

## **ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE**

### **HEAD 708 - CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT**

#### **Medical Subventions**

#### **5ME - Redevelopment and expansion of Pok Oi Hospital**

Members are invited to recommend to Finance Committee the approval of a commitment of \$1,666.1 million in money-of-the-day prices for the main works of the redevelopment and expansion of Pok Oi Hospital.

### **PROBLEM**

There is a pressing need to meet the increasing demand for hospital services in the Northern New Territories. The capacity of Pok Oi Hospital (POH) is inadequate and most of its facilities are dilapidated.

### **PROPOSAL**

2. The Secretary for Health and Welfare proposes to upgrade the remaining part of **5ME** to Category A at an estimated cost of \$1,666.1 million in money-of-the-day (MOD) prices for carrying out the main works of the redevelopment and expansion of POH project.

### **PROJECT SCOPE AND NATURE**

3. On 9 June 2000, Finance Committee approved the upgrading of part

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of **5ME** as **6ME**, entitled “Redevelopment and expansion of Pok Oi Hospital – preparatory works” to Category A at an estimated cost of \$96.4 million in MOD prices. On 22 June 2001, Finance Committee approved the upgrading of part of **5ME** as **7ME**, entitled “Redevelopment and expansion of Pok Oi Hospital – site formation and foundation works” to Category A at an estimated cost of \$314.3 million in MOD prices. The scope of works approved under **6ME** and **7ME** is set out in Enclosure 1.

4. The scope of the main works of the redevelopment project comprises –

- (a) consultancy services for contract administration of the main building;
- (b) construction of a new building to accommodate 622 in-patient beds and other supporting facilities;
- (c) demolition of the Central Wing and North Wing; and
- (d) provision of a rehabilitation garden and other external landscaping.

5. We aim to start the main works in February 2003 for completion by December 2006. The site plan of POH before, during and after redevelopment are at Enclosures 2, 3 and 4 respectively.

## **JUSTIFICATION**

6. At present, the Hospital Authority (HA) provides medical services for Yuen Long and Tuen Mun districts through its New Territories North (NTN) hospital cluster, which comprises POH, Tuen Mun Hospital (TMH), Castle Peak Hospital and Siu Lam Hospital. With a provision of 1.57 general beds per 1 000 population, public hospital services in the NTN cluster are insufficient to meet the increasing needs due to population growth, not to mention the needs of the future growing population. According to the latest projections of the Census and Statistics Department, the population in the NTN cluster will increase from 1 062 500 in 2002 to 1 216 800 in 2010, representing a 15% rise. HA estimates that by 2010, the projected shortfall in the provision of general beds in the NTN

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cluster will be in the region of 700 beds. To cope with the service needs in the NTN cluster, we have proposed to upgrade POH to a modern acute general hospital and to expand its capacity by opening 272 additional beds. Upon completion of the redevelopment project, POH will have a complement of 742 beds (including 120 infirmary beds at the Tin Ka Ping Centre of POH located at Yau Shin Street). HA also plans to expand and develop other medical facilities within the cluster to meet its rising needs for medical services.

7. Owing to its out-dated design, most of the facilities at POH are lagging behind the prevailing standards required for modern practices in medical treatment and care in terms of space, infrastructure and technological provisions. Built in 1961 and demolished under **6ME**, the South Wing has been particularly dilapidated. Although the Central Wing (built in 1966 and subsequently expanded in 1983) and the North Wing (built in 1973 and subsequently expanded in 1987) are relatively new compared with the South Wing, the conditions of these aged buildings have also deteriorated to the extent that only large-scale renovation can restore the condition of the two Wings to acceptable standards.

8. We have considered the option of refurbishing POH. There are however a lot of physical constraints posed by the existing building structures, such as limited head room and floor area for each storey, which restrict severely the extent to which POH might be remodelled to achieve operational efficiency and effectiveness for its various units and departments. Redevelopment of POH is necessary in order to enable complete redesign of the hospital facilities to meet the health care standards for a modern acute general hospital, and provide the expanded capacity to accommodate 272 more beds on top of the existing 350 beds in the main hospital compound.

