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Panel on Transport

Subcommittee on Matters Relating to Railways

**Minutes of special meeting on
Saturday, 6 May 2006, at 9:00 am
in Conference Room A of the Legislative Council Building**

- Members present** : Hon Miriam LAU Kin-ye, GBS, JP (Chairman)
Ir Dr Hon Raymond HO Chung-tai, S.B.St.J., JP
Hon LAU Kong-wah, JP
Hon Andrew CHENG Kar-foo
Hon WONG Kwok-hing, MH
Hon Jeffrey LAM Kin-fung, SBS, JP
- Members absent** : Hon Mrs Selina CHOW LIANG Shuk-ye, GBS, JP
Hon TAM Yiu-chung, GBS, JP
Hon Abraham SHEK Lai-him, JP
Hon Tommy CHEUNG Yu-yan, JP
Hon Albert CHAN Wai-yip
Hon LEE Wing-tat
- Public Officers attending** : Mr William SHIU
Acting Deputy Secretary for the Environment, Transport
and Works
- Mr Albert YUEN
Assistant Commissioner for Transport/
Bus and Railway

- Attendance by invitation** : Kowloon-Canton Railway Corporation
- Ir James BLAKE
Chief Executive Officer
- Ir K K LEE
Senior Director, Capital Projects
- Mr Y T LI
Senior Director, Transport
- Dr Tony LEE
Rolling Stock Design & Systems Engineering Manager
- Mrs Grace LAM
General Manager, Corporate Affairs
- Clerk in attendance** : Mr Andy LAU
Chief Council Secretary (1)2
- Staff in attendance** : Mrs Mary TANG
Senior Council Secretary (1)2
- Miss Winnie CHENG
Legislative Assistant (1)5

Action

- I East Rail underframe equipment mounting problem**
- (LC Paper No. CB(1)1420/05-06(01) - Chairman's Statement provided by Kowloon-Canton Railway Corporation
- LC Paper No. CB(1)1420/05-06(02) - Overview of the Root Cause Investigation into the Failure and Cracking of Underframe Equipment Support Brackets on East Rail Mid-Life Refurbished Trains provided by Kowloon-Canton Railway Corporation
- LC Paper No. CB(1)1420/05-06(03) - Executive Summary of the East Rail Underframe Equipment Mounting Cracks Root Cause Investigation Final Report provided by Kowloon-Canton Railway Corporation)

Action

Before proceeding with the discussion, the Chairman sought members' views on whether the next regular meeting scheduled for 2 June 2006 should proceed as the Administration had advised that it would not be ready to discuss the Shatin to Central Link and the rationalization of Light Rail service as proposed by members at the last meeting on 21 April 2006. As members noted that the Administration had appointed a Review Panel on the reporting of ER incidents and that it would be submitting a report in a months' time, it was decided that the meeting on 2 June 2006 should be cancelled but a separate meeting would be convened for the purpose of examining the Review Panel's report when it was ready.

2. The Chairman said that the purpose of this special meeting was to discuss the findings of the Root Cause Investigation Report on the failure and cracking of underframe equipment support brackets on East Rail (ER) trains (the Investigation Report) provided by Kowloon-Canton Railway Corporation (KCRC). She referred members to KCRC's response to the list of questions raised by Mr LAU Kong-wah on the Investigation Report which were tabled at the meeting.

(Post meeting note: The list of questions raised by Mr LAU Kong-wah on the Investigation Report together with KCRC's response were circulated to members under LC Paper No. CB(1)1441/05-06(02).)

