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The University Technology Transfer Company

**Specialist Advisor to the Subcommittee on
West Kowloon Cultural District (WKCD) Development
for the Study on
The Financial Aspects of the WKCD Project
for
The Legislative Council Commission**

Final Report

Written by

K.C.Wong, K.W.Chau, S.K.Wong, and P.Yung

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List of abbreviations

AV	Accommodation value
BOO	Build Own Operate
BOT	Build Operate Transfer
CACF	Core Arts and Cultural Facilities
CFA	Construction floor area
D&B	Design & Build
DBFM	Design Build Finance Maintain
EC	Exhibition Centre
FA	The Financial Advisor engaged by the Government to assist the work of the Financial Matters Advisory Group
FF&E	Furniture, fixtures & equipment
GFA	Gross floor area
HAB	Home Affairs Bureau
LCSD	Leisure and Cultural Services Department
LTGDC	London Thames Gateway Development Corporation
M&E	Mechanical and electrical
MAG	Museums Advisory Group
MOD	Money of the day
OMM	Operate Manage Maintain
NPO	Not-for-profit organization
NPV	Net present value
PA	Performing arts
PATAG	Performing Arts and Tourism Advisory Group
PSC	Public Sector Comparator
psm	per square meter
RDE	Retail, Dining and Entertainment
T-bill	Treasury Bill
TIPS	Treasury Inflation Protected Security
TPI	Tender price index
WACC	Weighted average cost of capital
WKCD	West Kowloon Cultural District
WKCDA	West Kowloon Cultural District Authority

1 Executive summary

1. This report assumes the principle that the WKCD should be self sufficient and financially sustainable. Capital and operating deficits would have to be met by land sales and operating income within the 40 hectares of land.
2. The method of comparing Scenarios of private sector involvement is questionable. Scenarios 1B and 2 are not sufficiently realistic to be considered as practical options for meaningful comparisons. Moreover, despite greater private sector participation in these two Scenarios, no additional efficiency gain has been allowed for.
3. Design and Build contracts may not be a suitable procurement method for M+ and other core arts and cultural facilities.
4. Unit construction costs are found within a reasonable range. On-costs are, however, higher than conventional.
5. The Financial Advisor's (FA) sensitivity analyses have not tested the financial implications of risks in investment returns and in construction cost escalations. These tests should be carried out, and contingency plans should be formulated well in advance.
6. The FA's analysis is confined to 50 years. There is no fund set aside for major renovations or re-constructions after 50 years, beyond which the WKCD may not be financially sustainable. An extra saving on capital and operating costs, equivalent to 16% of the \$21.6 seed fund, is needed.
7. Under the FA's operating assumptions, M+ would cost \$10.7 billion to construct and operate for 50 years. By 2059, M+ would contribute 89% of the WKCD's yearly deficit. M+ might become a long term financial burden of the WKCD.
8. According to the information provided by the FA so far, should M+ be run by an international operator, the potential saving, in very crude terms, could be as high as 22% of the \$21.6 billion seed fund.
9. Annual deficits of the WKCD would have to be met by Retail, Dining and Entertainment (RDE) rentals. RDE is therefore the life line of the WKCD. Yet compared to the detailed operating assumptions provided for Core Arts and Cultural Facilities (CACF), down to the smallest of theatres, those provided for RDE are clearly insufficient.
10. In considering the funding priorities of each individual facility/cost item, factors including uncertainty in financial performance, potential benefits on further investigations, and its financial significance, should all be taken into account. To build up the financial strength of the WKCD, considerations in (a) the reduction of on-costs; (b) the operation mode of M+; and (c) an effective business plan for RDE facilities are most essential.

2 Background

In April 2008, the Legislative Council Commission appointed Versitech Limited as a Specialist Advisor to the Subcommittee on the West Kowloon Cultural District Development to study and advise the Subcommittee on the financial aspects of the WKCD project.

2.1 Objectives

The followings are the specific objectives of this study:

- (1) To provide a reasonably clear and realistic picture of the overall financial performance of the WKCD project;
- (2) to determine the validity and feasibility of the conclusions and recommendations made in the Final Report of the Financial Advisor for the Development of WKCD and Related matters (“the FA’s Report”), dated April 2007, and in the Assessment of the Financial Implications of the WKCD project (the “WKCD-511 Report”) prepared by the Home Affairs Bureau, dated January 2008; and
- (3) to recommend to the Subcommittee if, or how far, the financial arrangements proposed by the Hong Kong Government for WKCD (including those contained in the relevant funding proposals submitted by the Hong Kong Government to the Public Works Subcommittee and the Finance Committee of the Legislative Council within the terms of the Appointment) should be supported, as well as recommend ways and means to enable the relevant authorities to manage the financial performance of the WKCD project effectively during the course of its planning, development, and operation.

2.2 Tasks

Specific tasks of this study include:

- (1) To provide assistance to the Subcommittee in its examination of the information provided by the Hong Kong Government on the financial aspects of the WKCD Project; and
- (2) to report the results of this study, notably the financial aspects of the WKCD project, covering the followings:
 - (a) an evaluation of the methodology of the financial analysis and the various assumptions used to assess the financial implications of the WKCD project in the FA’s Report and WKCD-511 Report;
 - (b) an evaluation of the validity of the results of the financial analysis and sensitivity tests, including the estimation of the costs and revenues of the arts and cultural

- facilities of the WKCD project, particularly M+, in the FA's Report and WKCD-511 Report;
- (c) an evaluation of the recommendations made in the FA's Report and WKCD-511 Report on the financing approach for the WKCD project, with regard to the findings of the report on the "Economic impact of developing the West Kowloon Cultural District" prepared by the Economic Analysis and Business Facilitation Unit of the Financial Secretary's Office ("the EIA Report"); and
 - (d) an advice to the Subcommittee on whether or not the financial analysis in the FA's Report and WKCD-511 Report is adequate for assessing the financial viability and sustainability of the WKCD project and how to determine the appropriate financing arrangements for the WKCD project.

2.3 Methodologies

Objectives (1) and (2), in Section 2.1, will be achieved by carefully evaluating the logic of the methodology and assumptions, the basis of estimates on costs and revenues, and the results and recommendations in the FA's Report and WKCD-511 Report.

Objective (3) will be achieved by identifying the critical parameters affecting the financial performance of the WKCD project. These parameters may include the level of construction costs, rates of investment return to the endowment fund, general inflation and interest rates, rental performances of retail, dining and entertainment facilities, occupancy rates of hotels, number of visitors to WKCD facilities, etc. These parameters might alternatively be expressed in terms of degree, or percentage deviations from the base case, and they should be studied carefully in sensitivity analysis. These careful studies would help the managing authority identify critical changes taking place during the course of the WKCD project's development and operation, which may substantially affect the WKCD project's financial performance. This may also allow the management to be alert of the changes taking place and be able to prepare and carry out any contingent financial and management plan on time.

To arrive at a better estimation of figures, comparisons to the available data are inevitable. There is yet another objective in comparative studies, which is to highlight the differences in the financial performances of very different management and operation strategies. This latter method is used when a distinctive alternative strategy is available (e.g. building up a collection of artwork, or entering into a franchise agreement).

Both of these two methodologies will be used in this report, with a view to investigating the potential methods for improving the financial performance of the WKCD.

2.4 Assumptions

The FA's Report took the recommendations of the Museums Advisory Group (MAG) and Performing Arts and Tourism Advisory Group (PATAG) for granted.¹ While these recommendations are thoroughly acknowledged in this study, the Specialist Advisor's scope of work is, however, not strictly restricted by these recommendations, particularly when such recommendations are vital to the financial performance, and hence, the financial sustainability, of the WKCD project.

The Home Affairs Bureau (HAB) revised the FA's Report in January 2008² to reduce the seed fund from \$30 to \$21.6 billion by downsizing M+, increasing the ratio of net operating to gross floor area for Core Arts and Cultural Facilities (CACF), refining the development mix, and shifting the financial burden of the communal and infrastructural facilities to the Government. As a result, this \$21.6 billion seed fund could be met by a sum roughly equivalent to land sales revenues, while RDE rentals could meet future operating costs. We therefore assume the principle that the WKCD should be financially self-sufficient within the 40 hectares of land available to the WKCD, meaning that all capital and operating costs should be self-financed by means of land sales revenues and operating incomes, subject to land use restriction and maximum densities imposed by the government from time to time.

With regard to the development and operation program, we followed the proposed timeline in the WKCD-511 Report, which states that all Phase 1 CACF would be completed and operational by 2015 and Phase 2 CACF by 2031. The timing of the capital and operation expenditures, however, could vary depending on the procurement method and operation mode.

2.5 A financial overview

The current funding proposal is a \$21.6 billion seed endowment fund. This is based on the HAB's WKCD-511 Report dated January 2008. In this report, M+ was downsized to allow for a substantial increase in floor areas for commercial facilities. This report enabled the endowment fund to decrease from \$30 billion in the FA's Report to the current \$21.6 billion.

This reduced endowment fund of \$21.6 billion would be met by a sum roughly equivalent to the estimated land sales values of \$21.3 billion, the operating deficits of \$7.6 billion by the \$8.4 billion rental income derived from RDE, all in net present values (NPV) terms.

¹ Page 2 para 1.1.5 of the FA's Report.

² Namely the WKCD-511 Report.

**Table 2.5-1 A financial overview:
The current \$21.6 billion seed endowment fund proposal (for year 1 to 50)**

Figures in NPV, 2008 prices, HK\$ million	capital	operations	total	%
1 WKCD: management	(1,230)	(1,015)	(2,245)	9%
2 master planning	(34)	-	(34) ³	
3 M+ (Phases 1 & 2)	(4,749)	(5,917)	(10,666)	40%
4 exhibition centre	(535)	281	(254)	1%
5 mega performance venue	(2,706)	1,014	(1,692)	6%
6 great theater 1	(1,220)	(5)	(1,225)	5%
7 great theatre 2 and medium theatre 3	(986)	(318)	(1,304)	5%
8 medium theatre 4	(303)	(128)	(431)	2%
9 concert hall & chamber music hall	(1,421)	(307)	(1,728)	7%
10 xiqu centre	(1,174)	(213)	(1,387)	5%
11 medium theatre 1	(515)	(159)	(674)	3%
12 medium theatre 2 & black box theatre 1	(699)	(213)	(912)	3%
13 black box theatres 2 & 3	(320)	(140)	(460)	2%
14 black box theatre 4	(195)	(104)	(299)	1%
15 piazas	(310)	-	(310)	1%
16 other arts and cultural facilities	(331)	-	(331)	1%
17 transport facilities	(1,049)	179	(870)	3%
18 communal facilities	(1,027)	(537)	(1,564)	6%
Sub-total:	(18,804)	(7,582)	(26,386)	100%
19 RDE: retail, dinning & entertainment	(2,765)	8,448	5,683	21.5%
Total:	(21,569)	866		
to be met by land values:	21,288			

Table 2.5-1 shows the overall figures in this proposal. Before the rental income derived from RDE, the total capital and operating deficit would be \$26.4 billion, of which 40% would be spent on M+, 9% on WKCD Authority (WKCD), and the remainder (ranging from 1 to 7%) on performing arts, exhibitions, and other communal facilities. Any net surplus from RDE would repay 21.5% of this total deficit, and the endowment fund, which is to be recovered through land sales, shall pay the rest.

We may see, from this overview, that M+ is a major cost centre; and RDE, a life line for the WKCD's long term survival. Any substantial deviations from their current estimates could significantly affect the financial sustainability of the WKCD project. These two facilities deserve the most attention from a financial point of view. Other cost centres, including the WKCD and other PA facilities, should also be carefully analysed.

³ 0.13% for master planning fees.

3 Validity of assumptions and methodologies

3.1 Scenarios for private sector involvement

The FA's Report recognized the importance of private sector involvement and drew up different public private partnership scenarios for comparison. The Public Sector Comparator (PSC) is included, but not regarded as an "option," in the FA's Report. Instead, the FA's Report proposed three options of private sector involvement, namely, Scenarios 1A, 1B, and 2. Their major differences are highlighted in Table 3.1-1.

The FA adopted Scenario 1A as the basic model for funding considerations. This is a result of its financial assessments of Scenarios 1B and 2. Figure 4-7 of the FA's Report shows that Scenarios 1B and C differed from 1A in the following ways:

1. In Scenario 1A, the proposed WKCD Authority would put up the financing, the private sector would design and build, and the Not-for-profit Organization (NPO) operators would manage and maintain the facilities.
2. With the exception of the piazzas, exhibition center, and other arts & cultural uses, the private sector in Scenario 1B will not only design and build, but also *finance and maintain* all performing arts (PA) venues. Most of these facilities will possibly be operated and managed separately by NPO.
3. Scenario 2 is similar to 1B, except that *Design Build Finance Maintain* (DBFM) contracts would be awarded in three separate packages of facilities to private developers who would also own and operate the packaged PA facilities.

Table 3.1-1 A highlight of the major differences between Scenarios 1A, 1B, and 2

Options:		1A	1B	2
level of private sector involvement		small	medium	large
M+	private sector's role in procurement	<i>Same:</i> design competition design & build only	<i>Same:</i> design competition design & build only	<i>Same:</i> design competition design & build only
	NPO's role in operation	<i>Same:</i> Operate, manage, and maintain	<i>Same:</i> Operate, manage, and maintain	<i>Same:</i> Operate, manage, and maintain
Other Core Arts and Cultural Facilities (CACF)	private sector's role in procurement & operation	design & build only	design & build	design & build
		do NOT finance or maintain,	finance & maintain	finance & maintain
	do NOT operate	do NOT operate	own & operate packaged PA facilities ⁴	
	NPO's role in operation	Operate, manage, & maintain	Operate & manage	Operate & manage: except packaged PA facilities
total cost: capital & operating		\$29,950 Mn	5.8% more expensive than 1A	8.1% more expensive than 1A
finance cost		6.1% p.a.	12.5% p.a.	12.5% p.a.
risk premiums allowed ⁵		23%	29.5%	20.8%
operating costs (over 50 years)		\$8,333 Mn	\$8,333 Mn same as 1A	\$8,569 Mn almost the same as 1A
efficiency gains due to private investor		-	nil	nil
WKCD Authority's costs		\$2,117 Mn	\$2,117 Mn	\$2,117 Mn

Compared to Scenario 1A, it is clear that the level of private sector participation for Scenario 1B is larger; and Scenario 2, the largest. Yet the FA's Report⁶ concluded that Scenario 1B is more expensive; and Scenario 2, the most expensive. Detailed figures inside the FA's Report showed that the essential factor is a higher financing cost.⁷ The FA's Report assumed a

⁴ Package A: Mega Performance Venue + hotel 2,3 + RDE; B: Medium Theatre 1+ Black Box Theatres 2,3 + hotel 1 + RDE; C: residential, others arts and cultural uses + transport, communal facilities

⁵ Page 34 of the FA's Report.

⁶ Table 5-10 on page 50.

⁷ For Scenario 1B, the total finance cost is (1,349) million in Table 5-10: column under "Finance", which accounts for the majority of the difference between Scenarios 1A and 1B: (31,690) – (29,950) = (1,740). For Scenario 2, the actual figures were hidden, but still the major differences lie in the finance cost.

