

**LegCo Panel on Transport**  
**Subcommittee on matters relating to railways**

**Preventive and Response Measures for Emergency Incidents**

**Purpose**

This information paper sets out the progress of follow-up actions by the two railway corporations arising from the meeting of the LegCo Panel on Transport Subcommittee on matters relating to railways on 5 March 2004 on the preventive and response measures for emergency incidents.

**Progress of follow-up actions**

2. Specifically, MTR Corporation Limited (MTRCL) is asked to conduct risk assessment for scenario where a MTR train is immobilized inside a tunnel with a fire breaking out at both ends of the train, and consider the feasibility of providing closed-circuit televisions (CCTVs) on trains. Both MTRCL and Kowloon-Canton Railway Corporation (KCRC) are also asked to consider the feasibility of providing air curtains at gangways of trains to confine the spread of smoke in case of a fire.

3. The progress of follow-up actions and other improvement measures by MTRCL and KCRC is at *Annexes A and B* respectively.

4. Members are invited to take note of this paper.

Environment, Transport and Works Bureau  
July 2004

**Legislative Council Panel on Transport  
Subcommittee on matters relating to railways**

**Follow up on MTR's Preventive and Response Measures  
for Emergency Incidents**

**Purpose**

At the meeting held on 5 March 2004, Members of the LegCo Panel on Transport Subcommittee on matters relating to railways (the Subcommittee) made suggestions on a number of railway safety improvement measures. This paper reports the result of the review and the progress of the improvement measures taken by the MTR Corporation.

**Background**

2. Following the arson attack which occurred inside the first compartment of a train running from Tsim Sha Tsui to Admiralty station on Tsuen Wan Line on 5 January 2004, the Subcommittee discussed at the meeting held on 5 March 2004 on the preventive and response measures for emergency incidents. The Corporation was requested to review the following suggestions:

- (a) Conduct risk assessment for extreme scenario such as an MTR train being immobilised inside a tunnel with a fire breaking out at both ends of the train;
- (b) Consider the feasibility of providing closed-circuit televisions (CCTVs) on trains;
- (c) Consider the feasibility of providing air curtains at gangways of trains to confine the spread of smoke in case of a fire.

3. After the meeting on 5 March 2004, the Corporation took a series of improvement actions. A Specialists Group was tasked to review and study the above-mentioned suggestions and make recommendations.

**Improvement actions taken since last Subcommittee meeting**

4. The Corporation has stepped up the enforcement of MTR by-laws on dangerous goods and bulky objects with a dedicated By-law Enforcement Team. An 8-week blitz would be conducted once every quarter of a year inside MTR premises.

In the first operation which took place from mid March to mid May 2004, 385 cases of bulky objects and one case of dangerous goods were successfully stopped from being brought into the MTR system. Result of this blitz, when comparing with the result of the enhanced by-law enforcement instigated immediately after the arson attack which identified 6,055 bulky objects and 111 dangerous goods, showed that there was a significant reduction in the number of bulky objects and dangerous goods being brought into the MTR system.

5. To enhance passengers' awareness of the safety measures in MTR system, five short videos on emergency equipment and procedures, platform and train door safety, evacuation procedures and escalator safety will be broadcast in all MTR stations starting from the end of July / early August 2004. These videos will also be used in school talks and community visits, where appropriate, as part of our public education campaign. A web game promoting railway safety will also be launched on MTR website [www.mtr.com.hk](http://www.mtr.com.hk) by July 2004.

6. As suggested by Members of the Subcommittee, the Corporation invited members of the public in an overnight emergency drill conducted jointly with the emergency services, i.e. Fire Services Department and Hong Kong Police Force, in the non-traffic hours on 7-8 May 2004. More than 400 volunteers including MTR staff, their relatives and friends as well as representatives from community centres and volunteer groups participated to act as passengers during the emergency drill.

7. The small number of defective Passenger Alarm Devices and ventilation windows identified in the train fleet check immediately after the arson attack have been rectified. These pieces of equipment will be kept in good conditions under our regular maintenance programme.

8. Additional signs indicating the locations of portable fire extinguishers (PFEs) will be placed on trains in the third quarter of 2004. Luminescent signs indicating the locations of the PFEs will be placed above alternate seat bays and at eye level of each end of the train cars. All additional signs will be in place by the end of 2004.

### **Risk assessment on extreme scenario**

9. Risk assessment was carried out on the extreme scenario that an MTR train is immobilised inside a tunnel with a fire breaking out at both ends of the train. The result shows that the likelihood of a train immobilised in a tunnel with a fire breaking out at each end of the train is extremely remote. The risk assessment covers both equipment-related fires and arson attacks such as the one on 5 January 2004.