3. The Acting Deputy Secretary for the Environment, Transport and Works (Atg DSETW) said that the Administration received the Investigation Report from KCRC on 3 May 2006. It noted that KCRC had put in tremendous efforts exploring possible causes of the incident during the investigation and had examined the problem from various directions. He said that as the Investigation Report was very complicated and technical, it would take time for the Administration to examine the root causes identified. The Government's expert team comprising the Hong Kong Railway Inspectorate (HKRI), Electrical and Mechanical Services Department and Highways Department, in conjunction with the overseas railway consultant, would carefully examine KCRC's report, including the examination of the identified root causes and the proposed rectification measures. It was worth to note that despite the occurrence of the ER incidents, KCRC was able to continue the provision of safe and reliable rail service even during peak holiday seasons. It had also implemented a series of interim rectification measures and stepped up train inspections. On receipt of the Investigation Report, the Secretary for the Environment, Transport and Works had appointed a Review Panel on the Reporting of ER incidents (the Review Panel) to examine KCRC's procedures and processes leading to the reporting of the fleet-wide underframe equipment mounting problem, identify deficiencies in the notification mechanism and advise the relevant improvement measures. It would be submitting a report to the Administration in around one month's time. Upon receipt of the reports of the Review Panel and Government's expert team, the Administration would study and make available their findings to the public. Meanwhile, it would be inappropriate for the Administration to comment on the ER incidents before these reports were available.

Action

4. Mr K K LEE, Senior Director, Capital Projects, KCRC (SDCP/KCRC) gave a power-point presentation on root cause investigation on the failure and cracking of underframe equipment support brackets on ER trains. According to the findings, there were three main factors leading to the underframe mounting problem, the combination of which contributed to the occurrence of the cracks. Firstly, the investigation found that the force of vertical vibrations was excessive when a train was traveling at a speed of 70 to 90 km per hour over some sections of the alignment. The excessive vertical vibrations were due to the resonance oscillations of the car body resulting from the train wheels interacting with the minute undulations on the surface of the rail. As a result, the stress levels encountered by the support brackets exceeded the original design limits by upto 200%. The second factor was attributed to imperfections in the welding of some of the underframe mounting brackets. The third factor was the vibrations induced by the moving parts of the compressors and motor-alternator sets. KCRC had subsequently taken rectification measures to reinforce and upgrade all underframe equipment mounting brackets, enhance the suspension systems of the entire fleet of all mid-life refurbished train cars, and replace critical sections of tracks that had exacerbated the vertical vibrations.

(Post meeting note: A set of presentation materials on the findings of the Investigation Report was circulated to members under LC Paper No. CB(1)1441/05-06(03).)

Investigation Report

5. Mr Andrew CHENG said that the Investigation Report was very technical and not easily comprehensible by the general public. He opined that members should have been given a full report instead of the executive summary as they might need to seek expert advice on the more technical points. While KCRC had agreed to implement rectification measures and to step up inspection procedures, no party had been held responsible since manufacturers had claimed that there were no flaws in train components and the inspection staff had claimed that the acceptance procedures were well adhered to. He considered it more effective to set up a standing committee on rail safety as such would have more credibility than Panels set up by Government on an ad hoc basis to review individual rail incidents. The public would have more confidence in the work of the standing committee, which if approved to be set up, should be given the necessary power to monitor the performance of the aging trains. Ir Dr Raymond HO also agreed on the need to make available the full report for members' reference.

6. Atg DSETW said that the Administration had appointed a Review Panel on the Reporting of ER incidents to review adequacy of KCRC's internal communication and its interface with HKRI, and to identify deficiencies of procedures and responsibilities for the incidents. It was believed that with the appointment of an independent Panel, an open and fair review could be conducted. Meanwhile, the Investigation Report prepared would be carefully examined by the Government's expert team. He further explained that as Government and KCRC each had its respective monitoring and executive role, their responsibilities would need to be clearly delineated to enable

Action

effective operation and accountability. As proactive measures were adopted by the Administration in monitoring rail performance, there were no plans to set up a standing committee on rail safety but the situation would be reviewed from time to time. Mr James BLAKE, Chief Executive Officer of KCRC (CEO/KCRC) said that the full report was not confidential but was very technical and consisted of 57 references. He agreed to make available the full report to the LegCo Secretariat for members' reference.

