

## **ITEM FOR FINANCE COMMITTEE**

### **CAPITAL WORKS RESERVE FUND HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT**

#### **Customs and Excise Department**

#### **New Subhead “Replacement of Radio Communications System of the Customs and Excise Department”**

Members are invited to approve a new commitment of \$86,640,000 for replacing the radio communications system of the Customs and Excise Department.

### **PROBLEM**

The existing analogue radio communications system of the Customs and Excise Department (C&ED) has been in use for 30 years. It will reach the end of its serviceable life by 2010. Unless it is replaced in time, C&ED’s operational effectiveness will be seriously affected.

### **PROPOSAL**

2. The Commissioner of Customs and Excise (C of C&E), on the advice of the Director of Electrical and Mechanical Services and with the support of the Secretary for Security, the Secretary for Financial Services and the Treasury, and the Secretary for Commerce and Economic Development, proposes to create a new commitment of \$86,640,000 to replace the existing analogue radio communications system of C&ED by making use of the Unified Digital Communications Platform (UDCP) built on the Third Generation Command and Control Communications System (CCIII) of the Hong Kong Police Force (HKPF).

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## JUSTIFICATION

### Need to Replace the Existing System

3. The existing analogue radio communications system of C&ED was commissioned in 1978 and is obsolescent. The Electrical and Mechanical Services Department (EMSD) conducted a study on the system in 2005, the result of which revealed the following problems –

- (a) the existing system, which was designed in the late 1970s, does not provide full radio coverage for all inhabited areas in Hong Kong today. Radio blind spots have been on the rise in recent years with the emergence of more high-rise buildings and new towns such as Tin Shui Wai, Ma On Shan and Tseung Kwan O;
- (b) the capacity of the existing system is insufficient to cope with the increase in the number of users in C&ED and the volume of C&ED's enforcement operations;
- (c) the existing system relies on a co-ordinating centre to relay messages for communication among officers located in different regions that are covered by different radio cell sites. Such indirect communication considerably undermines the effectiveness and efficiency of C&ED's enforcement operations;
- (d) as the existing system operates in the analogue mode, it is susceptible to interference by other radio communications systems operating in adjacent frequency bands and interception by ill-intentioned persons; and
- (e) as the analogue technology is becoming obsolete, the existing system cannot be upgraded to cater for the operational needs of C&ED. It is also increasingly difficult to find spare parts for servicing the system.

### The Proposed System

4. In the light of the study findings, EMSD has recommended that C&ED's existing radio communications system be replaced by 2010 by making use of the UDCP built on the CCIII operated by HKPF.

5. HKPF fully rolled out the CCIII in 2006 to cater primarily for communication among frontline police officers. To improve the overall response of relevant agencies to emergencies and the effectiveness of enforcement operations, HKPF has opened up the voice service and short data service of the CCIII to other government departments on a common platform known as the UDCP. The UDCP, which provides territory-wide network coverage, also allows the respective radio communications systems of user departments to operate independently with enhanced protection against eavesdropping and unauthorised access.

### **Benefits of Using the UDCP**

6. The benefits for C&ED to make use of the UDCP are set out below –
- (a) it is more cost-effective, in terms of investment in infrastructure and maintenance costs, for C&ED to make use of the UDCP than developing a separate radio system on its own. The capital and recurrent expenditure of the latter option is estimated to be more than double that of the former option;
  - (b) the UDCP provides reliable, territory-wide radio network coverage;
  - (c) equipped with digital technology, the UDCP allows C&ED to operate its radio communications system independently with better protection against interference and improved voice quality. The enhanced security capability of the UDCP, e.g. by means of more secure encryption, better safeguards the confidentiality of C&ED's enforcement operations by preventing eavesdropping or unauthorised access;
  - (d) the infrastructure of the UDCP is built on open technological standards, which allow the system to be further enhanced and developed in future in the light of the changing needs of user departments; and
  - (e) as the UDCP offers a common communication channel for all participating law enforcement departments, C&ED's participation in the UDCP will greatly enhance the effectiveness of enforcement operations conducted jointly by C&ED and HKPF in future.

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**FINANCIAL IMPLICATIONS****Non-recurrent Expenditure**

7. We estimate that the non-recurrent expenditure of the replacement of C&ED's radio communications system by making use of the UDCP will be \$86,640,000, broken down as follows –

	<b>\$'000</b>
(a) Radio terminals	20,000
(b) Radio repeaters	18,000
(c) Network equipment	14,000
(d) Initial spare equipment and consumables	2,000
(e) Engineering and other supporting services	13,900
(f) Contingency	6,790
(g) Electrical and Mechanical Services Trading Fund (EMSTF) project management services	11,950
<b>Total</b>	<b>86,640</b>

8. On paragraph 7(a) above, the estimate of \$20,000,000 is for the procurement of 1 450 pieces of radio terminals, including mobile radio sets for installation on C&ED's vehicles and vessels, and portable transceivers.

9. On paragraph 7(b) above, the estimate of \$18,000,000 is for the procurement of 50 pieces of radio repeaters to improve radio coverage.

10. On paragraph 7(c) above, the estimate of \$14,000,000 is for the procurement of network equipment, such as network management terminals, network maintenance terminals, etc.

11. On paragraph 7(d) above, the estimate of \$2,000,000 is for the procurement of initial spare equipment and consumables, such as radio terminals, audio gear, radio batteries, etc.

