TPR under the PSP options. Based on this assumption, the sharing ratio of 15% of EBITDA is used in the financial analysis.

3.2.2 Risk Adjustment of Key Risks

a) As stated, only risks that are deemed to have a medium to high probability of occurrence and cost impact were considered as key risks – see the table below. These risks can be categorised as (i) risks that are retained by the Government and (ii) risks that could be transferred to the private depending on the procurement and financing option adopted.

Types of Key Risks	Description

Risks retained by the government	• Detailed design, build and decant phase:
	  ○ Interface works – delays and/or cost increases due to problems interfacing with utilities and other works on the Kai Tak site that are not the responsibility of the Design and Build Contractor.
	• Operating risks
	  ○ Variations in operating requirements by HAB – HAB requires changes to operations which have an impact on costs and revenue share.
	  ○ Functionality changes – additional investment in facilities required to meet evolving needs or functionality requirements of HAB or other Government agencies, e.g. international sporting governing bodies.

Risks that could be transferred to the private sector depending which option is adopted	• Planning and design phase
	  ○ Variation in design by the D&B contractor – design changes that lead to additional costs and delays.
	• Detailed design, build and decant phase[7]
	  ○ Completion of construction by completion date – failure to complete construction by the completion date.
	• Operating risks
	  ○ Demand risks – the demand for services varies significantly causing (i) operational problems, e.g. catering and cleaning; and/or (ii) revenue fluctuations; the level of demand for facilities on non-government use days; and insufficient use of Government Key Usage Days. When quantifying this risk, we have assumed that demand decreases, results in a decrease of both revenues and operating costs.
	  ○ Inflation – inflation of operating costs during the concession period.

[7] A project risk that commonly occurs in infrastructure projects is "construction cost exceeding the budget". As discussed in the Risk Workshop, this risk is considered by the workshop participants as having a low probability of occurrence, even though its impact is potentially high. As only project risks that have a medium to high rating for both the probability of occurrence and potential impact are quantified, the risk of construction cost exceeding the budget is not quantified for inclusion in the financial analysis.

These risks in the table above are quantified to determine their impact on a standalone basis (i.e. without reference to any particular procurement and financing option):

- For each key risk the risk adjustment value is estimated by multiplying the "Probability of Occurrence[8]" by the "Consequence & Impact[9]", which were agreed in the Risk Workshop. The "Consequence & Impact" will be expressed in terms of the relevant cost (say construction cost) and/or revenue base (say operating income).

  As an example, a risk with a medium "Probability of Occurrence" and a medium "Consequence & Impact" has an overall risk impact of 15% (or 38% x 38%) of the relevant cost and/or revenue base.

- In the event that the consequence of a risk materialising is time delay (i.e. construction overruns), we have assumed that this will result in a shortened operation period of three months under a fixed term concession contract, which will in turn lead to a reduced operating income over the concession period.

b) Once the key risks are quantified, the impact of these risks on different procurement and financing options is assessed and reflected in the total cost to the Government:

- The values of risks, which are retained by the Government, are applied across all procurement and financing options, as the Government will assume such risks in all circumstances.

- The values of risks, which could be transferred to the private sector but retained by the Government depending which procurement and financing option is adopted, vary between options:

  - Under the DBFO option, the impact associated with the transferred risks to the Government is nil, as the private sector would have already priced in such risks in the unitary payment it requires from the Government.

  - Under the PPF and JV options, the impact associated with the transferred risks is proportional to the relative amount of debt or equity provided by the Government under each option. The table below shows the respective, assumed proportion of debt (under the DBFO and PPF options) and/or equity (under the DBFO, PPF and JV options) provided by the private sector and the Government:

[8] A "medium" rating was assumed to have a range of 31% – 45% of probability of occurrence. An average value of 38% was used when estimating the risk adjustment values.
[9] A "medium" rating was assumed to have a range of 31% – 45% of impact on specific revenues and/or costs. An average value of 38% was used when estimating the risk adjustment values.

	DBFO	PPF	JV
Equity (represents 10% of the Project costs), in which: • Private sector contributes: • Government contributes:	 • 100% • 0%	 • 100% • 0%	N.A.
Debt (represents 90% of the Project costs), in which: • Private sector contributes: • Government contributes:	 • 100% • 0%	 • 50% • 50%	N.A.
Equity (represents 100% of the Project costs), in which: • Private sector contributes: • Government contributes:	N.A.	N.A.	 • 5% • 95%

3.3 Caveats

As part of this Consultancy Study, financial analysis was conducted to assess the cost impact of the procurement and financing options. The financial analysis is based on a set of assumptions discussed and agreed with HAB (refer to Appendix D for details), and subject to changes and uncertainties[10]. Please note that Appendix D includes an overview of the framework of the linkages between the revenue/cost categories and their respective drivers at project level.

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.

A more accurate (and for that matter, certain) cost estimation of the MPSC project can only be obtained after the Government has issued the tender and received proposals (and committed fee proposals) from the market.

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.

3.4 Findings from the Analysis

Based on a set of assumptions agreed with HAB (details can be found at Appendix D), we have conducted a financial analysis for all of the procurement and financing options considered during this Consultancy Study. The results of the analysis are set out below.

[10] The set of assumptions has been prepared in the absence of a design for the MPSC, which can have a substantial impact on the total project costs.

3.4.1 Base Costs

A summary of the Base Costs for all of the procurement and financing options are set out below. Further details of the analysis can be found at Appendix D.

	PWP		PSP			Land Tender
Cost Items (HK$m)	**MC**	**RC**	**DBFO**	**PPF**	**JV**	
Equity transaction[11]	-	-	-	-	(19,321.86)	See the note below
Payments[12]	42,941.42	36,362.18	36,578.18	36,980.90	63,491.86	
Receive[13]	(8,614.04)	(1,022.87)	(699.70)	(699.70)	(699.70)	
Finance: sub-ordinated debt[14]	-	-	-	2,949.78	-	
Tax[15]	(789.41)	(956.38)	(1,800.39)	(2,845.06)	(9,335.90)	
Base cost to the Government	33,537.97	34,382.93	34,078.09	36,385.92	34,134.41	

It is worth noting that:

- Under the Land Tender option, the MPSC project is not financially viable. The operating income generated by the SPV is insufficient to fully service its debt placing the SPV in a default position, and would certainly not provide sufficient revenues to offer any equity return to the private sector investor. Therefore, this option is not considered any further in the Consultancy Study.
- The Base Cost of the PPF option is higher than that of the DBFO and JV options. There are two main reasons:
    - The Government's cost of capital (and the hurdle rate) is set at 7.64% whilst the lending rate offered by the Government to the project is set at 4.50%[16]. The Government's hurdle rate used to discount the cash flow is

[11] This item covers proportion of equity contributed by the Government, equity contribution, equity collection (upon concession termination) and dividend received (refer to Appendix D for details).
[12] This item covers construction contractor revenue, operating service revenue (covers facility operating cost, maintenance cost, lifecycle cost), unitary payment and construction fund injection by the Government (refer to Appendix D for details).
[13] This item covers Operating Licence Fee, event income, third party revenues and land premium (refer to Appendix D for details).
[14] This item covers drawdown, interest received and principal repayment (refer to Appendix D for details).
[15] This item covers tax income from the SPV/contractor (refer to Appendix D for details).
[16] Overseas experience suggests that 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. Our discussions on the potential loan arrangements do not intend to pre-empt any decisions of the LF Vetting Committee or the Legislative Council in relation to the availability of public loans to

higher than the interest earned by the Government. Essentially, on an NPV basis, the Government is unable to recoup the debt amount it contributed through the principle and interest that the Government is repaid during the operation period. Therefore, the Government effectively makes a "loss" on the debt it provided.

- Under the PPF option, the financial model is structured to allow the sub-debt provided by the Government and shareholder loans to roll-over the interest unpaid to a later stage when the SPV has generated sufficient cashflows to service all the debts including senior debt. This implies that the principal repaid on these two debt streams during the operation period is higher than the principal drawn down during the construction stage, and leads to a slightly higher unitary payment under the PPF option over the concession period.

3.4.2 Quantification of Key Risks

Seven project risks were identified as key risks in the Risk Workshop and the approach to risk quantification is discussed in detail in Section 3.2.2. The results of the quantification exercise are shown below:

Types of Risks	Quantified Risks (HK$m)	Description of Risks	Assumed Risk Impact[17]
Risks retained by the Government			
Interface Work	262.26	• Delays and/or cost increases due to problems interfacing with utilities and other works on the Kai Tak site • Impacts project delivery time	Due to the delay in project delivery, the first three months of revenues at the beginning of the operating period (i.e. months 29, 30 and 31) will be lost (as the concession period will not be extended). This amounts to HK$262.26m.
Variation in operating requirement by HAB	1,452.93	• The private sector operators require changes to the operations which impact upon Opex	OPEX for the base case is increased by 15% within the operating stage and the net increases in Opex are discounted to arrive at the value of HK$1,452.93m.
Functionality change	4,270.64	• Investment in facilities required to meet evolving needs or functionality requirements of outside agencies • Impacts Capex	Capex for the base case is increased by 15% within the construction stage (months 1 to 28) and the net increases in Capex are discounted to arrive at the value of HK$4,270.64m.

the private operator for the MPSC. However, for comparative purposes of the financial analysis, we have made reference to relevant international experience in relation to government lending for infrastructure projects.

[17] A risk with a medium "Probability of Occurrence" and a medium "Consequence & Impact" has an overall risk impact of 15% (or 38% x 38%) of the relevant cost and/or revenue base.

Types of Risks	Quantified Risks (HK$m)	Description of Risks	Assumed Risk Impact[17]
Risks that could be transferred to the private sector depending which option is adopted			
Variation in design by the D&B contractor	4,270.64	• Risk that design changes lead to additional costs and delay • Impacts Capex	Capex for the base case is increased by 15% within the construction stage (months 1 to 28) and the net increases in Capex are discounted to arrive at the value of HK$4,270.64m.
Failure to complete construction by completion date	262.26	• Reduced operating income from loss of revenues (the contractual structure would hopefully include liquidated damages provisions to offset this cost)	Due to the delay in project delivery, the first three months of revenues at the beginning of the operating period (i.e. months 29, 30 and 31) will be lost (as the concession period will not be extended). This amounts to HK$262.26m.
Demand risk	642.64	• Fluctuating demand – the demand for services varies significantly causing (i) operational problems and/or (ii) revenue fluctuations • The analysis assumes that demand has decreased.	Within the operating stage, both the revenues (covering both event-related and non-event revenues) and the variable cost components of the Opex are reduced by 15%. The net cost increases are discounted to arrive at HK$642.64m.
Inflation	1,207.97	• Increase in operating costs beyond that forecasted	The inflation rates that affect Opex (including Consumer Price Index or CPI, wage inflation, maintenance & lifecycle cost inflation) are assumed to be 15% higher than their respective base values: • CPI is increased from 3.5% to 4.03% • Wage inflation is increased from 3.7% to 4.26% • Maintenance & lifecycle cost inflation is increased from 5% to 5.75%. The net increases in Opex are discounted to arrive at HK$1,207.97m.

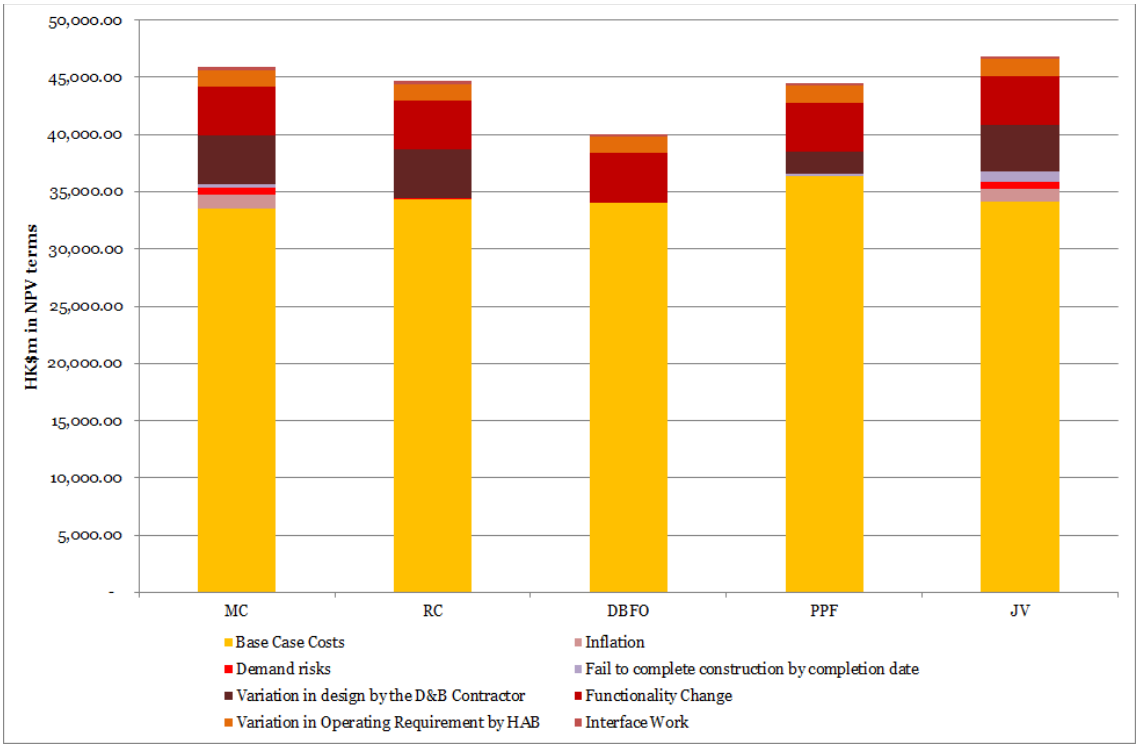
3.4.3 Total Costs to the Government

	PWP		PSP[18]		
Cost to the Government (HK$m)	**MC**	**RC**	**DBFO**	**PPF**	**JV**
Base cost	33, 537.97	34,382.93	34,078.09	36,385.92	34,134.41
Risks retained by the Government					
Interface work	262.26	262.26	262.26	262.26	262.26
Variation in operating requirement by HAB	1,452.93	1,452.93	1,452.93	1,452.93	1,452.93
Functionality change	4,270.64	4,270.64	4,270.64	4,270.64	4,270.64
Risks that could be transferred to the private sector depending which option is adopted					
Variation in design by the D&B Contractor	4,270.64	4,270.64	0	1,921.79[19]	4,057.10[20]
Fail to complete construction by completion date	262.26	8.21[21]	0	207.08[22]	912.98[23]
Demand risks	642.64	13.59[24]	0	0	610.51[25]

[18] Under the PPF and JV options, where the Government provides a portion of debt and equity, respectively, we have assumed that the (maximum) project risk borne by the Government amounts to the debt and equity provided by Government. Thus, when a particular risk is shared between the Government and the private sector, the financial impact associated with that risk on the Government is assumed to be in proportional to the Government's stake in the SPV's capitalisation under the PPF and JV options.
[19] The cost of variation (HK$4,270.64m) is apportioned by 45% in proportion to the Government provision of sub-debt (50% share of the total debt).
[20] The cost of variation (HK$4,270.64m) is apportioned by 95% in proportion to the Government provision of equity.
[21] This figure represents the loss of the Government's Operating License Fee for the first 3 months of operation (refer to Appendix E for further details).
[22] A nominal interest of HK$255.62m (consisting of an interest charge of HK$203.86m and a principal of HK$51.77m) is due to be paid on the Government's sub-debt facility to the SPV. In the event of a delay which leads to loss of revenue for 3 months, the Government will not receive any principal and interest for this period. In addition, the Government will not receive its TPR for the first 3 months. The total impact in NPV terms is HK$207.08m.
[23] This equates to the loss in dividend income and the Government's share of the TPR in the first 3 months.
[24] The Government loses a part of the Operating License Fee as the Project has earned a lower EBITDA, due to the lowered revenues.
[25] The net impact of the lowered revenues and lowered Opex would cause a reduction in dividend income for the Government. The cost of variation (HK$642.64m) is apportioned by 95% in proportion to the Government provision of equity

	PWP		PSP[18]		
Cost to the Government (HK$m)	**MC**	**RC**	**DBFO**	**PPF**	**JV**
Inflation	1,207.97	0	0	0	1,147.57[26]
Total Cost to the Government (risk adjusted)	45,907.31	44,661.19	40,063.92	44,500.62	46,848.40

The build-up of the Total Costs to the Government under different options is illustrated in the figure below:



[26] According to the Risk Register, the inflation risk is transferred under the RC, DBFO and PPF options. This risk is shared under the option and the cost of variation (HK$1,207.97m) is apportioned by 95% in proportion to the Government provision of equity.

3.4.4 Value for Money

In the context of this Consultancy Study, the value for money is defined as the difference between the Total Cost to the Government for the MC option (i.e. the base case) and that for the other options (i.e. RC, PPF, DBFO and JV options):

	PWP	PSP		
Value for Money (HK$m)	**RC**	**DBFO**	**PPF**	**JV**
VfM with respect to the MC option:	1,246.12	5,843.39	1,406.69	(941.09)

The results above suggest that the DBFO option offers the Government best value for money with respect to the MC option (the base case).

3.4.5 Equity Internal Rate of Return ("IRR")

The Government provides "equity" (in its broadest sense) to fund the Capex of the MPSC project under the MC, RC and JV options. The table below shows the "return"[27] on the Government's equity investment for the relevant procurement and financing options:

	PWP		PSP		
	MC	**RC**	**DBFO**	**PPF**	**JV**
Equity IRR	No return – see the note below	No return – see the note below	N.A.	N.A.	13%

Note: The Government's investment has no financial return when either the MC option or the RC option was adopted for the MPSC project, even under the scenario of best case event profile. This is because, in addition to the Capex, the Government also pays for the lifecycle maintenance costs (under the MC and RC options) and management fees (for the MC option only) over the operation period. These cash outlays exceed the receipt of revenues (for the MC option) or the Government's Operating License Fee (for the RC option).

3.5 Sensitivity Analysis

A sensitivity analysis is conducted to assess how different values of the following key assumptions would impact the Total Cost to the Government under the various feasible options[28]:

[27] Note that as private finance is not used under the MC and the RC options, we have assumed that the project IRR is representative of returns to the Government. Under the JV option, it is assumed that the Government will have the same level of equity IRR as that of other private sector equity providers.
[28] The Land Tender option is not considered any further in the assessment as the financial analysis clearly indicates that this option is unlikely to be commercially viable from the perspective of the private sector.

- Capital expenditure (Capex)
- Operating expenditure (Opex)
- Lifecycle costs
- Escalation factors – relates to the inflation, maintenance and lifecycle cost indexes
- Revenues – covering the base case and best case scenarios
- Net revenues – projected revenues net of Opex and maintenance costs
- Financing costs.

3.5.1 Capital Expenditure (Capex)

	PWP		PSP		
Total Cost to the Government (HK$ in million in NPV terms)	MC	RC	DBFO	PPF	JV
Base case – HK$18,300m	45,907.31	44,661.19	40,063.92	44,500.62	46,848.40
Capex – HK$21,100m (or +15% of the base case)	51,376.09	50,059.24	45,751.71	50,752.98	52,487.89

Observations:

- Capex has a direct impact on the Total Cost to the Government across all procurement and financing options. Increases in Capex (other things being equal) will cause a corresponding increase in the Total Cost to the Government.
- The effect on project costs to the Government will depend largely on the reason for the cost increase. If the cost increase is driven by a private sector risk (i.e. the private sector incur additional costs as they fail to build to design, or the design is ineffectual), then the cost impact under the MC option would be far greater (100% of the cost increase) than that under the DBFO option (zero increase to the Government as the Government has transferred the risk to the private sector).

3.5.2 Operating Expenditure (Opex)

The Opex includes maintenance costs but excluding those related to lifecycle maintenance.

	PWP		PSP		
Total Cost to the Government (HK$ in million in NPV terms)	MC	RC	DBFO	PPF	JV
Sensitivity – Opex reduced by 10%	45,266.04	44,500.53	39.518.65	43,964.05	46,260.31
Base case	45,907.31	44,661.19	40,063.92	44,500.62	46,848.40
Sensitivity – Opex increased by 10%	46,545.62	44,818.78	40,602.05	43,032.20	47.431.53

Observations:

- Under the situation where the Opex has changed, the Total Cost to the Government will change correspondingly. If the Opex increases, the Total Cost to the Government will increase as well.

3.5.3 Lifecycle Costs

	PWP		PSP		
Total Cost to the Government (HK$ in million in NPV terms)	MC	RC	DBFO	PPF	JV
Sensitivity – equivalent to 0.5% Capex per annum	43,453.25	42,259.72	37,988.88	42,482.25	44,512.41
Base case – equivalent to 1% Capex per annum	45,907.31	44,661.19	40,063.92	44,500.62	46,848.40
Sensitivity – equivalent to 1.5% Capex per annum	48,358.41	47,059.58	42,133.87	46,518.62	49,186.34

Observations:

- Under the situation where the Lifecycle Costs changed, the Total Cost to the Government will change correspondingly. If the Lifecycle Costs increase, the Total Cost to the Government will increase as well.

3.5.4 Escalation Factors

The nominal values for revenues and costs will have an impact on the Total Cost to the Government. The nominal values are determined by the revenues and costs (in real terms), and escalated by factors such as the inflation, maintenance cost and lifecycle cost index.