12.5% cost of capital⁸ for using private sector funding, while the government's opportunity cost of funding is a smaller nominal rate of 6.1%. The FA's rationale is that if the private sector were to finance and maintain the performing arts facilities using private funds, the implicit interest costs must necessarily be higher.

Here lies a subtle paradox. If the public sector were to receive an endowment fund that could earn 6.1% per annum, it would not pay to use private sector financing at the expensive rate of 12.5% unless there are other benefits to doing so. The question then is: what other benefits could private sector participation bring into the project? The FA's Report proposed only two possible benefits, but they are either too small in financial terms or simply not translated into financial figures:

1. Risks are transferred to the private sector. According to the FA's Report, however, the financial implication of this risk transfer is small, and it applies to Scenario 2 only. In Scenario 2, where performance arts and communal facilities are packaged with commercial developments, a Build Own Operate (BOO) procurement mode was assumed. Under these assumptions, the FA's Report found only a 2.2% saving in the risk premium on procurement. This was due to the presumably more efficient private sector managing the packaged PA facilities, with a view that these facilities will be owned and operated by this investor upon their completion.⁹ This 2.2% benefit is far from sufficient to cover the additional interest cost (12.5% vs. 6.1%) of using private funding to invest in and operate the facilities for over 50 years. The FA's Report therefore stated that:

*"...the financing cost and the required return for undertaking the construction and operation of the facility [by the private sector] outweighs the reduction in risk [borne by the public sector] such that the costs are higher than under the other scenarios."*¹⁰

2. More importantly, Annex M-4 of the FA's Report spelt out clearly that a major advantage of employing public-private partnerships is to:

*"...[improve] value for money in service delivery by gaining access to experience, management skills and management flexibility that may not exist in the public sector".*¹¹

In general, this is also the fundamental reason behind the widely recognized method of out-sourcing public services to the private sector. Unfortunately, all these potential benefits, in terms of the expertise and flexibility of managing procurement, as well as in operational efficiencies, were NOT reflected in the financial assessments of any of the three scenarios. In fact, Table 3.1-1 above showed that the operational deficits for Scenarios 1A and 1B were exactly the same: \$8,333 million, while that for Scenario 2

⁸ Namely the WACC: Weighted Average Cost of Capital, assumed to be 12.5% on P.32 of the FA's Report.

⁹ Page 34, Table 4-3: 10.4% for BOO under Scenario 2 vs. 12.6% for Design & Build under Scenario 1A; and Page 51, paragraph 5.8.4.

¹⁰ Page 51, paragraph 5.8.4.

¹¹ Paragraphs 2.1.3 and 2.2.1.

was even slightly higher at \$8,569 million. As for management, the last row in the same Table showed that the costs of running the WKCD were exactly the same for all three scenarios: \$2,117 million. No efficiency gains, despite greater private sector participation, were reflected in the calculation of the management costs.

Using this methodology of counting extra costs due to larger private sector involvement, without counting the major extra benefits, Scenarios 1B and 2 are bound to be more expensive. This is a result followed directly from the underlying assumptions rather than from analysis.

3.2 The validity of Scenarios 1B and 2

Scenarios 1B and 2 differed from 1A mainly because a *Design, Build, Finance and Maintain* (DBFM) approach is assumed for the procurement of PA facilities. Under this approach, the private sector would finance, design, build and maintain the performing arts facilities without operating them. With this assumption, the risk premium for project management was assumed to be 6.5% higher.¹² The FA's Report explained that this was due to the separation of the private sector's procurement and maintenance functions from the operating and management functions of other parties¹³. This could cost the public client more to remedy problems that would presumably arise from potential conflicts between the operator and the DBFM contractor.

If all these assumptions were valid, Scenarios 1B and 2 may NOT be sufficiently realistic to be considered in the first place because not only would private funding come with higher interests, it would also increase project management risk without bringing about any other additional benefits.

In fact, it is almost impossible to find a real and successful example in Hong Kong using this DBFM approach. In response to the queries raised on this DBFM assumption, the FA wrote:

“DBFM was a procurement mode developed in conjunction with Efficiency Unit specifically to address the circumstances of developing new facilities in the arts and culture sector in Hong Kong. We do not know of any examples in Hong Kong.”

DBFM includes financing the capital cost. It does not reduce the funding gap substantially.

.... a whole of life approach including operations was not adopted for M+ or performing arts (PA) venues because the construction and operation of such venues do not fit well together and developers do not want to take on the operational responsibility that would be part of such a contract i.e. the risk premium is higher. PPP approaches that include operations are more suitable for infrastructure projects where the construction and operation are done by the same party / same group – many examples in the transport sector (e.g. Tate's Cairn

¹² Page 34, Table 4-3: 19.1% for DBFM under Scenario 1B and 2 vs. 12.6% for D&B under Scenario 1A.

¹³ Paragraph 4.6.7 on page 34.

Tunnel). ”¹⁴

It should be carefully noted that these examples are basically civil engineering projects in which the investor does operate these facilities (e.g. collecting tolls in the case of Tate’s Cairn Tunnel). Hence, they are not examples of DBFM.

Yet taking away the operational function from the investor, out of a whole life approach in infrastructure projects, does not make this newly created DBFM approach more realistic. It may not be convincing to assume that investors would be sufficiently motivated to finance, design, build, and maintain a complex building facility without the chance to manage it himself to recoup their substantial investment. Hence, no such example using this hypothetical DBFM approach to develop complex buildings exists in Hong Kong.

Of all the reasons presented in this section, Scenarios 1B and 2, using extensively the hypothetical DBFM approach, might not be sufficiently realistic to be considered as practical options for implementation. Scenario 1A was chosen simply because the other two scenarios are hypothetical.

Scenario 1A was also chosen without considering different levels of private participation for M+. In particular, international operators were not considered at all in any of these three scenarios. This will be further discussed in Sections 5.3 and 11.5.

3.3 Other key assumptions

3.3.1 The discount rate and investment returns

The FA’s Report assumed a long term real discount rate of 4% per annum. Together with an assumption of a long term inflation rate of 2% per annum, the nominal discount rate would be 6.1% per annum.¹⁵

The current funding proposal is an initial endowment fund of \$21.6 billion. This funding arrangement implies that the endowment fund must be invested to earn a compound interest of at least 6.1% over the 50-year period so that the future funding of the WKCD’s capital and operation costs would be secure.

Whether or not this 6.1% nominal investment return can actually be achieved will depend not only on the WKCDA’s future investment strategy, but also on actual market conditions. What could be achieved in the long term may not be realised in the short or medium term. The short term risk on investments is of particular importance to the WKCD, as the vast majority of the capital costs would have to be spent on construction activities within the 4

¹⁴ See Appendix I in this Report: response to Question (7). Underlines are not in the original texts, but were added only to highlight the essential points.

¹⁵ $(1+4\%) \times (1+2\%) = 1.0608$, which is approximately $(1+6.1\%)$.

years period from 2011 to 2014.¹⁶ The seed fund should be invested starting in 2008. A pessimistic scenario is that the WKCD would be forced to sell its investments, at low market prices, in order to pay for the capital costs from 2011 onwards. In a nutshell, market fluctuations within these 4 years may jeopardize the long term financial strength of the project.

3.3.2 The inflation rate and construction cost escalation

In addition to this problem of short term investment risk, there is also the risk of construction cost escalation. The FA's Report assumed that construction costs would escalate at the same rate as the long term inflation rate (assumed to be 2% per annum).¹⁷ This allowance might be insufficient because the statistical records of increases in tender price indices (TPIs, which are measures of increases in the price levels of construction work over time) were much higher than 2%, and construction costs were unlikely to grow at a rate of the projected 2%.

Moreover, there are signs that construction costs are likely to accelerate in the coming few years:

- (1) Increasing public sector investment in infrastructure construction;
- (2) increasing energy prices; and
- (3) increasing demand for base metals such as steel, copper and aluminum and other construction materials.

Table 3.3-1 Growth rates of TPI for private sector and public sector building works¹⁸

	Public Sector TPI (ASD)	Private sector TPI
Long term: since 1970 (1970Q1 -2007Q3)	6.0%	6.3%
Short term: the last 3 years (2004Q3-2007Q3)	8.8%	6.13%
Short term: the last 2 years (2005Q3-2007Q3)	12.3%	7.5%

As for the long term inflation rate, based on the difference between the yield of TIPS (Treasury Inflation Protected Security) and that for T-bills (Treasury-bills), the long-term inflation expectation (over a 20-year period) in the US in March 2008 was approximately

¹⁶ See Annex 1(b) of the WKCD-511 Report.

¹⁷ Even allowing a long term inflation rate of 2% is not realistic, given that the long term average inflation expectations derived from market data in the US bond market has been in the order of 2.5%. Long term expected inflation estimated from the 10-year Treasury Inflation Protected Securities and 10-year nominal treasury note, after adjusted for liquidity premium of TIPS and inflation risk premium of nominal treasury note, is currently (May 2008) 3.26% and average value over the period 2004-8 is 2.5% (source: Federal Reserve Bank of Cleveland, <http://www.clevelandfed.org/research/data/tips/>, accessed 20 May 2008).

¹⁸ Data sources: http://www.hk.rlb.com/cost_data.html ; <http://www.dlsqs.com/>.

2.5%. The average for the period 2006-7 was 2.6%. Although the Hong Kong Dollar is pegged to the US Dollar, long and short term inflation in Hong Kong is likely to be higher due to a closer economic relationship between Hong Kong and Mainland China, whose currency is appreciating.

This assumption of 2% inflation for construction work, renovation and maintenance work, and other expenses may have been too low.

3.3.3 The 50-year period of analysis

The FA's Report assumed a 50-year period of analysis starting from 2010. This was based on the assumption of land sales with 50-year lease occurring in early 2010.¹⁹

Legally speaking, leases only last for 50 years. Yet in general, the property market expects lease renewals upon their expiration on the condition of renewed yearly payments for government rents. This became a routine government practice after 1997. Actually, land values presented in the FA's Report were estimated based on comparables in which such lease renewal expectations prevail. These land valuations are not adjusted downwards to reflect straightly non-renewable 50-year leases for commercial and residential land leases. This implies that lands sold in 2010 are not expected to be reclaimed by the WKCDA after 50 years. That is the first point.

Second, according to the revised financial plan, with M+ being downsized and RDE's areas being vested with the WKCDA, capital costs are met by land sales; and operating costs by RDE rentals. In these calculations, no yearly depreciation is allowed for the amortization of the initial capital costs. Instead, the costs of two major renovations are allowed during the 50-year period. These renovations would replace mechanical and electrical, furniture fixtures and associated equipment. The subtle difference between this 50-year approach and a yearly depreciation allowance within the operating costs budget, is that there would be no yearly funds set aside to reconstruct and renovate the buildings once the 50 years are up.

Buildings and equipments do not last forever. Should we assume a building life of 50 years, by 2060, there would be no funds set aside for ALL components of the buildings: including structure, fabric, mechanical and electrical, furniture fixtures and associated equipments.

In principle, the WKCDA could start all over again within the 40 hectares after 50 years. The only difference is that this time, the WKCDA would have no land to sell. By that time, the Treasury may have to provide the WKCDA with another endowment fund, say another \$21.6 billion, in present value terms, to fund the capital and operations for another 50 years. This time, of course, the Treasury would not be able to cover this endowment fund from land sales. Moreover, this is a recurrent problem that will happen every 50 years.

Hence, underlying this 50-year period of analysis is a genuine problem of financial sustainability.

¹⁹ Table 4-2 on page 32.

3.4 Methods of presentation

The FA's Report proposed 3 scenarios of Private Sector Involvement, as well as 1 Public Sector Comparator, namely PSI 1A, PSI 1B, PSI 2, and PSC. In these scenarios, "PS" stands for "Private Sector" in PSI; but "PS" also stands for "Public Sector" in PSC. This may be confusing to readers. To ensure clarity, PSI Scenarios will simply be referred as Options/Scenarios 1A, 1B, or 2 in this report.

In order to arrive at discounted present values of varying cash flow commitments over time due to the phasing of construction and operations, the lengthy displays of yearly cash flows are perhaps inevitable. To facilitate better communications, however, all these complications in presentations could be substantially simplified in two ways:

First, instead of inflating prices at 2% per annum, and subsequently discounting them using the larger nominal rate of 6% per annum (or 6.1% in the FA's Report), it would be much simpler to use the real rate of interest of 4% per annum to discount future prices, which are not inflated at all. This real discount rate approach is much simpler and the results of the analyses are the same. The reader would probably understand this better, as s/he would be more familiar with current prices than the inflation-adjusted prices in, say, 30 or 50 years.

Second, following the first point above, it may not be necessary to present Money of the Day (MOD) at all. Worse still, summation of MOD may lead to erroneous understandings, e.g. in WKCD-511 Report Annex 2, column 3, the total MOD for M+ Phase 2 is \$2,304 million, which is almost double EC's \$1,273 million. Yet in NPV terms, EC is, in fact, more expensive: \$535 million versus Phase 2 M+'s \$483 million. Hence, MOD figures and their summations should be dropped entirely to avoid confusions.

4 Construction and renovation costs

4.1 Level of direct construction costs

The FA estimates that the unit construction costs for M+ and performing arts venues ranged from \$22,200 to \$29,200 per square meter (psm) CFA (Construction Floor Area). This included costs for FF&E (Furniture, Fixture & Equipment), but excluded professional fees and other on-costs. The FA's Report assumed a CFA to GFA (Gross Floor Area) ratio of 1.3 for these venues.²⁰ Excluding FF&E costs, this price range would be \$15,900 to \$20,450 psm CFA.

There was, however, insufficient local construction cost data for arts facilities. Most were built by the government many years ago. The closest cost data were published in 2000.²¹ Adjusting these unit costs to 2006 prices, theatres (over 500 seats) would cost \$14,885 psm CFA and a national museum, \$15,587. These unit costs, again, excluded FF&E.²²

We can now see that the FA's unit costs are a little high, but are still reasonable. Given these unit costs, good quality of design and construction should be expected for the M+, EC, and PA facilities.

The unit cost FA estimated for RDE construction is \$18,198 psm GFA. FA did not specify the CFA-to-GFA ratio for RDE. Assuming this was 1.2, the unit cost would be \$15,165 psm CFA. This is close to the unit cost data of \$14,500 psm for prestige shopping centres, published by a leading consultant firm for 2006, Q4.²³

4.2 Major repair and renovation costs

In the FA's study of the 50-year period commencing in 2010, major overhaul cycles of 20 years each are assumed for M+, EC, and performing arts facilities and 12-year cycles for RDE facilities.²⁴ In these major overhaul exercises, all fitting-outs and M&E equipments are assumed to be 100% replaced. The costs of these exercises are therefore estimated using the initial construction costs for fitting-outs and M&E equipments. Such costs for M+ and PA facilities ranged from 47% to 52% of the total direct construction costs.

²⁰ WKCD-511 Report Annex 5(a). FA also lists international unit cost comparisons in Annex D.6-1 of the FA's Report. These unit costs vary a lot in both the figures and their location. Their detailed compositions cannot be easily verified.

²¹ Davis Langdon & Seah International eds., Spon's Asia Pacific Construction costs handbook 2000.

