

For discussion
on 9 January 2008

PWSC(2007-08)70

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT

Universities

The University of Hong Kong

52EG – Human Research Institute - phase 1

Members are invited to recommend to Finance Committee the upgrading of **52EG** to Category A at an estimated cost of \$133.2 million in money-of-the-day prices for the development of a Human Research Institute – phase 1 at Sassoon Road, Pokfulam by The University of Hong Kong.

PROBLEM

The University of Hong Kong (HKU) needs additional space and facilities to support research and teaching on the study of human research.

PROPOSAL

2. The Secretary-General, University Grants Committee (SG, UGC), on the advice of the University Grants Committee (UGC) and the Director of Architectural Services (D Arch S) as UGC's Technical Adviser, and with the support of the Secretary for Education, proposes to upgrade **52EG** to Category A at an estimated cost of \$133.2 million in money-of-the-day (MOD) prices for the construction of HKU's Human Research Institute (HRI) - phase 1 at Sassoon Road, Pokfulam.

/PROJECT

PROJECT SCOPE AND NATURE

3. The scope of **52EG** comprises construction of a new 12-storey building¹ at Sassoon Road, providing about 8 082 square metres (m²) in net operational floor area (NOFA). A site plan is at Enclosure 1.

4. The proposed building will accommodate the following facilities –

- (a) 65 research laboratories of about 7 424 m² in NOFA;
- (b) a library of about 129 m² in NOFA;
- (c) office accommodation of about 184 m² in NOFA for general administrative offices, and some 345 m² for support facilities such as supplies warehouse and storage; and
- (d) 24 covered carparking spaces and three loading and unloading spaces.

5. A list of facilities, sectional plan and the view of the building are at Enclosures 2 to 4 respectively. HKU plans to start construction works in the first quarter of 2008 for completion in the third quarter of 2010.

JUSTIFICATION

6. In general, human research refers to research activities on human beings that enable us to understand the mysteries of human health and disease. At present, HKU's research facilities on human research are located at various sites of the University campus occupying a total of about 3 800m². This is not conducive to the further development of human research and close collaboration among the disciplines/units concerned. HKU therefore proposes to develop a new Human Research Institute to provide the necessary space (i.e. about 8 082m²), advanced technologies and facilities to cultivate a multi-disciplinary environment for fundamental human research. The proposed HRI will also partially relieve HKU's existing space shortfall which is about 35 000 m² in NOFA (i.e. about 18% of space requirement) in accordance with the results of the review on space and accommodation requirements of the UGC-funded institutions carried out by the UGC in 2006.

/7.

¹ Phase 1 of the Human Research Institute project involves construction of a 12-storey academic and research block. Phase 2 of the project is under planning by HKU.

7. The proposed HRI will accommodate specialized research laboratories and state-of-art inter-disciplinary and multi-disciplinary centres including Magnetic Resonance Imaging Engineering Centre, Behavioral Sciences and Holistic Health Centre, Institute of Human Performance Research Centre, Clinical Trials Centre, Genome Research Centre, Medical Physics Research and Chemical Biology Centre, etc. With these laboratories and centres, a full range of fundamental human research activities such as basic research, evidence-based clinical trials, clinical application of research findings, etc. to contribute to diseases management and health maintenance will be carried out. HRI will also provide a platform for Hong Kong to collaborate and interact with overseas institutions on human research.

8. The site is geographically strategic for carrying out human research activities and offers easy accessibility to a comprehensive range of facilities. It is adjacent to Queen Mary Hospital, the Medical Complex of HKU's Faculty of Medicine, and a group of supporting hospitals and rehabilitation centres (e.g. Duchess of Kent Hospital, Macle hose Medical Rehabilitation Centre). The construction of HRI at this site will enhance the complementary roles of the existing research facilities and activities in the vicinity.

