

For discussion
on 6 May 2008

Legislative Council Panel on Security

Replacement of Radio Communications System of the Customs & Excise Department

PURPOSE

This paper seeks Members' support for the proposal to replace the existing analogue radio communications system of the Customs and Excise Department (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).

BACKGROUND

2. 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. The existing system will reach the end of its serviceable life by 2010.

JUSTIFICATIONS

Need for replacement of the existing system

3. A study conducted by the Electrical and Mechanical Services Department (EMSD) in 2005 on the existing radio communications system 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 limited capacity of the existing system is unable 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 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 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 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 radio system

4. In the light of the study findings, EMSD has recommended C&ED to replace its existing radio communications system by 2010 by making use of the UDCP built on the CCIII operated by the HKPF.

5. The CCIII was fully rolled out in 2006 by the HKPF 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, the HKPF plans to open up CCIII's voice service and short data service to other government departments on a common platform known as the UDCP. The UDCP, which provides territory-wide network coverage, operates in digital mode 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 by C&ED on its own. The capital and recurrent expenditure of the latter option is estimated to be more than double of that of the former option;
- (b) The UDCP provides reliable, territory-wide radio network coverage;
- (c) Supported by digital technology, the UDCP offers 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 based on open technological standards, which allow the system to be further enhanced and developed in future in the light of the changing needs of the 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 the HKPF in future.

FINANCIAL IMPLICATIONS

Non-recurrent cost

7. We estimate that the non-recurrent cost of the replacement of C&ED's radio communications system by making use of the UDCP will be \$86.7 million over a three-year period from 2008-09 to 2010-11. A detailed

breakdown is at **Annex A**.

Recurrent cost

8. The annual recurrent cost of the existing radio communications system is \$2.4 million, including maintenance charge, radio licence fee, and costs of consumables and equipment spare parts. The estimated recurrent cost of the proposed system is \$6.2 million in a full year from 2011-12 onwards. The additional recurrent cost of \$3.8 million a year is to cover the maintenance of the additional and more advanced radio equipment and accessories. A detailed breakdown is at **Annex B**. C&ED will absorb the additional recurrent cost from within its existing resources.

IMPLEMENTATION PLAN

9. Subject to Members' comments on the proposal, we plan to seek funding approval from the Finance Committee in June 2008 with a view to implementing the proposed system by 2010. An implementation plan is at **Annex C**.

Security Bureau
Customs and Excise Department
April 2008

Annex A

Non-recurrent Cost of C&ED's Proposed Radio Communications System

		2008 – 09 \$'000	2009 – 10 \$'000	2010 – 11 \$'000	Total \$'000
(a)	Radio terminals (1 450 pieces) – mobile radio sets for installation on C&ED vehicles and vessels and portable transceivers		14,000	6,000	20,000
(b)	Radio repeaters (50 pieces) – for improvement of radio coverage		13,000	5,000	18,000
(c)	Network equipment (e.g. network management terminals, network maintenance terminals, etc.)		9,800	4,200	14,000
(d)	Initial spare equipment and consumables, e.g. radio terminals, audio gear, radio batteries, etc.		1,400	600	2,000
(e)	Engineering and other supporting services		9,500	4,400	13,900
(f)	Contingency (10% of the items above)		4,770	2,020	6,790
(g)	Project management services by Electrical and Mechanical Services Department (16% of the total non-recurrent cost to be charged in three years)	5,950	3,000	3,000	11,950
	Total	5,950	55,470	25,220	86,640

Annex B

Recurrent Cost of C&ED's Proposed Radio Communications System

	2010-11 \$'000	2011-12 \$'000	2011-12 and onwards \$'000
<u>The proposed system</u> ¹			
(a) Maintenance contract	0	2,600	5,200
(b) Consumables and spare equipment	0	250	500
(c) Radio licence fees	250	500	500
Sub-total	250	3,350	6,200
<u>Less: Savings from the existing system</u> ²			
(a) Maintenance contract		(1,400)	(1,400)
(b) Consumables and spare equipment		(500)	(500)
(c) Radio licence fees		(500)	(500)
Sub-total		(2,400)	(2,400)
Total	250	950	3,800

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

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 cost can be identified for 2010-2011.

**Implementation Plan for C&ED's
Proposed Radio Communications System**

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