²² $\$18,240 \times 985/1207 = \$14,885$; and $\$19,100 \times 985/1207 = \$15,587$. TPI is 985 for 2006 Q3 ; and 1207 for 1998 Q4. http://www.dlsqs.com/modules.php?name=Categories&tsservice=CostData&new_topic=&catid=88&costdatatopic=6&costdatasid=597

²³ Davis Langdon & Seah, Construction Cost Handbook: China & Hong Kong 2007, page 8.

²⁴ WKCD-511 Report Annex 6(a).

As for RDE, each major overhaul exercise cost \$300 psf GFA, or \$3,229 psm GFA. This was about 17.7% of the initial construction cost of \$18,198 psm GFA. Despite the overhaul cycle being only 12 years instead of 20, the overhaul cost allowance was still much lower for RDE than for PA facilities.

This diversion in costs allowances reflected the RDE approach's greater proximity to conventional practice: Not 100% of the fitting-outs and M&E equipment are replaced during every major renovation. There is no standard rule, but a rough general expectation is in the neighborhood of 50% replacement of fitting-out and M&E equipment, depending on maintenance conditions.

The 20-year cycle and 100% replacement of fitting-outs and M&E equipment is not entirely impossible, but should be justified with reasons.

The FA's Report also assumed that construction costs would escalate by 2% per annum. This would apply to major renovation costs as well. Section 3.3.2 already discussed that historical data showed that constructions costs have escalated by a much greater rate of about 6% per annum over the past 37 years. Long term rates of escalations are relevant here, as the major overhaul exercises are due 20 or 40 years later. This problem of construction cost escalation will magnify over a longer period of time because of the compound interest.

It should also be noted carefully that in all these major overhaul exercises, no replacement or renovation cost for the structure and the fabrics of the buildings were allowed. This problem becomes more serious as the buildings age, especially after 50 years. To allow a fund to solve the problem of reconstruction, the *additional* seed fund needed could be estimated as follows.

Assume that the buildings' life is 50 years. Since the initial capital costs required for the WKCD project is \$21.6 billion. In principle, the WKCDA would then need another \$21.6 billion (in present value terms) in 50 years' time for reconstruction. This \$21.568 billion should be adjusted downwards because some capital costs need not be paid again after 50 years, including the \$0.873 billion for museum collection; and the \$0.056 billion for the off site storage land costs.²⁵ Hence, \$20.639 billion would be needed by Year 50. The present value of this money at the real rate of 4% would be \$3.38 billion²⁶.

This means that an additional seed fund of \$3.38 billion is needed for the WKCD's financial sustainability after 50 years. That is equivalent to 16% of the current \$21.6 billion capital cost. Should the WKCD be able to finance itself within the 40 hectares, the current financial plan should be adjusted to save, or to earn, an additional sum equivalent to 16% of the capital costs.

²⁵ This deduction may include costs for foundations, structure, and other on-costs, depending on whether keeping the architectural design and the structure is desirable after 50 years.

²⁶ $3.378 \text{ billion} = 20.639 \text{ billion} \times (1/1.04)^{50} + (1/1.04)^{100} + \dots$
 $20.639 \text{ billion} = 21.568 - 0.873 \text{ billion (for museum collection)} - 0.056 \text{ (for land cost of off site storage)}$
in 2008 NPV.

4.3 On-costs and management fees

Table 4.3-1 below presents the composition of the \$21.6 billion seed fund in terms of direct construction cost and other on-costs. We can see from this table that on top of direct construction costs, there remain indirect costs, which come to 95.9% of the direct construction costs: 6 to 14.6 % professional fees, 8 to 9% contract management fees, 11.2 % WKCDA's costs, 25.9% risk allowances, 26.3% major repairs and renovations, and 15.6% for museum development.

Table 4.3-1 Capital, On-costs, and operating costs

Capital costs	NPV 2008 \$ million	as % of construction cost	Compared to Conventional % ²⁷
direct construction cost	11,012	100%	
professional fees		6% to 14.6%	6%
contract management	1,869	8% to 9%	conventionally included in the developer's normal profit:
WKCDA's costs for Years 1-8	1,230 ²⁹	11.2%	either the WACC(12.5% p.a.), or 10% profit on construction ²⁸
risk allowances	2,850	25.9%	10% to 15% contingencies
major repair and renovation	2,891	26.3%	Not allowed for after 50 years
museum development	1,717	15.6%	Note: See Section 5 on M+
Total capital cost	21,569	195.9%	
To be met by land value	21,288		
Operating deficits			
CACF, transport, communal	6,567		
WKCDA's costs for Years 9-50	1,015		
Total operating deficit	7,582		
To be met by RDE rental	8,448		

These on-costs could be compared to the conventional approach in the market, which is provided separately by the FA's Report. 8 to 9% management costs for contract management and 11.5% for WKCDA adds up to 20%. This is substantially higher than a 10% normal developer's profit, which includes contract management. The analyses from Section 4.2

²⁷ WKCD-511 Report Annex 2, and 5(a) on RDE construction costs.

²⁸ FA's Report page Annex H-11.

²⁹ The allowance of \$34 million for mastering planning fees (0.3% of construction costs) is moved from WKCDA costs to professional fees, for clearer analysis, since this professional is likely to be out-sourced to planning professionals.

indicated that major repair and renovation costs are on the high side. Sections 4.4 and 4.5 will discuss management costs and risk allowances.

4.4 WKCDA costs

Table 2.5-1 shows that WKCDA management would cost \$2.245 billion, or 9% of the total capital and operating deficits. These funds are quite substantial and should be looked at closely.

Within this \$2.245 billion, \$1.23 billion would be spent on the WKCDA's management of the project's development from Years 1 to 8. The FA's Report provides that the WKCDA would hire 90 staff and have an annual total operating cost of \$189.4 million during this development phase³⁰. In response to questions over the duties of these 90 staff, and whether they would hire additional consultants, the FA answered:

“the FA assumed five divisions: office of the chief executive; planning and development; property; finance and procurement. The duties include but are not limited to: land assembly and property, master planning and project development, strategic and business planning, cultural and arts policy liaison, legal, procurement, contracting and finance. This assumption was adopted with reference to the establishment of comparable area-based agencies in Hong Kong and elsewhere....Yes. The FA assumed that consultants would be hired in addition to these staff.”³¹

Master planning costs \$0.034 billion in the FA's estimate, which is a relatively small sum outside this \$2.245 billion figure. Master planning would presumably be taken up by hired outside consultants. Moreover, there is also another additional, but substantial budget set aside for contact management, which is in the order of \$1 billion³². This would again be presumably taken up by additional consultants, who would handle procurement and contracting. Other professional jobs, including legal services, business planning and marketing might be out-sourced to the outside consultants, and budget separately.

What is left behind would be the overall supervision and liaisons. The question then is: would 90 staff be needed for these overall supervision and liaisons? The FA did not provide detailed duties for these 90 staff. This should be reviewed to ensure that their work does not overlap with that of the outside consultants.

The FA did refer to one example: the London Thames Gateway Development Corporation³³.

Following the awarding of the 2012 Olympics to London, the London Thames Gateway Development Corporation (LTGDC), a new Urban Development Corporation, formulated master plans to re-generate 4,900 hectares of land alongside 19 miles of the Thames

³⁰ Page B-3 of the FA's Report.

³¹ Appendix I, Question (17).

³² 8 to 9% on the \$11 billion direct construction costs.

³³ Annex B-3 of the FA's Report.

riverfront. According to the Final Report, LTGDC hires only 5 directors plus 12-15 permanent staff, costing only about HK\$ 22.5 million per year. Also “they make wide use of development consultancy”, the FA’s Final Report noted.

**Table 4.4-1 Comparison of organisation costs
During the *development phase***

	London Thames Gateway Corporation (10 years)	WKCD (Year 1 to 8)
Affected area	4,950 ha ³⁴	40 ha
waterfront	31 km	2 km
Newly developed area	320 ha ³⁵	40 ha
Directors	5	90
Staff	12 to 15	staff
Annual costs	23 million ³⁶	189 million

From the annual report³⁷, we may understand that London Thames Gateway Development Corporation is a limited-life (10-year) organization wholly financed by the government. This may be comparable to the WKCD’s 8-year development phase.

For 2006/2007, there were 13 Board members, costing HK\$3.6M per annum.³⁸ There are 26 full time equivalent staff, 1 seconded staff, and 5 contract or temporary staff, costing HK\$32 million per annum.³⁹

Thames Gateway’s statutory status is like a combination of the Urban Renewal Authority (which has the power to acquire land for regeneration) and the Town Planning Board / Planning Department (which has the authority to make certain planning decisions). Thames Gateway’s main tasks are strategic planning (e.g. master planning & feasibility studies) and decision making (e.g. granting planning approvals) rather than actual implementation.

One may observe that Thames Gateway and the WKCD are very different, and hence, not directly comparable. Yet such a comparison prompted us to ask an even more relevant question: what we can learn from studying Thames Gateway’s method of organization?

A key observation of the FA was that Thames Gateway makes wide use of development consultants. This is perhaps why it can keep the number of permanent staff small. We may

³⁴ <http://www.ltgdc.org.uk/uploaded/documents/londonthamesgatewayrevealingtheinvestmentpotential.pdf>

page 7: 3,500 plus 1,450 = 4,950 ha in total. Waterfront 19 miles, or 30.57 km.

³⁵ Same source as in previous note: 180 ha on page 7 plus 140 ha on page 8.

³⁶ FA’s Report Annex, Page B-3.

³⁷ <http://www.ltgdc.org.uk/aboutus/whatwedo>

³⁸ Page 18, GBP 238,406 x say 15 = HK\$ 3.6 million.

³⁹ Page 38, GBP 2,146,000 x 15 = HK\$32 million.

also observe that successful enterprises in the development field adopt a similar strategy: out-sourcing consultancies and keeping a small number of essential staff.

It would seem that that the FA assumes that the WKCDA adopts a policy of out-sourcing consultancies widely, and at the same time, assumes an organization of considerable size.

Logically, the WKCDA, being unique, may not be a sufficient reason for justifying a considerable organisational structure. Perhaps the pertinent questions to ask are:

1. What are the detailed duties, ranks, salaries, and benefits for these 90 staff members?
2. Hence, what are the detailed breakdowns of this \$189 million annual budget?
3. Do these detailed duties overlap with those of out-sourced consultants?
4. Is this organizational structure cost effective?

Table 4.4-2 Comparison of area management costs during the *operation phase*

	The Brisbane South Bank Corporation	WKCD (Year 9 to 50)
Affected area	42.7 ha	40 ha
Directors	7	33
Staff (excluding operational staff)	18	

The FA assumed 33 staff, costing \$60.3 million per annum for WKCD’s area management. The FA’s Report also referred to the example of the Brisbane South Bank Corporation. It stated that, “[*The Brisbane South Bank Corporation*] employs 411 people with an operation turnover of over HK\$ 450 million equivalent.”⁴⁰

This 411 figure contradicts the Corporation’s 2007 Annual Report⁴¹, which states clearly that it employs only 75 staff (7 managers, 18 administration staff, and 50 operation staff, including part-time staff). We understand that the FA’s Report was done in 2006, yet the authenticity of this 411 figure should be verified.

In response to our request for the source of this 411 figure, the FA answered:

“The point of the commentary is that the number of staff depends wholly on the function and responsibility of the area-based organization concerned. The point was that 400 or so was far too high and yet Thames Gateway at 12-15 was far too low and thus the FA developed a

⁴⁰ Page Annex B-3 of the FA’s Report.

⁴¹ <http://www.southbankcorporation.com.au> pages 2, 44, 49. (21.985 million AUD at 1 AUD = 7.1 HKD)

structure specifically for WKCDA.”⁴²

This response is perhaps still inadequate because:

- (a) It did not state the source of this 411 figure, the authenticity of which was still in question; and
- (b) The function and responsibilities of the proposed WKCDA staff were not spelt out in sufficient detail to justify the proposition that “*the number of staff depends wholly on the function and responsibility of the area-based organization concerned*”.

In response to a question over the duties of the 33 staff estimated for the WKCD’s area management during the operational phase, the FA wrote:

“...the FA assumed 3 divisions: chief executive, area management and finance. The duties would include but not limited to: estate management, area marketing and programming, strategic and business planning, cultural and arts policy liaison, legal, contract management, procurement and finance.

In addition, individual arts and cultural facilities and related facilities are provided with staffing resources for venue and programme management as well as operating budgets.”⁴³

Again, the pertinent questions to ask are:

1. What are the detailed duties, ranks, salaries, and benefits for these 33 staff members?
2. Hence, what is the detailed breakdown of this annual budget of \$60.3 million?
3. Do their duties overlap with those of other staff working in M+ and other PA facilities?
4. Would it be more cost effective if some of these duties were outsourced?

As a final note, all the international examples of area development organizations cited in the FA’s Report (London Thames Gateway, Lower Manhattan Development and Brisbane South Bank) are called “Corporations”, instead of “Authorities”. This name might suggest a financial approach closer to commercial principles, from which there might perhaps be another lesson to learn.

4.5 Risks and contingencies allowances

Annex J of the FA’s Report explains a methodology of risk analysis. It basically assigns probabilities to possible events occurring during the course of development and operation of the WKCD project. “*The expected value of the costs of the risk of each event occurring [is*

⁴² See Question (16) in Appendix I.

⁴³ See Question (18) in Appendix I.

obtained] by multiplying the probability of a change from the base costs by the costs if the event does occur.”⁴⁴

This methodology is sound in pure logic, but is weak in empirical contents. Unlike the event of getting a head or a tail by tossing a coin, in which one could assign the probability of these two events either by means of the logic of symmetry (head vs. tail) or by statistical records, probabilities of events in a proposed development project are assigned by the professional judgment. The FA stated that, “The *probabilities were assigned by the team of experts based on their skills and experience.*”⁴⁵

Professional experiences are very valuable, but these experiences do not register in our minds by any statistical means. No two projects are exactly the same. Different professionals, with very different sets of experiences in their careers, may assign probabilities very differently. The results of this risk analysis may vary a lot.

Given two rather different sets of risk assessments by two different professionals, one could not possibly tell which set is more accurate unless and until all the project costs are realized and known. Even when all these costs are known many years later, a one-off accurate judgment does not imply statistical accuracies in the long run. One cannot possibly build the WKCD over and over, as if tossing a coin, to test the accuracy of these probabilities assigned. Hence, such a method of assigning probabilities to development events may be a methodology that is not testable by empirical data.

Another approach for assessing the results recommended by this probabilistic methodology is to compare them to conventional practices in contingency allowances. The probabilistic methodology recommends an aggregate risk allowance of 25.9% on direct construction costs (Table 4.3-1). It is a result of risk premiums, ranging from 20.8% (for BOT and BOO) to 34.7% (for design competition plus design and build) assigned to various procurement methods. The 25.9% figure is much higher than the conventional 10% to 15% contingency allowances for normal construction projects.

We are not arguing that risk is small in the construction of the WKCD, but risk could be managed by effective management. Should an additional professional fee of 8 to 9% be spent on contract management, plus another \$1.23 billion on WKCDA management costs during the construction phase, it would perhaps be reasonable to expect much better project management, and hence, the risk premium might not be as high as 25.9%.

⁴⁴ Page J-3 paragraph 4.3.

⁴⁵ Appendix I, Question (10).