	PWP		PSP		
Total Cost to the Government (HK$ in million in NPV terms)	**MC**	**RC**	**DBFO**	**PPF**	**JV**
Sensitivity – Inflation of 2.50%; Maintenance cost and Lifecycle cost index of 5%	45,399.30	43,964.93	39,787.86	44,135.47	46,723.10
Base case – Inflation of 3.50%; Maintenance cost and Lifecycle cost index of 5%	45,907.31	44,661.19	40,063.92	44,500.62	46,848.40
Sensitivity – Inflation of 4.50%; Maintenance cost and Lifecycle cost index of 6%	46,538.67	45,520.54	40,402.38	44,940.26	47,025.56

Observations:

- Under the situation where the escalation factors have changed, the Total Cost to the Government will change correspondingly. If the escalation factors increase, the Total Cost to the Government will increase as well.

3.5.5 Revenues

	PWP		PSP		
Total Cost to the Government (HK$ in million in NPV terms)	MC	RC	DBFO	PPF	JV
Base case – Base case event profile	45,907.31	44,661.19	40,063.92	44,500.62	46,848.40
Sensitivity – Best case event profile	45,592.47	44,509.54	39,546.85	43,982.65	46,463.47

Observations:

- The revenues generated by the MPSC are expected to be limited and therefore their corresponding impact on the Total Cost to the Government would also be limited.

3.5.6 Net Revenues

The table below summarises the projected revenues net of Opex and maintenance costs[29] over the concession period under the base case and the best case scenarios of event profile:

(HK$m)	Base Case	Best Case
Gross revenues	39,532.03	40,012.19
Opex and maintenance costs	2,866.73	3,475.77
Net Revenues	36,665.30	36,536.42

Note that the figures presented in the table above are discounted at 13% (i.e., the rate used for discounting cashflows at project level) and that all options have the same set of figures.

3.5.7 Financing Costs

	PWP		PSP		
Total Cost to the Government (HK$m in NPV terms)	MC	RC	DBFO	PPF	JV
Sensitivity – Commercial	45,907.31	44,661.19	37,413.84	43,557.38	46,848.40

[29] Excluding lifecycle maintenance costs

	PWP		PSP		
Total Cost to the Government (HK$m in NPV terms)	MC	RC	DBFO	PPF	JV
lending rate 5.50% and Government lending rate 3.50%					
Base case – Commercial lending rate 6.50% and Government lending rate 4.50%	45,907.31	44,661.19	40,063.92	44,500.62	46,848.40
Sensitivity – Commercial lending rate 7.50% and Government lending rate 5.50%	45,907.31	44,661.19	42,969.50	45,452.31	46,848.40

Observations:

- There is no financing under the MC, RC and JV options and therefore any change in the commercial lending rate has no impact on the Total Cost to the Government.
- Generally speaking, the Total Cost to the Government increases as the lending rate increases. This is because with higher lending rates, the interest charges incurred during the construction period (and hence the project costs) will increase, thus requiring a higher loan amount from debt providers to finance the project. The Government will then need to provide higher unitary payments to the private sector. Similarly, any decrease in lending rates will result in a reduction in project costs and the corresponding loan amount required.

3.6 Opportunity Cost

We understand that the Government's fiscal reserves, if not deployed, will be placed in the Exchange Fund where it will earn interest. The analysis of opportunity cost of the Government Financing in the context of this Consultancy Study refers to the differential of interest payable to the Government between the Government's discounted lending rates (4.50%) and the annual return rate offered by the Exchange Fund (about 5.60% – refer to Appendix D.5 for details). Therefore the estimation of opportunity cost is only applicable to the PPF option where the Government acts as one of the debt providers.

Under the PPF option, 50% of the total debt (50% of HK$35,947m[30] = HK$17,974m) is provided by the Government at a lending rate of 4.50%. The interest incomes (in NPV terms) associated with a lending rate of 4.50% and 5.60% were estimated and the difference between these two income figures (HK$1,032.57m) represents the opportunity cost to the Government.

[30] Whilst HK$18,300m is the real cost of the MPSC, it is increased to HK$32,081m once the original figure is "indexed". Apart from capital cost, cost items such as financing cost and Debt Service Reserve Account are also included when estimating the total amount of debt required.

4. Assessment

This section sets out the qualitative and quantitative assessment of the feasible procurement and financing options against a set of evaluation criteria agreed with HAB. Note that the Land Tender option is not considered any further in the assessment as the financial analysis clearly indicates that this option is unlikely to be commercially viable from the perspective of the private sector.

4.1 Evaluation Criteria

Criteria that have been used to evaluate the feasible procurement and financing options include:

- Ability to achieve the Government's vision and objectives
- Level of risk transfer
- Value for money
- Government's commitment
- Delivery of project and timescale.

A brief description of each of these criteria is set out below

4.1.1 Delivery of Vision and Objectives

The stakeholders have highlighted that there are four key aspects to this criterion:

- 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
- Development of a project that delivers efficient facilities management.

The preferred procurement and financing option should allow for the MPSC project to achieve the above stated vision and objectives.

4.1.2 Level of Risk Transfer

Risk allocation is an important consideration in evaluating the preferred procurement and financing option. Delivering a complex project of this nature will require a robust risk management strategy to ensure efficient operations over the long-run. The Risk Register prepared during Phase 2 of the Consultancy Study sets out the respective risk allocation for different procurement and financing options.

4.1.3 Value for Money

The ability to achieve a value-for-money solution is another important consideration in determining the preferred procurement and financing option for the MPSC. In the context of this Consultancy Study, the value for money is defined as the difference

between the Total Cost to the Government for the MC option (i.e. the base case) and that for the other options (i.e. RC, PPF, DBFO and JV options).

Irrespective of the procurement and financing option adopted, the ability to generate interest in the market and attract a sufficient number of quality bidders is essential in creating competitive tension during the bidding process, which will drive competitive bids that seek to offer value for money solutions.

4.1.4 Government's Commitment

This refers to the Base Costs to the Government under different procurement and financing options, and is an important consideration for the Government when preparing for a funding request.

4.1.5 Delivery of Project and Timescale

The 2019 Rugby World Cup will be held in Japan and there is an opportunity for Hong Kong to secure some pool games as part of the 2019 Rugby World Cup. The preferred procurement and financing option should allow for the MPSC project to commence operations before the 2019 Rugby World Cup.

4.2 Assessment of Options

Our assessment of the procurement and financing options against the criteria discussed above is summarised in the table below.

	PWP		PSP		
Model / Criteria	MC	RC	DBFO	PPF	JV
Delivery of vision and objectives	The Government has full control over the design, construction, operations; financing of the MPSC; and 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 development of the	Refer to the discussions on the Management Contract option.	The Government will need to articulate clearly its desired outcomes which will be reflected in the output-based specification, as well as other mechanisms such as through an Events Programming Committee[31]. Participation or representation by the Government on the Events Programming Committee will ensure that the interests of the public sector are	The Government will need to articulate clearly its desired outcomes that will be reflected in the output-based specification, as in the case of the DBFO option. Similar to the DBFO option, the PPF option 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.	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 expected outcome of the MPSC project will need to be discussed and agreed upfront by the Government and its private sector partner, and clearly (and

[31] An Events Programming Committee is responsible for reviewing and deciding the events/programmes to be hosted at the MPSC, and ensuring that a balance is struck between commercial and community events/programmes.

	PWP		PSP		
Model / Criteria	MC	RC	DBFO	PPF	JV
	MPSC is supported by a robust events programme 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 capital, operating and maintenance costs if the input-based specification is "over-specified".		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 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. This will, in turn, adversely affect the private sector's ability to service its debt obligations to the Government.	explicitly) articulated in the JV agreement. Similar to the DBFO and PPF options, the JV 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.
Level of Risk Transfer	The Government retains the majority of risks during the	The degree of risk to be borne by the Government during the planning, design and	Maximum risk transfer is achieved under the DBFO option, including key risks such as	Under the PPF option, the Government assumes all project risks borne by private	Under this option, the Government provides 95% of equity and thus 95% of the total project

Model / Criteria	PWP		PSP		
	MC	**RC**	**DBFO**	**PPF**	**JV**
	planning phase. During the detailed design and construction phases there is some degree of risk transfer to the private sector covering aspects such as unavailability of resources, misinterpretation of design, interface issues, and cost overruns. During the operation phase, certain risks are transferred to or shared with the private sector such as those associated with demand and inflation. The estimated risk adjustment value for this option is HK$12,369.33m in	construction phases of the MPSC is similar to that of the Management Contract option. During the operation phase, certain risks are transferred to or shared with the private sector such as those associated with revenue and operating costs, and minor changes to services and facilities. The estimated risk adjustment value for this option is HK$10,278.26m in NPV terms.	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 option. However, there is the potential for transferring some third party revenue risk to the private sector, particularly for predictable activities such as commercial revenues and community use of the facilities. The estimated risk adjustment value for this option is HK$5,985.83m in NPV terms, the lowest	sector lenders as in the case of the DBFO option. A key risk item that the Government will need to consider is performance risk. Any underperformance (or non-performance) by the private sector will attract payment deductions. This may, in turn, adversely affect the private sector's ability to meet its debt obligations to the Government. That said, the Government may manage this risk by adopting similar strategies that the private sector lenders use such as limitation of liabilities and establishment of Parent	costs in the absence of debt. Therefore, the Government retains a significant portion of risks. In addition, any performance failure of the MPSC would translate to the Government being penalised as an equity partner. The estimated risk adjustment value for this option is HK$12,713.99m in NPV terms, the highest amongst all the options.

	PWP		PSP		
Model / Criteria	MC	RC	DBFO	PPF	JV
	NPV terms, the highest amongst all the options.		amongst all the options as all of the key risks (apart from the demand risk) are transferred to the private sector.	Company Guarantees[32]. Whilst the demand risk is typically retained by the Government under the DBFO option, there is the potential for transferring some third party revenue risk to the private sector, particularly for predictable activities, such as commercial revenues and community use of the facilities. The estimated risk adjustment value for this option is HK$8,114.70m in NPV terms.	
Value for	This requires the	Refer to the qualitative	If optimum risk	Refer to the qualitative	Value for money under

[32] Parent Company Guarantees are generally provided by the contractor's immediate parent and operate as a guarantee to ensure a contract is properly performed and completed. In the event of a contractor default, the parent is obliged to remedy the breach.

	PWP		PSP		
Model / Criteria	MC	RC	DBFO	PPF	JV
Money	Government to deliver the MPSC to the required standard within budget. 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 design and construction phases and managing contractor(s) at the operating phase. As the MC option is the base case for the Value for Money (VfM) analysis, there is no VfM figure for this	discussions on the Management Contract option. The estimated VfM for this option is HK$1,246.12m in NPV terms.	allocation between the Government and the private sector is achieved, the private sector is incentivised to provide a value-for-money solution under a competitive tender process. The private sector is incentivised to enhance the commercial viability of the MPSC project by maximising event-related revenues and generating third party revenues, which the Government will share. The estimated VfM for this option is HK$5,843.39m in NPV terms, the highest amongst all the	discussions on the DBFO option. However, it should be noted that under this option the Government provides a substantial portion of debt (at an assumed, subsidised rate). The estimated VfM for this option is HK$1,406.69m in NPV terms, the lowest amongst the options.	the JV option is achieved when the JV is able to deliver the MPSC to the required standard within budget. However, any time and cost overruns will adversely impact both the Government and its JV partner. Thus, the JV agreement should enable effective project management and delivery of value for money in the procurement of the design, construction and operation of the MPSC. The estimated VfM for this option is HK$(941.09m) in NPV terms, the lowest amongst the options.

Criteria \ Model	PWP		PSP		
	MC	**RC**	**DBFO**	**PPF**	**JV**
	option.		options.		The negative VfM figure suggests that this option has less value to the Government when compared with the MC option.
Government's commitment (i.e., the Base Cost to the Government)	The estimated Base Cost to the Government is HK$33,537.97m in NPV terms, the lowest amongst the options.	The estimated Base Cost to the Government is HK$34,382.93m in NPV terms.	The estimated Base Cost to the Government is HK$34,078.09m in NPV terms.	The estimated Base Cost to the Government is HK$36,385.92m in NPV terms, the highest amongst the options.	The estimated Base Cost to the Government is HK$34,134.41m in NPV terms.
Delivery of project and timescale	This option is relatively similar to the most "traditional" form of PWP. Based on the discussions with HAB and other stakeholders, we understand that projects delivered under the PWP option	Refer to the discussions on the Management Contract option.	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	Under the PPF option, the Government underwrites a substantial amount of debt (say 50%) for the MPSC project. When compared with the DBFO option, there is less amount of debt required from the	It is expected that extensive negotiations will be required between the Government and its private sector partner to discuss and agree the working of the SPV in detail. However, the fact that there is no

Criteria \ Model	PWP		PSP		
	MC	**RC**	**DBFO**	**PPF**	**JV**
	generally have a higher risk of delays due to the level of involvement and decision making process of multiple governmental bureaux and departments. Therefore, achieving a 2019 target date for the completion of the MPSC will require strong leadership and sponsorship from the highest level of the Government and extensive coordination amongst the bureaux and departments.		prior to financial close[33]. A typical procurement process under the DBFO option would take 18 to 24 months at a minimum and may take longer depending on the complexity of the transaction. That said, there are ways to expedite the process such as having an Advance Works Agreement[34] to enable the preferred bidder to start work prior to financial close in order	private sector, which may result in a smaller number of private sector lenders being involved within the consortium. However, it should be noted that (i) the Government needs to conduct a rigorous due diligence process, akin to that conducted by the private sector lenders; and (ii) extensive discussions with relevant stakeholders (such as the Finance Committee	debt provider in this option makes the negotiation process less complicated when compared with that under the DBFO and PPF options. Therefore, the overall procurement timeline is expected to be broadly the same as that of the DBFO and PPF options. Depending on the parties' ability to resolve conflicting objectives between the Government and the

[33] 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.

[34] 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.

	PWP		PSP		
Model / Criteria	MC	RC	DBFO	PPF	JV
			to achieve the delivery timeline for the MPSC. Under this option a single SPV is responsible for the design, construction and operation of the MPSC. This incentivises the private sector operator to (i) take the "full lifecycle costs" into consideration when designing the MPSC; and (ii) complete the construction in the shortest possible time whilst ensuring appropriate build quality.	of the Legislative Council) are expected given that public loans (say drawn from the Loan Fund) are required. Therefore, the procurement process under the PPF option is envisaged to take broadly the same time to complete when compared to that of the DBFO option. Under this option a single SPV is responsible for the design, construction and operation of the MPSC. This incentivises the private sector operator to (i) take the "full lifecycle costs" into consideration when	private sector partner, the timescale is comparable with that of the PPF option. It should be noted that there is a risk that the timescale has to be extended if there is significant disagreement between the Government and the private sector partner. Under this option a single SPV is responsible for the design, construction and operation of the MPSC. This incentivises the private sector operator to (i) take the "full lifecycle costs" into consideration when designing the MPSC;

Model / Criteria	PWP		PSP		
	MC	**RC**	**DBFO**	**PPF**	**JV**
				designing the MPSC; and (ii) complete the construction in the shortest possible time whilst ensuring appropriate build quality.	and (ii) complete the construction in the shortest possible time whilst ensuring appropriate build quality.

5. Recommendations

This section summarises our assessment on the feasible procurement and financing options, and sets out our recommendation on the preferred procurement and financing option for the MPSC project.

5.1 Summary of Assessment

Based on the findings in Section 4.1, we set out below a summary of assessment on the procurement and financing options which are considered to be financially viable from the perspective of the private sector:

- **Ability to achieve Government's vision and objectives** – all of the options can include mechanisms to incentivise the private sector to address the Government's vision and objectives, while bringing in private sector innovation and optimising commercial opportunities (albeit to a different degree for the options considered). That said, it is worth noting that:
    - The PPF, DBFO and JV options are "inherently" more effective in terms of incentivising the private sector.
    - The JV option may present a challenge if the Government and its private sector partner have competing (and sometimes conflicting) priorities in terms of management and operations of the MPSC.
- **Level of risk transfer** – the DBFO option achieves maximum risk transfer, which requires the Government to retain HK$5,985.83m worth of risks in NPV terms, followed by the PPF option (which amounts to HK$8,114.70 worth of risks in NPV terms). As the key "equity" provider to the MPSC project under the MC, RC and JV options, the Government assumes key project risks that the private sector takes on under the DBFO option, which amount to HK$12,369.33m, HK$10,278.26m and HK$12,713.99m respectively in NPV terms.
- **Value for money** – the DBFO option offers the best value for money, which amounts to HK$5,843.39m in NPV terms, followed by the PPF option (at HK$1,406.69m in NPV terms) and the RC option (at HK$1,246.12m). The JV option has a negative VfM figure (at HK$(941.09m)).
- **Government's commitment (or the Base Cost)** – the MC option offers the lowest Base Cost to the Government (at HK$33,537.97m in NPV terms), followed by the DBFO option (at HK$34,078.09m in NPV terms) and the JV option (at HK$34,134.41m in NPV terms).
- **Delivery of project and timescale** – all options would take considerable time to execute and further consideration has to 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:
    - Feasibility/design development and procurement – assuming that a "design and build" approach is used for the MPSC under the MC and RC options, the time required for completing the feasibility/design

development and procurement stages is expected to be broadly the same for all of the procurement and financing options.

It should be noted that the arrangement whereby a single SPV is responsible for the design, construction and operation of the MPSC (i.e. the DBFO/PPF/JV options) incentivises the private sector operator to take the "full lifecycle costs" into consideration when designing the MPSC. There is no similar "implicit" incentivisation measure under the MC/RC options.

- Construction – all other things being equal, the time required for the construction of the MPSC is expected to be broadly the same for all of the procurement and financing options. That said, the DBFO/PPF/JV options offer an "implicit" incentivisation measure for the private sector operator to:
  - Complete the construction in the shortest possible time (thereby resulting in on time delivery). This is because the private sector operator takes full responsibility for the future operation and maintenance, therefore any delays can adversely impact on its ability to make a return on the project and service the project debt.
  - Ensure appropriate build quality of the MPSC as poor build quality usually translates into additional maintenance and lifecycle costs.

Taking all these points into account, the DBFO/PPF/JV options provide incentives for the private sector operator to shorten the project timeline from feasibility to operation provided that the quality of work will not be compromised. Perhaps a more important consideration for the Government is that the project timeline is likely to be more certain by adopting the DBFO/PPF/JV options as the risk (of delay) sits with the private sector.

5.2 Recommendations

5.2.1 Preferred Option

To help identify the preferred procurement and financing option, we have developed an evaluation table which sets out the relative merits of different options with respect to the base case (i.e. the MC option) based on the discussions above:

	PWP	PSP		
Criteria **Additional benefits or performance**	**RC**	**DBFO**	**PPF**	**JV**
Ability to achieve Government's vision and objectives	●	✓✓	✓✓	✓
Level of risk transfer	✓	✓✓✓	✓✓	●
Value for money	✓	✓✓	✓	×
Government's commitment (or the Base Cost)	●	●	×	●

	PWP	PSP		
Criteria **Additional benefits or performance**	**RC**	**DBFO**	**PPF**	**JV**
Delivery of project and timescale	●	✓	✓	✓

Legend:
- ✓ The number of ✓ represents the level of increased benefits relative to that offered by the MC option to the Government in relation to a specific criterion
- ● Represents that the option concerned offers a similar level of benefits as that of the MC option in relation to a specific criterion
- × The number of × represents the level of reduced benefits relative to that offered by the MC option to the Government in relation to a specific criterion

It is clear from the table that the DBFO option offer considerable benefits over the base case to the Government, assuming that the criteria all carry the same weight. Our further analysis suggests that the DBFO option offers:

- An "implicit" mechanism whereby the private sector is incentivised to achieve the Government's objectives, perform to the required quality standards and maximise commercial opportunities.
- A more certain (and potentially shorter) project timeline from feasibility to operation – this is an important consideration from the perspective of event/programme planning.
- A completely separate management structure from the Government that allows each party to focus on its primary objectives.
- Less risk from the perspective of the Government in terms of:
    - Not penalising itself (the Government) as an equity provider for any non-performance of the SPV.
    - Minimising the need to deal with competing (and sometimes conflicting) priorities between the Government and its private sector partner associated with management and operation of the MPSC (which is typical under the JV option).
    - Allowing a far greater degree of risk transfer than any of the other options and provides the Government with the strongest set of tools to incentivise performance.
- Best value for money (with respect to the MC option) amongst all of the procurement and financing options.

This leads to the conclusion that the DBFO option is the preferred procurement and financing option for the MPSC project.

5.2.2 Other Considerations

We understand that the Government may consider adopting the MC or RC option given its prevailing policy/agenda and financial situation, and appointing the

operator before the design is finalised so that input from the operator can be considered during the design phase.

Whilst this arrangement ensures that the future stadium design incorporates input from the operator, it is not the same as a "DBO" arrangement in that:

- The very fact that the D&B aspect and operation aspect are governed under two separate contracts inevitably leads to an issue where the operator has no incentive to drive Capex down – the operator is likely seek the highest specification to reduce future maintenance and lifecycle costs and also ensure maximum flexibility even if there is little business justification (e.g. revenue gain).
- It is unlikely that all lifecycle risks can be "effectively" transferred to the operator. Typically the Government has to retain certain risks, particularly those relating to design or construction fault. This gives rise to an additional interface risk to the Government.

That said, we understand that there may be a number of reasons why Government may wish to pursue one of the PWP approaches set out in the report, including:

- the preference to ring-fence itself against any unfavourable market conditions where private sector funding (in terms of equity and debt) is severely constrained
- the desire to retain full project control and accept the associated project risks in order to meet the social and policy objectives
- Government's limited experience and track record of using the DBFO model in Hong Kong compared to PWP
- the complex legal structures that are needed under the other procurement and financing options.

Should the Government decide to adopt one of the PWP models, we recommend that it uses an integrated Design, Build, Operate ("DBO") approach, rather than separate Design and Build, and Operate contracts.