(Post meeting note: Members were notified on 17 May 2006 vide LC Paper No. CB(1)1522/05-06 that three copies of the Investigation Report were made available by KCRC for members' reference.)

7. Mr LAU Kong-wah said that while KCRC had all along asserted that at no time was passenger safety at risk during and after the incident, he enquired whether the failure of the supporting brackets for the main air compressor, which had set off the alarm on 21 December 2005, would have implications on passenger safety. Atg DSETW said that the incident had aroused much public concern and KCRC had been requested to investigate and take remedial measures. Government's expert team would be carefully studying the Investigation Report and would be looking into the safety aspects of train performance. The Administration would be in a better position to comment on the safety aspects when Government's expert team completed their study of the Report.

Acceptance procedures and the detection of welding imperfections

8. Noting that the main cause of the underframe mounting problem was the imperfection in the welding of some of the underframe mounting brackets, Mr WONG Kwok-hing called into question the acceptance criteria for the ER train components. He expressed dissatisfaction that proper notification on the cracking incident occurring on 21 December 2005 was only made upon revelation by the media 21 days later. The Chairman however pointed out that as the notification mechanism would be reviewed by the Review Panel, the subject should best be followed up when its findings were completed. CEO/KCRC agreed with the Chairman that the notification mechanism should be followed up after the Review Panel completed its findings.

9. On the acceptance procedures, SDCP/KCRC explained that independent experts were engaged by KCRC to inspect the manufacturing process of the trains and attend factory acceptance tests to ensure that their production standards met with requirements set out by KCRC. Upon arrival of the shipment to Hong Kong, further testing of the train cars, with particular emphasis on traction performance, safety and reliability, would be carried out to ensure that the specified standards were met. These trains would not be allowed to provide passenger service unless they had run 400 km trouble-free. The acceptance procedures were very stringent and were undertaken by competent professionals in the field.

10. Mr WONG Kwok-hing questioned if there was any dereliction in duty on the part of the independent experts and KCRC inspection staff since fleet-wide

Action

imperfections in the welding of ER underframe mounting brackets had occurred despite the adoption of stringent acceptance procedures. SDCP/KCRC explained that there were over 10 000 components in a train carriage and inspections were focused on major components such as brakes, traction-motors, suspension systems, and other underframe equipment. It was impossible to carry out detailed inspections on all components. Besides, imperfections in welding were not easy to detect as these might not be visible on the outside. For a more thorough examination, the welded parts would need to be cut and examined under the microscope. Therefore, quality control and workmanship would play an important part in ensuring the quality of the welding of components.

11. Mr WONG Kwok-hing said that since the cracking problem had emerged from parts which were not considered major components and therefore not inspected in detail, he was concerned whether the same problem would occur in other KCRC trains. He also enquired if the problem had occurred in Mainland trains passing through Hong Kong since they were using the same rail tracks. Mr Y T LI, Senior Director, Transport, KCRC (SD/T,KCRC) said that apart from inspecting the 29 ER refurbished trains, KCRC had conducted inspection on all other passenger trains and no similar cracking problems had been identified. As the problems appeared to be confined to ER refurbished trains, Mr WONG Kwok-hing enquired whether the problem was attributed to the refurbishment of trains in the 1990s and if so, who should be held responsible. SD/T,KCRC explained that 29 train sets each comprising 12 cars were delivered and brought into service for ER during the period from 1981-1991. The train cars underwent a train body refurbishment programme during 1996 to 1999. Investigation revealed that the imperfections in the welding of components did not result from the refurbishment.

12. As to Mr WONG Kwok-hing's further enquiry on whether the service lives of trains which were said to last for 30 years would be affected by the welding imperfections, SD/T,KCRC explained that all the mounting brackets with cracks would be repaired. The supporting brackets of all underframe equipment would be strengthened by threefold to withstand the level of train vibrations. With the rectification measures in place, the service lives of the refurbished trains would expect to last for 30 years or more.