5 Cost effectiveness in operations

5.1 Operating costs and revenues of arts and cultural facilities

The FA estimated the total operating deficit to be \$7.58 billion, in 2008 values. Of this amount, \$5.92 billion (78%) were for M+ and \$1.02 billion (13.4%) were for the WKCDA.⁴⁶

Table 5.1-1 Operating deficits/surplus and cost recovery rates

Figures in NPV, 2008 prices, HK\$ millions	Operating Deficits/ Surpluses	As % of total deficits	Operating cost recovery rate: Year 10 after commencement of operations %
WKCDA: management	(1,015)	(13%)	-
M+ (phases 1 & 2)	(5,917)	(78%)	18 to 22%
exhibition centre	281	4%	142%
mega performance venue	1,014	13%	149%
great theater 1	(5)	(0%)	101%
great theatre 2 and medium theatre 3	(318)	(4%)	74%
medium theatre 4	(128)	(2%)	59%
concert hall & chamber music hall	(307)	(4%)	83%
xiqu centre	(213)	(3%)	82%
medium theatre 1	(159)	(2%)	66%
medium theatre 2 & black box theatre 1	(213)	(3%)	64%
black box theatres 2 & 3	(140)	(2%)	51%
black box theatre 4	(104)	(1%)	41%
transport facilities	179	2%	-
communal facilities	(537)	(7%)	-
Total deficits:	(7,582)	(100%)	

The mega performance venue would contribute the highest surplus, which barely covers the WKCDA's management costs. Detailed operating assumptions of these venues are given by the FA in Annex D.3 of the FA's Report, with the single exception of WKCDA costs, which has been discussed separately in Section 4.3. These operating assumptions are sufficiently clear in details.

5.2 Revenues as a percentage of operating costs

What is vital in these figures for operation, is perhaps the operation mode of M+. It would contribute 78% of the overall operating deficit. The yearly deficit of M+ would be in the order of \$ 0.4 billion (2008 values) in 2032, when both Phases 1 and 2 would be in full

⁴⁶ WKCD-511 Report Annex 10, Page 3/3. Over the 47 years of operation from 2013 to 2059.

operation. This would contribute more than 80% of the yearly deficits in 2032, and this percentage would rise to 89% by 2059.⁴⁷

We can see that M+ will become a serious financial burden of the WKCD both within and beyond the first 50 years of development and operation.

Table 5.1-1 also showed the cost recovery rates, which ranged from 18% to 149%. Only 2 venues, namely, the mega performance venue and the exhibition centre, would generate an operating profit. The majority of the performing arts venues would recover their operating costs at rates ranging from 41% to 83%, though M+ would recover only 18 to 22%.

The question now is not if M+'s estimates are accurate, but whether or not the underlying assumption of this operation mode is the only choice available for serious consideration.

5.3 Local and international comparisons

Locally, the largest art museum is the Hong Kong Museum of Art. Yet its size, in gross floor area, is only 16% of M+'s. Its admission fee is only \$10 and yearly visitors number close to 0.4 million. Its collection, mostly Chinese antiquities and artwork, was valued at \$1.03 billion in 2000.⁴⁸ This is comparable to M+'s \$1 billion budget for initial collections.⁴⁹ Despite this collection, the cost recovery rate was only 8.7% in 2006/07.

For museums outside Hong Kong, the FA did present a comparative study of 7 world renowned museums. The key data are presented in Table 5.3-1⁵⁰, against that of M+. There are a few essential observations:

1. M+'s cost recovery rate is the lowest at 18% in Phase 1, but will rise to 22% when both phases are in full operation.
2. This 22% is even lower than the 27% of Centre Pompidou, which is the lowest amongst the 7 international examples.
3. Before downsizing, M+'s gross floor area would be close to Centre Pompidou's 105,315 square meters. Yet, M+'s adult admission fee would be only \$27.5, much lower than that of Centre Pompidou or any of the other museums.
4. One possible and essential reason for such a low admission fee is perhaps the valuable collections in these 7 international museums. They were mostly modern art pieces collected over a very long period of time. The youngest amongst these 7 collections started in 1935; and the oldest, 1847.

⁴⁷ WKCD-511 Report Annex 10, page 2/3, column 2032: $(\$507+\$143) \times (1+2\%)^{(-24)} = \404 million; column 2032: $[(\$507+\$143) / \$790] \times 100\% = 82\%$; and page 3/3 column 2059: $[(\$865+\$229) / \$1234] \times 100\% = 89\%$.

⁴⁸ See page 50, Appendix 5 in Wong, K.C. and Hui, Desmond C.K., An Academic Financial Study for the West Kowloon Cultural District, 10 May 2004; the Hong Kong Arts Development Council.

⁴⁹ Revenue for 2006/2007 was \$5.79 million; and Expenditure \$66.85 million: i.e. 8.7% cost recovery rate.

⁵⁰ <http://www.lcsd.gov.hk/CE/Museum/Arts/english/intro/eintroa.html>

⁵⁰ Page Annex C.7-1.

Table 5.3-1 M+ compared to international museums

Museums	M+ ⁵¹	Solomon R. Guggenheim Museum (New York)	San Francisco Museum of Modern Art	Museum of Modern Art, New York	Metro-politan museum of Art, New York	Art Institute of Chicago	Tate Modern London	Centre Pompidou Paris
Exhibit area sq. m	26,000 ⁵²	4,600	4,647	11,612	78,366	19,600	7,827	22,000
GFA sq. m	61,950 ⁵³	n.a.	20,911	73,420	200,000	64,400	43,000	103,305
Exhibits	Design, popular culture, moving image, visual art	Modern art	Modern art	Modern & con-temporary art	One of world's largest & finest art museum	Art museum and school	Modern art	Modern art & con-temporary creation, including design & architecture
collection/history/franchise fee ⁵⁴	Cost \$ 1,717 million ⁵⁵ to be collected in 4 years & developed	Franchise fee \$156 million ⁵⁶ in the 1990s for Bilbao	Since 1935; now over 22,000 objects	Founded in 1929; now 150,000 pieces ⁵⁷	Opened in 1872; now over 2 million works	Founded in 1879; now over 25,000 pieces	Collection began in 1847; Tate Gallery founded in 1897; now 65,000 pcs	Previously National Museum of Modern Art opened in 1947; now 53,000 pcs
Full time staff	336 ⁵⁸	95 F/T	232 approx	590 F/T 20 P/T	1,783 F/T 744 P/T	725 F/T 46 P/T	1,157 FTE	918 F/T 63 Ct
Yearly acquisition	\$20 million	\$16 million ⁵⁹	\$11 million	\$395 million	\$774 million	\$125 million	\$264 million	\$70 million
Adult admission fee	\$27.5 - \$30	\$137	\$98	\$156	\$156 ⁶⁰	\$94	various ⁶¹	\$103
Visitors per year	1.2 – 2 million	0.9 million	0.8 million	2.7 million	Over 4.0 million	1.4 million	4.0 million	5.5 million
cost recovery rate	18 - 22%	66%	59%	57%	55%	50%	54%	27%

⁵¹ Phases 1 &2: downsized version.

⁵² See Annex 11(a) (ii), Page 1/2.

⁵³ See Annex 11(a) (ii), Page 1/2

⁵⁴ Information is from each museum's official website.

⁵⁵ Nominal value for collection:\$1,000 million; exhibition dev: \$204+\$128 million; lab:\$26 million, library:\$24 million. WKCD-511 Report Annex A7, page 1/3

⁵⁶ US\$20 million "rental" fee for Bilbao, for the use of Guggenheim's collection and brand name, page Annex M-23: completed in 1997. Collection began in 1930.

⁵⁷ Founded by Rockefeller and now boasting 150,000 paintings, sculptures, drawings, prints, photographs, architectural models and drawings, and design objects. MoMA also owns some 22,000 films, videos, and media works, as well as film stills, scripts, posters and historical documents. The Museum's Library contains 300,000 books, artist books, and periodicals.

⁵⁸ Among these are 240 senior and professional staff. Appendix A-2 of the FA's Report noted: limited local expertise, only from the LCSD.

⁵⁹ These are for 3 museums in NY, Las Vegas, and Venice. See Annex C.7-1.

⁶⁰ Payment is voluntary. The suggested fee is \$156.

⁶¹ Collection display: free; exhibition: various.

5. Despite the FA estimated \$1 billion in expenditures to collect artwork (presumably in design, popular culture, moving image, and visual arts), over a 4-year period from 2011 to 2014,⁶² the expected attraction of this collection would still be insufficient to induce an admission fees close to the international standard.
6. It may be argued that it would be desirable to keep M+'s admission fee low to attract more visitors. Yet, comparing the number of visitors across the 7 museums, and considering that Hong Kong is an international transport hub, M+'s target of 1.2 to 2 million visitors per year is not particularly aggressive, even if M+ were to charge an admission fee close to international standards, should there be valuable exhibits to attract visitors.

One may argue that M+'s 18% to 22% cost recovery rate is not too far away from the world-class operation of Centre Pompidou's 27%. Yet, there is no guarantee that M+ would be as good as Pompidou because:

1. Pompidou now owns one of the world's leading collections of 20th Century art numbering 53,000 pieces. This collection has a long history and was achieved *"through the generosity of artists such as Picasso, Braque, Matisse, Chagall and Brancusi, which had hitherto been passed over by other institutions."*⁶³
2. The MAG Report also observed that *"Centre Pompidou has three major parts, i.e. the Centre Pompidou for Art and Culture [which includes the National Museum of Modern Art], a library and a music centre. However, the majority of tourists visit the Centre Pompidou only, whereas mainly local residents visit the library and the music centre."*⁶⁴
3. Centre Pompidou's adult admission fee is \$103, but the collection still attracts 5.5 million visitors per year; while M+ \$27.5 to \$30 and 1.2 to 2 million visitors a year. These factors might have enabled Centre Pompidou to become a world class museum despite its low cost recovery rate. This is perhaps a target number of M+ visitor could be most difficult to achieve, despite a considerable budget for an initial collection.

Let us now compare M+ to museums at the other end of the cost recovery rates. The Guggenheim in New York, Las Vegas, and Venice has been able to achieve a 66% cost recovery, even at an admission fee of \$137. This is again mainly because of the valuable collection of modern art maintained by the Guggenheim family since 1930.

The FA's Report revealed that a US\$20 million, or HK\$156 million, "rental" fee was payable by the Guggenheim Museum in Bilbao, which opened in 1997, for the use of Guggenheim's collection and brand name. Even after allowances for inflation over the years, this is still substantially less than M+'s \$1.7 billion in capital costs for collection and initial exhibits development. In response to the question why international franchises like Guggenheim or Pompidou were not interested, the FA wrote:

"According to the FA's market research, the Guggenheim is not interested because their

⁶² WKCD-511 Report, Annex 7 page 1 of 3.

⁶³ See <http://www.centrepompidou.fr/Pompidou/Musee.nsf/0/CD73BEF824FB7CFCC1256DA2004A0341?OpenDocument&sessionM=3.2.3&L=2>

⁶⁴ Annex page 91 of the Museum Advisory Group's Report, 23 Nov 2006.

*model for franchise involves total autonomy; they are looking for design and operational control and an open purse from the Government. The model is very pricey and operationally they even want curatorial control. The Pompidou is prepared to co-operate over exhibits but is not interested in operations.*⁶⁵

The conclusion that this model is pricey is inconsistent with the information the FA had provided so far. The claim of “an open purse from the government” should be supported by financial figures, which should be compared to the current estimates provided by the FA for M+, before a conclusion can be drawn. This should be handled seriously, as the differences in capital investment (Guggenheim’s \$0.156 billion franchise fee⁶⁶ vs. M+’s \$1.7 billion), and cost recovery rates (Guggenheim’s 66% vs. M+’s 18% to 22%) are substantial and critical for the WKCD’s long term survival.

A simplified calculation would illustrate this point. Table 2.5-1 shows that at 2008 present values, the total capital cost for M+ is \$4.8 billion and \$5.9 billion for operations, resulting in a total cost for M+ of \$10.7 billion. Under a franchisee agreement, potential savings of \$1.5 billion⁶⁷ in capital cost and \$3.3 billion in operating deficits⁶⁸ would mean a total saving of \$4.8 billion. This would be 22% of the \$21.6 seed fund and would reduce the total capital and operating deficit of M+ by 45%! This would also imply that M+ and therefore the WKCD would earn a substantial operating surplus even after 50 years, and hence, is critical for the WKCD’s financial sustainability. Of course, all these figures and the duration of a franchise agreement, would be subject to detailed negotiations with the prospective international franchisees, so the financial implication of this alternative are too substantial to be taken lightly.

⁶⁵ Appendix I, Question (9). Page C.8-1 of Annex to the FA’s Report stated that Mr. Thomas Krens was interviewed by the FA on 14 March 2007, only a few weeks before the FA submitted the Final Report in April 2007.

⁶⁶ See footnote 55.

⁶⁷ \$1.7 billion M+’s initial collection costs LESS \$0.2 billion franchise fee = \$1.5 billion.

⁶⁸ \$5.9 billion / (1-22%) * (66%-22%) = \$3.3 billion, assuming the same operating cost for either operator. If an average cost recovery rate of 50% is used, then the saving would be in the order of \$5.9 billion / (1-22%) * (50%-22%) = \$2.1 billion.

6 Quality and value

6.1 Procurement methods

In the FA's Report, the major method of procurement was Design and Build (D&B).

In response to the question on the nature of D&B, the FA wrote:

*“Design and build is the standard Government procurement mode. In this procurement mode, the client enters into contractual relationship with the contractor to design and construct the project in accordance with performance specifications prepared by the client. The contractor then enters into a series of separate agreements with consultants, specialist sub-contractors and suppliers to deliver the completed project in accordance with the agreed performance specifications. This method intends to encourage more contractor involvement, increase the speed of project delivery, lower the level of responsibility for the client, and increase the use of proprietary systems or modules.”*⁶⁹

The key word here is performance specification. It is easier to write a performance specification for civil engineering works and simple building projects, than for complex buildings. The performance of a bridge can be specified in terms of strength, span, dimensions, tolerances, material standards, number of lanes, access for maintenance, etc., but the performance of a building complex is much more complicated, though not impossible, to specify. The performance specification for the new government office at Tamar is a document consisting of more than 6,000 pages,⁷⁰ and this is only a simple office building complex. Artistic buildings are the most difficult, if not impossible, to specify.

This is particularly difficult for M+, for which there is a design competition. Impressive design concepts are usually presented in a competition. These are merely design concepts that have to be developed and further designed to specific details before they can be built. Without details, any price agreed upon a D&B contract, based on a performance specification, would be uncertain to both parties. A client does not know exactly what it will get until after the detailed design stage. When there are problems on quality of architectural detailing, or on aesthetics, the client may have to accept less desirable details that still meets the performance specification or face substantial claims for damages should the client insist on modifications.

The problem with construction claims has become more serious in recent years. The Hong Kong International Airport is but one notable example. However, a D&B contract was not used in the airport's case and is not directly comparable. The recent D&B contract for the Tamar office building is still undergoing construction, and the results are not known yet.

⁶⁹ Appendix I, Question (1).

⁷⁰ See http://www.info.gov.hk/gia/general/200609/29/P200609290104_print.htm

6.2 Cost and quality control

The following table summaries the relative advantages and disadvantages of the two methods of procurement.