A. Summary of Key Attributes of the Options

	Equity Structure	Debt Financing		Construction		Operation		
	Equity contribution	Debt structure	Rates and other arrangements	Capital cost contribution	Contract structure	Revenue	Hostel / Commercial / Office	Maintenance and Life cycle work
PWP								
Management Contract	Fully funded by the Government	N.A. as the MPSC is fully funded by the Government	N.A.	Fully funded by the Government	A mile stone, fixed price, date-certain payment construction contract is entered into with a D&B contractor who will charge the Government on a cost plus basis	Revenue from the use of the MPSC's facilities and third party revenues (TPR) are retained by the Government. In addition the Government pays a service fee to the management contractor on a cost plus basis	For the 10,000 sq.m. of the office space, priority will be given to NSAs and sports-related companies. NSAs are charged at sub-market rates, which are subject to annual adjustment according to the CPI; the hostel and commercial area are run under prudent commercial principles	The management contractor is responsible for performing routine maintenance for the MPSC to the required standard (which is paid for as part of the contract). However, the contractor can charge the Government for life cycle maintenance work on a cost plus basis[35]
Revenue Contract	Fully funded by the	N.A. as the MPSC is fully	N.A.	Fully funded by the	A mile stone, fixed price,	The Government is	For the 10,000 sq.m. of the	The management contractor is

[35] A conservative approach to financial analysis has been taken. It is assumed that the operator will not take any risks related to lifecycle maintenance of the MPSC and hence a cost plus basis arrangement has been adopted.

	Equity Structure	Debt Financing		Construction		Operation		
	Equity contribution	Debt structure	Rates and other arrangements	Capital cost contribution	Contract structure	Revenue	Hostel / Commercial / Office	Maintenance and Life cycle work
	Government	funded by the Government		Government	date-certain payment construction contract is entered into with a D&B contractor who will charge the Government on a cost plus basis	not required to pay any service fee to the management contractor. All revenue streams are accrued to the contractor and in return, the contractor shares a percentage of the net income (i.e. the EBITDA) with the Government	office space, priority will be given to NSAs and sport-related companies, and NSAs are charged at sub-market rates, which are subject to annual adjustment according to the CPI; the hostel and commercial area are run under prudent commercial principles	responsible for performing routine maintenance for the MPSC to the required standard (which is paid for as part of the contract). However, the contractor can charge the Government for life cycle maintenance work on a cost plus basis
PSP								
Partial Private Finance	Fully funded by the private sector equity providers	Half of the debt is funded by the Government (sub-ordinated debt) and the remaining half is funded by the private sector debt providers (senior debt).	Lending rates vary between tranches and no refinancing of debt	Fully funded by the SPV	The SPV has a master concession agreement with the Government covering the construction of the MPSC. A sub-contractor is engaged by the SPV to	Revenues from the use of the MPSC's facilities are retained by the SPV whilst TPR are shared between the Government and the SPV. In addition, the Government	Ditto	The SPV is required to maintain the MPSC (covering routine maintenance and life cycle work) to the required standard during the concession period

	Equity Structure	Debt Financing		Construction		Operation		
	Equity contribution	Debt structure	Rates and other arrangements	Capital cost contribution	Contract structure	Revenue	Hostel / Commercial / Office	Maintenance and Life cycle work
		Both debts are drawn on a pari-passu basis (i.e. at the same rate)			construct the MPSC	pays unitary payments (which cover Capex, Opex, lifecycle costs, financing costs and equity return) to the SPV based on the performance standards agreed between the SPV and the Government		
DBFO	Fully funded by the private sector equity providers	Fully funded by the private sector debt providers	Commercial lending rates and no refinancing of debt	Ditto	Ditto	Ditto	Ditto	Ditto
Joint Venture	All project costs are to be funded by equity with 95% coming from the Government and the remaining 5% from the private sector equity providers	N.A. as MPSC is fully funded by equity	N.A.	Ditto	Ditto	Ditto	Ditto	Ditto

	Equity Structure	Debt Financing		Construction		Operation		
	Equity contribution	Debt structure	Rates and other arrangements	Capital cost contribution	Contract structure	Revenue	Hostel / Commercial / Office	Maintenance and Life cycle work
Commercial Procurement								
Land Tender Process	Fully funded by the private sector equity providers	Fully funded by the private sector debt providers	Commercial lending rates	Fully funded by the SPV	The SPV is solely responsible for the construction of the MPSC. A sub-contractor is engaged by the SPV to construct the MPSC	Direct revenues (i.e. those associated with the use of the MPSC's facilities) as well as TPR are retained by the SPV	The office space, the hostel and the commercial area are run under prudent commercial principles	The SPV is responsible for maintaining the MPSC according to its specific requirements

B. Event Profile

We have agreed with HAB two sets of event profile (a base case and a "best" case) for the MPSC based on the findings from HAB's previous consultancy studies, relevant information of comparable overseas stadium and other relevant, leading practice. These proposed profiles are set out in the tables below, assuming a facility mix of a 50,000-seat Main Stadium, a 5,000-seat Secondary Stadium and a 4,400-seat Indoor Arena. In addition, it is assumed that these two sets of event profile will reach steady state after five years of operation.

B.1 Proposed Base Case Scenario

Event[36]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[37]	Average Ticket Price per Event Day (HK$)[38,39]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[40]	Concessionary Rental to MPSC Operator per Event(HK$)[41,42]
Asian Junior Athletics Championships	Sport - Athletics	14	Secondary Stadium	5,000	80	36	Nil	10%	N.A.	N.A.

[36] It is assumed that only select events will be scheduled to host at the MPSC on an annual basis during the initial five years of operation – refer to Section A.1.1 for further details.

[37] This is the steady-state attendance figure – refer to Section A.1.1 for further details.

[38] Assumptions on ticket prices, where possible, are based on current events in Hong Kong (e.g. Hong Kong Sevens or recent Lions match); otherwise comparable information from other overseas venues is used.

[39] At present, the ticket price for sports competitions/events at national level ranges from HK$80 to HK$680. For this exercise, the lowest price of HK$80 is assumed.

[40] Generally speaking, the existing charge for hiring major venues in Hong Kong is either a fixed cost per day (HK$150,000) or 20% of gross gate receipts, whichever is the higher. As it is intended to prepare this estimate under a conservative scenario, a share of 10% of ticketing revenue to MPSC Operator is assumed.

[41] Under the existing practice, event organisers of community games, religious events and national day celebrations are exempted from hire charge, but they are required to pay concessionary rental which includes the direct operational cost involved (such as expenses for recruiting cleaners, security guards and ushers) plus 10% of the direct expenses as administration fee. They also need to pay for the use of optional equipment/furniture where applicable. The average amount of concessionary rental for using the Hong Kong Stadium is around HK$200,000.

[42] Sports events qualified for "M" Mark may apply for support measures including venue subsidy from the Major Sports Events Committee. This is not currently accounted for in the revenue projections.

Event[36]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[37]	Average Ticket Price per Event Day (HK$)[38,39]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[40]	Concessionary Rental to MPSC Operator per Event(HK$)[41,42]
Asian Schools U18 Championship	Sport - Rugby	4	Secondary Stadium	3,000	80	36	Nil	10%	N.A.	N.A.
Asian U20 Sevens Series	Sport - Rugby	4	Secondary Stadium	5,000	180	36	Nil	10%	N.A.	N.A.
Inter-School Athletes Championship (Division One)	Sport - Athletics	3	Secondary Stadium	5,000	80	36	Nil	N.A.	2,720[43]	N.A.
Thomas and Uber Cup Finals (World Men and Women Team)	Sport - Badminton	21	Indoor Arena	6,000	80	36	Nil	10%	N.A.	N.A.
BWF World Superseries (Hong Kong Open)	Sport - Badminton	19	Indoor Arena	6,000	80	36	Nil	10%	N.A.	N.A.
Phoenix Cup	Sport - Baseball	6	Secondary Stadium	2,000	80	36	Nil	10%	N.A.	N.A.
Inter-School A Grade Jing Ying Basketball Finals	Sport - Basketball	2	Secondary Stadium	4,000	Nil	36	Nil	N.A.	2,720[15]	N.A.
Hong Kong Cricket Sixes	Sport - Cricket	3	Main Stadium	10,000	180	36	Nil	15%	N.A.	N.A.

[43] At present, the hire charge of the Wan Chai Sports Ground for organising school athletic events is HK$340 per hour. Assuming the event lasts for 8 hours, the event organiser will incur a total of HK$2,720 for hire charge.

Event[36]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[37]	Average Ticket Price per Event Day (HK$)[38,39]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[40]	Concessionary Rental to MPSC Operator per Event(HK$)[41,42]
WDSF Grandslam: Hong Kong DanceSport Festival	Sport - Dancesport	7	Indoor Arena	4,000 (pm session) and 4,000 (evening session)	80	36	Nil	10%	N.A.	N.A.
Asian Dancesport Championships	Sport - Dancesport	5	Indoor Arena	4,000 (pm session) and 4,000 (evening session)	80	36	Nil	10%	N.A.	N.A.
China Dancesport Open Series	Sport - Dancesport	5	Indoor Arena	4,000 (pm session) and 4,000 (evening session)	80	36	Nil	10%	N.A.	N.A.
Festival of Sports - Dancesport Open	Sport - Dancesport	4	Indoor Arena	4,000 (pm session) and 4,000 (evening session)	80	36	Nil	10%	N.A.	N.A.
Hong Kong School Dancesport Championships	Sport - Dancesport	5	Indoor Arena	4,000 (pm session) and 4,000 (evening session)	Nil	36	Nil	N.A.	2,720[15]	N.A.
Asian Junior and Cadet Fencing Championships	Sport - Fencing	20	Indoor Arena	1,000	80	36	Nil	10%	N.A.	N.A.

Event[36]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[37]	Average Ticket Price per Event Day (HK$)[38,39]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[40]	Concessionary Rental to MPSC Operator per Event(HK$)[41,42]
World Cup Qualifiers	Sport - Football	4	Secondary Stadium	5,000	60	12	Nil	15%	N.A.	N.A.
AFC Cup	Sport - Football	14	Secondary Stadium	5,000	60	12	Nil	15%	N.A.	N.A.
Asian Cup Qualifiers	Sport - Football	4	Secondary Stadium	5,000	60	12	Nil	10%	N.A.	N.A.
HKFA Premier League[44]	Sport - Football	30	Secondary Stadium	2,000	20	12	Nil	10%	N.A.	N.A.
Inter-School A Grade and Jing Ying Football Finals	Sport - Football	2	Secondary Stadium	5,000	Nil	36	Nil	N.A.	2,720[15]	N.A.
Domestic Matches (such as FA Cup)	Sport - Football	2	Main Stadium	10,000	180	36	24	10%	N.A.	N.A.
Football Tournaments	Sport - Football	5	Secondary Stadium	4,000	60	12	Nil	10%	N.A.	N.A.
HK International Matches	Sport - Football	5	Main Stadium	20,000	350	36	24	15%	N.A.	N.A.
Local Football Team[45]	Sport - Football	85	Secondary Stadium	2,000	20	12	Nil	10%	N.A.	N.A.

[44] At present, the ticket price for football matches organised by the Hong Kong Football Association is set at HK$60, whereas the ticket price for some local football matches is set at a reduced rate of HK$20 to attract more local fans.

[45] It is assumed that a local football team will use the Secondary Stadium for their league matches and cup matches. However, the Secondary Stadium can potentially be used by more than one local football team.

Event[36]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[37]	Average Ticket Price per Event Day (HK$)[38,39]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[40]	Concessionary Rental to MPSC Operator per Event(HK$)[41,42]
Asian Championships for Artistic Gymnastics	Sport - Gymnastics	8	Secondary Stadium	3,500	80	36	Nil	10%	N.A.	N.A.
Indoor Asian Cup	Sport - Hockey	14	Indoor Arena	2,000	80	12	Nil	10%	N.A.	N.A.
iRB World Sevens Series Hong Kong Seven	Sport - Rugby	8	Main Stadium	45,000	500	60	60	10%	N.A.	N.A.
Hong Kong Rugby Football Union Grand Final	Sport - Rugby	3	Secondary Stadium	5,000	250	36	Nil	15%	N.A.	N.A.
Exhibition Games/Bledisloe Cup/Tri nations	Sport - Rugby	1	Main Stadium	40,000	1,000	60	60	10%	N.A.	N.A.
Asian Junior Championships	Sport - Table Tennis	9	Indoor Arena	4,000	80	36	Nil	10%	N.A.	N.A.
WTA Indoor Court Event	Sport - Tennis	14	Indoor Arena	4,000	500	60	60	10%	N.A.	N.A.
Beach Volleyball	Sport - Volleyball	5	Secondary Stadium	2,000	80	12	Nil	10%	N.A.	N.A.
Inter-School A Grade Jing Ying Volleyball Finals	Sport - Volleyball	2	Secondary Stadium	4,000	Nil	36	Nil	N.A.	2,720[15]	N.A.
The World Wushu Championship	Sport - Wushu	12	Indoor Arena	4,000	80	36	Nil	10%	N.A.	N.A.
The Sanshou World Cup	Sport - Wushu	6	Indoor Arena	4,000	80	36	Nil	10%	N.A.	N.A.

Event[36]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[37]	Average Ticket Price per Event Day (HK$)[38,39]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[40]	Concessionary Rental to MPSC Operator per Event(HK$)[41,42]
Community Games	Sport - Other	2	Main Stadium	35,000	Nil	36	Nil	N.A.	N.A.	200,000
Exhibitions[46,47]	Other	10	Indoor Arena	4,000	20	36	Nil	10%	N.A.	N.A.
Music Events - major Acts[48]	Concert	4	Main Stadium	40,000	500	60	120	10%	N.A.	N.A.
Music Events - minor acts/community	Concert	24	Indoor Arena	3,500	350	36	60	10%	N.A.	N.A.
National Day Celebrations	Other	8	Main Stadium	45,000	Nil	Nil	Nil	N.A.	N.A.	200,000
National Sports Competitions - variety of sports	Sport - Other	60	Indoor Arena	2,500	80	36	Nil	10%	N.A.	N.A.
Religious Events	Other	3	Main Stadium	35,000	Nil	36	Nil	N.A.	N.A.	200,000

[46] It is assumed that exhibitions are purely focused on sport-related areas.

[47] Generally speaking, the ticket price for larger-scale exhibitions is set at HK$20.

[48] Concerts can be based on Western, K Pop and Canto Pop, as suggested by a response to the EOI exercise conducted by HAB.

B.1.1 Proposed Event Schedule and Attendance

Event	Type	Number of Event Days Per Annum					Venue	Attendance per Event Day				
		Year 1	Year 2	Year 3	Year 4	Year 5		Year 1	Year 2	Year 3	Year 4	Year 5
Asian Junior Athletics Championships	Sport - Athletics	0	0	14	0	14	Secondary Stadium	0	0	5,000	0	5,000
Asian Schools U18 Championship	Sport - Rugby	0	4	4	4	4	Secondary Stadium	0	3,000	3,000	3,000	3,000
Asian U20 Sevens Series	Sport - Rugby	0	0	4	4	4	Secondary Stadium	0	0	5,000	5,000	5,000
Inter-School Athletes Championship (Division One)	Sport - Athletics	3	3	3	3	3	Secondary Stadium	2,000	3,000	4,000	5,000	5,000
Thomas and Uber Cup Finals (World Men and Women Team)	Sport - Badminton	0	21	0	21	0	Indoor Arena	0	6,000	0	6,000	6,000
BWF World Superseries (Hong Kong Open)	Sport -Badminton	19	0	19	0	19	Indoor Arena	4,000	0	6,000	0	6,000
Phoenix Cup	Sport - Baseball	6	6	6	6	6	Secondary Stadium	2,000	2,000	2,000	2,000	2,000
Inter-School A Grade Jing Ying Basketball Finals	Sport - Basketball	2	2	2	2	2	Secondary Stadium	2,000	2,500	3,000	3,500	4,000
Hong Kong Cricket Sixes	Sport - Cricket	3	3	3	3	3	Main Stadium	10,000	10,000	10,000	10,000	10,000
WDSF Grandslam: Hong Kong DanceSport Festival	Sport - Dancesport	7	7	7	7	7	Indoor Arena	8,000	8,000	8,000	8,000	8,000
Asian Dancesport Championships	Sport - Dancesport	0	0	5	0	5	Indoor Arena	0	0	8,000	0	8,000
China Dancesport Open Series	Sport - Dancesport	0	5	0	5	5	Indoor Arena	0	8,000	0	8,000	8,000

Event	Type	Number of Event Days Per Annum					Venue	Attendance per Event Day				
		Year 1	Year 2	Year 3	Year 4	Year 5		Year 1	Year 2	Year 3	Year 4	Year 5
Festival of Sports - Dancesport Open	Sport - Dancesport	0	0	4	4	4	Indoor Arena	0	0	8,000	8,000	8,000
Hong Kong School Dancesport Championships	Sport - Dancesport	0	5	5	5	5	Indoor Arena	0	8,000	8,000	8,000	8,000
Asian Junior and Cadet Fencing Championships	Sport - Fencing	20	0	20	0	20	Indoor Arena	1,000	0	1,000	0	1,000
World Cup Qualifiers	Sport - Football	4	4	4	4	4	Secondary Stadium	5,000	5,000	5,000	5,000	5,000
AFC Cup	Sport - Football	14	14	14	14	14	Secondary Stadium	3,000	4,000	5,000	5,000	5,000
Asian Cup Qualifiers	Sport - Football	4	4	4	4	4	Secondary Stadium	5,000	5,000	5,000	5,000	5,000
HKFA Premier League	Sport - Football	30	30	30	30	30	Secondary Stadium	2,000	2,000	2,000	2,000	2,000
Inter-School A Grade and Jing Ying Football Finals	Sport - Football	2	2	2	2	2	Secondary Stadium	3,000	4,000	5,000	5,000	5,000
Domestic Matches (such as FA Cup)	Sport - Football	2	2	2	2	2	Main Stadium	7,000	8,000	9,000	10,000	10,000
Football Tournaments	Sport - Football	3	3	4	5	5	Secondary Stadium	2,000	3,000	4,000	4,000	4,000
HK International Matches	Sport - Football	2	3	4	5	5	Main Stadium	15,000	17,000	20,000	20,000	20,000
Local Football Team	Sport - Football	50	70	85	85	85	Secondary Stadium	1,000	1,500	2,000	2,000	2,000
Asian Championships for Artistic Gymnastics	Sport - Gymnastics	0	0	8	0	8	Secondary Stadium	0	0	3,500	0	3,500
Indoor Asian Cup	Sport - Hockey	0	0	14	14	14	Indoor Arena	0	0	2,000	2,000	2,000
iRB World Sevens Series Hong Kong Seven	Sport - Rugby	8	8	8	8	8	Main Stadium	45,000	45,000	45,000	45,000	45,000

Event	Type	Number of Event Days Per Annum					Venue	Attendance per Event Day				
		Year 1	Year 2	Year 3	Year 4	Year 5		Year 1	Year 2	Year 3	Year 4	Year 5
Hong Kong Rugby Football Union Grand Final	Sport - Rugby	3	3	3	3	3	Secondary Stadium	3,000	4,000	5,000	5,000	5,000
Exhibition Games/Bledisloe Cup/Tri nations	Sport - Rugby	0	0	1	1	1	Main Stadium	0	0	40,000	40,000	40,000
Asian Junior Championships	Sport - Table Tennis	0	0	9	0	9	Indoor Arena	0	0	4,000	0	4,000
WTA Indoor Court Event	Sport - Tennis	0	0	14	0	14	Indoor Arena	0	0	4,000	0	4,000
Beach Volleyball	Sport - Volleyball	0	5	0	5	5	Secondary Stadium	0	1,500	0	2,000	2,000
Inter-School A Grade Jing Ying Volleyball Finals	Sport - Volleyball	2	2	2	2	2	Secondary Stadium	4,000	4,000	4,000	4,000	4,000
The World Wushu Championship	Sport - Wushu	0	0	12	0	12	Indoor Arena	0	0	4,000	0	4,000
The Sanshou World Cup	Sport - Wushu	0	6	0	6	0	Indoor Arena	0	4,000	0	4,000	0
Community Games	Sport - Other	0	2	2	2	2	Main Stadium	0	30,000	35,000	35,000	35,000
Exhibitions	Other	5	7	8	9	10	Indoor Arena	4,000	4,000	4,000	4,000	4,000
Music Events - major Acts	Concert	1	1	2	2	4	Main Stadium	30,000	35,000	40,000	40,000	40,000
Music Events - minor acts/community	Concert	5	10	15	20	24	Indoor Arena	3,500	3,500	3,500	3,500	3,500
National Day Celebrations	Other	8	8	8	8	8	Main Stadium	45,000	45,000	45,000	45,000	45,000
National Sports Competitions - variety of sports	Sport - Other	20	40	60	60	60	Indoor Arena	1,750	2,250	2,500	2,500	2,500
Religious Events	Other	0	1	1	2	3	Main Stadium	0	30,000	35,000	35,000	35,000

B.2 Proposed Best Case Scenario

Event[49]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[50]	Average Ticket Price Per Event Day (HK$)[51, 52]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[53]	Concessionary Rental to MPSC Operator per Event(HK$)[54, 55]
Asian Grand Prix	Sport - Athletics	4	Secondary Stadium	5,000	80	36	Nil	10%	N.A.	N.A.
Asian Athletics Championships	Sport - Athletics	14	Secondary Stadium	5,000	80	36	Nil	10%	N.A.	N.A.
Asian Junior Athletics Championships	Sport - Athletics	14	Secondary Stadium	5,000	80	36	Nil	10%	N.A.	N.A.
Asian Schools U18 Championship	Sport - Rugby	4	Secondary Stadium	3,000	80	36	Nil	10%	N.A.	N.A.
Asian U20 Sevens Series	Sport - Rugby	4	Secondary Stadium	5,000	180	36	Nil	10%	N.A.	N.A.