FINANCIAL IMPLICATIONS

9. The total estimated cost of the HRI – phase 1 is \$266.4 million in MOD prices. HKU has undertaken to contribute 50% of the project cost through its private sources of funding, and thus government subvention to the project will be capped at 50% of the project cost (i.e. \$133.2 million in MOD prices).

10. SG, UGC, on the advice of D Arch S, recommends a capital funding of \$133.2 million in MOD prices to be provided by the Government (see paragraph 13 below), made up as follows –

	\$ million
(a) Site preparation and site formation	12.5
(b) Building	119.4
(c) Building services	68.9

/(d)

		\$ million
(d)	Drainage and external works	9.3
(e)	Consultants' fees for –	9.5
	(i) Tender assessment	0.5
	(ii) Contract administration	4.7
	(iii) Site supervision	4.2
	(iv) Out-of pocket expenses	0.1
(f)	Furniture and equipment ²	23.5
(g)	Contingencies	<u>17.1</u>
	Sub-total	260.2 (in September 2007 prices)
(h)	Provision for price adjustment	<u>6.2</u>
	Sub-total	266.4 (in MOD prices)
(i)	Less contribution by HKU (i.e. 50% of the total estimated project cost)	(133.2)
	Total	<u>133.2</u> (in MOD prices)

11. HKU will engage consultants to undertake tender assessment, contract administration and site supervision of the project. A detailed breakdown of the estimate for consultants' fees by man-months is at Enclosure 5.

12. The construction floor area (CFA) of this project is 15 840 m². The estimated construction unit cost, represented by the building and building services costs, is \$11,888 per m² of CFA in September 2007 prices. A detailed account of the CFA vis-à-vis the construction unit cost of **52EG** is at Enclosure 6. D Arch S considers the estimated construction unit cost reasonable and comparable to those of similar projects for UGC-funded institutions such as **46EF** "Teaching complex at western campus" of The Chinese University of Hong Kong (with an estimated construction unit cost of \$12,330 per m² of CFA in September 2007 prices).

/13.

² Based on 12.5% of the building and building services costs of the project estimate.

13. Subject to approval, HKU will phase the expenditure as follows -

Year	\$ million (Sept 2007)	Price adjustment factor	\$ million (MOD)	Contribution by HKU \$ million	52EG \$ million (MOD)
2007 – 08	0.4	1.00000	0.4	0.4	-
2008 – 09	17.2	1.00750	17.3	17.3	-
2009 – 10	87.6	1.01758	89.1	89.1	-
2010 – 11	129.2	1.02775	132.8	26.4	106.4
2011 – 12	25.8	1.03803	26.8	-	26.8
	<u>260.2</u>		<u>266.4</u>	<u>133.2</u>	<u>133.2</u>

14. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period 2007 to 2012. HKU will tender the works through a fixed price lump-sum contract because it can clearly define the scope of works in advance.

15. The project has no impact on tuition fees. The additional recurrent costs associated with this project will be funded by HKU. The proposal has no additional recurrent implication on the Government.

PUBLIC CONSULTATION

16. The Southern District Council was consulted on 28 June 2007 and the District Council supported the project. We consulted the Legislative Council Panel on Education on 10 December 2007. Members supported the project.

ENVIRONMENTAL IMPLICATIONS

17. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). The Director of Environmental Protection agreed that the project would not cause long-term environmental impact.

/18.

18. HKU has included in the project estimates the cost to implement suitable mitigation measures to control short-term environmental impacts to within established standards and guidelines. These include the use of silencers, mufflers, acoustic linings or shields for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities.

19. HKU has considered measures in the planning and design stages to reduce the generation of construction waste where possible. For example, the HRI building is sited and designed to fit into the existing topography as much as possible so as to minimize the site formation works and construction waste. In addition, HKU will require the contractor to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimize the disposal of inert construction waste to public fill reception facilities³. HKU will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste.