Table 6.2-1 Comparing design & build to the conventional method of procurement

Design & Build	Conventional: separating Design & Build
Full performance specification needed	Tender after detailed design
This specification is never exhaustive	Could be reviewed and adjusted after the detailed design and before tendering
How to specify performance in terms of comfort, space, aesthetics, and the quality of architectural detailing?	
Without a detailed design, a D&B contractor may cut costs to meet minimum performance only	With a detailed design, there can be much more accurate costs estimates for both contracting parties
Lacks an architect's independent view	Has an architect's independent view
May save time before tendering, but could be problematic if a competition is used to choose a design	Needs longer time for detailing, but this pays off in terms of value for money
May be more costly to rectify problems, such as a contractual dispute that occurs at a later stage	Client knows exactly what it will get before committing resources
Suitable for civil engineering projects, building services or buildings with functional requirements only	More suitable for artistic and innovative complexes, like M+ and PA facilities
Appointment of an operator before conceptual design is most essential in both cases	

In summary, to ensure world class architectural designs, detailing, and operations in the WKCD, the D&B approach may not be suitable because:

1. The client's full requirement is necessary for pricing, enforcing contract conditions, and quality control. Also, these requirements cannot be fully and clearly specified without a detailed design.
2. The use of design and build is further complicated by choosing a conceptual design by competition: the architect who won the competition is the best person for carrying out the detailed design, and therefore, this could limit the choice for the D&B contractor.
3. Combining D&B into one contract may result in the architect being controlled by the main contractor. The architect would then lose his/her independence when dealing with the client.
4. It is also difficult for the D&B contractor to estimate the construction cost since he does not know what exactly needs to be built.

5. What exactly needs to be constructed only becomes clear after the D&B contractor completes all detailed designs.
6. It is also very difficult for a client to choose between different D&B contractors, since each one offers different design solutions at different prices.
7. To facilitate cost and quality control, not only should the design phase be separated from construction phase, but all the detailed design must be as complete as possible (with all working drawings produced and forming part of the contract).
8. The separation of design from construction and more careful planning at the design stage may require more time initially, but the payoff is substantial at a later stage in terms of time, cost, and quality. This is especially the case for important and innovative projects like M+, in which local contractors and designers have little experience and cost budgeting and control are important.
9. The traditional procurement approach, in which design is separated from construction, seems to be more appropriate for artistic projects, especially for innovation projects like M+.
10. The conventional approach requires strong project management, not necessarily more staff, to control for quality and price at all stages of design and construction.
11. In either method of procurement, an operator should be involved even before the design stage.

6.3 Operational efficiency

The FA listed the results of consultations with ten theatre operators in Annex D.8. It reported that “*operators stressed the value of being involved in early planning of the facilities, to ensure maximum functionality and profitability.*”⁷¹ and they, “*expressed a preference for having sole responsibility for operation of a building.*” This is essential to architectural design. In fact, buildings should be designed from within, starting from their operations, rather than from without.

The FA also reported that international museum operators like Guggenheim preferred design, operational, and curatorial control,⁷² and hence, were not interested. However, Guggenheim did show an interest in the WKCD, and has even entered into a joint venture statement with Centre Pompidou and Dynamic Star for the WKCD.⁷³

International museums’ preferences in managing the operations and collections of the proposed museum are well-expected, and should even be welcome, because this is an effective means of knowledge transfer. The FA also pinpointed that “*The only direct local experience of large-scale museum operation lies with LCSD’s operation of public museums.*”⁷⁴ Yet the largest local art museum that could provide local experts with suitable

⁷¹ Annex D.8-4 of the FA’s Report.

⁷² Appendix I, Question (9).

⁷³ See http://www.guggenheim.org/press_releases/release_140.html

⁷⁴ Appendix A-2 of the FA’s Report.

experience, namely the Hong Kong Museum of Art, is only 16% of the proposed size of M+. It is more than reasonable to learn under the direct supervision of successful international museums, before risking a \$10.7 billion investment to learn the lessons by trial and error in the process.

The FA also assumed an operation mode of OMM by NPO for M+⁷⁵ (i.e. Operate, Manage, and Maintain by a Not for Profit Organization). The FA further suggested that international operators are not interested, and at the same time there is insufficient local expertise. In this case, it would be most difficult, if not impossible, to identify a capable NPO to run M+ up to world-class standards. There is a good possibility that a new NPO would have to be set up specially for this purpose and may even be assigned the job without sufficient competition.

In response to a question of whether operators are involved in the design phase and how they are selected, the FA did not give a direct answer:

*“WKCDA will decide whether the future operators of the venues should be involved in the design phase. Operators will be chosen by the WKCDA through different forms of private sector involvement.”*⁷⁶

The FA assumed that the construction of the performing arts facilities and M+ will start in 2010 or 2011,⁷⁷ and considering the lead time for design competition for the selection of architects, it seems to have allowed insufficient time for the early selection of operators. This would jeopardize the quality of the design, and may drive up its costs in order to rectify the problems after the operator is selected or result in less revenue due to inappropriately designed facilities for users. Such problems are more serious when a design and build method is chosen as the procurement method. This is because after a design and build contractor is chosen, the performance specification could not be modified easily without paying additional costs.

⁷⁵ Page 31.

⁷⁶ Appendix I Question (2).

⁷⁷ Annex 1(b) page 1 of 2.

7 Risks and sensitivity analysis

The FA performed a series of sensitivity analyses. In addition, we identify three areas in which sensitivity analyses would be desirable. These areas concern assumptions that are uncertain by nature but could have significant financial implications.

7.1 Inflation, interest, and real rates

Referring to the previous discussions on the inflation rate and the escalation of construction costs in Section 3.3.2, the statistical record shows that construction costs have escalated, on average, more than 6% per year over the past 30 years. This is much higher than the FA's assumption of a long term inflation rate of 2% over the entire 50-year period under the current study.

Under the FA's assumptions, most construction work will start before 2014. The risk of construction cost escalations is therefore mostly within the first 5 years, during which time most tenders are to be awarded. Hence, sensitivity analysis should test the financial implications of this risk by using, for example, a range of construction costs escalation rates from 4% to 12% per annum for the first 5 years from 2008 to 2014.

Major renovation costs, however, will not be payable until 20 or 40 years later. To test the financial implications of the risks these costs represent, we recommend that a sensitivity analysis using long term escalation rates from 4% to 8% (i.e. 6% +/- 2% per annum) for major renovation costs be employed.

Only with these analyses could we come up with a more realistic picture of the WKCD's financial liabilities concerning construction costs. It should be carefully noted that this 6% construction cost escalation could be seen as "the inflation rate for construction works" instead of a general inflation rate of 2% covering construction. This does not, however, include interest, and should therefore be distinguished from the FA's nominal rate of 6.1%, which includes 4% real interest on top of the 2% inflation.

In other words, should the seed fund be able to generate a return during the first 5 years starting in 2008 to pay for construction costs escalating at 6% per annum, it should earn at least 10% per annum if a real interest rate of 4% is assumed.

7.2 Investment returns

Apart from the problem of construction cost escalation, the FA's Report was unclear on the kind of investment that would earn a risk free return of 6.1% per annum over the first 5 years.

It is clear that the primary objection of the seed fund is to pay for the capital and operating costs of the WKCD. The majority of this fund will be spent on capital costs for construction contracts committed during the first 5 years. From this point of view, it is perhaps not the primary objective of the seed fund to speculate and earn substantial profits.

Yet in the capital market, major investment tools that are relatively risk-free can only a rate of return 3%-4% p.a.⁷⁸ over a period of 5 years. Investments aiming for 6% or higher for the first 5 years must entail risks. The scenario in which the seed fund manager would be forced to sell its investments at low market prices to meet cash flow requirements, particularly in the first 5 years, cannot be ignored.

It is, therefore, not sufficiently convincing to assume a long term return of 6.1% without providing a sensitivity analysis to test the financial implications of the volatility that comes with this 6.1% return. The financial implications of such a scenario should be assessed using a sensitivity analysis. The range of return rates chosen for such a sensitivity analysis should be compatible with the volatility of the particular investment tool assumed for 6.1%.

7.3 Critical management decisions

In a sensitivity analysis, the FA tested the financial impacts on the funding gap of \$9.05 billion (under Scenario 1A) by varying different assumptions. Some of these assumptions are later modified and adopted as the basis for the current proposal of a \$21.6 billion seed fund, with a view to reducing this funding gap to zero. They include:

1. ST14: M+ Scaled down by 30%, reducing the funding gap by 41%; and
2. ST15: NOFA to GFA Ratios 1:1.5 for M+ and 1:1.4 for PA venues, reducing the funding gap by 23%.

Table 7.3-1 Impacts of varying assumptions on the funding gap⁷⁹

		Assumptions	Impacts on the \$9.05 billion funding gap
Sensitivity Tests	ST14	M+ Scaled down by 30%	- 41%
	ST15	NOFA to GFA Ratios 1:1.5 for M+ and 1:1.4 for PA Venues	- 23%
	ST2	Pessimistic Outcome in procurement and operations	+ 63%
	ST4	50% Real Decrease in Land Premium	+115%
	ST9	3% Real Discount Rate (instead of 4%)	+ 45%
Tests still missing		Construction costs escalation	to be assessed
		Volatility in investment returns	to be assessed

⁷⁸ The yield for the 10-Year Exchange Fund Notes was 2.41% in April 2008; the average yield from January 2004 to April 2007 is 3.51% (source: Hong Kong Monetary Authority, <http://www.info.gov.hk/hkma>, accessed May 2008). The yield for US 5-year Treasury Bond was 3.11% by the end of April 2008, the average from January 2004 to April 2008 is 4.06% (source: The US Department of Treasury, <http://www.treas.gov/> accessed May 2008).

⁷⁹ Figure 6-1 on Page 61 of the FA's Report. In addition, the government would share more funding responsibility for communal and infrastructural facilities in this \$21.6 billion proposal. See WKCD-511, page 12 paragraph 15.

There are, however, sensitivity tests that have resulted in substantial increases in the funding gap. They include:

1. ST2: Pessimistic outcome in procurements and operations, while the funding gap increases by 63%; and
2. ST4: 50% Real decrease in the land premium, while the funding gap increases by 115%.

Moreover, as discussed in the previous two sections, there are even more realistic problems that have yet to be included in the sensitivity analysis. They include:

3. Construction costs escalation, and
4. Volatility in investment returns

Whether these unfortunate events would happen is, of course, unforeseeable. In case they do happen, the financial position of the WKCD would become critical because a zero funding gap would mean insufficient extra funding to manage any substantial financial crisis. Since the WKCD has to be financially self-sustainable, asking the government to subsidize it from time to time would not be a preferable option. However, there is no contingent plan to deal with these unfortunate events. All these factors may jeopardize the long-term financial strength of the project.

7.4 Potential risks on qualities

When facing a financial crisis, qualities may be undermined.

In the case of procurements, a design and build contract may convince decision makers that the final cost of the building is fixed right at the beginning. Yet before design details are drawn, both the client and contractor cannot estimate the construction costs very accurately. The performance specification document, however thick it is, is much less accurate than detailed design drawings and specifications. Under a design and build contract, by the time a detailed design is completed, there would be minimum flexibility to adjust its price, particularly when the client is in financial crisis. When that happens, it is possible that the contractor may be forced to redesign those items whose costs were not particularly clear (e.g. the general requirements of aesthetics or spatial comfort) in the performance specifications. The contractor can do it relatively easily because the architect would be working under its umbrella.

Similar problems may occur in conventional construction contracts that separate design and build. The key difference is that the relative uncertainty of information under design and build may lead to an even bigger problem with the quality of construction, particularly when an architect lacks the independence to insist his/her views on design quality.

The problem of construction cost escalation after a contract is awarded, for instance, may be resolved by introducing a “fluctuation clause” to the construction contract. This would allow

a contractor to be reimbursed according to certain indicators of construction costs levels. Clients under very tight budgets would be reluctant to introduce such clauses, but without the protection of these clauses, contractors may have to look into the possibility of compromising quality.

Building quality problems will lead to operational problems in two ways.

First, to fix quality problems in design and construction, a client may have to spend more, leaving less financial reserves to support its operations in the future.

Second, compromising quality and design will certainly affect potential revenue from operations. Operators may have to cut their production costs to balance their books.

The way to increase the financial strength of the WKCD, in an old fashioned but effective manner, would be to spend less on unnecessary items and earn more by improving efficiency. The strategy should be well-planned before a project starts and executed accordingly. Recommendations in this respect will be discussed in greater detail in the last section of conclusions and recommendations.

8 Residential and commercial land values

8.1 GFA allocation and Land values

The FA estimated that the commercial and residential land values of the WKCD to be \$21.288 billion, which barely covers the proposed seed fund of \$21.6 billion.

Table 8.1-1 A summary of the residential/commercial mix and land values⁸⁰

Land uses		% GFA	GFA (m ²)	Accommodation Value		Land values (\$ million)	
				(\$/m ²)	(\$/ft ²)	2006	2008
Residential	Villa houses	3%	10,000	190,000	17,658	1,900	1,828
	Apartments	44%	135,257	120,000	11,152	16,231	15,613
Commercial	Hotels	18%	56,000	20,179	1,875	1,130	1,087
	Office	35%	107,683	26,652	2,477	2,870	2,761
		<u>100%</u>	<u>308,940</u>			<u>22,131</u>	<u>21,288</u>

Table 8.1-1 lists the composition of this \$21.288 billion land value, as well as the (Accommodation Values) AVs for the project's commercial and residential uses.

AV is the land value subdivided by the total Gross Floor Area allowed for a piece of land. We can see from this table that the land values for villa houses is the highest (AV \$17,658 /ft²), while that for apartments came in second (AV \$11,152 /ft²). Hotel and office uses were valued much lower: at \$1,875 /ft² and \$2,477 /ft², respectively.

When considering these GFA allocations, one should note that:

1. Residential use is capped at 20% of the overall GFA of the WKCD; and
2. the sensitivity analyses showed a small financial impact on the funding gap by:
 - a. ST 18: changing 1/3 of hotels to offices reduces the funding gap by only 3%; and
 - b. ST 19: changing 20% of RDE to offices reduces the funding gap by 0%.

Nevertheless, it is still desirable to remain flexible because:

1. Only 3% of the GFA was allocated to villa houses, despite their much higher AV. Of course, their impacts on overall planning and the amount of open space should be considered carefully.

⁸⁰ Sources: Page 13 and Annex 8 of the WKCD-511 Report; Annex H of the FA's Report.

2. Regarding commercial land uses, only 18% of the GFA was allocated solely to hotels. The FA also stated in a footnote⁸¹ that the hotel/office mix depends on market conditions. Allowing such flexibility is desirable.
3. Annex H of the FA's Report estimated an even higher AV for retail use (\$31,088/m², or \$2,889 /ft²). Some flexibility in the hotel/office/retail mix could also be considered.

8.2 Valuation methods

The method of arriving at land values in the FA's Report was conventional and, on the whole, a reasonable approach. Yet there are still areas to clarify and improve.

