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**Panel on Security**

**Background brief prepared by the Legislative Council Secretariat  
for the meeting on 4 May 2010**

**Updating and replacement of fire services equipment and apparatus**

**Purpose**

This paper summarizes discussions of Members on the updating and replacement of fire services equipment and apparatus.

**Fire services equipment and apparatus**

2. According to the Administration, the Fire Services Department ("FSD") attaches great importance to the protective equipment and facilities provided to firemen. FSD keeps on reviewing and identifying more advanced tools and equipment to enhance efficiency on rescue and fire-fighting and to enhance the safety of frontline personnel. In this respect, the Standard Stowage Review Committee was re-organized in 2008 to evaluate and review all equipment relating to rescue and fire fighting operations on a regular basis.

**Procurement of fire-fighting equipment and apparatus**

3. In the Administration's reply to an oral question raised by Hon LEUNG Yiu-chung on fire-fighting equipment at the Council meeting on 5 November 2008, the Administration advised that -

- (a) FSD spent about \$1.3 million in September 2008 to provide all front-line firemen with new anti-flash hoods that met the latest international safety standard. In 2009, FSD would replace the breathing apparatuses used by firemen at fire scenes. The new breathing apparatuses would provide better protection against radiological, biological and chemical agents. They would also be equipped with more advanced electronic devices to give a clear

indication of the amount of oxygen remaining in the cylinders. The new breathing apparatuses, which would cost about \$45 million, were expected to be shipped to Hong Kong in the first half of 2009;

- (b) FSD purchased 53 radio sets at a total cost of about \$960,000 in October 2008. Each major pump vehicle was provided with an additional radio set. In order to further enhance the communication amongst front-line firemen, FSD had commissioned the Electrical and Mechanical Services Department to study the feasibility of upgrading the analog radio system and replacing it with a digital system with enhanced communication capabilities; and
- (c) FSD was aware of the importance of providing firemen with safe and reliable equipment and facilities, and regarded safety and reliability as the main factors of consideration in the purchase of new fire-fighting equipment. FSD would continue to maintain close dialogue with staff to understand their actual needs. It would also review the provision of protective equipment and facilities from time to time in the light of advanced products available in the international market, and make appropriate improvements so as to enhance the work safety of firemen and improve operational effectiveness.

### **Replacement of radio communications system of FSD**

4. At the meeting of the Panel on Security on 3 March 2009, the Administration briefed members on its proposal to replace its analogue radio communications system with a new digital system. Members were informed that the Electrical and Mechanical Services Department conducted a consultancy in July 2008 and recommended FSD to replace its existing radio communications system by a new digital system. The benefits of the proposed system include -

- (a) the infrastructure of the proposed system would be based on open technological standards, ensuring interoperability among products by different manufacturers and thereby allowing greater flexibility in further enhancement and development to meet changing operational needs;
- (b) the proposed system would be equipped with some 200 portable repeaters, which could be deployed flexibly inside buildings at the scene of incidents. The deployment of these repeaters would enhance both the reliability and coverage of indoor communication of FSD's communications system;
- (c) the proposed system would offer improved voice quality and better protection against interference and interception by its new features, which included error correction, digital encoding, as well as random allocation of voice channels; and

- (d) the proposed system would make more efficient use of the radio spectrum and had the capacity to provide more voice channels and increase the usable or effective airtime by about 100%.

5. The Administration's proposal was approved by the Finance Committee on 8 May 2009.

### **Latest position**

6. According to the Administration's reply to written questions raised by Finance Committee members in examining the Estimates of Expenditure 2010-2011 -

- (a) The protective equipment procured in the past three years for the improvement and enhancement of the safety of fire personnel, and the expenditures involved were as follows -

<u>Equipment</u>	<u>Expenditure</u>
1 500 breathing apparatus of new specifications	\$45 million
12 125 anti-flash hoods	\$2.55 million
High angle rescue equipment, including 1 700 helmets, 1 700 pairs of gloves and other ancillary equipment	\$2.35 million
5 900 pairs of firefighter's gloves	\$2.06 million
4 600 pairs of firefighter's boots	\$1.81 million
Personal protective equipment for the Urban Search and Rescue Team, including protective clothing, helmets, boots and other ancillary equipment	\$0.8 million

- (b) In 2010-2011 and beyond, FSD planned to procure the following protective equipment for improving and enhancing the safety of fire personnel, and the expenditures involved were as follows -

<u>Equipment</u>	<u>Estimated Expenditure</u>	<u>Progress</u>
13 000 sets of fire tunic and overtrousers	\$89 million	Calling for tender, expected delivery by March 2011
4 400 sets of high angle	\$3.5 million	Procurement procedures

rescue helmets and gloves		underway
1 000 sets of protective clothing for the Urban Search and Rescue Team	\$0.8 million	Procurement procedures underway

- (c) FSD planned to replace the existing analogue radio communications system with a new digital system. Upon commissioning, the new system would be used by all staff members, including frontline fire personnel. The capital expenditure of the replacement would be \$178 million, and the funding had been approved by the Finance Committee in May 2009. The new system was expected to be commissioned by July 2011.

7. The Finance Committee discussed at its special meeting on 24 March 2010 for examining the Estimates of Expenditure 2010-2011 the security-related initiatives.