20. HKU will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. HKU will ensure that the day-to-day operations on site comply with the approved plan. HKU will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. HKU will control the disposal of inert construction waste, mixed inert and non-inert construction waste to public fill reception facilities, sorting facilities³ and landfills respectively through a trip-ticket system.

21. HKU estimates that the project will generate about 15 675 tonnes of construction waste. Of these, HKU will reuse about 5 600 tonnes (35.7%) of inert construction waste on site, deliver 8 826 tonnes (56.3%) of inert construction waste to public fill reception facilities for subsequent reuse, and 955 tonnes (6.1%) of mixed inert and non-inert construction waste to sorting facilities to separate the inert from the non-inert portion. In addition, HKU will dispose of 294 tonnes (1.9%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill

/sites

³ Sorting facilities and public fill reception facilities are specified in Schedule 3 and Schedule 4 respectively of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

sites, together with the cost for handling mixed inert and non-inert construction waste at sorting facilities is estimated to be \$370,552 for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities, \$100/tonne at sorting facilities and \$125/tonne⁴ at landfills).

HERITAGE IMPLICATIONS

22. This project will not affect any heritage site, i.e. all declared monuments, graded historic buildings and sites of archaeological interests.

LAND ACQUISITION

23. The project does not require any land acquisition.

BACKGROUND INFORMATION

24. Under existing procedures, UGC-funded institutions submit capital works proposals to the UGC annually. The UGC examines all these proposals carefully, with professional advice provided by D Arch S who acts as UGC's Technical Adviser, and refers those supported proposals to the Government for bidding of funds under the established mechanism. Having examined HKU's proposal, SG, UGC has, in consultation with D Arch S, adjusted the project estimate proposed by HKU to arrive at the project estimate set out in paragraph 10 above.

25. We upgraded **52EG** to Category B in June 2004. HKU engaged consultants in December 2005 to carry out topographical survey and ground investigation, and to prepare detailed design and tender documents at a total cost of \$8.8 million. UGC charged \$4.4 million to block allocation **Subhead 8100EX** "Alterations, additions, repairs and improvements to the campuses of the UGC-funded institutions", with the remaining \$4.4 million funded by HKU. The consultants have completed the topographical survey, ground investigations, and detailed design of the project. HKU is finalizing the tender documents for the project.

/26.

⁴ This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m³), nor the cost to provide new landfills, (which is likely to be more expensive) when the existing ones are filled.

26. The proposed construction of the HRI – phase 1 will involve removal of nine trees (including four toppled down by typhoon) and transplanting of three trees. All trees to be removed are not important trees⁵. A total of 21 trees will be retained. HKU will incorporate a planting proposal as part of the project, including an estimated quantity of 22 trees, some 500m² of shrubs and 300m² of ground cover.

27. HKU estimates that the project will create about 168 jobs (150 for labourers and another 18 for professional/technical staff) providing a total employment of 4 550 man-months.