1. The market comparables chosen for the land valuation entailed a very strong reliance on professional judgment. Yet closer comparables in the market could always allow better professional judgment:
 - (a) For apartments, only one land transaction from Broadcast Drive was taken into account, whereas the transactions for nearby apartments at Kowloon Station (e.g. the Arch) were ignored. This single example is the basis for a \$15.6 billion land valuation, contributing more than 72% of the value of the seed fund! Such a basis may not be sufficiently strong to justify the significance of the result.
 - (b) For hotels, the comparables chosen required a substantial adjustment (almost 100%) of the room price; more similar comparables like the hotel room rates in Tsimshatsui should have been considered.
 - (c) For retail property, despite the assumption that the RDE facilities would be distributed over the whole WKCD site⁸², the comparables chosen were large shopping malls like IFC and Plaza Hollywood.
2. In the residual valuation for RDE, a marketing cost of 1 to 1.5% was lower than the market practice.
3. The land valuation for office use was not shown at all.

8.3 WKCD's impact on land values

The entire land valuation report might have failed to consider the potential positive impacts of the arts and cultural facilities, the qualities of the architecture, the entertainment and retail facilities, open spaces, and the improvement of transport and communal facilities on land premiums. The current assumption is that the WKCD would become a world-class cultural and arts district upon its completion. The positive impact could be substantial and should not be ignored during the residential and commercial land valuations.

⁸¹ Footnote 3 on page 13 of the WKCD-511 Report.

⁸² A concept derived from the "Theatre Land" at London West End, where shops are completely integrated with theatres and cultural venues.

9 Economic impacts

9.1 Methodology of estimation

According to the Economic Impact Assessment (EIA)⁸³ dated May 2007, the WKCD will generate substantial tangible economic benefits in terms of GDP contribution, job creation, and increased tourism. Interpreting these economic benefits in absolute terms is, however, not very meaningful. Government spending always has an impact, be it good or bad, large or small. To enable meaningful comparisons, one must also examine the benefits derived from the alternative uses of the land (i.e. opportunity cost) at the WKCD. Failure to realize how the concept of opportunity cost works in an EIA leaves the following important questions unanswered. Would the economic impact be the same, smaller, or larger if:

1. The land is designated for uses other than arts and cultural purposes?
2. Different scenarios for procurements and operations, such as Scenarios 1A, 1B, and 2, as well as the PSC, are adopted, resulting in different levels of efficiency?
3. M+ were down-sized?

The second methodological problem of the EIA is taking an assumed target as the result. A result should be derived from scientific analyses. Taking an assumption as the result is tautological, and therefore empty in scientific content.

*“MAG envisages that with a healthy cultural ecology, the annual attendance of M+ should reach 2.5 million as a target number of visitors.”*⁸⁴ MAG did not provide any market study to support this figure. The FA then took this target for granted and derived all financial implications from it. Then the EIA used this figure provided by the FA and derived its own implications.⁸⁵ Throughout this entire process, the 2.5 million figure was widely used as a well-renowned assumption, rather than as a result obtained by careful market study. This line of approach is highly questionable.

9.2 Interpretation of the impact

A unique feature that differentiates a “world-class cultural and arts district” from a pure property development is its benefits to tourism. It is, therefore, essential for the EIA to demonstrate clearly the estimated impact the WKCD would have on tourism. In this regard, visitor numbers are a key concern because they form the basis for estimating additional spending by tourists and local visitors.

⁸³ As provided by the Financial Secretary’s Office.

⁸⁴ Page 42, paragraph 2.57 of the MAG Report, 23 November 2006.

⁸⁵ See Question (41) in Appendix I.

M+, being the WKCD's landmark, was assumed to attract 2 million attendances per annum (2.5 million before down-sizing). This assumption, according to the FA's Report, was taken from the MAG report. Moreover, this target attendance of M+ constitutes only 7% of visitor arrivals in 2007. If M+ were to become a world-class museum, and ticket prices are as low as \$27.5 to \$30, then the target visitor attendance appears to be a rather conservative estimate.

The estimated attendance at the performing arts venues was based on the standards and data available for LCSD venues. It was not clearly justified why the local experience should be applied to a "world-class" facility without appropriate adjustments.

9.3 Performance indicators

Tourism benefits are an important factor in justifying public investment in the WKCD project. To substantiate the visitor numbers and their spending, it is necessary to carry out more in-depth analyses of the local and tourist demand for the cultural and arts facilities. The outcome of the analysis (e.g. such as one on projected visitor numbers) could be turned into an objective performance indicator for evaluating the operational performance of the cultural district and governing the funding for and expenditure of the future WKCD Authority.

Thames Gateway, for instance, lists out Key Performance Indicators for the Corporation. They include: permanent FTE jobs created, private sector investment, green or open spaces created, and brown field land remediated.⁸⁶

In the Economic Impact Assessment, no performance indicator was listed. There was also no contingency plan should the outcome turn out to be unfavourable.⁸⁷ Without these specific indicators, projections in the assessment report cannot be tested against the results.

⁸⁶ See 2006-07 Annual Report. <http://www.ltgdc.org.uk/uploaded/documents/ltgdcannualreportaccounts200607pdf.pdf>

⁸⁷ A notable example is the visitor numbers to Disneyland in Hong Kong turned out to be not as expected.

10 Key parameters to be monitored

It is likely that under the current proposal, the WKCD project will be managed by an organization created by statute, rather than one selected by competition. A greater public expectation of transparency and accountability is therefore envisaged. To achieve both of these objectives, an effective method is to announce performance indicators right at the beginning, and report on their progress bi-annually. This would allow the public to monitor and participate in this communal project, during the course of its planning, development and operation. The followings are some indicators for consideration.

10.1 The early appointment of operators

If the WKCD were to become a world class arts and cultural district, the early appointment of experienced and competent operators for core arts and cultural facilities is essential. Their appointments before conceptual design are most desirable. A timeline for inviting operation proposals, as well as their appointments, should be planned before the project begins and carried out accordingly.

10.2 Investment return

The investment portfolio of the seed endowment fund, the reasons for choosing a particular portfolio, the results of investment returns, and the financial statements and projections of the fund should be published periodically.

10.3 Design quality

Rules of design competitions, open or by invitation, invitation for proposals of professional services, design briefs, selection criteria, and the winning designs should be published.

10.4 Quality specifications

Specifications for quality of materials and workmanship should be available to the public, on websites or otherwise, when construction contracts are tendered out. This would allow professional members of the public to study.⁸⁸

⁸⁸ A conventional approach, separating design and build, is assumed here.

10.5 information on expenditures

Expenditures on construction costs published in annual reports should be itemized into direct construction costs, professional fees, WKCDA's costs, risk or contingency allowances, major repair and renovation, and museum development separately. Relevant construction floor areas (CFA), and gross floor areas (GFA) should be provided.

10.5.1 Unit construction costs

The current unit costs proposed by the FA would become good indicators for the future, and⁸⁹:

1. Unit construction costs for CACF is currently \$22,200 to \$29,200 psm CFA. This includes FF&E, but excludes professional fees and other on-costs.
2. Excluding FF&E costs, this price range becomes \$15,900 to \$20,450 psm CFA; and
3. The unit construction cost for RDE: \$18,198 psm GFA.

10.5.2 Professional fees

As the FA assumes, professional fees would range from 6 to 14.6% of direct construction cost, depending on the level of sophistication and the type of building facility.

10.5.3 Project and contract management costs

Project and contract management costs are conventionally included in the developer's normal profit of 10 to 15% on direct construction costs.⁹⁰ Reducing the current 19.2 to 20.2% for contract management and WKCDA costs to 10 or 15% is desirable.⁹¹

10.5.4 Contingencies and risk allowances

Contingencies are conventionally in the order of 10 to 15%. Again, reducing the 25.9% risk allowances to 10 to 15% is desirable.⁹²

⁸⁹ Of course these should be adjusted using TPIs for future use.

⁹⁰ The FA's Report page H-11, as shown in FA's valuation analysis

⁹¹ With careful management and monitoring, there is a potential saving equivalent to 2.7% of the \$21.6 billion seed fund.

⁹² A potential saving equivalent to 5.6% of the \$21.6 billion seed fund.

10.5.5 Major Repair and Renovation costs

Currently the FA assumes 100% removal of M&E and FF&E facilities in each of the 2 Major repair and renovation exercises within 50 years; whereas, conventionally, 50% replacement of these facilities is expected. Hence, reducing major renovation costs by 50% is desirable.⁹³

10.6 Management organization

Staff organization, staff number and costs at different ranks, performance pledged and achieved, and itemized expenses should be published in annual reports.

10.7 Utilization rates

Number and types of visitors to the WKCD as a whole, and utilizations rates of individual facilities should be published.

10.8 Cost effectiveness

The cost recovery rate is a simple and effective measure on how well a facility performs financially. It is simply the yearly operating revenue divided by operating expenditure. As a reference for M+ in particular, cost recovery rates should aim to achieve a higher cost recovery rate of 50%, which is the average of most successful international museums⁹⁴

⁹³ A potential saving equivalent to 5.8% of the \$21.6 billion seed fund.

⁹⁴ See Table 5.3-1.

11 Conclusions and recommendations

11.1 The scenarios

The study of Scenarios for private sector participations is perhaps insufficient for its conclusion: for adopting Scenario 1A. There are four fundamental reasons:

Firstly, the hypothetical procurement and operating method of DBFM (Design Build Finance and Maintain) was specially created by the FA, jointly with the Efficiency Unit, for the purpose of the FA's study on private participation in the WKCD. There is no successful example using a DBFM approach, or just any example at all using it, which could be referred to in Hong Kong. Yet DBFM is used widely in Scenarios 1B and 2. As a result, these two scenarios are not sufficiently realistic to be considered seriously as viable options for comparisons to Scenario 1A.

Secondly, Scenarios 1B and 2 assume a much higher interest cost of using the private investor's finance, at 12.5% per annum, under the DBFM approach. This is not justified should the FA also assume that WKCDA is endowed with the seed fund, earning an investment interest of 6.1%, and yet pays the investor at the more expensive rate of 12.5% per annum without extra benefits, in management efficiencies or otherwise, brought about by the private sector. In fact there is no extra benefits allowed in the financial figures, except the assumption of minor gains in risk allowances, which are substantially outweighed by the differences in interests cost. Hence, the conclusion that Scenario 1B and 2 are more expensive is a result of assumptions rather than analysis.

Thirdly, no financial gains in operations are assessed, given the assumption of an increasing level of private sector participation from Scenario 1A to 1B and 2. The operating deficits in these three Scenarios are exactly the same.

Fourthly, in all the three Scenarios, no differences in the level of private sector participation are studied for M+. The implicit assumption of the method of procurement and operation for M+ is not supported by a sufficiently rigorous study.

Hence, these Scenarios should be completely revised to allow realistic and beneficial involvements of the private sector.

11.2 Procurement methods

For the procurement of most CACF, the FA assumed Design and Build: a standard procurement method adopted by the government. This method requires an extensive performance specification written well before designing the buildings. It is suitable and widely used by the government for civil and infrastructural projects, as well as simple government offices. Complex building such as performing arts venues, or artistic designs such as the M+, may not be suitable, because details and prices are never accurate before the

completion of the detailed design stage. Moreover, architects working under the umbrella of a design and build contractor may become less independent when facing the client.

11.3 Financial sustainability

The current study is confined to a period of 50 years. This implies that the WKCD will have no fund set aside to pay for major renovation, or the reconstruction of the aged buildings after 50 years. To achieve this, an additional seed fund of \$3.38 billion, in present value terms, is needed. That requires a saving of 16% on the current \$21.6 billion capital cost, in order that the WKCD could be financially self sustained.

11.4 The funding gap

Under the current zero funding gap model, there might be insufficient financial resources to cope with unforeseen crises. These crises may include, but not limited to, a low investment return, high escalation of construction costs, problems encountered in procurements, pessimistic outcomes in operations, or a combination of the above.

To strengthen the WKCD's finance, an old fashioned but effective manner, would be to spend less on unnecessary items and earn more by improving efficiency.

11.5 On-costs

Compared to conventional on-costs and management fees, there is a potential saving, which could be as high as 14 % of the seed fund.⁹⁵

11.6 The question of M+

The FA's analysis shows that M+ costs \$10.7 billion to build and operate for 50 years. This is 40% of the \$26.4 billion capital and operating deficit of the entire WKCD. By 2059, M+'s alone will contribute 89% of WKCD's total yearly operating deficit. This is a major, and long term, financial burden one must look into very carefully now, before making a funding decision.

According to the information provided by the FA so far, should M+ be run by an international operator, the potential saving, in very crude terms, could be as high as 22% of the \$21.6 billion seed fund.⁹⁶

⁹⁵ See footnotes 91,92, 93.

⁹⁶ See the last paragraph of section 5.3.

11.7 The question of RDE

RDE is the life line of the WKCD project: RDE rentals will pay for the long term annual deficits of the WKCD. Compared to the detailed operating assumptions for CACF, down to the smallest of theatres, the current information provided for RDE operations is clearly insufficient:

1. A full integration of cultural venues and shops, dining and entertainment is a lengthy evolution process. Theater Land at London West End is not a result of a master planning and design, but a urban development process over a long period of time in history;
2. The current rental value for RDE is based on comparables of large shopping malls. No adjustment was made for the concept of integrating RDE into arts and cultural facilities;
3. Retail is a highly specialized profession⁹⁷. Not all developers are successful in developing malls. Most successful ones own substantial portions of their malls. The current RDE financing model might have implied 100% WKCDA ownership of RDE, and hence may limit the options of private participation;
4. RDE facilities constitute 16% of the total GFA of the WKCD; and CACF, 38%.⁹⁸ The ratio of RDE facilities to CACF is therefore about 2:5. This RDE proportion is rather substantial, should all RDE facilities scatter into CACF;
5. On the other hand, if all RDE facilities are grouped into one single shopping mall, this mall will be 119,000 square meters in total GFA. A mall of this size is even bigger than the nearby mall at Kowloon Station, which is similar in size and is a clearly a rival.⁹⁹
6. Hence, the delicate proportion between RDE scattered in the WKCD, and RDE in a central mall, should be studied and planned carefully by experts;
7. Before the results of this specialized study is known, the flexibility of allowing parts of RDE to be turned into office or even hotel suites, which also provide stable rental incomes to cover operating deficits, should be kept open.

11.8 Alternative funding methods

The current funding proposal is a seed capital endowment which approximates the value of land sales.

The obvious advantage of this seed fund arrangement is clarity and simplicity in administration. It requires the WKCD to operate and become financially self-sufficient. This would be most difficult to achieve under a subvention scheme.

⁹⁷ Where tenant mix, tenant relative locations, pedestrian flow, leasing, theme, promotion, and management, are all essential factors to be considered and carefully planned.

⁹⁸ WKCD-511 page 12.

⁹⁹ Namely the Elements, the GFA of which is in the order of 100,000 square meters.

The obvious disadvantages, on the other hand, are (a) risks in investment returns; and (b) the loss of the commercial portion of land, which could potentially be an input into public-private joint venture schemes. These schemes would allow substantial efficiency gains due to the private partner's management expertise and flexibilities.

In this respect, the endowment of total land area of the WKCD may allow the best efficiency gain, if managed properly. Yet the effective management of public private joint venture requires expertise and experience; and few institutions succeed.¹⁰⁰ Moreover, despite all the potential gains in efficiencies, after the experience of the "IFP" in 2004, even smaller packaged development, as proposed in Scenario 2, might be seen as not transparent. With all these problems associated with the land endowment approach, the seed funding arrangement might have been a choice by elimination.

While public private joint venture schemes are often seen, by the public, as not transparent; the endowment fund may as well evolve into a big obscurity in itself.