8. Members were concerned about complaints from some frontline firemen about inadequate provision of equipment for protection of their safety after the death of a senior fireman in the recent No. 4 Alarm Fire in Cheung Sha Wan. They enquired about the progress in respect of the procurement of new breathing apparatuses, radio communication system as well as new fire tunic and overtrousers.

9. The Administration advised that it attached great importance to the renewal of equipment by FSD to protect the safety of frontline firemen. In the past two years, the Administration had allocated about \$0.6 billion to FSD for timely procurement of fire equipment. In addition to the funding earmarked in 2008-2009 and 2009-2010 for procurement of new breathing apparatuses and the allocations made in 2009-2010 to replace the radio communication system, \$89 million was recommended to be earmarked in 2010-2011 for the procurement of fire tunic and overtrousers that offered greater protection. While it was necessary to conduct the procurement process in full compliance with the relevant procedures laid down by the Government, the Administration was exploring the feasibility of expediting the procurement of the required fire services equipment.

10. Members enquired about the approving process and time taken for the purchase of the new breathing apparatuses after their being identified suitable for use by FSD.

11. The Administration explained that FSD started to conduct a research on the new breathing apparatus in 2006 and approval was given by the Government in 2007 for the procurement of the new breathing apparatuses. Funding was earmarked in 2008-2009 and 2009-2010 for FSD to procure the new apparatuses. The Administration pointed out that the tender specifications had to be drawn up to ensure compliance with Hong Kong's commitments to the principles of open and fair competition.

12. The Administration informed Members that FSD received the new breathing apparatuses by batches from March 2009 onwards. Training was then provided to staff on the use of these 1 500 sets of new breathing apparatuses. The training programme was almost completed towards the end of 2009. However, in the tests conducted in December 2009, some discrepancies were found in the software relating to the additional electronic functions of the new breathing apparatus. The manufacturer had been immediately notified and rectified the problem. It was expected that all the 1 500 sets of new breathing apparatuses would be ready for use by firemen in early April 2010.

13. Members considered it unacceptably long for the Administration to have taken more than four years for the new breathing apparatuses to be available for use since the time they were identified suitable for use by FSD. They also considered that the replacement of the existing analogue radio communication system with a new digital system was another prolonged procurement process, as the Finance Committee had approved the funding for the new digital system in May 2009 and the equipment was expected to be commissioned only by July 2011.

14. The Administration advised that in the procurement of new fire services equipment to replace existing equipment, it was necessary to observe the established procedures for procurement in order to ensure fairness and impartiality. Nevertheless, the Security Bureau would explore the feasibility of compressing the procurement process for essential fire services equipment with relevant government departments.

15. The Administration informed Members that funding was to be earmarked in 2010-2011 for the immediate procurement of the new fire tunic and overtrousers. All new fire tunic and overtrousers were expected to be delivered before March 2011. In order to expedite the procurement of the new fire tunic and overtrousers, the Administration had already launched the relevant tendering process in early 2010. Upon approval of funding by the Finance Committee, the Government would sign a contract with the successful tenderer as early as possible.

16. Members enquired about the measures adopted by FSD to prevent recurrence of the No. 4 Alarm Fire in the Lai Cheong Factory Building during which a message sent by a mobile data terminal requesting that the blaze be upgraded to a No. 3 Alarm Fire was mistakenly deleted at the control centre.

17. The Administration explained that the incident involved the deletion of a message requesting reinforcement sent from a mobile data terminal through the Third Generation Mobilizing System to the control centre. After the incident, FSD had instructed all frontline firemen to make reinforcement requests in future to the control centre through radio communication. The control centre would respond and confirm receipt of the requests. For places where radio transmission could not be used, mobile data terminals would be used to transmit the reinforcement requests. In this connection, enhancement measures had been introduced, which included installing red flashing signals and a buzzer for all critical operational messages to remind the console operator at the control centre to take immediate action. In addition, the messages would be sent simultaneously to the

Watch Commander and two supervisors of the centre. This was to ensure that more than one officer at the centre would be alerted by the same message.

18. A Member expressed concern that the Third Generation Mobilizing System allowed deletion of a reinforcement message, even if it had not been properly responded to. He recalled that when the Administration applied for funding for the procurement of the Third Generation Mobilizing System in the past, the Administration had informed Members that the system could be relied upon for efficient mobilization of fire and ambulance resources to scenes of emergencies. The Member queried the rationale of the new instruction for why frontline firemen were recently instructed to make reinforcement requests to the control centre through verbal communication over radio.

19. The Administration explained that FSD would constantly monitor the performance of the Third Generation Mobilizing System and, where necessary, update the relevant instructions in the light of operational experience.

20. A Member queried whether the Administration had made the best judgment in its choice of fire services equipment, such as in the procurement of the new breathing apparatuses. The Administration responded that FSD had sought to ensure the reliability of these new breathing apparatuses by conducting stringent testing, and the irregularities found had been completely rectified before the apparatuses were used by frontline firemen.

### **Relevant papers**

21. Members are invited to access the Legislative Council's website at <http://www.legco.gov.hk> to view the relevant papers and minutes of meetings.