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Ms Sophie LAU
Clerk to Subcommittee on Matters Relating to Railways
Legislative Council Panel on Transport
Legislative Council Complex
1 Legislative Council Road
Central
Hong Kong
(Fax no.: 2840 0716)

2 June 2020

Dear Ms LAU,

Follow-up actions in relation to train derailment incident at Hung Hom Station on East Rail Line

Thank you for your letter dated 19 March 2020 conveying a letter from the then Hon HO Kai-ming regarding the captioned subject. The consolidated reply of the Government and the MTR Corporation Limited ("MTRCL") is enclosed below for Members' reference.

Yours sincerely,

(Veronica TSE)
for Secretary for Transport and Housing

c.c.:
Electrical and Mechanical Services Department (Attn.: Mr TSE Lok-him)
MTR Corporation Limited (Attn.: Mr Y C CHAN)

The Government and the MTR Corporation Limited ("MTRCL") are very concerned about the train derailment incident that occurred near Hung Hom Station ("HUH") on the East Rail Line ("EAL") on 17 September 2019. After the incident, the MTRCL set up an investigation panel ("Panel") comprising local and overseas experts and its senior representatives to investigate into and identify the root causes of the incident and to propose recommendations for improvement. The Electrical and Mechanical Services Department ("EMSD") also conducted an independent investigation into the incident. The reports of the MTRCL and EMSD were released on 3 March this year. The Government and the MTRCL briefed Members at the meeting of the Legislative Council Subcommittee on Matters Relating to Railways on 5 May (see LC Paper No. CB(4)438/19-20(05) for details).

Timetable for changing sleepers and specifications and criteria for using sleepers

2. All along, in line with international standards and practices, the MTRCL has set up a comprehensive railway asset management and maintenance system, and will update and improve the relevant system from time to time to ensure railway safety. Regarding track sleepers, there were originally about 10 000 "timber sleepers" on EAL. Due to the ageing of and difficulties in procuring "timber sleepers", the MTRCL has gradually replaced "timber sleepers" with sleepers made of synthetic materials since 2008 and will replace sleepers in the light of their actual conditions and ages. In terms of railway applications, there is no difference between the mechanical properties of synthetic sleepers and timber sleepers. The mechanical properties of both sleepers are in compliance with the Japanese Industrial Standard (Standard JIS E 1203:2007). The MTRCL started to implement the plan for replacing worn out "timber sleepers" on EAL in 2010. As at August 2019, 4 000 timber sleepers have been replaced by synthetic sleepers.

3. Generally speaking, "synthetic sleepers" have a longer lifecycle than "timber sleepers" and are able to improve the overall track reliability. Thus, "synthetic sleepers" are widely used in railway systems around the world. Similar situations attributed to this incident have never been encountered since the MTRCL introduced "synthetic sleepers" about ten years ago. After the incident, the MTRCL has conducted comprehensive inspections on all "timber sleepers" along EAL and has replaced over 2 600 "timber sleepers" to give extra track reliability. The remaining "timber sleepers" with better conditions will also be replaced by the end of 2021. By then, the replacement of all "timber sleepers" on EAL will be completed.

4. Currently, apart from EAL, timber sleepers are used in some sections of heavy railway lines. Among these lines, timber sleepers are used in relatively longer sections of Tung Chung Line and Airport Express Line. The relevant sleepers are currently in

good conditions. The MTRCL will arrange for maintenance, repair and replacement work depending on the actual conditions of sleepers. Taking into account the experience in replacing synthetic sleepers on EAL, the MTRCL is planning to replace all the timber sleepers on other railway lines. In fact, the MTRCL carries out regular inspections and measurements on tracks and has drawn up internal track maintenance standards by making reference to measurement standards of the Network Rail in the United Kingdom. If the measurements are found to have exceeded the threshold, the MTRCL will arrange to complete re-examination and maintenance within a specified period, which is similar to the case of EAL. EMSD will continue to carry out random inspections on the MTRCL's track maintenance and ensure that the MTRCL will carry out track maintenance stringently according to the established maintenance procedures.

Daily maintenance procedures and estimates for devotion of resources

5. Railway safety is of paramount importance. As the railway network continues to expand, in order to provide safe, reliable and high-quality railway services, the MTRCL has substantially increased its manpower in railway operations and maintenance in recent years. The number of the relevant staff was close to 5 400 in 2019, representing an increase by about 45% when compared to that in 2008. The MTRCL also continues to devote substantial resources to repairs, maintenance and replacement of assets. Last year alone, $9 billion was devoted to these aspects. In the future, the MTRCL will continue to devote resources to maintenance so that the system can be maintained in good condition.

6. The railway system involves hundreds of thousands of components and parts. With the stringent system and procedures, the MTRCL conducts regular checking and maintenance on each part of the railway system. There is work involving checked items which have to wait for their turns for maintenance, and work with maintenance completed in the MTRCL every day. For the enquiry made in the letter about the number of cases in which the estimate for maintenance is still under processing at a certain point of time, it may not have any indicative significance. Regarding general maintenance procedures, patrolman inspections and turnout maintenance are conducted by the Track Maintenance Management ("TMM") team of the Infrastructure Maintenance Department and the Track Geometry & Overhead Line Vehicle ("TOV") is operated by the Integrity Assurance Management ("IAM") team of the same department. Exception reports from TOV are verified by TMM team and combined with preventative maintenance information from patrolmen and turnout inspections to determine the required maintenance measures depending on the track conditions. The MTRCL has established maintenance procedures for following up measures to inspect and correct track gauges and arrange a preparatory report for the department head's reference when necessary.

7. The MTRCL has been closely monitoring different maintenance projects and will formulate inspection cycles and maintenance procedures for various facilities and components based on relevant factors such as the characteristics of various components and the actual needs for maintenance, etc. If the maintenance team finds any maintenance issue requiring follow-up actions, it will prioritise the follow-up actions after assessing the risks and carry out rectification and replacement in accordance with relevant procedures and handling practices to ensure railway safety.

Communication between the managerial/supervisory management and front-line staff

8. The MTRCL has always been very concerned about the communication between the managerial/supervisory management and front-line staff and requires the parties to make regular reports and respond to different maintenance situations. Taking into account the different needs of maintenance projects, the managerial/supervisory management will conduct site inspections to facilitate follow-up actions and briefings. After the occurrence of an incident, as compared with the maintenance monitoring system in the past, the MTRCL will refine maintenance action thresholds by using a "step" approach and enhance monitoring of compliance of track gauge and escalation through reinforced governance according to the "step" approach. At the same time, the MTRCL will also explore and implement new technology, adopt the new equipment installed in passenger trains, record and analyse track data and conditions, and use that for maintenance and the basis for escalation to management. The new equipment has arrived in Hong Kong in February this year and is undergoing trial.

9. The MTRCL will continue to give prime consideration to safety, and will proactively follow up on and implement the improvement measures recommended by the Panel in order to prevent the recurrence of similar incident. EMSD, as the statutory regulator, will also closely monitor the progress and effectiveness of the MTRCL's implementation of relevant measures to ensure railway safety.