[49] It is assumed that only select events will be scheduled to host at the MPSC on an annual basis during the initial five years of operation – refer to Section A.2.1 for further details.

[50] This is the steady-state attendance figure – refer to Section A.2.1 for further details.

[51] Assumptions on ticket prices, where possible, are based on current events in Hong Kong (e.g. Hong Kong Sevens or recent Lions match); otherwise comparable information from other overseas venues is used.

[52] At present, the ticket price for sports competitions/events at national level ranges from HK$80-HK$680. For this exercise, the lowest price of HK$80 is assumed.

[53] Generally speaking, the existing charge for hiring major venues in Hong Kong is either a fixed cost per day (HK$150,000) or 20% of gross gate receipts, whichever is the higher. As it is intended to prepare this estimate under a conservative scenario, a share of 10% of ticketing revenue to MPSC Operator is assumed.

[54] Under the existing practice, event organisers of community games, religious events and national day celebrations are exempted from hire charge, but they are required to pay concessionary rental which includes the direct operational cost involved (such as expenses for recruiting cleaners, security guards and ushers) plus 10% of the direct expenses as administration fee. They also need to pay for the use of optional equipment/furniture where applicable. The average amount of concessionary rental for using the Hong Kong Stadium is around HK$200,000.

[55] Sports events qualified for "M" Mark may apply for support measures including venue subsidy from the Major Sports Events Committee. This is not currently accounted for in the revenue projections.

Event[49]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[50]	Average Ticket Price Per Event Day (HK$)[51, 52]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[53]	Concessionary Rental to MPSC Operator per Event(HK$)[54, 55]
Inter-School Athletes Championship (Division One)	Sport - Athletics	3	Secondary Stadium	5,000	80	36	Nil	N.A.	2,720[56]	N.A.
World Championship	Sport - Badminton	20	Indoor Arena	4,000	80	36	Nil	10%	N.A.	N.A.
Sudirman Cup World Team Championship	Sport - Badminton	21	Indoor Arena	4,000	80	36	Nil	10%	N.A.	N.A.
Thomas and Uber Cup Finals (World Men and Women Team)	Sport - Badminton	21	Indoor Arena	6,000	80	36	Nil	10%	N.A.	N.A.
BWF World Superseries (Hong Kong Open)	Sport - Badminton	19	Indoor Arena	6,000	80	36	Nil	10%	N.A.	N.A.
IBAF Women's Baseball World Cup	Sport - Baseball	19	Secondary Stadium	3,000	80	36	Nil	10%	N.A.	N.A.
Asian Cup	Sport - Baseball	12	Secondary Stadium	2,500	80	36	Nil	10%	N.A.	N.A.
HK International Baseball Open (Adult & 12U)	Sport - Baseball	6	Secondary Stadium	2,000	80	36	Nil	10%	N.A.	N.A.

[56] At present, the hire charge of the Wan Chai Sports Ground for organising school athletic events is HK$340 per hour. Assuming the event lasts for 8 hours, the event organiser will incur a total of HK$2,720 for hire charge.

Event[49]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[50]	Average Ticket Price Per Event Day (HK$)[51, 52]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[53]	Concessionary Rental to MPSC Operator per Event(HK$)[54, 55]
Phoenix Cup	Sport - Baseball	6	Secondary Stadium	2,000	80	36	Nil	10%	N.A.	N.A.
FIBA Youth World Championships	Sport - Basketball	12	Indoor Arena	4,000	500	60	60	10%	N.A.	N.A.
FIBA Asia Championship	Sport - Basketball	7	Indoor Arena	4,000	500	60	60	10%	N.A.	N.A.
Inter-School A Grade Jing Ying Basketball Finals	Sport - Basketball	2	Indoor Arena	4,000	Nil	36	Nil	N.A.	2,720[28]	N.A.
Hong Kong Cricket Sixes	Sport - Cricket	3	Main Stadium	10,000	180	36	Nil	15%	N.A.	N.A.
Twenty 20	Sport - Cricket	3	Main Stadium	20,000	180	36	Nil	10%	N.A.	N.A.
WDSF Grandslam: Hong Kong DanceSport Festival	Sport - Dancesport	7	Indoor Arena	4,000 (pm session) and 4,000 (evening session)	80	36	Nil	10%	N.A.	N.A.
Asian Dancesport Championships	Sport - Dancesport	5	Indoor Arena	4,000 (pm session) and 4,000 (evening session)	80	36	Nil	10%	N.A.	N.A.
China Dancesport Open Series	Sport - Dancesport	5	Indoor Arena	4,000 (pm session) and 4,000 (evening session)	80	36	Nil	10%	N.A.	N.A.

Event[49]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[50]	Average Ticket Price Per Event Day (HK$)[51, 52]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[53]	Concessionary Rental to MPSC Operator per Event(HK$)[54, 55]
Festival of Sports - Dancesport Open	Sport - Dancesport	4	Indoor Arena	4,000 (pm session) and 4,000 (evening session)	80	36	Nil	10%	N.A.	N.A.
Hong Kong School Dancesport Championships	Sport - Dancesport	5	Indoor Arena	4,000 (pm session) and 4,000 (evening session)	Nil	36	Nil	N.A.	2,720[28]	N.A.
Asian Junior and Cadet Fencing Championships	Sport - Fencing	20	Indoor Arena	1,000	80	36	Nil	10%	N.A.	N.A.
Asian Fencing Championships	Sport - Fencing	16	Indoor Arena	1,000	80	36	Nil	10%	N.A.	N.A.
World Cup Qualifiers	Sport - Football	4	Secondary Stadium	5,000	60	12	Nil	15%	N.A.	N.A.
AFC Cup	Sport - Football	14	Secondary Stadium	5,000	60	12	Nil	15%	N.A.	N.A.
Asian Cup Qualifiers	Sport - Football	4	Secondary Stadium	5,000	60	12	Nil	10%	N.A.	N.A.
HKFA Premier League[57]	Sport - Football	30	Secondary Stadium	2,000	20	12	Nil	10%	N.A.	N.A.
Inter-School A Grade and Jing Ying Football	Sport - Football	2	Secondary Stadium	5,000	Nil	36	Nil	N.A.	2,720[28]	N.A.

[57] At present, the ticket price for football matches organised by the Hong Kong Football Association is set at HK$60, whereas the ticket price for some local football matches is set at a reduced rate of HK$20 to attract more local fans.

Event[49]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[50]	Average Ticket Price Per Event Day (HK$)[51, 52]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[53]	Concessionary Rental to MPSC Operator per Event(HK$)[54, 55]
Finals										
Exhibition Games - visiting teams	Sport - Football	2	Main Stadium	35,000	350	36	60	10%	N.A.	N.A.
Domestic Matches (such as FA Cup)	Sport - Football	2	Main Stadium	10,000	180	36	24	10%	N.A.	N.A.
Football Team in China League[58]	Sport - Football	20	Main Stadium	25,000	180	36	Nil	10%	N.A.	N.A.
Football Tournaments	Sport - Football	5	Secondary Stadium	4,000	60	12	Nil	10%	N.A.	N.A.
HK International Matches	Sport - Football	5	Main Stadium	20,000	350	36	24	15%	N.A.	N.A.
Local Football Team[59]	Sport - Football	85	Secondary Stadium	2,000	20	12	Nil	10%	N.A.	N.A.
Asian Championships for Artistic Gymnastics	Sport - Gymnastics	8	Indoor Arena	3,500	80	36	Nil	10%	N.A.	N.A.
Asian Championships for Rhythmic Gymnastics	Sport - Gymnastics	5	Indoor Arena	3,500	80	36	Nil	10%	N.A.	N.A.

[58] At present, the ticket price for Hong Kong Football Association - Lunar New Year Cup is set at HK$180. This figure is used for estimating the ticket price for matches involving football teams in China League.

[59] It is assumed that two local football teams will use the Secondary Stadium for their league matches and cup matches.

Event[49]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[50]	Average Ticket Price Per Event Day (HK$)[51, 52]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[53]	Concessionary Rental to MPSC Operator per Event(HK$)[54, 55]
Asian Championships for Trampoline	Sport - Gymnastics	4	Indoor Arena	3,500	80	36	Nil	10%	N.A.	N.A.
International Mini-Hockey Tournament	Sport - Hockey	5	Secondary Stadium	3,000	80	12	Nil	10%	N.A.	N.A.
Indoor Asian Cup	Sport - Hockey	14	Indoor Arena	2,000	80	12	Nil	10%	N.A.	N.A.
Indoor World Cup	Sport - Hockey	14	Indoor Arena	2,000	80	36	Nil	10%	N.A.	N.A.
World League	Sport - Hockey	14	Secondary Stadium	2,000	80	12	Nil	10%	N.A.	N.A.
iRB World Sevens Series Hong Kong Seven	Sport - Rugby	8	Main Stadium	45,000	500	60	60	10%	N.A.	N.A.
International Tier 1 Rugby Match	Sport - Rugby	7	Main Stadium	30,000	500	60	60	10%	N.A.	N.A.
Asian 5 Nations	Sport - Rugby	4	Main Stadium	30,000	500	60	60	10%	N.A.	N.A.
HSBC Asian Sevens Series Event	Sport - Rugby	5	Main Stadium	15,000	500	60	60	10%	N.A.	N.A.
Hong Kong Rugby Football Union Grand Final	Sport - Rugby	3	Secondary Stadium	5,000	250	36	Nil	15%	N.A.	N.A.
Exhibition Games/Bledisloe Cup/Tri	Sport - Rugby	1	Main Stadium	40,000	1,000	60	60	10%	N.A.	N.A.

Event[49]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[50]	Average Ticket Price Per Event Day (HK$)[51, 52]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[53]	Concessionary Rental to MPSC Operator per Event(HK$)[54, 55]
nations										
World Junior Championships	Sport - Table Tennis	12	Indoor Arena	2,000	80	36	Nil	10%	N.A.	N.A.
Global Junior Circuit Finals	Sport - Table Tennis	8	Indoor Arena	2,000	80	36	Nil	10%	N.A.	N.A.
ITTF World Tour - Hong Kong Open	Sport - Table Tennis	5	Indoor Arena	2,000	80	36	Nil	10%	N.A.	N.A.
Asian Championships	Sport - Table Tennis	12	Indoor Arena	2,000	80	36	Nil	10%	N.A.	N.A.
Asian Junior Championships	Sport - Table Tennis	9	Indoor Arena	4,000	80	36	Nil	10%	N.A.	N.A.
ATP Indoor Court Event	Sport - Tennis	14	Indoor Arena	4,000	500	60	60	10%	N.A.	N.A.
WTA Indoor Court Event	Sport - Tennis	14	Indoor Arena	4,000	500	60	60	10%	N.A.	N.A.
AVC Men's/Women's Volleyball Championship	Sport - Volleyball	10	Indoor Arena	2,000	80	36	Nil	10%	N.A.	N.A.
AVC Eastern Zonal Men's/Women's Volleyball Championship	Sport - Volleyball	10	Indoor Arena	2,000	80	36	Nil	10%	N.A.	N.A.

Event[49]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[50]	Average Ticket Price Per Event Day (HK$)[51, 52]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[53]	Concessionary Rental to MPSC Operator per Event(HK$)[54, 55]
AVC Youth Men's/Women's Volleyball Championship	Sport - Volleyball	10	Indoor Arena	2,000	80	36	Nil	10%	N.A.	N.A.
Beach Volleyball	Sport - Volleyball	5	Secondary Stadium	2,000	80	12	Nil	10%	N.A.	N.A.
Inter-School A Grade Jing Ying Volleyball Finals	Sport - Volleyball	2	Secondary Stadium	4,000	Nil	36	Nil	N.A.	2,720[28]	N.A.
The World Wushu Championship	Sport - Wushu	12	Indoor Arena	4,000	80	36	Nil	10%	N.A.	N.A.
The World Junior Wushu Championship	Sport - Wushu	12	Indoor Arena	4,000	80	36	Nil	10%	N.A.	N.A.
The World Traditional Wushu Championship	Sport - Wushu	8	Indoor Arena	4,000	80	36	Nil	10%	N.A.	N.A.
The Sanshou World Cup	Sport - Wushu	6	Indoor Arena	4,000	80	36	Nil	10%	N.A.	N.A.
The World Taiji Championship	Sport - Wushu	10	Indoor Arena	3,000	80	36	Nil	10%	N.A.	N.A.
The Asian Wushu Championship	Sport - Wushu	10	Indoor Arena	4,000	80	36	Nil	10%	N.A.	N.A.
The Asian Junior Wushu Championship	Sport - Wushu	10	Indoor Arena	4,000	80	36	Nil	10%	N.A.	N.A.
Community Games	Multi Sport	2	Main Stadium	35,000	Nil	36	Nil	N.A.	N.A.	200,000

Event[49]	Type	Number of Event Days Per Annum	Venue	Attendance per Event Day[50]	Average Ticket Price Per Event Day (HK$)[51, 52]	Average F&B Spend per Head per Event Day (HK$)	Average Merchandising Spend per Head per Event (HK$)	% Ticketing Revenue to MPSC Operator	Hire Charge to MPSC Operator per Event (HK$)[53]	Concessionary Rental to MPSC Operator per Event(HK$)[54, 55]
Exhibitions[60],[61]	Other	10	Indoor Arena	4,000	20	36	Nil	10%	N.A.	N.A.
Major Events - Bidding events (such as rugby world cup)	Sport	2	Main Stadium	35,000	350	36	Nil	10%	N.A.	N.A.
Moto Sport / Entertainment (e.g. X Games, Speedway, etc.)	Other	2	Main Stadium	35,000	350	36	60	10%	N.A.	N.A.
Music Events - major Acts[62]	Concert	4	Main Stadium	40,000	500	60	120	10%	N.A.	N.A.
Music Events - minor acts/community	Concert	24	Indoor Arena	3,500	350	36	60	10%	N.A.	N.A.
National Day Celebrations	Other	8	Main Stadium	45,000	Nil	Nil	Nil	N.A.	N.A.	200,000
National Sports Competitions - variety of sports	Sport - Other	60	Indoor Arena	2,500	80	36	Nil	10%	N.A.	N.A.
Religious Events	Other	3	Main Stadium	35,000	Nil	36	Nil	N.A.	N.A.	200,000

[60] It is assumed that exhibitions are purely focused on sport-related areas.

[61] Generally speaking, the ticket price for larger-scale exhibitions is set at HK$20.

[62] Concerts can be based on Western, K Pop and Canto Pop, as suggested by a response to the EOI exercise conducted by HAB.

B.2.1 Proposed Event Schedule and Attendance

Event	Type	Number of Event Days Per Annum					Venue	Attendance per Event Day				
		Year 1	Year 2	Year 3	Year 4	Year 5		Year 1	Year 2	Year 3	Year 4	Year 5
Asian Grand Prix	Sport - Athletics	0	0	4	0	4	Secondary Stadium	0	0	5,000	0	5,000
Asian Athletics Championships	Sport - Athletics	0	0	0	14	14	Secondary Stadium	0	0	0	5,000	5,000
Asian Junior Athletics Championships	Sport - Athletics	0	0	14	0	14	Secondary Stadium	0	0	5,000	0	5,000
Asian Schools U18 Championship	Sport - Rugby	0	4	4	4	4	Secondary Stadium	0	3,000	3,000	3,000	3,000
Asian U20 Sevens Series	Sport - Rugby	0	0	4	4	4	Secondary Stadium	0	0	5,000	5,000	5,000
Inter-School Athletes Championship (Division One)	Sport - Athletics	3	3	3	3	3	Secondary Stadium	2,000	3,000	4,000	5,000	5,000
World Championship	Sport - Badminton	0	20	0	0	20	Indoor Arena	0	4,000	0	0	4,000
Sudirman Cup World Team Championship	Sport - Badminton	0	0	21	0	0	Indoor Arena	0	0	4,000	0	4,000
Thomas and Uber Cup Finals (World Men and Women Team)	Sport - Badminton	0	21	0	21	0	Indoor Arena	0	6,000	0	6,000	0
BWF World Superseries (Hong Kong Open)	Sport -Badminton	19	0	19	0	19	Indoor Arena	4,000	0	6,000	0	6,000
IBAF Women's Baseball World Cup	Sport - Baseball	0	0	0	19	0	Secondary Stadium	0	0	0	3,000	0
Asian Cup	Sport - Baseball	0	0	12	0	12	Secondary Stadium	0	0	2,500	0	2,500

Event	Type	Number of Event Days Per Annum					Venue	Attendance per Event Day				
		Year 1	Year 2	Year 3	Year 4	Year 5		Year 1	Year 2	Year 3	Year 4	Year 5
HK International Baseball Open (Adult & 12U)	Sport - Baseball	0	6	6	6	6	Secondary Stadium	0	1,500	2,000	2,000	2,000
Phoenix Cup	Sport - Baseball	6	6	6	6	6	Secondary Stadium	2,000	2,000	2,000	2,000	2,000
FIBA Youth World Championships	Sport - Basketball	0	0	12	0	0	Indoor Arena	0	0	4,000	0	4,000
FIBA Asia Championship	Sport - Basketball	7	0	7	0	7	Indoor Arena	2,500	0	4,000	0	4,000
Inter-School A Grade Jing Ying Basketball Finals	Sport - Basketball	2	2	2	2	2	Indoor Arena	2,000	2,500	3,000	3,500	4,000
Hong Kong Cricket Sixes	Sport - Cricket	3	3	3	3	3	Main Stadium	10,000	10,000	10,000	10,000	10,000
Twenty 20	Sport - Cricket	1	2	3	3	3	Main Stadium	10,000	15,000	20,000	20,000	20,000
WDSF Grandslam: Hong Kong DanceSport Festival	Sport - Dancesport	7	7	7	7	7	Indoor Arena	8,000	8,000	8,000	8,000	8,000
Asian Dancesport Championships	Sport - Dancesport	0	0	5	0	5	Indoor Arena	0	0	8,000	0	8,000
China Dancesport Open Series	Sport - Dancesport	0	5	0	5	5	Indoor Arena	0	8,000	0	8,000	8,000
Festival of Sports - Dancesport Open	Sport - Dancesport	0	0	4	4	4	Indoor Arena	0	0	8,000	8,000	8,000
Hong Kong School Dancesport Championships	Sport - Dancesport	0	5	5	5	5	Indoor Arena	0	8,000	8,000	8,000	8,000
Asian Junior and Cadet Fencing Championships	Sport - Fencing	20	0	20	0	20	Indoor Arena	1,000	0	1,000	0	1,000
Asian Fencing Championships	Sport - Fencing	0	16	0	16	0	Indoor Arena	0	1,000	0	1,000	0
World Cup Qualifiers	Sport - Football	4	4	4	4	4	Secondary Stadium	5,000	5,000	5,000	5,000	5,000

Event	Type	Number of Event Days Per Annum					Venue	Attendance per Event Day				
		Year 1	Year 2	Year 3	Year 4	Year 5		Year 1	Year 2	Year 3	Year 4	Year 5
AFC Cup	Sport - Football	14	14	14	14	14	Secondary Stadium	3,000	4,000	5,000	5,000	5,000
Asian Cup Qualifiers	Sport - Football	4	4	4	4	4	Secondary Stadium	5,000	5,000	5,000	5,000	5,000
HKFA Premier League	Sport - Football	30	30	30	30	30	Secondary Stadium	2,000	2,000	2,000	2,000	2,000
Inter-School A Grade and Jing Ying Football Finals	Sport - Football	2	2	2	2	2	Secondary Stadium	3,000	4,000	5,000	5,000	5,000
Exhibition Games - visiting teams	Sport - Football	1	1	2	2	2	Main Stadium	25,000	30,000	35,000	35,000	35,000
Domestic Matches (such as FA Cup)	Sport - Football	2	2	2	2	2	Main Stadium	7,000	8,000	9,000	10,000	10,000
Football Team in China League (TBC)	Sport - Football	0	0	20	20	20	Main Stadium	0	0	15,000	20,000	25,000
Football Tournaments	Sport - Football	3	3	4	5	5	Secondary Stadium	2,000	3,000	4,000	4,000	4,000
HK International Matches	Sport - Football	2	3	4	5	5	Main Stadium	15,000	17,000	20,000	20,000	20,000
Local Football Team	Sport - Football	50	70	85	85	85	Secondary Stadium	1,000	1,500	2,000	2,000	2,000
Asian Championships for Artistic Gymnastics	Sport - Gymnastics	0	0	8	0	8	Indoor Arena	0	0	3,500	0	3,500
Asian Championships for Rhythmic Gymnastics	Sport - Gymnastics	5	0	5	0	5	Indoor Arena	3,500	0	3,500	0	3,500
Asian Championships for Trampoline	Sport - Gymnastics	0	4	0	4	0	Indoor Arena	0	3,500	0	3,500	0
International Mini-Hockey Tournament	Sport - Hockey	0	5	5	5	5	Secondary Stadium	0	2,000	3,000	3,000	3,000
Indoor Asian Cup	Sport - Hockey	0	0	14	14	14	Indoor Arena	0	0	2,000	2,000	2,000