To compensate for this disadvantage, it is therefore essential to keep the management of the seed fund transparent and accountable to the public at all times.

11.9 Funding priorities & conditions

Cost items are listed in Table 11.8-1 according to different levels of uncertainty, improvement potential, and financial significance.

This table is constructed in such a way as to facilitate further discussion on funding and on improvements on the current proposal.

Uncertainty means the financial performance of a particular facility/cost item is uncertain or questionable, either due to invalid assumptions or insufficient information, or a combination of both;

Improvement Potential means high potential benefits of extra time and efforts on further investigations.

Financial Significance means the financial implication of a particular facility/cost item to WKCD's overall financial sustainability.

¹⁰⁰ The MTCR is but a well known successful example.

Table 11.8-1 Funding priorities & conditions

Cost item		Uncertainty	Improvement Potential	Financial Significance
1	WKCDA Management	Medium Role & responsibility not clear	Medium Potential in improving efficiency	Medium
2a	M+ (capital cost)	High Cost, quality & outcome highly uncertain with Design and Build	High Except for costs of design competition and consultant fees. Potential improvement in procurement	High
2b	M+ (operating cost)	High Limited options available	High Potential improvement in operation mode	High
3	Exhibition centre	Medium ^{*101}	Low	Low
4	Mega performance venue	Medium *	Low	Medium
5	Great theater 1	Medium *	Low	Medium
6	Great theatre 2 and medium theatre 3	Medium *	Medium (late in program)	Medium
7	Medium theatre 4	Medium *	Medium (late in program)	Low
8	Concert hall & chamber music hall	Medium *	Low	Medium
9	Xiqu centre	Medium *	Low	Medium
10	Medium theatre 1	Medium *	Low	Low
11	Medium theatre 2 & black box theatre 1	Medium *	Low	Low
12	Black box theatres 2 & 3	Medium *	Low	Low
13	Black box theatre 4	Medium *	Low	Low
14	Piazas	Medium *	Low	Low
15	Other arts and cultural facilities ¹⁰²	Medium *	Low	Low
16	transport facilities	Low	Low	Low
17	communal facilities	Low	Medium	Medium
18	Retail, dinning & entertainment	High Area increased after reduction of M+. Limited study on demand, business concepts, and their integration with other facilities	High Can consider other modes of operation such as private sector participation	High Life line of operations

¹⁰¹ * Low if procured traditionally

¹⁰² Page F-1,2.

In considering the funding priorities of each individual facility/cost item, all these three factors should all be taken into account. To build up the financial strength of the WKCD, considerations in (a) the reduction of on-costs; (b) the operation mode of M+; and (c) an effective business plan for RDE facilities are most essential.

11.10 Other issues

The FA's Report is an extensive study, providing lots of valuable information and forming a solid basis for further investigation into the issue of WKCD's financial sustainability. The authors would like to show our appreciation on all the efforts behind this Report.

12 Appendix I: FA's response to questions

The Financial Advisor's (GHK's) responses to questions raised by the Specialist Advisor (Versitech Limited) on GHK's Final Report, in April 2007.

Ref. Pages on the Report	Versitech's Questions	GHK's Response
9 to 11	(1) What is design and build? How will that be implemented?	Design and build is the standard Government procurement mode. In this procurement mode, the client enters into contractual relationship with the contractor to design and construct the project in accordance with performance specifications prepared by the client. The contractor then enters into a series of separate agreements with consultants, specialist sub-contractors and suppliers to deliver the completed project in accordance with the agreed performance specifications. This method intends to encourage more contractor involvement, increase the speed of project delivery, lower the level of responsibility for the client, and increase the use of proprietary systems or modules.
ditto & C.8-2 D.8-4	(2) Will the operators be involved in the design phase? If so, how will the operators be chosen?	WKCDCA will decide whether the future operators of the venues should be involved in the design phase. Operators will be chosen by the WKCDCA through different forms of private sector involvement.
ditto	(3) What is the justification for the 4% real long term discount rate?	See Annex I to GHK's Final Report dated April 2007. A real discount rate of 4% p.a. is assumed by making reference to the social discount rate (which is 4% p.a.) adopted by the Government for assessing public investment projects.
32	(4) What is the justification for the 2% long term inflation?	See Annex I to GHK's Final Report dated April 2007. For such a long term financial analysis, it is considered prudent to adopt a consistent long term inflation rate over the project period. A long term assessment of this kind should adopt long term consistent rates and NOT try to predict economic cycles. As an advanced economy and under a currency board system with the Hong Kong dollar linked to the US dollar, Hong Kong's inflation over the very longer run would tend to be more or less in line with those experienced by economies at a similar stage of development. The implicit or explicit inflation targets set by most major central banks in the advanced economies are around 2%.

Ref. Pages on the Report	Versitech's Questions	GHK's Response
9 to 11	(5) Why use long term inflation rate for inflating capital costs (which will take place within the next few years)?	<p>See response above as well.</p> <p>It is considered appropriate for a long term analysis to use a constant long term rate. This type of analysis is not about forecasting swings in economic cycles but about long term financial sustainability. As such, 2% was considered a sensible long term rate. In the financial analysis, part of the capital costs are for phase 2 and part for major repair and renovation which will be incurred by intervals ranging from 12 years (e.g. retail/dining/ entertainment (RDE) facilities), 20 years for core arts and cultural facilities (CACF), to 30 years (e.g. public open space).</p>
9 to 11	(6) How to ensure that the endowment can earn 6% nominal rate?	<p>The 6.1% nominal discount rate adopted for WKCD project is based on 4% real discount rate (reflective of the social discount rate) and the 2% inflation rate.</p> <p>For reference:</p> <ul style="list-style-type: none"> • 1996 to 2006, Moody's yield on seasoned all industries bonds ranged from 5.23% to 7.62% for Moody's AAA, 6.06% to 8.37% for Moody's BAA • The compound annual growth rate for equities over the period Jan 1987 to January 2007 was: Hang Seng was 10.9%; S&P 500 8.6% <p>In addition, according to the Hong Kong Monetary Authority, the Exchange Fund generated a compound nominal annual investment return of 7% over the 14-year period from 1994 to 2007</p> <p>Whether the 6.1% nominal investment return can actually be achieved depends on the investment strategy of WKCDA, which hinges primarily on whether the institutional arrangements for WKCDA provides the latter with adequate flexibility to properly manage its own finances, to handle the master planning, and facilities design and construction processes, as well as to manage and operate its facilities and activities in response to changes in the arts and cultural scene and the market conditions.</p>

Ref. Pages on the Report	Versitech's Questions	GHK's Response
31	(7) What are the differences between (BD + OMM) and (BDFM + OM)? Any real examples in Hong Kong? Does F (in BDFM) include financing capital costs as well? Does that reduce the funding gap substantially?	<p>It is DB – Design Build and the other is DBFM – Design Build Finance Maintain.</p> <p>One is primarily a construction contract and the other is a whole of life Public Private Partnership (PPP) approach – see table in Chapter 3 and risk transfer diagram Figure 3-1 of FA's Final Report dated April 2007. OMM means operation maintenance and management. DBFM was a procurement mode developed in conjunction with Efficiency Unit specifically to address the circumstances of developing new facilities in the arts and culture sector in Hong Kong. We do not know of any examples in Hong Kong.</p> <p>DBFM includes financing the capital cost. It does not reduce the funding gap substantially.</p> <p>What is perhaps pertinent to this question is that a whole of life approach including operations was not adopted for M+ or performing arts (PA) venues because the construction and operation of such venues do not fit well together and developers do not want to take on the operational responsibility that would be part of such a contract i.e. the risk premium is higher. PPP approaches that include operations are more suitable for infrastructure projects where the construction and operation are done by the same party / same group – many examples in the transport sector (e.g. Tate's Cairn Tunnel).</p>
31 & Appendix A-2 s.8	(8) M+: (1) Same scenario "DC, DB + OMM by NPO" for both 1A and 1B? Why? (2) "OMM by NPO". What kind of NPO? Any example in Hong Kong?	<p>Yes, the procurement modes are limited for the M+ because from market sentiment there is no party that would contract to take a whole of life approach – as in a true Public Private Partnership (PPP) approach.</p> <p>There are many non-profit organization (NPO) arts groups in Hong Kong. For a museum, the NPO is likely to be a trust or charitable status organization.</p>
Appendix A-2 s.9 & Annex C.8-2	(9) Why are international franchises like Guggenheim, or Pompidou, not interested? On what terms they are not interested?	<p>According to the FA's market research, the Guggenheim is not interested because their model for franchise involves total autonomy; they are looking for design and operational control and an open purse from the Government. The model is very pricey and operationally they even want curatorial control. The Pompidou is prepared to co-operate over exhibits but is not interested in operations.</p>
32 to 35	(10) In the risk analysis, how testable are these probabilities assigned?	<p>The probabilities were assigned by the team of experts based on their skills and experience.</p>

Ref. Pages on the Report	Versitech's Questions	GHK's Response
50	(11) Why are the overall financial deficits of the 4 scenarios so marginal: 9.1, 10.8, 11.5 and 11.9 billion respectively? Compared with PSI 1A, is it true that more risk is transferred to the private sector under PSI 1B?	<p>Under each scenario, the same facilities are being built, and broadly provide the same outputs. It is hardly surprising that deficits as a result of different procurement modes, whilst different, are in the same broad order of magnitude.</p> <p>Yes, more risk is transferred to the private sector under PSI 1B (please see Chapter 3 of GHK's Final Report dated April 2007). Under PSI 1B, the whole of life approach is adopted where possible and specifically under DBFM the private sector is responsible for finance.</p>
50	(12) What will happen after 50 years? A long term government subsidy? And how much per year, in terms of present value?	<p>As stated in the report, the 50 year time frame is sensible for a long term financial analysis to determine sustainability. The FA included the cost of major overhaul at appropriate intervals, such that in 50 years the facilities will be fully functional. Based on the assumptions adopted, the financial model shows that the operation of arts and cultural facilities would be financially sustainable using the rental proceeds of the RDE.</p>
42 5.4.5	(13) Should one pay less when paying upfront, reflecting interest costs? So why the NPV differences?	<p>A dollar spent today generally costs more than a dollar spent tomorrow.</p> <p>The NPV differences are the result of actual differences in costs of PSC vs PSI and risk.</p>
61	(14) Under what values of the economic parameters (e.g. rates of investment returns) would the project become not viable? I.e. WKCD needs to ask for government funding again. What does the sensitivity analysis say on this?	<p>The FA conducted a comprehensive range of sensitivity tests to examine the relationship between the key parameters (e.g. inflation, real discount rate, etc.) and the size of the overall funding gap which are detailed in Chapter 6 of the FA's Final Report dated April 2007. Within any development project there is always potential for unforeseen events to result in a different outcome to that anticipated, both during the construction and operation phases. The FA has built into the financial analysis an appropriate risk premium in the estimation of costs and revenue based on very detailed risk analysis as given in Annex J to the FA's Final Report dated April 2007. We consider such analysis reasonable.</p>

Ref. Pages on the Report	Versitech's Questions	GHK's Response
13 & Appendix A-1, 2 & Annex C.7-1	(15) Why M+, a world class museum, charges only \$27 to \$30 per ticket? Why is the revenue, as a percentage of operating expenditure, so low (only 17 to 22%) compared to 27% to 74% internationally?	The assumptions about ticket prices and overall admission revenue which includes concessions and blockbusters have been compiled with regard to the recommendations of the Museums Advisory Group (MAG) of the Consultative Committee on the operational requirements of the M+, and admission charges of existing Government museums in Hong Kong. Specifically, MAG required M+ to be affordable to the general public in Hong Kong, and envisaged an annual target number of visitors of 2.5 million. The FA assumed a target of 2.0 million (after scaling down M+ in line with the Consultative Committee's recommendations). Taking into account the price elasticity of demand (the relationship between attendance and price) and the fact that admission into some other international museums is free, adopting a relatively low ticket price when compared to some other international examples is considered appropriate. There is also a need for M+ to pay for temporary exhibitions to attract visitors, whilst building up a collection over a very long period of time.
Annex: B-3	(16) Brisbane South Bank Corporation employs 411 people? This is contradictory to the Corporation's 2007 Annual Report page 44, which states clearly that it employs only 75 members of staff (7 managers, 18 administration, and 50 operation staff, even including part-time staff. See http://www.southbankcorporation.com.au). We understand that the FA's report was done in 2006. Please state the source of this 411 figure.	The point of the commentary is that the number of staff depends wholly on the function and responsibility of the area-based organization concerned. The point was that 400 or so was far too high and yet Thames Gateway at 12-15 was far too low and thus the FA developed a structure specifically for WKCDA.

Ref. Pages on the Report	Versitech's Questions	GHK's Response
ditto	(17) WKCDA hires 90 staff during development. What are the duties of these staff during development? Will they hire consultants in addition to these 90 staff?	<p>In preparing cost estimates, (note this was not institutional advice but assumptions for cost estimation) the FA assumed five divisions: office of the chief executive; planning and development; property; finance and procurement. The duties include but are not limited to: land assembly and property, masterplanning and project development, strategic and business planning, cultural and arts policy liaison, legal, procurement, contracting and finance. This assumption was adopted with reference to the establishment of comparable area-based agencies in Hong Kong and elsewhere.</p> <p>Yes. The FA assumed that consultants would be hired in addition to these staff.</p>
ditto	(18) What are the duties of the 33 staff for area management, from year 9 onwards?	<p>In preparing cost estimates (note this was not institutional advice but assumptions for cost estimation), the FA assumed 3 divisions: chief executive, area management and finance. The duties would include but not limited to: estate management, area marketing and programming, strategic and business planning, cultural and arts policy liaison, legal, contract management, procurement and finance.</p> <p>In addition, individual arts and cultural facilities and related facilities are provided with staffing resources for venue and programme management as well as operating budgets.</p>
C.1-3	(19) Why purchase paintings? Is there still a possibility of a franchisee agreement?	Purchase of paintings and other items is a sensible business strategy for a museum. The arts world works on reciprocal arrangements, you can only borrow if you have a collection. Building a collection has a dual function.
C.2-15, 16, 17, 18	(20) Exhibition Centre Point 4 missing?	Point 4 is not applicable to the Exhibition Centre (EC). There is no admission revenue for EC