9. Upon completion of the redevelopment and expansion project, POH will be upgraded to a modern acute general hospital providing the following -

- (a) expanded in-patient care services with 622 acute in-patient beds to cover a comprehensive range of clinical specialties, including Medicine, Surgery, Orthopaedics and Traumatology, Paediatrics, Obstetrics and Gynaecology, and Intensive / Coronary Care;
- (b) expanded ambulatory care services including -

/(i) .....

- (i) A&E Department, with its handling capacity increased from 69 000 to 150 000 attendances per annum;
  - (ii) Specialist Out-patient Clinics with 60 consultation rooms, capable of handling 270 000 attendances per annum as compared to 36 000 annual attendances previously; and
  - (iii) Family Medicine Clinic with four consultation rooms, capable of handling 80 000 attendances per annum as compared to 48 000 annual attendances previously;
- (c) new ambulatory care services including -
- (i) Geriatric Day Hospital of 40 places;
  - (ii) Psychiatric Day Hospital of 40 places;
  - (iii) Ambulatory Surgery of 30 places; and
  - (iv) Day Procedure Centre of 30 places;
- (d) expanded and upgraded diagnostic and treatment facilities to support the expanded inpatient and outpatient services and provide more comprehensive services to patients, including -
- (i) Operating Theatre (OT) suite with eight OTs and 12 recovery beds as compared to the existing capacity of three OTs and four recovery beds;
  - (ii) expanded Diagnostic Radiology Department, equipped with upgraded facilities capable of handling 100 000 examinations per annum as compared to the existing annual capacity of 32 000 examinations;

/(iii) .....

- (iii) expanded Clinical Laboratories with upgraded facilities for handling 4 800 000 work units per annum compared to its existing annual capacity of 1 198 000 work units; and
- (iv) expanded Allied Health Departments, including Physiotherapy, Occupational Therapy, Dietetics and Speech Therapy, equipped to handle annually 180 000, 80 000, 6 000 and 5 000 attendances respectively, as compared to their existing capacity of 51 000, 12 000, 3 000 and 1 500 attendances respectively; and
- (e) new diagnostic and treatment facilities including -
  - (i) Labour and Delivery suite with eight labour / delivery / recovery rooms, and two OTs; and
  - (ii) Allied Health Departments, including Prosthetics and Orthotics, Podiatry, and Clinical Psychology, equipped to handle 5 000, 4 000 and 800 attendances annually.

10. Existing patient services provided at the Central Wing and North Wing of POH, including around 220 beds currently in use, will not be disrupted during the entire construction period. Decanting of existing patient services will only be effected after the new hospital building has been completed, following which the Central Wing and North Wing will be demolished.

## **FINANCIAL IMPLICATIONS**

11. HA, in consultation with the Director of Architectural Services, estimates that for the entire redevelopment and expansion project, the cost of the main works is \$1,686.1 million in MOD prices. A detailed breakdown of the cost estimate for the main works is as follows –

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	<b>\$ million</b>	
(a) Site Works	4.8	
(b) Demolition	8.1	
(c) Substructure	50.7	
(d) Building	681.1	
(e) Building services	442.9	
(f) Drainage and external works (including rehabilitation garden)	40.6	
(g) Consultants' fees for	71.1	
(i) contract administration <sup>1</sup>	40.1	
(ii) site supervision <sup>1</sup>	26.9	
(iii) Electrical & Mechanical Services Trading Fund (EMSTF) <sup>2</sup>	4.1	
(h) Furniture and equipment <sup>3</sup>	316.3	
(i) Contingencies	98.3	
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Sub-total	1,713.9	(in September 2001 prices)
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<sup>1</sup> The figures are based on competitive bids returned from consultants, whose appointment will be confirmed once funding for the main works has been approved.