10. The inherent design of the train is such that the under-frame equipment of a train is separated from the passenger saloon by a 30-minute fire-resistance floor. The longest inter-station journey time in the underground sections is only less than four minutes, train immobilisation consequent to internal fires occurring independently at both ends of the train within the same inter-station journey is not considered to be a credible event.

11. Given the risk level assessed, the existing procedures are considered appropriate, adequate and effective.

### **Provision of CCTVs on MTR trains**

12. An assessment of the effectiveness of the train saloon CCTV has been conducted, and it is concluded that it cannot effectively reduce the risk level significantly because:

- (a) the Passenger Train Operator (PTO) can rapidly determine the presence of any real danger through the passenger alarm device without the additional monitoring/ warning functions of the saloon CCTV; and
- (b) the PTO's priority is getting the train to the nearest station as soon as possible so that passengers can be detrained to the platform rapidly. The saloon CCTVs cannot lessen in any way the risk of passengers.

13. Trainborne CCTVs are not standard features commonly found in railways outside Hong Kong. The few railways that have such facilities have generally done so for non-safety related reasons.

### **Provision of air curtains at gangways**

14. A simulation was conducted during the non-traffic hours of 30 April 2004 between two MTR stations to test the effectiveness of installing air curtains at gangways of a train to contain smoke spread in case of a fire on train. The test proves the effect of the measure is insignificant to guard against smoke spread on a moving train.

15. In the extremely unlikely event of a train on fire being stalled inside the tunnel where detrainment has to be carried out, tunnel fans will be switched on to remove the smoke from the saloons. Our many exercises have always proven this to be a very effective means in getting rid of smoke.

## **Conclusion**

16. The Specialists Group has taken into consideration the investigation results and the suggestions made by Members of the Subcommittee, certain improvement actions for emergency incidents handling have been taken place where applicable. The Corporation will continue to upkeep our system and work with the Hong Kong Railway Inspectorate to ensure a high level of safety standard to be achieved.

MTR Corporation Limited  
July 2004

**Panel on Transport  
Subcommittee on matters relating to railways**

**Follow up on KCRC's Preventive and Response Measures for Emergency Incidents**

**Purpose**

This paper reports the progress of the improvement measures undertaken by Kowloon-Canton Railway Corporation (KCRC) following an arson attack on an MTR train in January this year.

**Background**

2. The Corporation set up a Working Group to review the systems, rules and procedures for emergency incidents after the arson attack on an MTR train. At the meeting held on 5 March 2004, Members of the Subcommittee discussed the preventive and response measures for emergency incidents. The Working Group further looked into Members' suggestion of considering the feasibility of installing air curtains or water screens at train gangways to limit the spread of smoke in case of fire.

**Provision of air curtains/water screens at gangways**

3. Smoke tests were conducted on West Rail trains and East Rail's refurbished trains to examine how fast smoke would spread from one carriage to another in the event of a fire. Since the journey time between two stations is relatively short, it is unlikely that the smoke spread to the next compartment will cause serious hazard to passengers before the train reaches a safe location for detrainment. The Corporation therefore concluded that the benefit of compartmentalising train carriages in containing the spread of smoke would be insignificant.

4. In the event of fires, hopper windows can be opened easily to direct smoke out of the train. These windows will be effective in slowing the propagation of smoke from coach to coach.

## **Other improvement measures**

5. The Corporation will conduct a passenger education and publicity programme in July to heighten passengers' awareness of safety. A new video on safety and evacuation procedures will be produced at the end of August, and broadcast at all East Rail Stations and on the Passenger Information Display Units inside train compartments. The video will also be used in visits, school talks and community briefings.
6. Regular drills and exercises are conducted jointly with Government emergency and rescue departments to test the response capabilities and coordination. The Corporation will invite passengers to take part in one of these exercises as a means of passenger education in October 2004.
7. Surveillance at stations and inside trains has been strengthened by deploying additional uniform staff at entry gates and conducting more frequent on-board patrols. More than 300 such on-board patrols are carried out every day. In West Rail, the Railway Police District has also stepped up patrols.
8. Fire extinguishers on trains will be relocated so that they can be more easily seen and used by passengers in case of emergencies. The relocation will be completed in the first quarter of 2005.
9. As for Light Rail, the hopper windows of Phases 1 and 2 light rail vehicles will be modified so that they can be opened easily by passengers in case of emergencies. The modification works will be completed by October 2004.

## **Conclusion**

10. The Corporation has completed a review on existing rules and procedures and concluded that they are adequate in handling emergencies and safeguarding passenger safety. It will continue to closely monitor the safety performance of its railway systems and look for further improvements to ensure its railway networks operate at a high safety standard.

Kowloon-Canton Railway Corporation  
July 2004