Ref. Pages on the Report	Versitech's Questions	GHK's Response												
C.2-20	(21) Exhibition Centre hire income is \$55 million; don't know how this figure could be obtained?	<p>The gallery hire income is broken down as follows: In HK\$ million</p> <table border="0"> <tr> <td>Gallery 1:</td> <td style="text-align: right;">17.0</td> </tr> <tr> <td>Gallery 2:</td> <td style="text-align: right;">14.8</td> </tr> <tr> <td>Gallery 3:</td> <td style="text-align: right;">11.9</td> </tr> <tr> <td>Gallery 4:</td> <td style="text-align: right;">7.2</td> </tr> <tr> <td>Other hire income:</td> <td style="text-align: right;">4.1</td> </tr> <tr> <td>Total income:</td> <td style="text-align: right;">55.0</td> </tr> </table> <p>The range of hire charges is from \$37 per sq. m. per day to \$57 per sq. m. per day – see Annex C.2. Reference was made to existing hire charges in Hong Kong such as HK Convention and Exhibition Centre, Central Library Exhibition Gallery and City Hall Exhibition Hall. As with the PA venues actual hire income for the EC will depend largely on the venue programming policy in terms of how commercially oriented the events are. Note that a 30% reduction for cultural events is assumed for Gallery 1, the largest gallery. This is in line with the MAG recommendations that EC should have a cultural focus but be as self financing as possible.</p>	Gallery 1:	17.0	Gallery 2:	14.8	Gallery 3:	11.9	Gallery 4:	7.2	Other hire income:	4.1	Total income:	55.0
Gallery 1:	17.0													
Gallery 2:	14.8													
Gallery 3:	11.9													
Gallery 4:	7.2													
Other hire income:	4.1													
Total income:	55.0													
	(22) Capital cost of master planning – calculation method has not been shown?	<p>The FA assumption is based on consideration of the costs of relevant consultancies in Hong Kong. This included references to studies awarded by Government and the FA's knowledge, including some information not publicly available. The costs were reviewed by Civil Engineering and Development Department and were considered broadly in order.</p>												
C.4-1; D.5-2	(23) Detailed methods for building up periods in operation for all venues have not been shown? How will such building-up affect the revenue and the cost?	<p>See Annex I to GHKs' Final Report dated April 2007 for the building up periods. For the impacts on operating revenue and operating expenditure, please refer to the respective Annexes 1(c) and 1(d) to the LegCo Subcom WKCD Paper No. 511 (Assessment of the Financial Implications of the WCKD Project (re LegCo Subcom meeting held on 24th Jan 2008).</p>												

Ref. Pages on the Report	Versitech's Questions	GHK's Response
D.5-1	(24) What is meant by "utilisation rate to increase by 2% from Year 10 to Year 30"? e.g. base case utilisation rate is 90% of (365 days -14 days) (for most PV in PSI case), then Year 15 = 90%*1.02^5. That means after a few years, the rate will be larger than 100%!	The 2% refers to the whole period. We assume that the comment ^5 is a typo in the question
I-2	(25) The detailed discount method for initial construction cost has been shown in page I-2, but what about (a) the detailed discount method for major renovation; (b) the detailed discount method for Museum exhibition development?	I-2 is the inflation adjustment mechanism, not really a discount rate. This method is adopted to "equalize" the financial modeling exercise with the fact that bid prices for 3, 4 or 5 years' contracts will incorporate a price contingency based on the bidders' inflationary expectations. The dynamic model incorporates this adjustment so that it can accommodate changes in inflation assumptions and remain internally consistent and correct.
	(26) The detailed risk premium calculation for operation is not shown?	Please see Annex J to the FA's Final Report dated April 2007 for assessment of operating risk.
D.3-57(T1) D.3-66 (T2) D.3-69 (T3) D.3-75 (T4) D.4-16	(27) PSI Electricity costs for Blackbox T2-T4 (\$283) is not the same as that for T1 (\$303) in the base case, hence, the figures for optimistic case & pessimistic case must be wrong?	Blackbox theatres 2, 3 and 4 are attributed a 10% reduction in electricity costs / sq m relative to common assumptions for Performing Arts (PA) Venues because they are less sophisticated. Blackbox Theatre 1 is clustered with Medium Theatre 2 and thus the reduction is only 3% as the complex is less sophisticated than PA Venues common assumptions but more sophisticated than Blackbox theatres that are not clustered with other venues.

Ref. Pages on the Report	Versitech's Questions	GHK's Response
Annex H-1	(28) Why is the share of apartments and villa houses allocated as such?	Given the location, the FA considered that the WKCD site might have the potential for villa house development. Villa houses were proposed to diversify uses and to maximize the domestic land value (hence reducing the overall funding gap).
ditto	(29) Why is the share of hotels and RDE facilities allocated as such?	Reference was made to the scale of existing hotels within Hong Kong and the FA considered that the proposed scale of hotel development would be supported by the potential demand arising from the underlying arts and cultural facilities.
ditto	(30) Why assume no commercial offices? Would land sale revenue increase if some of the residential/hotel/RDE uses were changed to offices?	<p>The land sales revenues would depend on the relative Accommodation Value of different uses at the time of sale. At the time of valuation, RDE was worth slightly more than office development. The impact of including office development to substitute part of the RDE was included as a sensitivity test - see sensitivity test included in Chapter 6 of the FA's Final Report dated April 2007.</p> <p>Please note that offices were included in the Consultative Committee's recommendations to improve diversification and mix.</p>
ditto	(31) Why is the valuation date so long (July 2005 – November 2006)?	The valuation was updated through life of study. The FA considered all the most recent comparables. The valuation provided in the final report represents a valuation as at November 2006.
Annex H-2	(32) What is meant by "RDE facilities ... distributed over the whole WKCD site and integrated with various clusters of the arts and cultural facilities"? Are the RDE facilities stand-alone? Why couldn't the RDE facilities be clustered into shopping arcades?	See Performing Arts and Tourism Advisory Group (PATAG) report, Chapter 5 regarding retail facilities. The FA's interpretation of PATAG recommendations is that the retail facilities should not be traditional shopping malls but adopt a more integrated clustering approach, with facilities spread over the district. 'Arcades' may be possible as long as the scale and retail mix reflects the character of the district in line with the vision of PATAG.
ditto	(33) For apartments, why only consider No.1 Broadcast Drive? Is there any other comparable or method to support the land value?	The residential market was changing rapidly when the FA carried out valuations during the course of the Study. The FA considered No. 1 Broadcast Drive as the then most recent and relevant land transaction for direct comparison.

Ref. Pages on the Report	Versitech's Questions	GHK's Response
Annex H-3	(34) For villa houses, why only consider Mt Beacon? Is there any other comparable or method to support the land value?	Relevant land transactions for the development of villa housing were not identified for direct comparison. The FA used the residual method of valuation making reference to villa house market transactions. Mt Beacon provided the most relevant villa house transactions in terms of age, time and development scale.
ditto	(35) For hotels, why not consider comparables like Marco Polo and Langham?	Marco Polo Hotel and the Langham Canton Road – there were no transactions for these hotels during the valuation period of the Study. Valuation is based on comparable transactions. The Langham Mongkok hotel is recognized by the market as a transaction that may not fully reflect the actual value and is not used for comparison purposes. This means that in the view of property professionals in Hong Kong, the publicly available price may not have reflected the actual value.
ditto	(36) If RDE facilities scatter around, why are all comparables shopping malls? And why not consider shopping malls in Tsimshatsui?	Comparables of same design were not available. The FA considered shopping malls in both prime and secondary location in valuing the proposed RDE facilities as well as making reference to shops in other locations such as Soho.
Annex H-11	(37) For villa houses, should Gross Area (which includes non-GFA spaces like car park and roof) rather than GFA be used?	The FA analyzed comparables on the same basis (i.e. on GFA). Comparables need to be undertaken on a consistent basis. If GA were adopted then potentially a different AV would be relevant.
ditto	(38) For RDE facilities, should the no. of CPS be 496 instead of 474 (footnote 2)? And any justification for the car park price?	Yes the footnote is a typo, the model is correct at 496.
Annex H-11, 12	(39) Why is the prime rate taken as the discount rate? Why not WACC of 12.5%?	Adopting the prime discount rate is standard practice for property valuation in Hong Kong.
ditto	(40) Why assume a higher profit rate (both on construction and land) but lower marketing cost for hotels and RDE uses than for villa houses?	The higher profit rate reflects the higher risk higher return for hotels and RDE. Houses are considered to be lower risk. The marketing costs for houses are higher than for hotels and RDE, and this reflects the current situation and practice in Hong Kong.

13 Appendix II: Government Economist's response to questions

Ref. Pages	Versitech's Questions	The Government Economist's Response
Annex 9	<p>(41) How to obtain the total attendance of 5,784,000? How to obtain the attendance of M+ and EC?</p>	<p>The total attendance is the sum of attendance of the M+, the Exhibition Centre (EC) and all the performing arts venues having regard to the phasing of their completion, which are provided in the Financial Advisor (FA)'s assessment. The FA's assessment was compiled on the basis of planning parameters (number of exhibitions/arts performances, seating capacity and attendance rates) adopted for each of the core arts and cultural facilities. In drawing up these planning parameters, the FA has taken into account the objective of developing world-class arts and cultural facilities in the West Kowloon Cultural District (WKCD). The total attendance adopted in the economic impact assessment (EIA) was derived with reference to the total attendance reckoned from utilization rate, seating capacity and attendance rates adopted by the FA. For the first few years of operation, a conservative assumption was adopted by introducing a maturity ratio of less than 100% for each performing arts venue before reaching the FA's estimated total attendance.</p> <p>For the year of 2015, when the M+ and EC are estimated to start operation, the attendance of the M+ and the EC are estimated to be 1.2 million and 1.5 million respectively based on FA's estimates..</p>
Ditto	<p>(42) How to obtain the attendance ratio of local visitors to tourists (80:20)?</p>	<p>In determining the split of the total attendance between local resident visits and tourist visits, assumptions have been made on a set of parameters with reference to the relevant local and overseas operational experiences of the proposed facilities. A higher share of tourist visits in total attendance is taken for the M+ and the EC. Other performing arts venues are also expected to attract tourists, though to a lesser extent. The share of tourists in total attendance would gradually increase over time, reflecting the gradual development of the WKCD's international reputation as a world-class cultural district and its attractiveness to tourists.</p> <p>It is crudely assumed that resident visits and tourist visits account for respective shares of 75% and 25% of the total attendance in the M+ and the EC during their first year of operation. The share of resident visits would decrease by 2% p.a. and eventually stabilise at 60%. For such performing arts venues as Mega Performance Venue, Great Theatre, Concert Hall, Chamber Music Hall, Xiqu Centre Main Theatre, the share of resident visits is assumed at 85% during their first year of operation, and the share will drop by 1.0% p.a. and stabilise at 75%. For other performing arts venues, the share of resident visits is assumed at 90% initially, and the share will reduce by 0.8% p.a. and eventually stabilise at 80%.</p>

Ref. Pages	Versitech's Questions	The Government Economist's Response						
Ditto	(43) What is the attendance ratio of base to induced tourists?	<table border="0"> <tr> <td><u>2015</u></td> <td><u>2031</u></td> <td><u>2045</u></td> </tr> <tr> <td>4:1</td> <td>3:1</td> <td>3:1</td> </tr> </table>	<u>2015</u>	<u>2031</u>	<u>2045</u>	4:1	3:1	3:1
<u>2015</u>	<u>2031</u>	<u>2045</u>						
4:1	3:1	3:1						
Annex 9, 10	(44) How to derive the no. of visitors? (e.g. for local residents, 4,618 / 2.25 = 1,652)	The number of local residents, base tourists and induced tourists are obtained by multiplying the corresponding attendance of each group by the respective visits per guest ratios. The visits per guest ratio for local residents, for example, would gradually decrease over time and stabilise at 2.25. This reflects that the participation rate among local residents in attending WKCD events would increase over time (i.e. more and more local people would attend the events).						
Annex 11	(45) How to obtain the additional stay of base tourists?	It is assumed that in 2015, around 44% of the base tourists will not extend their length of stay in Hong Kong, while the remaining 56% will extend by one night. On average, this is equivalent to all base tourists extending their length of stay by 0.56 night. The share of base tourists that will extend their length of stay will gradually rise to around 92% in 2031 and 2045. On average, this is equivalent to all base tourists extending their length of stay by 0.92 night in 2031 and 2045.						
Annex 11	(46) How to obtain the length of stay of induced tourists?	It is expected that 40% of the induced Mainland tourists will have a short length of stay in Hong Kong, at only 1.5 nights, while the remaining 60% will have normal length of stay, at 4.0 nights. For induced visitors from the rest of the world, their length of stay is assumed to be 3.0 nights. The average length of stay reported has already taken into account the difference in length of stay for different groups of induced visitors. The lengths of stay for induced Mainland tourists with normal length of stay and for induced visitors from the rest of the world are estimated on the basis of Hong Kong Tourism Board's publications for 2003-2005.						

14 Appendix III: Follow-up questions

The Specialist Advisor (Versitech Limited) raised follow-up questions to the Financial Advisor (GHK) in May 2007.

Ref. Pages	Versitech's Questions	GHK's Response
Appendix A-2 s.9 & Annex C.8-2	(9) Why are international franchises like Guggenheim, or Pompidou, not interested? On what terms they are not interested?	According to the FA's market research, the Guggenheim is not interested because their model for franchise involves total autonomy; they are looking for design and operational control and an open purse from the Government. The model is very pricey and operationally they even want curatorial control. The Pompidou is prepared to co-operate over exhibits but is not interested in operations.
Follow up question Refer also Annex C.8-1	Ms. Kara Lennon and Mr. Krens were consulted, and interviewed, on 14 March 2007. Are there interview records taken by the FA, explaining their views in detail? Please provide.	Pending response.
Annex: B-3	(16) Brisbane South Bank Corporation employs 411 people? This is contradictory to the Corporation's 2007 Annual Report page 44, which states clearly that it employs only 75 members of staff (7 managers, 18 administration, and 50 operation staff, even including part-time staff. See http://www.southbankcorporation.com.au). We understand that the FA's report was done in 2006. Please state the source of this 411 figure.	The point of the commentary is that the number of staff depends wholly on the function and responsibility of the area-based organization concerned. The point was that 400 or so was far too high and yet Thames Gateway at 12-15 was far too low and thus the FA developed a structure specifically for WKCDA.
Follow up question	Is this 411 figure authentic? Please provide the source of this 411 figure.	Pending response.

Ref. Pages	Versitech's Questions	GHK's Response
Annex: B-3	(17) WKCDA hires 90 staff during development. What are the duties of these staff during development? Will they hire consultants in addition to these 90 staff?	<p>In preparing cost estimates, (note this was not institutional advice but assumptions for cost estimation) the FA assumed five divisions: office of the chief executive; planning and development; property; finance and procurement. The duties include but are not limited to: land assembly and property, masterplanning and project development, strategic and business planning, cultural and arts policy liaison, legal, procurement, contracting and finance. This assumption was adopted with reference to the establishment of comparable area-based agencies in Hong Kong and elsewhere.</p> <p>Yes. The FA assumed that consultants would be hired in addition to these staff.</p>
ditto	(18) What are the duties of the 33 staff for area management, from year 9 onwards?	<p>In preparing cost estimates (note this was not institutional advice but assumptions for cost estimation), the FA assumed 3 divisions: chief executive, area management and finance. The duties would include but not limited to: estate management, area marketing and programming, strategic and business planning, cultural and arts policy liaison, legal, contract management, procurement and finance.</p> <p>In addition, individual arts and cultural facilities and related facilities are provided with staffing resources for venue and programme management as well as operating budgets.</p>
<p>Follow up question</p> <p>Refer also Annexes: C & D.3</p>	<p>Annex D.3 provides detailed operating assumptions for all performing arts venues, in 97 pages, down to the smallest of theatres; and similar level of details for M+ and the EC, in Annex C.</p> <p>In view of the substantial costs budgeted for WKCDA, why aren't similar level of details provided? Please provide detailed breakdowns of (a) the duties of these 90 and 33 staff; and hence (b) the yearly budgets of \$189.4 and \$60.3 respectively. These figures are in decimal places and there should be detailed breakdowns.</p>	Pending response.