Event	Type	Number of Event Days Per Annum					Venue	Attendance per Event Day				
		Year 1	Year 2	Year 3	Year 4	Year 5		Year 1	Year 2	Year 3	Year 4	Year 5
Indoor World Cup	Sport - Hockey	0	14	0	0	14	Indoor Arena	0	2,000	2,000	2,000	2,000
World League	Sport - Hockey	0	0	14	14	14	Secondary Stadium	0	0	2,000	2,000	2,000
iRB World Sevens Series Hong Kong Seven	Sport - Rugby	8	8	8	8	8	Main Stadium	45,000	45,000	45,000	45,000	45,000
International Tier 1 Rugby Match	Sport - Rugby	0	3	5	7	7	Main Stadium	0	25,000	30,000	30,000	30,000
Asian 5 Nations	Sport - Rugby	4	4	4	4	4	Main Stadium	10,000	15,000	20,000	25,000	30,000
HSBC Asian Sevens Series Event	Sport - Rugby	0	0	5	0	5	Main Stadium	0	0	15,000	0	15,000
Hong Kong Rugby Football Union Grand Final	Sport - Rugby	3	3	3	3	3	Secondary Stadium	3,000	4,000	5,000	5,000	5,000
Exhibition Games/Bledisloe Cup/Tri nations	Sport - Rugby	0	0	1	1	1	Main Stadium	0	0	40,000	40,000	40,000
World Junior Championships	Sport - Table Tennis	0	0	12	0	12	Indoor Arena	0	0	2,000	0	2,000
Global Junior Circuit Finals	Sport - Table Tennis	8	0	8	0	8	Indoor Arena	1,000	0	2,000	0	2,000
ITTF World Tour - Hong Kong Open	Sport - Table Tennis	5	5	5	5	5	Indoor Arena	1,000	1,500	2,000	2,000	2,000
Asian Championships	Sport - Table Tennis	0	12	0	12	0	Indoor Arena	0	2,000	0	2,000	2,000
Asian Junior Championships	Sport - Table Tennis	0	0	9	0	9	Indoor Arena	0	0	4,000	0	4,000
ATP Indoor Court Event	Sport - Tennis	0	14	14	14	14	Indoor Arena	0	3,000	4,000	4,000	4,000
WTA Indoor Court Event	Sport - Tennis	0	0	14	0	14	Indoor Arena	0	0	4,000	0	4,000
AVC Men's/Women's	Sport - Volleyball	0	0	10	10	10	Indoor Arena	0	0	2,000	2,000	2,000

Event	Type	Number of Event Days Per Annum					Venue	Attendance per Event Day				
		Year 1	Year 2	Year 3	Year 4	Year 5		Year 1	Year 2	Year 3	Year 4	Year 5
Volleyball Championship												
AVC Eastern Zonal Men's/Women's Volleyball Championship	Sport - Volleyball	0	0	10	10	10	Indoor Arena	0	0	2,000	2,000	2,000
AVC Youth Men's/Women's Volleyball Championship	Sport - Volleyball	0	0	10	10	10	Indoor Arena	0	0	2,000	2,000	2,000
Beach Volleyball	Sport - Volleyball	0	5	0	5	5	Secondary Stadium	0	1,500	0	2,000	2,000
Inter-School A Grade Jing Ying Volleyball Finals	Sport - Volleyball	2	2	2	2	2	Secondary Stadium	4,000	4,000	4,000	4,000	4,000
The World Wushu Championship	Sport - Wushu	0	0	12	0	12	Indoor Arena	0	0	4,000	0	4,000
The World Junior Wushu Championship	Sport - Wushu	12	0	0	12	0	Indoor Arena	4,000	0	0	4,000	0
The World Traditional Wushu Championship	Sport - Wushu	0	8	0	0	8	Indoor Arena	0	4,000	0	0	4,000
The Sanshou World Cup	Sport - Wushu	0	6	0	6	0	Indoor Arena	0	4,000	0	4,000	0
The World Taiji Championship	Sport - Wushu	10	0	0	10	0	Indoor Arena	3,000	0	0	3,000	0
The Asian Wushu Championship	Sport - Wushu	0	10	0	0	10	Indoor Arena	0	4,000	0	0	4,000
The Asian Junior Wushu Championship	Sport - Wushu	0	0	10	0	0	Indoor Arena	0	0	4,000	0	0
Community Games	Sport - Other	0	2	2	2	2	Main Stadium	0	30,000	35,000	35,000	35,000
Exhibitions	Other	5	7	8	9	10	Indoor Arena	4,000	4,000	4,000	4,000	4,000

Event	Type	Number of Event Days Per Annum					Venue	Attendance per Event Day				
		Year 1	Year 2	Year 3	Year 4	Year 5		Year 1	Year 2	Year 3	Year 4	Year 5
Major Events - Bidding events (such as rugby world cup	Sport	0	0	2	0	0	Main Stadium	0	0	35,000	0	0
Moto Sport / Entertainment (e.g. X Games, Speedway, etc.)	Other	0	1	2	2	2	Main Stadium	0	25,000	30,000	35,000	35,000
Music Events - major Acts	Concert	1	1	2	2	4	Main Stadium	30,000	35,000	40,000	40,000	40,000
Music Events - minor acts/community	Concert	5	10	15	20	24	Indoor Arena	3,500	3,500	3,500	3,500	3,500
National Day Celebrations	Other	8	8	8	8	8	Main Stadium	45,000	45,000	45,000	45,000	45,000
National Sports Competitions - variety of sports	Sport - Other	20	40	60	60	60	Indoor Arena	1,750	2,250	2,500	2,500	2,500
Religious Events	Other	0	1	1	2	3	Main Stadium	0	30,000	35,000	35,000	35,000

B.3 Summary Schedule

A summary schedule showing the total number of event days in each of the MPSC's venue (i.e. the Main Stadium, the Secondary Stadium and the Indoor Arena) for both the base case and the best case scenarios are set out below for reference.

Venue	Base Case					Best Case				
Year	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
Main Stadium	24	28	31	33	36	30	38	70	69	77
Secondary Stadium	121	150	187	171	193	121	161	220	229	240
Indoor Arena	78	103	194	153	210	125	206	326	251	342
Total:	**223**	**281**	**412**	**357**	**439**	**276**	**405**	**616**	**549**	**659**

B.4 Proposed Community Use of the Indoor Arena and Secondary Stadium

We have also assumed that the Indoor Arena and Secondary Stadium will be used for community sports and events by local clubs and individuals, over and above that specified in the two proposed event profiles. Key assumptions used to assess the income for community and hire use of these two venues are set out below.

	Secondary Stadium	Indoor Arena
Opening Hours	0700 - 2200 seven days per week	0700 - 2200 seven days per week
Peak Hours	1700 - 2200 Monday to Friday & 0900 - 1700 Weekends	1700 - 2200 Monday to Friday & 0900 - 1700 Weekends
Off Peak Hours	0700 - 1700 Monday to Friday & 1700 - 2200 Weekends	0700 - 1700 Monday to Friday & 1700 - 2200 Weekends
Number of Days per annum Operational[63]	350	350
Peak Utilisation	50%	80%
Off Peak Utilisation	20%	40%
Peak Price (per court/pitch) per hour	224	59
Off Peak Price (per court/pitch) per hour	112	59
Total Courts/Pitch	1	10

[63] The net availability of the Secondary Stadium and the Indoor Arena for community sports and events depends on the number of event days anticipated by the base case and the best case scenarios of the proposed event profile.

C. Risk Register

C.1 Introduction

The Risk Register is a key tool for the risk management process and forms the basis of analysing the project's risk management plan. It records and identifies project risks in a structured manner (under the appropriate risk categories) to facilitate the assessment and evaluation of risks, and provides a transparent and comprehensive tool for communicating the risks to key stakeholders. It provides a structure to record information on risks, mitigation options and the anticipated financial impact so that the Government can treat them in a manner appropriate for the project.

The following information is included in the Risk Register for each of project risk:

- Probability of Occurrence – i.e. the estimated probability of the risk being materialised
- Consequence & Potential Impact – i.e. the estimated financial impact if the risk materialised
- Risk Mitigation Approach
- Preferred Risk Allocation (under different procurement and financing options) – i.e. the Government retains, shares or transfers the risk
- Other comments (if any).

C.2 Glossary of Terms

A glossary of terms used in the Risk Register is set out below for reference.

Term	Definition
MC	PWP – Design and Build + Management Contract
RC	PWP – Design and Build + Revenue Contract
PPF	PSP – Partial Private Finance
DBFO	PSP – Design Build Finance Operation
JV	PSP – Joint Venture

Term	Definition
Land Tender Model	Commercial Land Tender
R *(under the Preferred Risk Allocation column)*	Risk to be retained by the Government
S *(under the Preferred Risk Allocation column)*	Risk to be shared between the Government and the private sector
T *(under the Preferred Risk Allocation column)*	Risk to be transferred to the private sector

C.3 Planning and Design Phase Risks

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
1	Changes to HAB's Functional Brief and HAB's Requirements after bidders submitting their tenders	Changes to the Functional Brief by HAB	Medium (31-45%)	Low (0-30%)	Capital cost	Q&A process to substantially mitigate this risk; 2nd stage is not required (BAFO)	R	R	R	R	R	R	HAB will be responsible for any changes in the service specifications.
		Changes in Law and Regulations causing changes to the HAB's Requirements	Medium (31-45%)	Low (0-30%)	Capital cost	Clarify with relevant department and make provision for variation and reimbursement Allow sufficient contingency funding in contract and slippage in project programme	R	R	R	R	R	R	Refer to Change in Law discussion in Section 3.2.7 below - this may lead to further pricing discussion between the Government and the private sector operators.
		Changes to the HAB's Requirements in response to the requirements of statutory bodies or utility providers	Medium (31-45%)	Low (0-30%)	Capital cost	Prepare a reference design for circulation and agreement with relevant parties in advance	R	R	R	R	R	R	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
2	Errors or omissions in the HAB's Requirements	Design changed due to errors or omissions by the user groups or ArchSD or HAB during preparation of HAB's Requirements	High (45%+)	Low (0-30%)	Capital cost and project delivery time	Specifications in tender and compliance during the design and construction should be detail enough and closely monitored Allow sufficient contingency funding in contract & allow adequate tender documentation time	R	R	R	R	R	R	Whilst the probability of occurrence is likely to be high due to human error, the consequence is expected to be low given the review and approval mechanism in place in the Government.
3	Delayed approval by Town Planning Board (TPB) on planning application for relaxing the building height restriction and allowing stadium facilities to be built over area zoned as Open Space	Delayed planning approval will cause additional costs and delay (note: the delay may be due to public objections or judicial review)	Low (0-30%)	Low (0-30%)	Project cost and project delivery time	Start the planning application process as early as possible after the conceptual design is finalised Prepare back-up design which can fully comply with current OZP	R	R	S	S	S	T	Obtaining planning permission, which indicates that the MPSC is clear of any planning issues, is likely to be a condition for releasing debt if private sector funding is involved. The private sector operators may have the expectations that the MPSC will have already obtained all necessary planning permission before tendering for any work.

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
4	Imposition of unacceptable planning conditions	Unacceptable, onerous or costly planning conditions applied when the development plans approved	Low (0-30%)	Medium (31-45%)	Project cost and project delivery time	Start the planning application process as early as possible and incorporate the conditions in the tender documents	R	R	R	R	R	R	The private sector operators may have expectations that the MPSC will have already obtained all necessary planning permission before tendering for any work. There will be specific considerations at the planning stage of the proximity of the MPSC development to residential properties and whether this could lead to restrictive planning conditions being imposed.
5	[Land issues]	[Additional development costs due to changes in plot ratio]	Low (0-30%)	Low (0-30%)	Capital cost and project delivery time	Resolve the issue before finalising the design Consult relevant B/Ds and TPB before finalising the design	R	R	R	R	R	R	The land earmarked for the MPSC does not have any restrictions on plot ratio. This risk is less relevant to the MPSC.
6	Land assembly issues – rights of ways	Unforeseen rights of way / legal covenants that require changes of design	Low (0-30%)	Low (0-30%)	Capital cost and project delivery time	Confirmation with LandsD in advance	R	R	T	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
7	Failure to design to the HAB's Requirements	Delay and additional costs due to failure to design in accordance with the HAB's Requirements	Low (0-30%)	Low (0-30%)	Capital cost	B/Ds closely monitor compliance with the specifications	S	S	T	T	S	T	
8	Variations in design by the D&B contractor	Risk that design changes lead to additional costs and delay	Medium (31-45%)	Medium (31-45%)	Capital and operating cost	HAB can assist the bidder to have a better understanding of the requirement of the operator	R	R	S	T	S	T	Any changes proposed should be subject to the assessment of value for money.
9	Accuracy of information regarding existing infrastructure & under planning infrastructure	Risk that the existing condition of infrastructure (e.g. MTR line, tunnel) differs from that assumed at the bidding stage	Low (0-30%)	Medium (31-45%)	Mainly around the foundation cost of the Second Stadium	HAB can assist potential bidders in understanding and assessing the risks involved, e.g. through the use of surveys that can be made available and subject to bidders due diligence	R	R	S	S	S	S/T	This risk can be materialised if either (1) the infrastructure is identified but not dealt with correctly or (2) both the Government and the private sector have no knowledge about the infrastructure. Kai Tak Tunnel built in the early 80's is the only existing infrastructure under the proposed MPSC site.

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
10	Changes required by operators due to poor functional design	Poor design of functional interface results in changes in design or service specifications	Low (0-30%)	Medium (31-45%)		Design details to be thoroughly discussed with operators at the Detailed Design Stage Allow sufficient contingency funding for post-completion improvement works	R	R	S	T	S	T	The treatment of the road that crosses the site (e.g. submerging the road or a decking solution) is a risk specific to the MPSC – if the design solution does not work operationally, there may be serious implications for access and safety.
11	Delayed delivery of design by D&B contractor	Late delivery of design by D&B contractor causes delay	Low (0-30%)	Medium (31-45%)		HAB can proactively help the bidder to resolve issues related to the delivery of design Adopt D&B contract under which the contractor shall bear all the cost and time consequences arising from this risk	R	R	S	T	S	T	
12	Delayed procurement	Procurement process delayed due to contract terms not being agreed on time between the Government and the bidders	Low (0-30%)	Low (0-30%)	Project Delivery time	HAB can brief relevant B/Ds before commencing the tendering process This risk can be mitigated by adopting a proper tender pre-qualification process	R	R	S	S	S	S	The more complex contractual arrangements (for PSP option) and the process of funding approval (for PWP option) may lead to a lengthened procurement process.

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
13	Obtaining all necessary consents e.g. Environmental Permit	Unable to secure all consents necessary to commence work causing delays and/or increased costs	Low (0-30%)	Low (0-30%)	Project Delivery time & Capital cost	Relevant B/Ds should be thoroughly consulted before commencing the tendering process Start submission and approval process for the Environmental Impact Assessment as soon as the conceptual design is finalised	R	R	R	R	R	R	The Government will be responsible for applying for the Environmental Permit.
14	Integration with the surrounding environment	Insufficient considerations being given to encouraging interactions with the immediate local environment to ensure a good overall pre- and post-event experience	Low (0-30%)	Low (0-30%)	Capital cost & Operating income	Co-ordinate the development programme of surrounding land packages to tie in with the operation of the MPSC Start the implementation of the Metro Park project as early as possible	R	R	S	S	S	S	This will affect the overall vibrancy/feel of customer experience; and shared to the extent that revenue risk is shared.

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
15	[Storage of palletized turf]	[Objection by PlanD to proposed storage of turf pallets for Main Stadium in areas zoned as Open Space adjacent to Main Stadium]	High (45%+)	Low (0-30%)	Project cost and maintenance cost	Start detail discussion with PlanD as soon as the conceptual design is finalised Allow sufficient funding in project and maintenance budget in case remote storage of turf pallets cannot be avoided	R	R	S	S	S	S	Turf should preferably be stored within close proximity to the MPSC, subject to resolving planning issues and availability of a site.

C.4 Detailed Design, Build and Decant Phase

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
1	Access to site	Risk of delayed handover of site to the D&B contractor or interruptions to site access	Low (0-30%)	Medium (31-45%)	Capital cost	HAB can coordinate different projects within the Kai Tak Development (KTD) through an interdepartmental working group and ensure that the site for the MPSC is available on time	R	R	S	R	S	R	Delayed provision of access to the site by HAB will result in delay and additional construction costs.
2	Access to off-site areas	Delay or failure to obtain access to off-site areas not within the ownership or control of HAB (or the Government)	Low (0-30%)	Low (0-30%)	Capital cost	Adopt D&B contract under which the contractor shall bear all the cost and time consequences arising from this risk Minimise off-site construction or adopt the pre-fabrication construction model	T	T	T	T	T	T	
3	Permits and approvals	Delay and additional costs may be incurred if permits and approvals are not obtained promptly. (Includes risk of objections and unacceptable	Low (0-30%)	Low (0-30%)	Capital cost	HAB needs to specify clearly in the tender document the types of permit or approval required from the Government and that the successful bidder will be	T	T	T	T	T	T	Importation of labour or certain construction materials will require approvals from the Government.

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
		conditions being imposed on approvals)				responsible for securing such permits and approvals Relevant B/Ds or TPB shall be consulted before finalising the design							
4	Delay Events	Certain Events outside the control of the private sector operators, such as: • breaches by HAB of its obligations under the agreement, e.g. offsite infrastructure not available • construction variations by HAB • relevant changes in law	Low (0-30%)	Low (0-30%)	Capital cost and project delivery time	Closely liaise with KTO on the progress of infrastructure at North Apron HAB can assist the bidders to have a better understanding of the project requirements to miminise the chance for breaches Allow sufficient contingency funding and slippage in project programme	R	R	R	S	S	S	
5	Relief Events	Certain Events outside the control of the private sector operators (unless caused by the willful act or default of the private sector	Low (0-30%)	Low (0-30%)	Capital cost and project delivery time	Allow sufficient contingency funding in contract and slippage in project programme	R	R	S	S	S	S	The definition of Relief Events will need to be refined to reflect project specific situations, for example, the approach taken to survey surrounding infrastructure,

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
		operators), such as: • Force Majeure, including fire, explosion, lightning, storm, tempest, flood • accidental loss or damage • disruption to power supply and other utilities • certain types of industrial action • unforeseen archaeological finds • unforeseen contamination											ground conditions etc.
6	Unforeseen or unforeseeable ground or site conditions	• Discovery of unforeseen ground or site conditions which may lead to delay and additional costs	Low (0-30%)	Low (0-30%)	Capital cost	HAB can check with relevant departments including Geotechnical Engineering Office (GEO) of Civil Engineering and Development Department (CEDD) on ground conditions before	T	T	S	T	S	T	HAB may need to revisit this risk after confirming the preferred procurement and financing approach. Generally, the Government prefers to transfer this risk to the private sector.

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
						commencing the tendering process							
7	Adverse weather	Delays due to adverse weather conditions	Medium (31-45%)	Low (0-30%)	Capital cost	Need to define the term "adverse" in the contract and estimate the acceptable delay in the contract, e.g. the bidder to estimate the contingency delay days required	T	T	S	T	S	T	Note that storm, flooding and severe weather may amount to Relief Events – see above.
8	Environmental risks	Risk of pollution from hazardous emissions	Low (0-30%)	Low (0-30%)	Capital cost & Operating income	Detailed investigations in advance by the private sector Adopt D&B contract under which the contractor shall bear all the cost and time consequences arising from this risk	T	T	T	T	T	T	
9	Load bearing	Risk of load bearing capacity being less than assumed at the design stage	Low (0-30%)	Low (0-30%)	Capital cost & project delivery time	Detailed site investigations in advance by the private sector Allow adequate safety factor in the detailed design of the MPSC	T	T	T	T	T	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
10	Security clearance	Delays in obtaining security clearance or work permit for contractor's staff may result in project delays	Low (0-30%)	Low (0-30%)	Capital cost	Advise the contractor to obtain necessary clearance or permit for their overseas staff prior to commencement of the construction process	T	T	T	T	T	T	MPSC site is not within any special security zone which requires entry permit. If required, HAB can seek necessary assistance from SB/HKPF.
11	Protestors / trespassers	Protestors / trespassers action cause delays and/or increased costs	Low (0-30%)	Low (0-30%)	Capital cost	HAB should conduct public engagement before formal commencement of construction work Establish a PR team, strengthen site security, and involve the HKPF if required	T	T	T	T	T	T	
12	Site security	Theft and/or damage to equipment and materials may delay the works and increase costs	Low (0-30%)	Low (0-30%)		Increase site security HAB can require the bidder to prepare contingency plan for such event	T	T	T	T	T	T	
13	Site safety	Non-compliance with safety regulations that leads to delay and/or additional costs	Low (0-30%)	Low (0-30%)	Capital cost	Contractor is required to comply with all applicable safety regulations	T	T	T	T	T	T	
14	Resources	Delays due to lack of resources including availability of skilled staff, or	Medium (31-45%)	Low (0-30%)	Capital cost and project delivery time	Procurement by "construction packages under different contracts" may be considered	T	T	S	T	S	T	It is quite likely that there will be shortage of skilled labour when the construction of the

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
		control over sub-contractors				HAB may support the contractor to apply for importation of skilled labour if necessary							MPSC commences.
15	Force majeure	The occurrence of an event of force majeure which adversely affects the ability of the private sector operators to perform	Low (0-30%)	Low (0-30%)	Project cost and project delivery time	Allow slippage in project programme	R	S	S	S	S	S	Need to define what events constitute force majeure, e.g. war, hostilities, rebellion etc., but generally excluding the events which make up Relief Events. The impact rating reflects the assumption that the Government and the contractor will work in good faith to minimise this risk.
16	Design development	Delays / cost increases due to inability to develop a detailed design within an agreed framework and timetable	Low (0-30%)	Low (0-30%)	Capital cost	Allow sufficient time for detailed design in the procurement process Clearly specify the design requirements and framework	T	T	S	T	S	T	
17	Failure to build to design	Misinterpretation of design or failure to build to specification	Low (0-30%)	High (45%+)	Capital cost	Establish a reference design Allow sufficient time for user	T	T	S	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
						meetings and submissions or approval at the Detailed Design Stage							
18	Poor standards of work or poor quality of materials	Sub-standard construction of work or use of materials which are sub-standard	Low (0-30%)	Medium (31-45%)	Capital cost	Independent test and review HAB can seek assistance from relevant works departments to help monitor the contractors to ensure quality	T	T	S	T	S	T	
19	Commissioning and activation of facilities	Failure to achieve necessary standards on commissioning Interference by third parties during commissioning and before formal acceptance	Low (0-30%)	Low (0-30%)	Project delivery time (specifically contract completion date)	Sufficient time allowed for testing and commissioning works Allocate additional budget for improvement works	T	T	S	T	S	T	
20	Contractor / Sub-contractor default	Delay or additional cost incurred as a result of contractors and sub-contractors, or failure to co-ordinate sub-contractors by the main contractor	Medium (31-45%)	Low (0-30%)		Bidders shall provide detailed information on their sub-contracting arrangements Consider the track record and past performance of bidders during tender evaluation	T	T	S	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
21	Defective works	Significant defects that cause delay in the project in construction cause delay and additional costs to rectify	Low (0-30%)	Low (0-30%)	Project delivery time (specifically building handover programme)	Allow reasonable time for construction, 36 months may be too tight for a $20B contract HAB can ask relevant works departments to undertake quality check during and after the construction	T	T	S	T	S	T	
22	Interface works	Delays / cost increases due to problems interfacing with utilities and other works on the Kai Tak site	Medium (31-45%)	Medium (31-45%)	Project delivery time	HAB can work with relevant B/Ds responsible for the infrastructure coordination in KTD to help resolve any interface problems (e.g. , through regular senior management liaison meetings)	S	S	S	S	S	S	Consideration should be given to the interfaces with any pre-construction site preparation works and/or the MTR construction and operation.
23	Inadequate cost control	Inadequate cost control leading to additional costs being incurred	Medium (31-45%)	Low (0-30%)		Regular meetings to discuss issues on cost control and contract variations Use of a lump-sum (all inclusive) contract	T	T	S	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
24	Intellectual property	Risk of additional costs and/or delay as a result of infringements of intellectual property and similar claims	Low (0-30%)	Low (0-30%)	Capital cost	HAB can specify the intellectual property rights in the contract with the private sector Allow sufficient time for reviewing the tender documentation	T	T	S	T	S	T	The probability of occurrence of this risk is extreme low.
25	Ambiguities in agreement between HAB and the contractor	Ambiguities may lead to increased costs	Low (0-30%)	Low (0-30%)	Capital cost	Allow sufficient time for reviewing the tender documentation Avoid qualitative or subjective requirements	S	S	S	S	S	S	Specifications or functions proposed by the contractor, which are over and above that required by HAB, will likely cost extra to the Government if the contractor's proposal is accepted by the Government.
26	Completion of construction by the completion date	Failure to complete construction by the completion date	Medium (31-45%)	Medium (31-45%)	Operating income	Specify a realistic construction period and a compensation mechanism for delays Require performance bond from the EPC contractor Allow slippage in project programme	R	R	S	T	S	T	This risk has less impact on capital cost than on operating income.