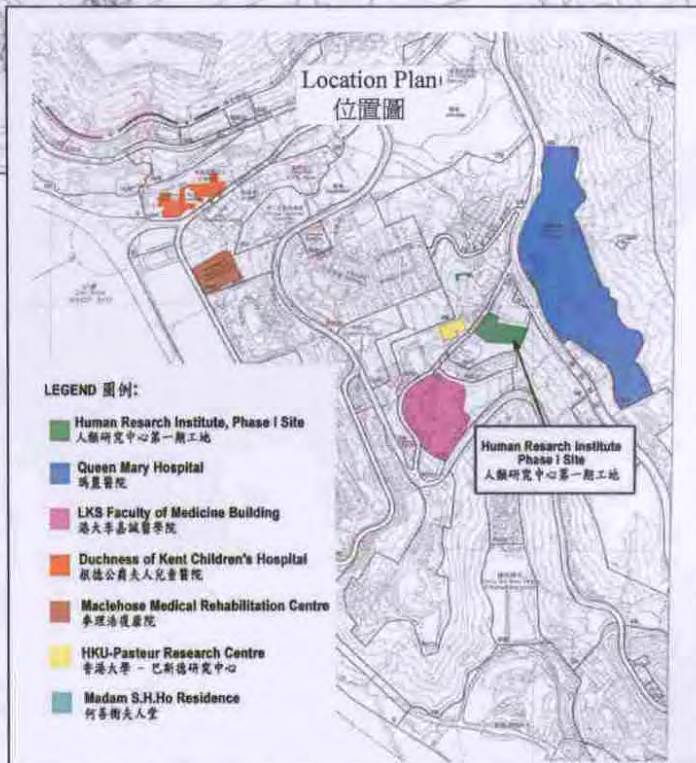
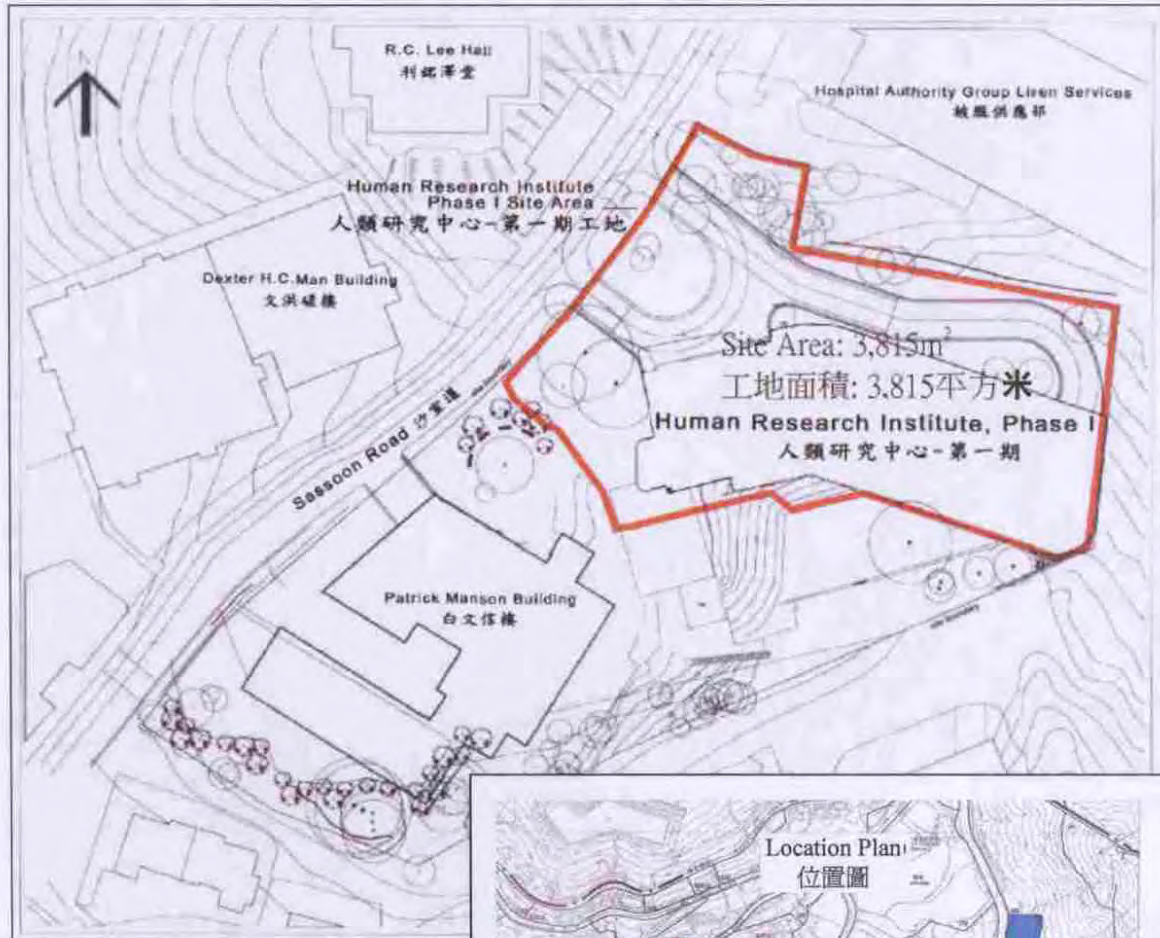
Education Bureau
December 2007