13. Ir Dr Raymond HO said that the welding problems of ER were quite rare and should be further followed up with the manufacturers. He also said that he was aware that the independent inspection agents appointed by KCRC were world acclaimed experts in the field and there was no reason to doubt their expertise. SDCP/KCRC confirmed that the inspection agents used by KCRC were Crown agents who were experts in the train inspections.

14. Mr Jeffrey LAM enquired whether there were established procedures for acceptance of trains and if so, whether all these were completed before the trains were accepted by inspection agents. He also questioned if further examination were conducted by KCRC when the train components were delivered to Hong Kong. SDCP/KCRC explained that apart from relying on the quality control and

Action

workmanship of manufacturers, the inspection agents would require type test certificates for all major components from the train manufacturer before acceptance.

15. Mr Jeffrey LAM further enquired about the need to adopt more advanced measures to detect welding imperfections and the overseas experience in such detection. CEO/KCRC said that one of the recommendations made was to introduce more sensitive equipment to measure the interface between the track and the wheels to ensure that the problem of resonance frequency would not recur.

16. Ir Dr Raymond HO enquired whether the testing of train components by inspection agents could only be performed within the factories. SDCP/KCRC confirmed that while most of the testing was performed within factories as was the practice of the train manufacturing industry, some modifications were made at the request of KCRC and further testing was performed in Hong Kong.

17. Mr LAU Kong-wah enquired whether the acceptance procedures for rail tracks bought by MTR Corporation Limited (MTRCL) and KCRC were similar, i.e., that both had been relying on overseas inspection agents to examine the rail tracks at the place of manufacture. Atg DSETW said that he was aware that MTRCL had adopted very stringent acceptance procedures for their rail systems. In response to Mr LAU, he agreed to provide a comparison on the acceptance procedures and criterion adopted by MTRCL and KCRC for their rail tracks.

Admin

18. Mr Jeffrey LAM said that acceptance procedures would need to be reviewed as the inspection should not be focused on major components only and more advanced technologies such as ultrasound should be applied to inspect the welding of underframe components. Further explanation on the cause of underframe mounting problem was required since similar problems had not occurred in high-speed rail systems in other parts of the world.

19. CEO/KCRC affirmed that there were more advanced technologies such as ultrasonic techniques which could be used for testing of welding. However, the welding imperfections found in the cracking incident would unlikely be detected even if the latest technology such as ultrasonic techniques and/or dye staining were used. As to the acceptance procedures, he said that the independent inspection agents would examine the certification of welders and the samples of welding prepared by welders before the actual welding take place.

20. Mr WONG Kwok-hing enquired whether there would be a standing arrangement to inspect the welding of underframe equipment as well as measures to prevent recurrence of the mounting problem in ER refurbished train cars. Sharing similar concerns, Mr Jeffrey LAM considered it necessary that KCRC should step up its inspection measures and make efforts to resolve excessive vibrations. CEO,KCRC said that KCRC would be strengthening the supporting brackets of all underframe equipment. The strengthened design of the supporting brackets would help to withstand the vertical vibrations found in the investigation. SDCP/KCRC said that equipment would be installed to monitor the interface between train wheels

Action

and rail track to prevent resonance oscillations. KCRC would learn from the experience of the cracking incident and would consider tightening the acceptance standards. It would also be extracting samples of welded components for more thorough examination during the inspection process. SD/T,KCRC added that under the crack monitoring programme, non-destructive methods would be used to inspect the welding of components in existing trains. The programme had revealed no significant change in the number and size of cracks already found.

Rail undulations

21. Mr LAU Kong-wah failed to understand why the ER trains inspected by Crown agents and tested for rail performance could have encountered fleet-wide cracking problems when such were not experienced by other rail systems such as WR and MOSR. He enquired whether the specifications given to the train manufacturers had met with the required standards, whether problems were encountered in the acceptance procedures for the trains and why the problems could not be identified in Hong Kong during the rail performance tests which were conducted before the trains were put to use. He said that there was a need to identify the parties responsible for the cracking incidents.