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
27	Inflation	Outturn inflation figures greater than estimated	Medium (31-45%)	Low (0-30%)	Capital cost	Include sufficient contingency funding Avoid unreasonably low bid from the private sector	S	S	S	T	S	T	Note: depending on the commercial arrangements, the Government may also retain this risk under the PWP option. For PWP contracts with duration longer than 12 months, there is an established mechanism to adjust the tender payments according to the CPI.
28	Non-compliance with all regulations	Non-compliance with all regulations such as environment protection related regulations	Low (0-30%)	Low (0-30%)	Capital cost	Specify that the successful bidder has to comply with all relevant regulations in the contract at its own costs	T	T	S	T	S	T	
29	Changes in requirements made by HAB	Changes to services and facilities or facilities and requirements by HAB	Low (0-30%)	Low (0-30%)	Capital cost and project delivery time	Identify all user groups (including relevant B/Ds and public organisations) and engage them for discussion before fianlising the detailed requirements Sign off the detailed requirements by the relevant Government official or steering	R	R	R	R	R	R	HAB responsible for its changes in requirements.

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
						group etc. for the MPSC project							
30	Impact to adjacent structures	Undue settlement and excessive vibration to adjacent structures/ utilities /properties caused by works during the construction	Medium (31-45%)	Low (0-30%)	Capital cost and project delivery time	Implement appropriate monitoring plan and measures to reduce the level of settlement and vibration (to the extent possible) by the contractor	T	T	S	T	S	T	Construction may need to be suspended due to damages to adjacent properties (e.g. the Kai Tak tunnel under the proposed location for the Secondary Stadium).
31	Site contamination	Costs incurred for cleaning up contamination before/ during the construction	Low (0-30%)	Low (0-30%)	Capital cost and project delivery time	Undertake contamination assessment by the contractor	T	T	S	T	S	T	This risk refers to the contamination produced by the contractor.
32	Complex or innovative design features	Risk of delay due to complex or innovative design features which are unfamiliar in local construction industry, e.g.	Medium (31-45%)	Low (0-30%)	Capital cost and project delivery time	Adopt D&B contract under which the contractor shall bear all the cost and time consequences arising from this	T	T	S	T	S	T	Retractable roof has been installed on many overseas stadia and the private sector has accumulated extensive experience in this

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
		retractable roof to stadium				risk							area.

C.5 Operating Risks

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
1	Variations in operating requirements by HAB	HAB requires changes to operations which impact upon costs and revenue share	Medium (31-45%)	Medium (31-45%)	Operating cost and operating income	Consult all key stakeholders before finalising the operating requirements and incorporating these requirements in the agreement with the private sector operators	R	R	R	R	R	R	HAB will bear the cost of the variation. Considering the concession period can extend over 25 years, the probability of HAB requesting changes to the MPSC's operations is medium.
2	Variation in operating requirements by the private sector operators	The private sector operators require changes to the operations which impact upon costs and revenue share	Low (0-30%)	Low (0-30%)	Operating cost and operating income	The private sector operators need to fully consider the operating requirements, justify the need for changing the requirements and consult HAB beforehand	R	T	S	T	S	T	
3	Functionality changes	Additional investment in facilities required to meet evolving needs or functionality requirements of outside agencies, e.g., international sporting governing	Medium (31-45%)	Medium (31-45%)	Capital cost	Ensure that flexibility is built in the MPSC's design to allow for changes	R	R	R	R	R	R	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
		bodies											
4	Availability failures	Facilities or parts thereof are unavailable, or available only at an increased cost	Low (0-30%)	Low (0-30%)	Capital cost and operating cost	Specify in the agreement that the operator is required to submit a maintenance schedule and contingency plan (across all operational areas) shortly after commencement of the agreement Include contingency funding for that purpose	S	S	S	T	S	T	
		Service interface or support services – operational problems arising from the service interface being unclear, including poor communication between parties, contractor performance, and not meeting customer expectations	Low (0-30%)	Low (0-30%)	Operating cost	Arrange regular meetings to facilitate different parties to discuss matters related to service interface or support services	T	T	S	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
		Estimating errors – inaccurate assessment of service costs, including maintenance costs and lifecycle estimates	Medium (31-45%)	Medium (31-45%)	Capital cost and operating cost	Obtain professional advice regarding maintenance costs during the Detailed Design Stage Undertake (i) comprehensive research on maintenance cost data and (ii) sensitivity analysis	S	T	S	T	S	T	It is expected that this risk may lead to (i) a medium impact on maintenance costs and (ii) a low impact on life cycle maintenance costs. However, if a relatively short term operational contract (say 5 years) is adopted, the impact of this risk on maintenance costs may only be minimal.
5	Service failure	Non-performance of services	Low (0-30%)	Medium (31-45%)	Operating income	Adopt a rigorous selection process for the MPSC's operator Develop a set of performance standards and clearly communicate such to all bidders	T	T	S	T	S	T	Performance standards must be determined in advance of operations.
		Poor performance of services	Low (0-30%)	Medium (31-45%)	Operating income	Ditto	T	T	S	T	S	T	Performance standards must be determined in advance of operations.
6	Demand Risks	Fluctuating demand – the demand for	Medium (31-45%)	Medium (31-45%)	Operating cost	Undertake market research before finalising	S	S	S	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
		services varies significantly causing (i) operational problems, e.g. catering and cleaning; and/or (ii) revenue fluctuations				the operational requirements Review service needs (e.g. through customer survey) on a regular basis							
		Demand in excess of Guaranteed Government Usage – the level of demand for facilities on non-government use days	Medium (31-45%)	Medium (31-45%)	Operating cost and may also affect share of operating income because of lower usage rate	Ditto	S	S	S	T	S	T	
		Government Key Usage Dates – Risks associated with Government Key Usage Days including insufficient use	Medium (31-45%)	Medium (31-45%)	Operating cost and may also affect share of operating income because of lower usage rate	Undertake market research before finalising the operational requirements Review service needs (e.g. through consultation with relevant B/Ds) on a regular basis	R	R	R	R	R	R	Assuming that the private sector is responsible for operating the MPSC, this risk is related to the minimum usage of the MPSC by the Government: • HAB to determine the number of days that they will use the MPSC for various community events • Should HAB

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
													fail to utilise all of the designated days, HAB needs to consider whether the private sector operators will have the opportunity of using these days for alternative events.
7	Client change	Major change to services and facilities	Low (0-30%)	Medium (31-45%)	Operating income	Undertake market research before finalising the operational requirements Ensure that flexibility is built in the MPSC's design to allow for changes	R	R	R	R	R	R	Need to define what changes constitute major/ minor changes. An example of client change would be a request to replace all energy-saving light bulbs to LED light bulbs.
		Minor change to services and facilities	Medium (31-45%)	Low (0-30%)	Ditto	Ditto	S	S	S	S	S	S	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
8	Service requirements	Inaccurate assessment of services required by contractors leads to changes	Low (0-30%)	Medium (31-45%)	Capital cost and may also affect the operating income as the service cannot meet the needs	Undertake market research before finalising the operational requirements Ensure that flexibility is built in the MPSC's design to allow for changes Retender or by contract variation	S	T	S	T	S	T	
9	Site contamination	Costs incurred for cleaning up contamination	Low (0-30%)	Low (0-30%)	Operating cost	Specify that the operator should adhere to all relevant environmental protection regulations Engage a separate contractor to deal with this ad-hoc incident	T	T	S	T	S	T	Consider adopting the "Polluter pays" principle.
10	Theft / vandalism	Equipment/cash losses, including damages which are recovered from individuals responsible	Low (0-30%)	Low (0-30%)	Operating cost	Specify that the operator should implement effective security measures	T	T	S	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
11	Energy / utility requirements	Changes in energy / utility requirements	Low (0-30%)	Low (0-30%)	Operating cost	Leverage the proposed district cooling system for KTD Ensure sufficient capacity (and redundancy) for energy and utility supplies	S	T	S	T	S	T	
12	Inflation	Inflation of operating cost during the concession period	Medium (31-45%)	Medium (31-45%)	Operating cost	Conduct benchmarking on cost inflation on a regular basis	S	T	S	T	S	T	A mechanism may be established to allow adjustment for inflation, which usually links to the specific price indices in Hong Kong.
13	Differential inflation	Inflation assumptions are inaccurate, e.g. wage inflation	Low (0-30%)	Medium (31-45%)	Operating cost	Use realistic assumptions Conduct sensitivity analysis	S	S	S	S	S	T	
14	Performance of contractors and/or sub-contractors	Default by contractors and/or sub-contractors which, in turn, lead to additional costs for finding a replacement	Medium (31-45%)	Low (0-30%)		Adopt a rigorous selection process for the MPSC's operator Develop a robust performance management system Include default terms in the agreement to deter poor	S	S	T	T	S	T	The materialisation of this risk will also impact service availability. Under the PSP option, the Government may include certain contractual mechanism to penalise the operator for poor

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
						performance							performance (or non-performance).
15	Access/egress	Contractor experiences difficulties entering and leaving site.	Low (0-30%)	Low (0-30%)	Operating income	Closely monitor the situation and provide assistance to the operator as appropriate	T	T	T	T	T	T	The Government needs to consider which party is responsible for causing such difficulties.
16	Third party revenues (TPR)	Third party revenues generated from ancillary services, advertisement income, sponsorship, etc.	Low (0-30%)	Low (0-30%)	Operating income	Promote the MPSC to enhance TPR	R or S	R or S	R or S	R or S	R or S	R or S	Subject to discussion, international experience shows no standard practice in sharing the TPR. The sharing of TPR may also impact on the fees payable to the private sector.
17	Ticketing Services	Compatibility of services with existing Hong Kong ticketing services	Low (0-30%)	Low (0-30%)	Operating cost	Ensure that flexibility is built in the MPSC's design to allow for changes	S	T	T	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
18	Whole life costs	Estimates of whole life costs are inadequate to maintain facilities to the required standard	Low (0-30%)	Medium (31-45%)	Lifecycle cost	Have a clear understanding on how the operator estimate the whole life cycle costs Use realistic assumptions Conduct sensitivity analysis	R	R	T	T	S	T	
19	Health & Safety changes	Costs for facility maintenance change as a result of new H&S regulations (after completing construction)	Low (0-30%)	Low (0-30%)	Operating cost	Understand the potential impact of the proposed regulations and work with the operator to minimise impact	S	S	T	T	S	T	See also Change in Law discussion.
20	Force majeure	See discussion earlier	Low (0-30%)	Medium (31-45%)	Operating cost	Ensure that the operator has contingency measures in place and also sufficient insurance coverage	R	R	S	S	S	S	The incidents constituting "force majeure" need to be defined.
21	Industrial action	Additional costs may be incurred	Low (0-30%)	Low (0-30%)	Operating income	Ensure that the operator has contingency measures in place to deal with industrial action	T	T	T	T	S	T	The materialisation of this risk will also impact service availability, and may qualify as a Relief Event (see discussion earlier).

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
						Facilitate communication between the operator and its staff							
22	Damage or fire	Major damage to facilities	Low (0-30%)	Medium (31-45%)	Maintenance cost	Ensure that the operator has precautionary measures in place and also sufficient insurance coverage	R	R	T	T	S	T	The materialisation of this risk may qualify as a Relief Event (see discussion earlier).
23	Air quality	Poor external air quality may affect sportsmen and public alike, and this could affect the income and/or vibrancy for the MPSC	Low (0-30%)	Medium (31-45%)	Operating income		R	R	R	R	R	R	Whilst it is difficult to mitigate this risk in general, internal air quality (say in the Indoor Arena) can be controlled by the operator (and hence this risk is transferred to the operator).
		Poor internal air quality may affect sportsmen and public alike, and this could affect the income and/or vibrancy for the MPSC	Low (0-30%)	Medium (31-45%)	Operating income	Ensure that the contract has appropriate measures in place to monitor (and improve if needed) the air quality of the enclosed areas in the MPSC (e.g. the Indoor Arena)	S	S	T	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
24	Safety access to public transport	Unsafe or uncontrolled access routes (e.g. walkways) from the MPSC to the transport hubs (e.g. MTR stations) could affect the income and/or vibrancy for the MPSC	Low (0-30%)	Low (0-30%)	Operating income	Ensure that the operator has implemented appropriate control or safety measures	T	T	T	T	S	T	

C.6 General Risks

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
1	Third party loss caused by acts or omissions of the private sector operators	Actions by the private sector operators may cause loss to third parties	Low (0-30%)	Low (0-30%)	N.A.	Take out insurance with sufficient coverage for insurable risks (covering both the construction and operation phases)	T	T	S	T	S	T	
2	Third party loss caused by acts or omissions of the Government	Actions by the Government may cause loss to third parties	Low (0-30%)	Low (0-30%)	N.A.		S	S	S	T	S	T	An example would be the Government cancelling an event organised by an independent organiser, leading to a loss of income of the organiser.
3	HAB loss caused by the private sector operators	Failure to perform the contract by the private sector operators causes loss to the Government	Low (0-30%)	Low (0-30%)	N.A.	Require indemnification from the private sector operators against all claims and losses arising out of failure to perform the contract (subject to certain carve-outs)	T	T	S	T	S	T	
4	Insurance	Inadequate insurance cover	Low (0-30%)	Low (0-30%)	N.A.	May consider specifying a minimum coverage that the operator's insurance policy has to cover	T	T	S	T	S	T	

C.7 Equipment Risks

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
1	Delays	Late delivery of equipment	Medium (31-45%)	Low (0-30%)	Operating income	Ensure that the operator has implemented appropriate measures to procure key equipment at an appropriate time and to closely monitor the order and delivery schedules May specify liquidated damages for late delivery in the agreement	T	T	S	T	S	T	
2	Condition	Poor assessment of the condition of equipment required, resulting in earlier replacement than anticipated within the concession period	Low (0-30%)	Low (0-30%)	Maintenance cost	Clearly specify the required condition of equipment in the procurement order Conduct equipment testing before commissioning	R	R	S	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
3	Obsolescence, manufacture and repair	Risk of obsolescence resulting in earlier replacement of equipment within concession period	Low (0-30%)	Low (0-30%)	Maintenance cost	Allow sufficient buffer in the maintenance budget for replacement of equipment on an ad-hoc basis Benchmark against the latest technology Appoint ICT contractor at a later stage of the project	R	R	S	T	S	T	
4	Significant failure	Equipment failure/breakdown	Low (0-30%)	High (45%+)	Maintenance cost	Test the equipment before major events Ensure that the operator has a contingency plan in place	T	T	S	T	S	T	

C.8 Financial Risks

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
1	Introduction of GST	The ability to recover GST paid to IRD if the Government introduces GST at a later stage	Low (0-30%)	Medium (31-45%)	Operating cost and share of operating income as people may have lower incentive to spend	Continually monitor whether GST will be implemented and work with relevant B/Ds to assess the potential impact	R	R	S	T	S	T	May be considered as a "Change in Law" situation.
2	Changes in other taxes	Changes in tax basis, levels, arrangements, etc.	Low (0-30%)	Medium (31-45%)	Operating cost and operating income	Continually monitor whether GST will be implemented and work with relevant B/Ds to assess the potential impact	R	R	S	T	S	T	
3	Interest rates	Changes to interest rates – pre contract signing	Low (0-30%)	Medium (31-45%)	Capital cost and operating cost	Use most updated information and historical data for better projection	R	R	R	R	R	R	If privates sector funding is involved, interest rate risk will be borne by the Government prior to Financial Close; this is consistent with widely accepted international precedents.

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
4	Interest rates	Changes to interest rates - post contract signing	Low (0-30%)	Medium (31-45%)	Capital cost and operating cost	Conduct sensitivity analysis Include contingency in budget estimate Include SWAP in the financing package to lock in interest rate	R	R	S	T	S	T	If privates sector funding is involved, interest rate risk will be borne by the borrower post Financial Close; this is consistent with widely accepted international precedents.
5	Availability of funding for cost overruns	Contingency funds not available for any cost overruns or not sufficient to cover potential cost overruns	Low (0-30%)	Low (0-30%)	Capital cost	Allow sufficient buffer as contingency and identify mechanism for injection of funds	S	S	S	T	S	T	
6	Availability of funding for additional facilities	Funds not available for the development of additional facilities	Low (0-30%)	Medium (31-45%)	Capital cost	Scope the project properly and consult key stakeholders to understand their needs before fianlising the operating requirements Allow sufficient buffer as contingency and identify mechanism for injection of	R	R	R	R	R	R	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
						funds							
7	[Residual value of facilities]	Inaccurate assessment of residual value of the facilities at the end of the concession period	Low (0-30%)	Low (0-30%)		Conduct proper research and seek professional advice (if required) to facilitate assessment							This risk is less relevant to the MPSC. Therefore, the probability rating and impact rating were not discussed.
8	Contractor insolvency	Contractor goes bankrupt during construction and is unable to complete the construction of the MPSC	Low (0-30%)	Medium (31-45%)	Capital cost	Adopt a rigorous selection process for contractor Ensure that the project specifications and operating requirements are practical and achievable	R	R	S	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
9	Service provider insolvency	Service provider goes bankrupt during operation and is unable to provide services	Low (0-30%)	Low (0-30%)	Operating cost	Adopt a rigorous selection process for service providers	R	R	S	T	S	T	
10	Client / contractor disputes	Risk of disputes adversely affecting service delivery	Low (0-30%)	Low (0-30%)	Operating cost	Implement appropriate governance arrangements to discuss management and operational issues Adopt a dispute resolution mechanism (e.g. mediation, arbitration)	S	S	S	S	S	S	Depends on outcome of dispute (and hence which party will bear the risk).