⁵ “Important trees” refer to trees in the Register of Old and Valuable Trees, and any other trees that meet one or more of the following criteria –

- (a) trees of 100 years old or above;
- (b) trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
- (e) trees with trunk diameter equal to or exceeding one metre (measured at one metre above ground level) or with height/canopy spread equal or exceeding 25 m.

The University of Hong Kong
52EG – Human Research Institute – phase 1
香港大學
52EG – 人類研究中心第一期

Site Plan 工地平面圖



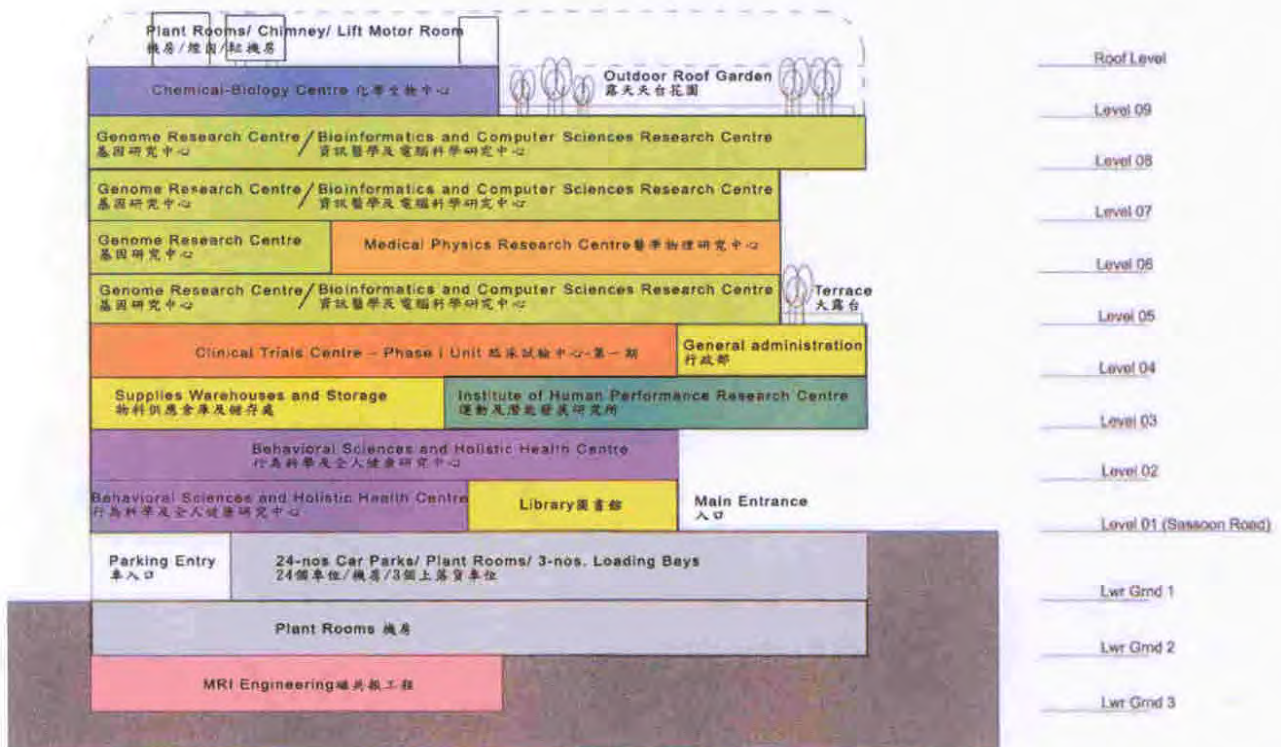
**The University of Hong Kong
52EG – Human Research Institute - phase 1**