<sup>2</sup> Upon its establishment on 1 August 1996 under the Trading Funds Ordinance, the EMSTF charges client bodies for design and technical consultancy services for electrical and mechanical (E&M) installations. The services rendered for this project include checking consultants' design submissions on all E&M designs and their impact on this project. The figure quoted is based on the estimate prepared by the Director of Electrical and Mechanical Services. The actual cost for the service charges is subject to further negotiation between HA and the EMSTF.

<sup>3</sup> Based on an indicative list of furniture and equipment items and their estimated prices.

(j) Provision for price adjustment	(27.8)	
Total	1,686.1	(in MOD prices)

The construction floor area (CFA) of the project is around 71 500 square metres. The construction unit cost, represented by building and building services costs, is \$15,720 per square metre of CFA in September 2001 prices. The construction unit cost is comparable to that for other hospital projects.

12. The POH Board has undertaken to contribute \$20 million in MOD prices over five years towards the capital cost of the project. The proposed amount is lower than the usual 20% contribution required from subvented organisations in similar projects. Given that the proposed project will result in improved hospital services for the community, we accept that the Government's commitment be set at a percentage higher than the usual 80%, subject to the POH Board continuing to use its best endeavours to solicit donations above the pledged level during the course of the project. In this connection, the POH Board has contributed an additional \$2 million towards the setting up of a 24-hour out-patient clinic at POH in place of the temporarily suspended A&E Department. We therefore propose a commitment of \$1,666.1 million in MOD prices for this project, calculated as follows -

	<b>\$ million</b>	
(a) Total capital cost	1,686.1	
(b) Contribution from the POH Board	(20.0)	
Total commitment sought	<u>1,666.1</u>	(in MOD prices)

13. Subject to Members' approval, HA will phase the expenditure as follows -

Year	\$ million (Sept 2001)	Price Adjustment Factor	\$ million (MOD)
2003 – 2004	205.0	0.98378	201.7
2004 – 2005	380.0	0.98378	373.8



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2005 – 2006	400.0	0.98378	393.5
2006 – 2007	500.0	0.98378	491.9
2007 – 2008	180.0	0.98378	177.1
2008 – 2009	48.9	0.98378	48.1
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Total	1,713.9		1,686.1

14. We derived the MOD estimate on the basis of the Government's latest forecast of trend labour and construction prices for the period 2002 to 2009. Due to insufficient in-house resources, HA will engage consultants for contract administration of the main works through competitive bidding and on the basis of fixed-price lump sum fee.

15. HA has assessed the requirements for furniture and equipment (F&E) for this project, and estimates the F&E cost to be \$316.3 million. The proposed F&E provision, which represents 27.2% of the total construction cost<sup>4</sup> of the project, is broadly in line with that for comparable projects. A list of major F&E items (costing \$1 million or above per item) to be procured for the project is at Enclosure 5.

16. HA estimates the additional annual recurrent expenditure arising from this project to be around \$400 million. With the implementation of the population-based funding mechanism, the provision of recurrent funding will no longer be facility-based. No separate resources will therefore be provided to HA as recurrent consequences arising from this project.

## **PUBLIC CONSULTATION**

17. HA consulted the then Yuen Long Provisional District Board (YLPDB) in December 1998 and April 1999, and the Social Services, Housing and Publicity Committee of the Yuen Long District Council (YLDC) in November 2000. Members of the then YLPDB and the YLDC supported the proposed redevelopment and expansion of POH.

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<sup>4</sup> Represented by building, building services, and drainage and external works costs.

18. We consulted the Legislative Council Panel on Health Services on the redevelopment and expansion of POH on 8 May 2000. Members had no objection to the proposed project. The Panel also considered two information papers on progress made with regard to the redevelopment and expansion of POH on 14 May 2001 and 13 May 2002 respectively. At the Panel meeting in May 2002, Members noted the Administration's intention to seek the approval of the Finance Committee for funding the main works of the project.

## **ENVIRONMENTAL IMPLICATIONS**

19. Consultants engaged by HA completed a Preliminary Environmental Review (PER) for the proposed redevelopment and expansion of POH in January 1999. The PER concluded and the Director of Environmental Protection agreed that the project will not have long-term environmental impact and that an Environmental Impact Assessment is not necessary.