C.9 Regulatory and Legal Risks

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
1	Changes in Law foreseeable at the date of contract	Consequences (delay and costs) arising from implementation of foreseeable changes in law	Low (0-30%)	Low (0-30%)	Capital cost	Ensure that flexibility is built in the agreement to cope with changes Understand the potential impact of the proposed regulations and work with the operator to minimise impact	T	T	S	T	S	T	The suggested ratings are indicative – it is difficult to assess the consequence and impact without knowing what kind of legislative changes are implemented
2	General changes in law	Consequences (delay and costs) arising from implementation of changes in law	Low (0-30%)	Low (0-30%)	Capital cost and operating cost	Ditto	R	R	S	S	S	S	The suggested ratings are indicative – it is difficult to assess the consequence and impact without knowing what kind of legislative changes are implemented
3	Discriminatory change in law	Consequences (delay and costs) arising from implementation of discriminatory changes in law	Low (0-30%)	Medium (31-45%)	Capital cost and operating cost	Ditto	R	R	R	R	R	R	Discriminatory changes in law are those which discriminate against the MPSC or the companies involved in the development or operations of the MPSC (note that a change in law will not be

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
													discriminatory simply because its impact is greater on the MPSC than on others). Consistent with widely accepted international precedents, the Government will bear the risk of discriminatory changes in law not foreseeable at the time of contract.
4	Changes in law for which HAB will retain the risk	Changes in law for which HAB will retain the risk	Low (0-30%)	Low (0-30%)	Ditto	Ditto	R	R	R	R	R	R	Requires further discussions – whether HAB will retain certain risks in relation to specific changes in law, e.g., the minimum wage or accounting standards.
5	Changes in Code of Practice in Universal Accessibility (UA) and gender mainstreaming	Changes in UA and gender mainstreaming have been evolving in past few years and further changes in the coming changes cannot be ruled out	Low (0-30%)	Low (0-30%)	Capital cost, operating cost and project delivery time	Continually monitor the latest development in this area (and relevant information released by ArchSD and BD) Allow sufficient contingency funding in the	R	R	S	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
						agreement							

C.10 Termination Risks

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
1	Termination due to default by the Government	Risk that the Government defaults leading to compensation for the private sector operators	Low (0-30%)	High (45%+)	See comments	Allow sufficient contingency funding in the overall project budget Adopt a realistic project programme	R	R	R	R	R	R	Compensation payable by the Government to the operators as specified in the agreements according to widely accepted precedents.
2	Termination due to default of the private sector operators	Risk that the private sector operators default	Low (0-30%)	High (45%+)	See comments	Ditto	T	T	S	T	S	T	Compensation regime is specified in the agreements.
3	Default by the private sector operators leading to step in by financiers	Higher project costs due to step in	Low (0-30%)	Medium (31-45%)	Capital cost	Ensure that the agreements include appropriate provisions to deal with step-in rights	N.A.	N.A.	S	T	S	T	Relevant only if the privates sector funding is involved.
4	Termination due to failure to satisfy conditions precedent	Termination and release from obligations where conditions precedent are not fulfilled	Low (0-30%)	High (45%+)	See comments	Adopt a realistic project programme so as to allow sufficient time to deal with (and fulfill) necessary conditions	N.A.	N.A.	S	S	S	S	Relevancy is dependent on the funding structure and approach to contract signing.

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
5	Voluntary termination by the Government	HAB exercises a right to terminate the contract voluntarily	Low (0-30%)	Medium (31-45%)		Consider and explore other alternatives (or solutions), and seek advice from relevant B/Ds such as DoJ before making the decision	R	R	R	R	R	R	Presumably, the Government will want to have this flexibility. Compensation would be payable as for default by the Government.

C.11 Hand back Risks

							Preferred Risk Allocation Under						
	Risk	**Definition**	**Probability of Occurrence**	**Consequence & Potential Impact**	**Impact Base**	**Risk Mitigation approach**	**MC**	**RC**	**PPF**	**DBFO**	**JV**	**Land Tender Model**	**Other comments**
1	Asset condition	Risk that assets are not returned in the agreed conditions	Low (0-30%)	Low (0-30%)	Maintenance cost	Contractual mechanism to manage the asset conditions upon hand back	N.A.	N.A.	T	T	S	T	
2	[Residual value]	[Risk that residual value assumptions may be incorrect]											This risk is less relevant to the MPSC. Therefore, the probability rating and impact rating were not discussed.
3	[Land values]	[Risk of decrease / increase in land value]	Low (0-30%)	Low (0-30%)			R	R	R	R	R	R	This risk is less relevant to the MPSC.

C.12 Process Risks

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
1	Delay in decision making	The Government delays decision on the development of the MPSC resulting in delays and increase in costs	Medium (31-45%)	Medium (31-45%)	Capital and operating cost	Set up a project steering committee comprising senior government officials to guide the development of the MPSC	R	R	R	R	R	R	Any delays have to be within reason as bidders will not wait around indefinitely while incurring bid costs.
2	Political risk	Changes to services required as a result of political decisions	Low (0-30%)	Medium (31-45%)	Capital and operating cost	Have regular public engagement and consultation with the Legislative Council and District Councils	R	R	R	R	R	R	Any changes have to be within reason as bidders will not wait around indefinitely while incurring bid costs.
3	Security	Increased risk of breaches of security due to ongoing works	Low (0-30%)	Low (0-30%)	Capital and operating cost	Set up a project steering committee comprising senior government officials to guide the development of the MPSC	T	T	S	T	S	T	

	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
4	Ongoing studies	Ongoing Economic or Environmental Studies may affect the development of the MPSC	Low (0-30%)	Medium (31-45%)	Capital and operating cost	Conduct environment impact assessment as early as possible	R	R	R	R	R	R	HAB has completed relevant economic and feasibility studies for the MPSC.
5	Private sector capability / capacity	Private sector is unable to respond or deal with the contract due to pressures on construction labour or other work (for example further contracts coming up in the area)	Low (0-30%)	Medium (31-45%)	Capital cost	Select contractor from Category C only Allow tendering by Joint Venture of contractors Assign appropriate weighting for the technical and fee assessments in tender evaluation	T	T	S	T	S	T	
6	Internal resources	Internal resources of the Government unable to deal with the requirements of the contract	Low (0-30%)	Low (0-30%)	See comment	Secure funding to employ supporting staff and/or external advisors	R	R	R	R	R	R	This risk will only impact the Government's internal resources required to support the MPSC project.
7	[Efficiencies] - not relevant to stadium	[Planned efficiencies are not realised]					S	S	S	T	S	T	This refers to the planned efficiencies that the bidder has committed to achieve.

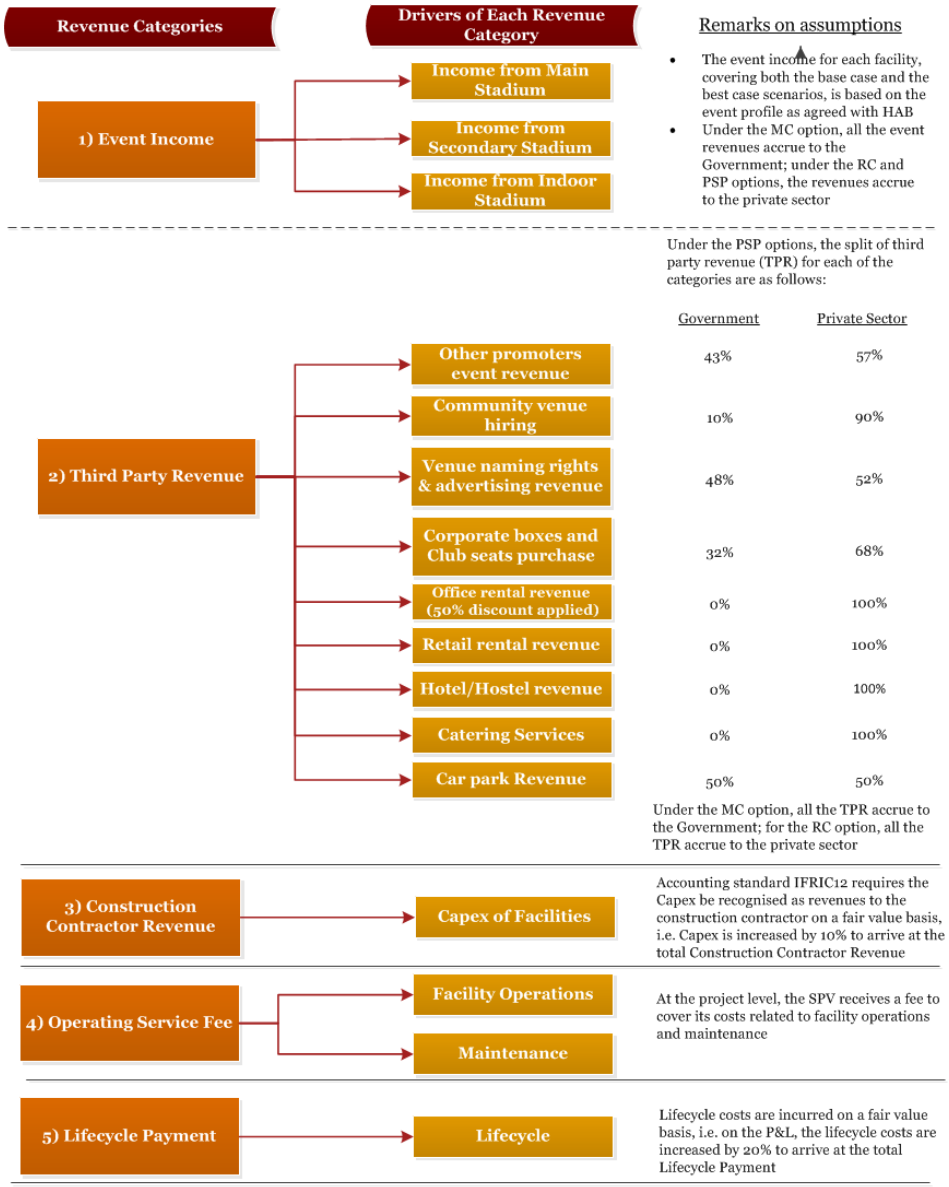
	Risk	Definition	Probability of Occurrence	Consequence & Potential Impact	Impact Base	Risk Mitigation approach	Preferred Risk Allocation Under						Other comments
							MC	RC	PPF	DBFO	JV	Land Tender Model	
													This risk is less relevant to the MPSC. Therefore, the probability rating and impact rating were not discussed.
8	Contract tendering	Lack of interest in private sector to invest and operate MPSC resulting in nil return of conforming tender	Low (0-30%)	Medium (31-45%)	Project delivery time	Develop a backup plan before tendering – e.g. adopt the PWP option if there is no conforming tender under the PSP option	R	R	R	R	R	R	

D. Further Details on the Financial Analysis

D.1 Structure of the Financial Model

This section sets out the structure of the financial model providing an overview of the linkages between the revenue/cost categories and their respective drivers at project level. Please note that this section also covers the basis of calculation for unitary payments which include capex, opex, lifecycle costs, financing costs, equity returns and taxes.

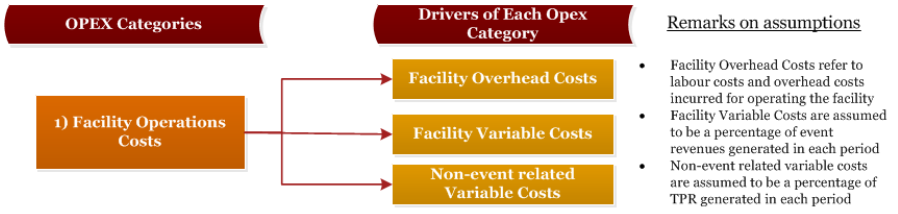
D.1.1 Revenues



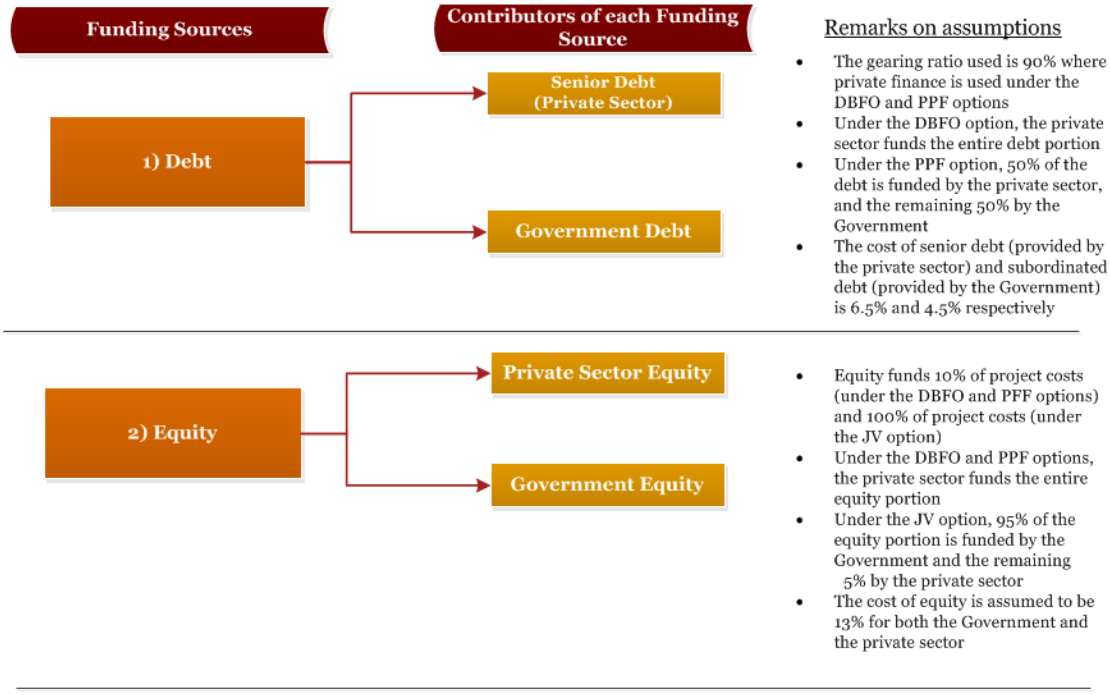
Notes:

- Under the RC option, the Government does not receive any event income and third party revenue (See remarks under Revenue Categories 1 and 2 above). In exchange for allowing the private sector to earn all event and non-event revenues from the operation of the MPSC, the Government will receive a "Operating License Fee" from the private sector, which is based on a percentage of EBITDA earned at the project level.
- Under the PSP options, the Capex (Revenue Category 3) and Operating Service Fee (Revenue Category 4) are paid to the private sector through the Unitary Payments. In addition, the Unitary Payments would have included the financing costs and equity return required for the private sector to finance the Capex.

D.1.2 Costs

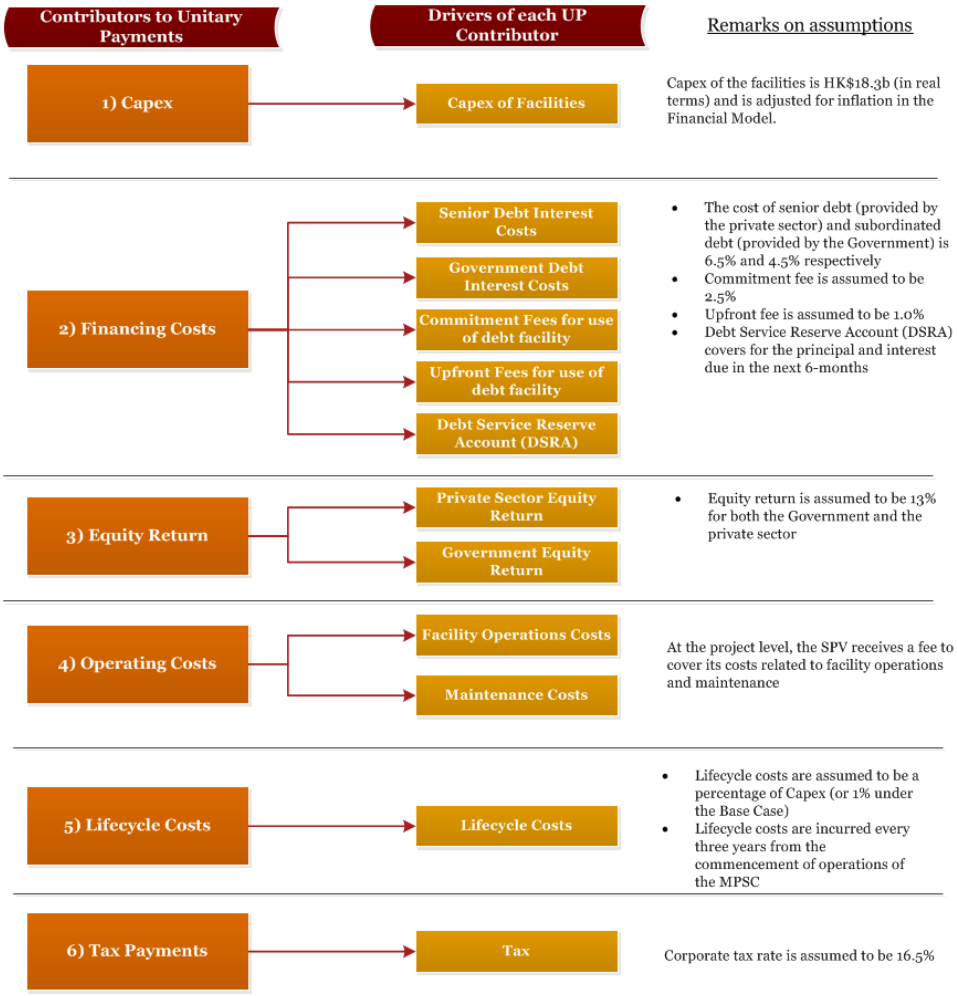


D.1.3 Funding



Notes:
- Under the MC and RC option, the Government funds the entire Capex costs.

D.1.4 Unitary Payment



D.2 Key Assumptions

All monetary figures in the tables below are specified at Q4 2012 price level unless otherwise stated.

D.2.1 General Assumptions

Key Parameters	Figures	Sources / Remarks
Modelling timing		
• Model start date	01/10/2012	
• Concession start date	01/04/2016	
• Concession end date	31/03/2046	
• Concession term	30 years	This figure covers both the construction and operation periods.
• Modelling step	3 months	The model is developed in such a way that cashflows are projected on a quarterly basis
Construction		
• Construction start date	01/04/2016	
• Construction duration	42 months	
• Construction end date	30/10/2019	
• Construction costs (total)	$18.30b	This figure (i) is based on PwC analysis (with reference to comparable figures of sports facilities in Hong Kong and overseas, and the TFS prepared by the ArchSD); is adjusted for different facility mix when overseas sports facilities are used as reference; (ii) is adjusted for different cost rates in Hong Kong and overseas locations when overseas figures are used as reference; and (iii) does not include any construction contingencies
• Construction schedule – percentage of work done during each quarter		The construction schedule adopted by a comparable stadium project overseas is referenced
• Q1	6.00%	
• Q2	3.40%	
• Q3	5.40%	
• Q4	6.40%	
• Q5	8.00%	

Key Parameters	Figures	Sources / Remarks
• Q6	8.50%	
• Q7	9.30%	
• Q8	13.10%	
• Q9	12.20%	
• Q10	10.70%	
• Q11	8.50%	
• Q12	5.70%	
• Q13	2.30%	
• Q14	0.50%	

D.2.2 Operating Revenues

Parameters	Figures (event profile base case)	Figures (event profile best case)	Sources / Remarks
Event-related revenues			
• Event-related revenues			Refer to Appendices A.1 and A.2 for details about the proposed sets of event profile Estimated figures based on previous MPSC reports and PwC/RPT Consulting analysis
○ Year 1	$13.64m	$16.04m	
○ Year 2	$31.62m	$43.95m	
○ Year 3	$45.63m	$79.28m	
○ Year 4	$43.73m	$75.43m	
○ Year 5 and beyond	$52.66m	$93.12m	
Third party revenues (TPR)			
• Catering services			Estimated figures are in gross terms and based on PwC/RPT Consulting analysis
○ Year 1	$19.07m	$23.38m	
○ Year 2	$51.94m	$74.76m	
○ Year 3	$74.44m	$132.62m	
○ Year 4	$68.24m	$124.60m	
○ Year 5 and beyond	$85.76m	$156.64m	
• Merchandising (commission received)			Assuming that the MPSC operator receives 20% commission on gross merchandising
○ Year 1	$2.73m	$3.23m	
○ Year 2	$5.90m	$8.69m	

Parameters	Figures (event profile base case)	Figures (event profile best case)	Sources / Remarks
○ Year 3	$8.49m	$15.30m	revenue Estimated figures based on PwC/RPT Consulting analysis
○ Year 4	$8.14m	$14.21m	
○ Year 5 and beyond	$10.90m	$18.44m	
• Community venue hiring			Refer to Appendix A.3 for details about the proposed use of the Indoor Arena and Secondary Stadium for community events Revenues generally reduce over time because of increasing occupancy of the Indoor Arena and Secondary Stadium by non-community events and programmes Estimated figures based on PwC/RPT Consulting analysis
○ Year 1	$0.78m	$0.66m	
○ Year 2	$1.40m	$0.88m	
○ Year 3	$0.92m	$0.26m	
○ Year 4	$1.13m	$0.57m	
○ Year 5 and beyond	$0.83m	$0.12m	
• Office rental revenues	$200 per sq.m. per month		Reference to the market price of similar commercial properties rental rate in June 2013
• Retail rental revenues	$301 per sq.m. per month		Reference to the Link REIT weighted retail rental income in FY11/12
• Hotel/Hostel revenues			
○ Room rate	$1,198 per room per night		Based on Langham Hospitality Investments and Langham Hospitality Investment Limited IPO document (2013) – reference to Eaton Hotel RevPAR in 2012

Parameters	Figures (event profile base case)	Figures (event profile best case)	Sources / Remarks
○ Occupancy rate	94.9%		Based on Langham Hospitality Investments and Langham Hospitality Investment Limited IPO document (2013) – reference to Eaton Hotel average occupancy rate in 2012
• Car Park revenues	$29.63m		Assuming an average hourly rate $10/hour; 1,120 spaces; 18 hours per day; 350 usage days per annum; 60% utilisation/occupancy on average