22. CEO/KCRC said that in the 1990s when the batch of trains for ER was obtained, the problem relating to undulations was not well understood then and was not a part of the acceptance specifications. The issue emerged in early 2000s by way of an industry report. Arising from the report, new specifications to control rail undulations were worked out. As a result, the rail manufacturers had to install equipments to prevent undulations and certification for the purpose had to be produced. SDCP/KCRC explained that most of the inspection works were carried out at the place of manufacture and samples were tested for their size, metal content and durability by the Crown agents to ensure that they met with specifications. Further performance testing was carried out in Hong Kong before the trains were allowed to provide passenger service.

23. SD/T,KCRC further explained in response to Mr LAU Kong-wah that before approval was given to buy the rails in 1998, a tendering committee was set up for the purpose. Mr LAU Kong-wah enquired why the importance of preventing rail undulations was overlooked in the inspection process. SDCP/KCRC said that before 2004, the acceptance of rails was based on UIC 860 standards which contained no specification on rail undulations. It was only after 2004 that new specifications on rail undulations were introduced.

24. Mr Jeffrey LAM commended KCRC staff for maintaining a safe and reliable service while performing rectification works subsequent to the cracking incident. He enquired if cracking problems had ever occurred in the rail systems of WR and MOSR. Sharing similar concerns, Mr LAU Kong-wah questioned why the problem of rail undulations leading to the cracking incident had only occurred in ER refurbished trains and not other rail systems. SDCP/KCRC explained that arising from concerns about the need for control over minute undulations of the rail track, in particular on

Action

high-speed trains, a standard of control was introduced in 2004. Under the new control mechanism, the manufacturers were required to apply automatic systems to control undulations such that these could not be allowed to exceed by 0.4 mm over a rail length of 3 metres. The problem of undulations of rail track was not found in WR and MOSR.

25. SDCP/KCRC reiterated that the cracking incident was a result of a combination of factors including welding imperfections and excessive vibrations due to resonance oscillations of car body resulting from the train wheel interacting with the minute undulations on the surface of rail, when the train was running at a speed of 70 to 90 km per hour. While vibrations were common in trains, such might not have led to cracking incidents had the combination of factors not occurred at the same time. CEO, KCRC said that the problem of rail undulations was not unique to KCRC trains but was a common industry-wide problem and such was why new specifications for rail undulations were introduced and applied accordingly.

26. Mr LAU Kong-wah enquired whether efforts had been made to inspect the rail tracks since the new specifications for rail undulations were introduced in 2004. SD/T, KCRC said that with the new specifications for rail undulations in place in 2004, rail manufacturers were required to install automatic devices to prevent rail undulations. KCRC had appointed inspection agents to inspect the rails at the place of manufacture. Owing to the lack of tools in the market to measure the amplitude of rail undulations, the effect of rail undulations on trains had not been noticed but new equipment would be applied to monitor the situation to prevent recurrence of the cracking incident.

27. Mr Jeffrey LAM said that the problem of excessive vibration was common in KCRC trains but no committee had been set up to in the past to look into the problem until the cracking incident occurred. He queried if this had anything to do with the management culture of KCRC. SD/T, KCRC explained that the excessive vibration of trains experienced by passengers and the vertical vibrations of underframe caused by track and train-wheel irregularities were separate issues. Efforts had been made in the past to reduce train vibrations for the comfort of passengers, and these would include machining of train wheels and grinding of rail tracks to enable a smooth interface. At present, the train vibrations experienced in ER, WR and MOSR were all within acceptable limits. Following the occurrence of the cracking incident, remedial measures were taken to reduce the vibrations caused to underframe components.

Replacement of rails

28. Mr Andrew CHENG expressed concern over the disruption of rail service associated with the replacement of the problematic rail sections, which covered about 30% of the entire length of rail tracks. CEO/KCRC clarified that as only about 7% of rail sections needed to be replaced, the replacement programme would form part of the ongoing maintenance and would not cause disruption to rail service.