20. HA will follow the standard practice in removal of any asbestos under the Air Pollution Control Ordinance, and will implement mitigation measures to control all construction phase impacts within established standards and guidelines. We have included in the project estimates the cost of implementing suitable mitigation measures to control these short-term environmental impacts.

21. At the planning and design stages, HA has considered measures to reduce the generation of construction and demolition (C&D) materials. HA will use suitable excavated materials for filling within the site to minimize off-site disposal. To further minimize the generation of C&D materials, HA will encourage contractors to use non-timber formwork and recyclable materials for temporary works. In addition, HA will require the contractor to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

22. During construction of the new hospital complex, HA will control noise, dust and site run-off nuisances within the established standards and guidelines through the implementation of mitigation measures in the relevant works contracts. These include the use of silencers, mufflers, acoustic lining or shields for noisy demolition activities, as well as frequent cleaning and watering of the site.



23. HA will also require the contractor to submit a waste management plan (WMP) for approval. This plan will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. HA will ensure that day-to-day operations on site comply with the approved WMP. HA's project consultants will control the disposal of C&D materials to designated public filling facilities and landfills through a trip-ticket system. HA will require the contractor to separate public fill from C&D waste for disposal at appropriate facilities and to record the disposal, reuse and recycling of C&D materials for monitoring purposes. HA estimates that the project will generate about 21 600 cubic metres (m<sup>3</sup>) of C&D materials. Of these, HA's contractor will reuse 1 620 m<sup>3</sup> (7.5%) on site, deliver 17 710 m<sup>3</sup> (82%) to public filling areas<sup>5</sup>, and dispose of 2 270 m<sup>3</sup> (10.5%) at landfills. The notional cost of accommodating C&D waste at landfills is estimated to be \$283,750 for this project (based on a notional unit cost<sup>6</sup> of \$125/m<sup>3</sup>).

## **LAND ACQUISITION**

24. The proposed main works do not require land acquisition.

## **BACKGROUND INFORMATION**

25. In the 1998 Policy Address, the Chief Executive announced the decision to redevelop and expand POH to meet the rising demand for medical services in the Northern New Territories.

26. The original main hospital compound of POH at Castle Peak Road in Au Tau comprised the South Wing housing the wards, offices and supporting facilities; the Accident and Emergency / Outpatient Department (A&E / OPD) Block housing the A&E Department and out-patient clinics; the Central Wing housing the wards, operating theatres, rehabilitation facilities, offices, callrooms and supporting facilities; and the North Wing housing the pharmacy, laboratory, X-ray, rehabilitation and supporting facilities. The scope of this redevelopment project does not cover the Tin Ka Ping Centre of POH, which is separately located at Yau Shin Street in Au Tau.

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<sup>5</sup> A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

<sup>6</sup> 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/m<sup>3</sup>), nor the cost to provide new landfills (which are likely to be more expensive) when the existing ones are filled. The notional cost estimate is for reference only and does not form part of this project estimate.

27. To enable the project to be completed as soon as practicable, the South Wing and A&E/OPD Block have been demolished under the scope of **6ME** so that site formation and foundation works in relation to the construction of the new hospital building can proceed. This has necessitated the temporary suspension of POH's A&E service. In its place, POH has set up a 24-hour out-patient clinic since 1 May 2000 to treat semi-urgent and non-urgent patients. Critical, emergency and urgent cases in the NTN cluster are handled by the A&E Department of TMH. In this connection, HA has opened two new wards providing about 100 additional in-patient beds at TMH to cope with the increased patient load. The specialist out-patient and family medicine clinics have been temporarily reprovisioned at the Central Wing.

28. We upgraded **5ME** to Category B on 25 February 2000. Part of **5ME** (preparatory works) was upgraded to Category A as **6ME** on 9 June 2000. The detailed design work for the entire project and the demolition works of the South Wing, A&E / OPD Block and ancillary buildings were completed in February 2002. Another part of **5ME** (site formation and foundation works) was upgraded to Category A as **7ME** on 22 June 2001. The site formation and foundation works started in February 2002 and will be completed by February 2003.