12. On paragraph 7(e) above, the estimate of \$13,900,000 is for engineering and other supporting services during the system development phase, including system design and installation, testing and commissioning, and training.

13. On paragraph 7(f) above, the estimate of \$6,790,000 represents a 10% contingency on the items set out in paragraphs 7(a) to (e) above.

14. On paragraph 7(g) above, the estimate of \$11,950,000 is for the payment to EMSTF for providing project management services, including preparation of tender documents, tender evaluation, approval of contractor's design submissions, monitoring of contractor's installation, acceptance tests, and co-ordination with various government departments and the contractor.

15. The estimated cash flow requirement for the proposed replacement is as follows –

<b>Financial Year</b>	<b>\$'000</b>
2008-2009	5,950
2009-2010	55,470
2010-2011	25,220
<b>Total</b>	<b><u>86,640</u></b>

### **Recurrent Expenditure**

16. We estimate that the recurrent expenditure of the replacement project is \$6,200,000 per annum from 2012-13 onwards. This will be partly offset by the annual savings of \$2,400,000 from the existing system, including expenses on maintenance charge, consumables, equipment spare parts and radio licence fees. The detailed breakdown is as follows –

	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13 and onwards</b>
	<b>\$'000</b>	<b>\$'000</b>	<b>\$'000</b>
The proposed system <sup>Note 1</sup>			
(a) Maintenance contract	-	2,600	5,200
(b) Consumables and spare parts	-	250	500
(c) Radio licence fees	250	500	500
<b>Sub-total</b>	<b>250</b>	<b>3,350</b>	<b>6,200</b>

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Note 1 Free maintenance and spare parts warranty will be provided for the first year after the commissioning of the proposed system, i.e. from October 2010 to September 2011.

	2010-11	2011-12	2012-13 and onwards
	\$'000	\$'000	\$'000
Less: Savings from the existing system <sup>Note 2</sup>			
(d) Maintenance contract	-	(1,400)	(1,400)
(e) Consumables and spare parts	-	(500)	(500)
(f) Radio licence fees	-	(500)	(500)
Sub-total	-	(2,400)	(2,400)
<b>Total</b>	<b>250</b>	<b>950</b>	<b>3,800</b>

17. On paragraph 16(a) above, the estimated annual expenditure of \$5,200,000 is for the outsourced maintenance service of the proposed system. This includes the costs of labour and materials for maintenance service for all equipment.

18. On paragraph 16(b) above, the estimated annual expenditure of \$500,000 is for the procurement of consumables and equipment spare parts for the proposed system, including spare portable transceivers, radio batteries and antenna, etc.

19. On paragraph 16(c) above, the estimated annual expenditure of \$500,000 is for the radio licence fees for mobile radio sets, portable transceivers and repeaters.

20. The additional annual recurrent expenditure of \$3,800,000 from 2012-13 onwards is to cover the maintenance of the additional and more advanced radio equipment and accessories of the proposed system. C&ED will absorb the additional recurrent expenditure from within its existing resources.

## IMPLEMENTATION PLAN

21. We plan to implement the replacement project according to the following schedule –

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Note 2 C&ED will need to keep the existing system as a backup for a period of six months after the commissioning of the proposed system, i.e. from October 2010 to March 2011. Hence, no savings on recurrent expenditure can be identified for 2010-11.

<b>Activity</b>	<b>Target completion date</b>
(a) System design and tender preparation	August 2008
(b) Tendering and award of contract	March 2009
(c) Approval of system design	June 2009
(d) Equipment manufacture and delivery	December 2009
(e) Equipment installation	June 2010
(f) Acceptance test and training	September 2010
(g) System commissioning	October 2010

## **PUBLIC CONSULTATION**

22. We consulted the Legislative Council Panel on Security on the proposal on 6 May 2008. Members had no objection to the proposal.

23. Some Members enquired about the independence of operation of C&ED's system from that of HKPF's, adequacy of radio coverage and security of the new system. We explained that the UDCP allowed C&ED to operate its radio communications system independently and was able to provide a territory-wide radio coverage that could meet the operational requirements of C&ED. The new system was capable of safeguarding confidentiality of C&ED's enforcement operations and preventing unauthorised access by using secure encryption technology. In response to Members' concern about whether the implementation of the project could be expedited, we pointed out that joining the UDCP was the most cost-effective and efficient option to enable C&ED's early migration to the new system.

## **OTHER PROPOSALS CONSIDERED**

24. Apart from joining the UDCP, C of C&E has also considered upgrading the existing analogue system or establishing a separate radio communications system. As the analogue technology has become obsolete and is phasing out from the market, upgrading the existing analogue system is considered not feasible. On the other hand, establishing a separate radio communications system is estimated to incur a non-recurrent expenditure of about \$207.0 million

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with an annual recurrent expenditure of \$13.4 million, and will take a much longer time to implement. Compared with the proposed use of the UDCP, this option is neither cost-effective nor efficient. Therefore, C of C&E considers that joining the UDCP is the only feasible option.

**BACKGROUND**

25. The existing radio communications system of C&ED has been operating since 1978 on an analogue platform. It supports the department's enforcement operations, e.g. those related to anti-smuggling, anti-narcotics, protection of intellectual property rights and protection of revenue on dutiable goods, etc., by providing a reliable and secure means of communication among officers on site and those at the co-ordinating centre.

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Security Bureau  
May 2008