D.2.3 Operating Costs

Parameters	Figures (Base case)	Figures (Best case)	Sources / Remarks
Event-related expenses			
• Catering services (expressed as a percentage of the gross revenue generated from catering services)	80.00%		Estimated figures based on PwC/RPT Consulting analysis
• Facility operating variable cost (expressed as a percentage of total operating revenue)	55.00%		The cost structure of a comparable stadium project overseas is referenced
• Fixed cost (labour)	$29.58m		Estimated figures based on previous MPSC reports and PwC/RPT Consulting analysis
• Facility operating overheads			Estimated figures based on previous MPSC reports and PwC/RPT Consulting analysis
○ Year 1	$12.04m	$12.82m	
○ Year 2	$26.39m	$30.49m	
○ Year 3	$31.29m	$42.07m	
○ Year 4	$31.22m	$41.38m	
○ Year 5 and beyond	$35.20m	$48.04m	

Parameters	Figures (Base case)	Figures (Best case)	Sources / Remarks
Third party related expenses			
• Office rental revenue	30.00%		The cost structure of a comparable stadium project overseas is referenced
• Retail rental revenue	29.05%		Reference to the Link reported financial statement – operating cost equals to 29.05% of operating revenue
• Hotel/Hostel revenue	72.20%		Reference to Eaton Hotel reported financial information from IPO document – operating cost equals to 72.20% of operating revenue
• Car Park revenue	30%		Estimated figures based on previous MPSC reports and PwC/RPT Consulting analysis
Other Costs			
• Management fees premium	10%		Management fees are charged to the Government on a cost plus 10% basis Only applicable to the MC option
• Lifecycle maintenance costs premium	10%		Lifecycle maintenance costs are charged to the Government on a cost plus 10% basis Only applicable to the MC and RC options
• Amount of land premium payable to the Government by the operator	$0		Only applicable to the Land Tender option

D.2.4 Revenue Sharing Ratio

Parameters	Figures	Sources / Remarks
Percentage of TPR payable to the Government		
• Other promoters event revenues (sports and	43%	The revenue sharing arrangements adopted by a comparable stadium project

Parameters	Figures	Sources / Remarks
non-sports related)		overseas are referenced
• Community venue hiring	10%	
• Venue naming rights & advertising revenues	48%	
• Corporate boxes and Club seats purchase	32%	
• Office rental revenues	0%	Figures agreed with the HAB
• Retail rental revenues	0%	
• Hotel/Hostel revenues	0%	
• Catering services	0%	
• Car Park revenues	50%	The revenue sharing arrangements adopted by a comparable stadium project overseas are referenced
Percentage of net revenues payable to the Government		
• EBITDA	15%	Only applicable to the RC option

D.2.5 Maintenance and Life Cycle Costs

Parameters	Figures	Sources / Remarks
• Maintenance costs	2.5% of annual net operating revenue	
• Life cycle costs	1% of Construction cost p.a.	An arrangement whereby a "life cycle maintenance fund" is established and contributions (from the operating cashflow) are made on a regular basis to the maintenance fund so that it can build up just sufficient amount to support the next life cycle maintenance work due
• Life cycle frequency	3.00 years	

D.2.6 Financial Assumptions

Key Parameters	Figures	Sources / Remarks
Equity structure		
• Gearing ratio	90.00%	Only applicable to the DBFO, PPF and Land Tenders options where private sector financing (or debt) is involved
• Equity IRR (EIRR)	13.00%	This assumption (i) has adopted the suggestion put forward by one of the respondents of the EOI exercise; and (ii) applies to all equity providers (including the Government where applicable) under the DBFO, PPF, JV and Land Tenders

Key Parameters	Figures	Sources / Remarks
		options
• Shareholder loan of the total Asset	8.00%	
• Portion of Government contributed Equity / Shareholder Loan	95.00%	Only applicable to the JV option
Debt assumptions		
• Proportion of debt provided by the Government	50.00%	Only applicable to the PPF option
• Debt Service Cover Ratio	1.20x	Cash flow available for debt services are sculpted to senior debt (which are typically provided by banks and/or private lenders)
• Upfront fee	1.00%	
• Commitment fee	2.50%	
• Interest rate- senior debt provided by banks and/or private sector lenders	6.50%	Only applicable to the DBFO, PPF, JV and Land Tenders options
• Interest rate- subordinated debt provided by the Government	4.50%	Only applicable to the PPF option

D.2.7 Government Funding Assumptions

Key Parameters	Figures	Sources / Remarks
Unity Payment (UP)		
• Amount	Vary	Only applicable to the DBFO, PPF and JV options
• Indexable portion	40.00%	The payment arrangements adopted by a comparable stadium project overseas is referenced
• Escalation factor apply to the indexable portion	3.50%	Forecast Hong Kong CPI

D.2.8 Economic Assumptions

Parameters	Figures	Sources / Remarks

Parameters	Figures	Sources / Remarks
• HK Consumer Price Index (CPI), annual	3.50%	
• HK Wage Price index (WPI), annual	3.70%	
• Maintenance and life cycle cost escalation factor, annual	5.00%	Assumes the maintenance and life cycle cost is 1.50% over CPI, adopted by a comparable stadium project overseas is referenced
• Construction cost escalation factor, annual	10.61%	The average year-on-year index movement of BWTPI (published by ArchSD) between 2009 Q4 and 2012 Q4
• Government infrastructure project discount rate, annual	4.00%	The general acceptable discount rate for Hong Kong Government infrastructure appraisals[64]
• Exchange fund average annual return rate	5.60%	Hong Kong Monetary Authority – Compounded Annual Investment Return (1994-2012)

D.2.9 Accounting and Taxation Assumptions

Key Parameters	Figures / Assumptions	Sources / Remarks
Applicable accounting rules		
• Management Contract & Revenue contract	IAS 18	Hong Kong Institute of Certified Public Accountants (HKICPA) – Hong Kong Accounting Standard 18 Revenue (HKAS 18)
• PPF, DBFO and JV	IFRIC-Int 12	HKICPA – Hong Kong (IFRIC) Interpretation 12 Service Concession Arrangements (HK(IFRIC)-Int 12)
• Land Tender	IAS 16	HKICPA – Hong Kong Accounting Standard 16 Property, Plant and Equipment (HKAS 16)
Fair value		
• Construction revenue	10.00%	Fair values and notional interest rate are applicable to DBFO, PPF and JV Options only as required under HK (IFRIC)-Int 12.
• Operation revenue	20.00%	
• Notional interest rate charged to financing	8.00%	

[64] The real discount rate of 4.00% is generally used when appraising Hong Kong Government infrastructure projects, e.g. HKIA Master Plan 2030 Technical Report. The HKIA Financial Report also adopted a similar real discount rate of 5%. Therefore, this assumption is generally in line with the assumptions adopted by other infrastructure projects.

Key Parameters	Figures / Assumptions	Sources / Remarks
services provided by the SPV		
Taxation		
• Corporate Income Tax	16.50%	Tax credits (if any) are assumed to be carried indefinitely
Depreciation		
• Building and infrastructure	26.5 years	Only applicable to the Land Tender Option in which the SPV holds the building and infrastructure
• Life cycle costs	N.A.	Life cycle costs are treated as expenses at the time of accrual.

D.3 Further Details on the Base Costs to the Government

D.3.1 Management Contract

Government cost calculations			NPV (Discounted at 7.64%)	Nominal
Government receives / contributions				
Equity transaction				
	Proportion of Equity contributed by the Government	%		
	Equity contribution	$ million	$ -	$ -
	Equity collection (upon concession termination)	$ million	$ -	$ -
	Dividend Received	$ million	$ -	$ -
Payments				
	Construction Contractor Revenue	$ million	$ (31,318.00)	$ (35,289.44)
	Operating Service Revenue (covers Facility Operating Cost, Mainte	$ million	$ (11,623.42)	$ (40,506.44)
	Unitary Payment	$ million	$ -	$ -
	Construction Fund injection by the Government	$ million	$ -	$ -
Receive				
	Event income	$ million	$ 814.21	$ 2,833.86
	Third Party Revenue	$ million	$ 7,799.83	$ 26,482.04
	Land Premium	$ million	$ -	$ -
Finanace: Sub-ordinate debt (Government)				
	Drawdown	$ million	$ -	$ -
	Interest received	$ million	$ -	$ -
	Principal repayment	$ million	$ -	$ -
Tax				
	Tax income fr the SPV/Contractor	$ million	$ 789.41	$ 1,643.27
Management cost				
	Cost for the Government / HAB to manage the MPSC (for the PWF	$ million	$ -	$ -
	Cost for HAB to manage the SPV/Contractor (for the all cases oth	$ million	$ -	$ -
Government contribution summary		$ million	$ (33,537.97)	$ (44,836.71)
NPV, as of the time when construction begin				
	Discounted @ selected %	%	**$ (33,537.97)**	

D.3.2 Revenue Contract

Government cost calculations			NPV (Discounted at 7.64%)	Nominal
Government receives / contributions				
Equity transaction				
	Proportion of Equity contributed by the Government	%		
	Equity contribution	*$ million*	$ -	$ -
	Equity collection (upon concession termination)	*$ million*	$ -	$ -
	Dividend Received	*$ million*	$ -	$ -
Payments				
	Construction Contractor Revenue	*$ million*	$ (31,318.00)	$ (35,289.44)
	Operating Service Revenue (covers for Lifecycle Cost only)	*$ million*	$ (5,044.18)	$ (18,032.64)
	Unitary Payment	*$ million*	$ -	$ -
	Construction Fund injection by the Government	*$ million*	$ -	$ -
Receive				
	Operating Licensing Fee	*$ million*	$ 1,022.87	$ 2,520.19
	Event income	*$ million*	$ -	$ -
	Third Party Revenue	*$ million*	$ -	$ -
	Land Premium	*$ million*	$ -	$ -
Finanace: Sub-ordinate debt (Government)				
	Drawdown	*$ million*	$ -	$ -
	Interest received	*$ million*	$ -	$ -
	Principal repayment	*$ million*	$ -	$ -
Tax				
	Tax income fr the SPV/Contractor	*$ million*	$ 956.38	$ 2,356.38
Management cost				
	Cost for the Government / HAB to manage the MPSC (for the PV	*$ million*	$ -	$ -
	Cost for HAB to manage the SPV/Contractor (for the all cases o	*$ million*	$ -	$ -
Government contribution summary		*$ million*	$ (34,382.93)	$ (48,445.50)
NPV, as of the time when construction begin				
	Discounted as inflation	%	$ (39,906.80)	
	Discounted as FX Fund return	%	$ (36,716.17)	
	Discounted as HK Gov infrastructure discount rate	%	$ (34,382.93)	
	Discounted @ selected %	%	**$ (34,382.93)**	

D.3.3 Design-Build-Finance-Operate

Government cost calculations			NPV (Discounted at 7.64%)	Nominal
Government receives / contributions				
Equity transaction				
	Proportion of Equity contributed by the Government	%		
	Equity contribution	*$ million*	$ -	$ -
	Equity collection (upon concession termination)	*$ million*	$ -	$ -
	Dividend Received	*$ million*	$ -	$ -
Payments				
	Construction Contractor Revenue	*$ million*	$ -	$ -
	Operating Service Revenue	*$ million*	$ -	$ -
	Unitary Payment	*$ million*	$ (36,578.18)	$ (115,710.71)
	Construction Fund injection by the Government	*$ million*	$ -	$ -
Receive				
	Event income	*$ million*	$ -	$ -
	Third Party Revenue	*$ million*	$ 699.70	$ 2,376.41
	Land Premium	*$ million*	$ -	$ -
Finanace: Sub-ordinate debt (Government)				
	Drawdown	*$ million*	$ -	$ -
	Interest received	*$ million*	$ -	$ -
	Principal repayment	*$ million*	$ -	$ -
Tax				
	Tax income fr the SPV/Contractor	*$ million*	$ 1,800.39	$ 6,639.44
Management cost				
	Cost for the Government / HAB to manage the MPSC (for the PWP ca	*$ million*	$ -	$ -
	Cost for HAB to manage the SPV/Contractor (for the all cases other th	*$ million*	$ -	$ -
Government contribution summary		*$ million*	$ (34,078.09)	$ (106,694.86)
NPV, as of the time when construction begin				
	Discounted @ selected %	%	**$ (34,078.09)**	

D.3.4 Partial Private Finance

Government cost calculations			NPV (Discounted at 7.64%)	Nominal
Government receives / contributions				
Equity transaction				
	Proportion of Equity contributed by the Government	%		
	Equity contribution	$ million	$ -	$ -
	Equity collection (upon concession termination)	$ million	$ -	$ -
	Dividend Received	$ million	$ -	$ -
Payments				
	Construction Contractor Revenue	$ million	$ -	$ -
	Operating Service Revenue	$ million	$ -	$ -
	Unitary Payment	$ million	$ (36,980.90)	$ (116,984.65)
	Construction Fund injection by the Government	$ million	$ -	$ -
Receive				
	Event income	$ million	$ -	$ -
	Third Party Revenue	$ million	$ 699.70	$ 2,376.41
	Land Premium	$ million	$ -	$ -
Finanace: Sub-ordinate debt (Government)				
	Drawdown	$ million	$ (15,851.05)	$ (17,973.27)
	Interest received	$ million	$ 5,908.37	$ 9,970.65
	Principal repayment	$ million	$ 6,992.90	$ 19,931.74
Tax				
	Tax income fr the SPV/Contractor	$ million	$ 2,845.06	$ 9,215.50
Management cost				
	Cost for the Government / HAB to manage the MPSC (for t	$ million	$ -	$ -
	Cost for HAB to manage the SPV/Contractor (for the all ca	$ million	$ -	$ -
Government contribution summary		$ million	$ (36,385.92)	$ (93,463.63)
NPV, as of the time when construction begin				
	Discounted @ selected %	%	**$ (36,385.92)**	

D.3.5 Joint Venture

Government cost calculations			NPV (Discounted at 7.64%)	Nominal
Government receives / contributions				
Equity transaction				
	Proportion of Equity contributed by the Government	%		
	Equity contribution	$ million	(27,877.96)	$ (31,438.00)
	Equity collection (upon concession termination)	$ million	3,511.68	$ 31,438.00
	Dividend Received	$ million	43,688.14	$ 128,468.23
Payments				
	Construction Contractor Revenue	$ million	-	$ -
	Operating Service Revenue	$ million	-	$ -
	Unitary Payment	$ million	(63,491.86)	$ (200,848.93)
	Construction Fund injection by the Government	$ million	-	$ -
Receive				
	Event income	$ million	-	$ -
	Third Party Revenue	$ million	699.70	$ 2,376.41
	Land Premium	$ million	-	$ -
Finanace: Sub-ordinate debt (Government)				
	Drawdown	$ million	-	$ -
	Interest received	$ million	-	$ -
	Principal repayment	$ million	-	$ -
Tax				
	Tax income fr the SPV/Contractor	$ million	9,335.90	$ 26,722.04
Management cost				
	Cost for the Government / HAB to manage the MPS	$ million	-	$ -
	Cost for HAB to manage the SPV/Contractor (for the	$ million	-	$ -
Government contribution summary		$ million	$ (34,134.41)	$ (43,282.26)
NPV, as of the time when construction begin				
	Discounted @ selected %	%	**$ (34,134.41)**	

D.3.6 Land Tender

Under this option, the SPV is unlikely to be able to service its debt through the operating income. Therefore this option is not financially viable and a full account of the cost to the Government is not available.

D.4 P&L Accounts at Project Level[65]

D.4.1 Management Contract

Statement of Comprehensive Income			
Income		**NPV (discounted at 13% EIRR)**	**Nominal**
Operating revenue	*$ million*	$ 35,015.69	$ 75,795.87
Receipts	*$ million*	$ -	$ -
Expenditure			
Construction cost	*$ million*	$ (26,362.8)	$ (32,081.3)
Operating cost	*$ million*	$ (5,013.87)	$ (33,755.36)
Write off - receivables expired	*$ million*	$ -	$ -
EBITDA			
EBITDA	*$ million*	$ 3,639.05	$ 9,959.20
Depreciation and Amoritisation	*$ million*	$ -	$ -
EBIT			
EBIT	*$ million*	$ 3,639.05	$ 9,959.20
Finance			
Finance Income	*$ million*	$ -	$ -
Borrowing cost	*$ million*	$ -	$ -
Profit Before Tax (PBT)			
PBT	*$ million*	$ 3,639.05	$ 9,959.20
Tax free income - Government funding injection	*$ million*	$ -	$ -
Tax	*$ million*	$ (600.44)	$ (1,643.27)
Profit After Tax / Net Profit			
Net Profit	*$ million*	$ 3,038.61	$ 8,315.93

[65] The cashflows are discounted at project level, i.e., 13%.

D.4.2 Revenue Contract

Statement of Comprehensive Income		NPV (discounted at 13% EIRR)	Nominal
Income			
Operating revenue	*$ million*	$ 36,819.59	$ 82,637.97
Receipts	*$ million*	$ -	$ -
Expenditure			
Construction cost	*$ million*	$ (26,362.76)	$ (32,081.31)
Operating cost	*$ million*	$ (5,549.47)	$ (33,755.36)
Write off - receivables expired	*$ million*	$ -	$ -
EBITDA			
EBITDA	*$ million*	$ 4,907.36	$ 16,801.30
Operating Licensing Fee to the Government	*$ million*	$ (736.10)	$ (2,520.19)
Depreciation and Amoritisation	*$ million*	$ -	$ -
EBIT			
EBIT	*$ million*	$ 4,171.26	$ 14,281.10
Finance			
Finance Income	*$ million*	$ -	$ -
Borrowing cost	*$ million*	$ -	$ -
Profit Before Tax (PBT)			
PBT	*$ million*	$ 4,171.26	$ 14,281.10
Tax free income - Government funding injection	*$ million*	$ -	$ -
Tax	*$ million*	$ (688.26)	$ (2,356.38)
Profit After Tax / Net Profit			
Net Profit	*$ million*	$ 3,483.00	$ 11,924.72

D.4.3 Design-Build-Finance-Operate

Statement of Comprehensive Income		NPV (discounted at 13% EIRR)	Nominal
Income			
Operating revenue	*$ million*	$ 39,164.49	$ 102,735.36
Receipts	*$ million*	$ 2,724.58	$ 15,704.41
Expenditure			
Construction cost	*$ million*	$ (26,363)	$ (32,081)
Operating cost	*$ million*	$ (5,013.87)	$ (33,755.36)
Write off - receivables expired	*$ million*	$ (0.00)	$ (0.00)
EBITDA			
EBITDA	*$ million*	$ 10,511.39	$ 52,603.10
Depreciation and Amoritisation	*$ million*	$ (3,235.32)	$ (16,489.13)
EBIT			
EBIT	*$ million*	$ 7,277.11	$ 36,113.97
Finance			
Finance Income	*$ million*	$ 11,003.64	$ 38,326.20
Borrowing cost	*$ million*	$ (12,610.61)	$ (34,222.54)
Profit Before Tax (PBT)			
PBT	*$ million*	$ 5,670.14	$ 40,217.63
Tax free income - Government funding injection	*$ million*	$ -	$ -
Tax	*$ million*	$ (941.40)	$ (6,639.44)
Profit After Tax / Net Profit			
Net Profit	*$ million*	$ 4,728.74	$ 33,578.19

D.4.4 Partial Private Finance

Statement of Comprehensive Income				
Income			**NPV (discounted at 13% EIRR)**	**Nominal**
Operating revenue		*$ million*	$ 39,164.49	$ 102,735.36
Receipts		*$ million*	$ 2,945.59	$ 16,978.36
Expenditure				
Construction cost		*$ million*	$ (26,362.76)	$ (32,081.31)
Operating cost		*$ million*	$ (5,013.87)	$ (33,755.36)
Write off - receivables expired		*$ million*	$ (0.00)	$ (0.00)
EBITDA				
EBITDA		*$ million*	$ 10,733.45	$ 53,877.05
Depreciation and Amoritisation		*$ million*	$ (3,186.45)	$ (16,240.05)
EBIT				
EBIT		*$ million*	$ 7,547.00	$ 37,636.99
Finance				
Finance Income		*$ million*	$ 11,003.64	$ 38,326.20
Borrowing cost		*$ million*	$ (9,073.49)	$ (20,111.71)
Profit Before Tax (PBT)				
PBT		*$ million*	$ 9,477.15	$ 55,851.49
	Tax free income - Government funding injection	*$ million*	$ -	$ -
Tax		*$ million*	$ (1,566.98)	$ (9,215.50)
Profit After Tax / Net Profit				
Net Profit		*$ million*	$ 7,910.17	$ 46,635.99

D.4.5 Joint Venture

Statement of Comprehensive Income		NPV (Discounted at EIRR of 13%)	Nominal
Income			
Operating revenue	*$ million*	$ 39,161.34	$ 102,735.36
Receipts	*$ million*	$ 17,493.42	$ 100,842.64
Expenditure			
Construction cost	*$ million*	$ (26,360.90)	$ (32,081.31)
Operating cost	*$ million*	$ (5,013.33)	$ (33,755.36)
Write off - receivables expired	*$ million*	$ (0.00)	$ (0.00)
EBITDA			
EBITDA	*$ million*	$ 25,280.53	$ 137,741.33
Depreciation and Amoritisation	*$ million*	$ (2,769.35)	$ (14,115.77)
EBIT			
EBIT	*$ million*	$ 22,511.18	$ 123,625.55
Finance			
Finance Income	*$ million*	$ 11,002.46	$ 38,326.20
Borrowing cost	*$ million*	$ -	$ -
Profit Before Tax (PBT)			
PBT	*$ million*	$ 33,513.64	$ 161,951.75
Tax free income - Government funding injection	*$ million*	$ -	$ -
Tax	*$ million*	$ (5,529.75)	$ (26,722.04)
Profit After Tax / Net Profit			
Net Profit	*$ million*	$ 27,983.89	$ 135,229.71

D.4.6 Land Tender

Under this option, the SPV is unlikely to be able to service its debt through the operating income. Therefore this option is not financially viable and a full P&L account is not available.