29. We estimate that this project will create some 700 jobs, comprising 100 professional/technical staff and 600 labourers, totalling 30 000 man-months.

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Health and Welfare Bureau  
June 2002

**5ME – Redevelopment and expansion of Pok Oi Hospital**

**Scope of works approved under 6ME – preparatory works**

1. On 9 June 2000, Finance Committee vide FCR(2000-01)22 approved the upgrading of part of **5ME** as **6ME**, entitled “Redevelopment and expansion of Pok Oi Hospital – preparatory works” to Category A at an estimated cost of \$96.4 million in MOD prices. The scope of **6ME** comprises -

- (a) consultancy services up to the detailed design stage for the main building, the tender documentation stage for the site formation and foundation works, and the contract administration stage for the demolition and decanting works;
- (b) site investigation; and
- (c) demolition of the existing South Wing, Accident and Emergency / Out-patient Department Block, and ancillary buildings.

**Scope of works approved under 7ME – site formation and foundation works**

2. On 22 June 2001, Finance Committee vide FCR(2001-02)15 approved the upgrading of part of **5ME** as **7ME**, entitled “Redevelopment and expansion of Pok Oi Hospital – site formation and foundation works” to Category A at an estimated cost of \$314.3 million in MOD prices. The scope of **7ME** comprises -

- (a) consultancy services for preparation of tender documentation for the main building, as well as contract administration of the site formation and foundation works;
- (b) site formation and excavation; and
- (c) construction of building foundations.



Site plan of Pok Oi Hospital before redevelopment  
博愛醫院重建前的平面圖

SCALE 1:1000

比例 1:1000



Site plan of Pok Oi Hospital during redevelopment  
博愛醫院重建中的平面圖

SCALE 1:1000

比例 1:1000





Site plan of Pok Oi Hospital after redevelopment  
博愛醫院重建後的平面圖

SCALE 1:1000

比例 1:1000

**Enclosure 5 to PWSC(2002-03)48**

**5ME – Redevelopment and expansion of Pok Oi Hospital**

**Furniture and equipment items with unit cost of \$1 million or more**

<b>Item description</b>	<b>Qty</b>	<b>Unit cost (\$ million)</b>	<b>Total cost (\$ million)</b>
Anaesthesia monitoring system	1	3.700	3.700
Analyser system for discrete and 24 hour statim use	1	1.500	1.500
Angiography equipment with laser imager	1	10.089	10.089
Audio-visual system	1	1.200	1.200
Chemistry analyser system	1	3.800	3.800
Compact shelving system for Medical Records Department	1	2.500	2.500
Computed radiography system	1	29.307	29.307
Computed tomographic scanner	1	10.570	10.570
Computerised surgical navigation system	1	1.100	1.100
Digital fluoroscopy equipment with laser imager	2	4.708	9.416
Digital imaging system, fundus and photoslit lamp imaging equipment	1	1.000	1.000
Echocardiograph	2	2.250	4.500
Essential laparoscopic system	2	1.495	2.990
General radiography equipment	3	3.123	9.369
Haematology analyser	1	1.300	1.300

<b>Item description</b>	<b>Qty</b>	<b>Unit cost (\$ million)</b>	<b>Total cost (\$ million)</b>
Integrated endoscopic system	1	2.818	2.818
Mobile C-arm digital radiography system	2	1.930	3.860
Networked physiological monitoring system	2	2.300	4.600
Private automatic branch exchange (PABX) system	1	8.146	8.146
Patient monitoring system	1	3.000	3.000
Queue number and message display system	1	2.000	2.000
Robotic prescription dispensing system	1	1.600	1.600
Steam autoclave/sterilizer (70 cubic feet, double door)	2	1.400	2.800
Ultra-sound scanner with color doppler and image networking	2	2.550	5.100
Ultra-sound scanner with color doppler, image networking and dry laser printer	1	3.265	3.265
Washer disinfectant	2	1.210	2.420