List of facilities

Facilities	Estimated floor area in net operational floor area (NOFA) (m²)
(a) Research Laboratories	7 424
(b) Library	129
(c) Office facilities	184
(d) Support facilities	345
	<hr/>
Total	8 082
	<hr/>

The University of Hong Kong
 52EG – Human Research Institute – phase 1
 香港大學
 52EG – 人類研究中心第一期

Sectional Plan 截面圖



- Chemical-Biology Centre 化學生物中心
- Genome Research Centre 基因研究中心 / Bioinformatics and Computer Sciences Research Centre 資訊醫學及電腦科學研究中心
- Medical Physics Research Centre 醫學物理研究中心
- Clinical Trials Centre - Phase 1 Unit 臨床試驗中心 - 第一期
- General Administration 行政部 / Supplies Warehouses and Storage 物料供應倉庫及儲存處 / Library 圖書館
- Institute of Human Performance Research Centre 運動及潛能發展研究所
- Behavioral Sciences and Holistic Health Centre 行為科學及全人健康研究中心
- Plant Rooms, Car Park & Loading Bay 機房, 車位及上落貨車位
- MRI Engineering 磁共振工程

附件4 Enclosure 4 to PWSC(2007-08)70

**The University of Hong Kong
52EG – Human Research Institute – phase 1
香港大學
52EG – 人類研究中心第一期**

View of the building (artist's impression) 外觀構思圖



The University of Hong Kong
52EG – Human Research Institute - phase 1

Breakdown of the estimate for consultants' fees ^(Note 1)

			Estimated man- months	Average MPS* salary point	Multiplier <small>(Note 2)</small>	Estimated fees (\$ million)
(a) Consultants' staff costs ^(Note 3)						
(i) Tender assessment	Professional		–	–	–	0.5
(ii) Contract administration	Professional		–	–	–	4.7
(b) Site supervision ^(Note 4)	Professional		33	38	1.6	3.0
	Technical		39	14	1.6	1.2
					Sub-total	9.4
(c) Out-of-pocket expenses ^(Note 5)						
Lithography and other direct expenses						0.1
					Total	9.5

* MPS = Master Pay Scale

Notes

1. Having examined the consultants' fees estimated by HKU, the Director of Architectural Services considers the figures acceptable.
2. A multiplier of 1.6 is applied to the average MPS point to estimate the staff costs for contract staff employed by HKU direct on the project. (As at 1 April 2007, MPS point 38 = \$56,945 per month and MPS point 14 = \$18,840 per month.)
3. The consultants' fees for tender assessment and contract documentation are devised in accordance with the existing consultancy agreements obtained through competitive tendering for the design and construction of **52EG**. The assignment will only be executed subject to Finance Committee's approval to upgrade **52EG** to Category A.

/4.

4. HKU will only know the actual man-months and actual costs for site supervision after completion of the construction works.
5. Out-of-pocket expenses are the actual costs incurred. The consultants are not entitled to any additional payment for the overheads or profit in respect of these items.

Enclosure 6 to PWSC(2007-08)70

**The University of Hong Kong
52EG – Human Research Institute - phase 1**

Breakdown of the construction floor area (CFA) vis-à-vis the construction unit cost

(a) Breakdown of CFA

	Estimated floor area (m²)
Net operational floor area (NOFA)	8 082
Circulation areas, toilets and car-parks	5 000
Mechanical and electrical plants	2 758
CFA	<u>15 840</u>

(b) NOFA / CFA ratio 51.0%

(c) Estimated construction unit cost (represented by the building and building services costs) \$11,888 per m² of CFA (in September 2007 prices)