Action

29. Ir Dr Raymond HO called into question the need for replacement of rails given that the supporting brackets had been strengthened for underframe components and that the problem of secondary resonance of underframe components could not be resolved even with the said replacement. Besides, the replacement programme would be very expensive and its cost might have to be transferred to passengers. As excessive vibrations would only occur when a train was running with a speed between 70 and 90 km per hour on undulated rails, consideration could be given to interchanging the rail tracks instead of replacing them. SDCP/KCRC said that the problem of secondary resonance of underframe components had been taken into account in the design of the supporting brackets. He agreed with Dr HO on the interchanging of rail tracks so that only the problematic rails would be replaced. The displaced rail tracks would be re-used in other rail locations where the train speeds were not within the range of 70 to 90 km per hour. Therefore, the replacement cost would not be very high and would consist mainly of labour costs. Both the improvements in the supporting system and the replacement programme would proceed in tandem to enhance rail safety.

Improvement to suspension systems

30. Ir Dr Raymond HO said that as rail undulations were common, train carriages should be equipped with a good suspension system to protect them from excessive vibrations. With a good suspension system in place, cracking incidents arising from vibrations should not have occurred, particularly if the train was not running at a high speed. He enquired if there was any inadequacy in the suspension system and if so, whether the train manufacturers should be held responsible. He also enquired if the problem of fatigue loading giving rise to cracks could have been detected, whether the welded components and support brackets had had all been replaced/upgraded and whether all train components would be examined in detail before acceptance. He reminded members that any upgrading cost incurred would be coming from the public purse since KCRC was wholly owned by Government.

31. In response, CEO, KCRC said that the cost of rail replacement was minimal and the main upgrading cost was to strengthen the support and suspension systems. The vertical fatigue loading standard for the support system would be enhanced from .15g to .45g. The suppliers had been very cooperative throughout the investigation. When the trains were originally designed, they were entirely fit for the purpose and had satisfied the original intended specifications. However, in any deficiency, the employing company would need to consider carefully the legal liability before taking further action. Dr Tony LEE, Rolling Stock Design & Systems Engineering Manager (RSD&SEM) said that testing and modeling studies performed indicated that the enhancement of the supporting systems was able to reduce vibrations. The problem of metal fatigue would be monitored under the crack monitoring programme. Meanwhile, improvements would be made to the suspension systems, with particular emphasis on train speeds within the range of 70 to 90 km per hour. SDCP/KCRC said that KCRC would learn from the cracking incident and make spot-checks on the welding of non-major components. Computer modeling studies would be conducted

Action

as appropriate. SD/T,KCRC added that maintenance schedules would be reviewed in light of experience.

32. Mr LAU Kong-wah shared the concern about the need to improve the suspension systems to protect trains from excessive vibration and enquired about the standards to be adopted for such systems. RSD&SEM said that suspension systems tailored to meet the rail system could be used to absorb excessive vibrations arising from resonance oscillations of the car body and minute undulations of the surface of the rail track. CEO,KCRC reiterated that the effect of rail undulations was not known at the time when the trains were manufactured in the 1980s. The suspension system was designed in accordance with the prevailing standards at the time.

The switch back to the Automatic Train Operation (ATO) mode

33. Ir Dr Raymond HO enquired about when ER trains could be reverted back from the manual driving under the safety protection of the Automatic Train Protection (ATP) mode which it had adopted since 15 January 2006 to the ATO mode which the trains had been operated on for years. He believed that the ATO mode was unlikely the cause of the cracking problem and he would urge for the early switch back to ATO mode in view of the benefits of automation. SD/T,KCRC explained that the Investigation Report had confirmed that there was no causal relationship between the underframe mounting problem and the use of the ATO system. KCRC had submitted a report to HKRI in early April 2006 requesting for the switch back to ATO mode of operation, producing with it evidence that ATO system was not related to the underframe mounting problem and results of the weight testing performed on ER trains using added weights. KCRC would be prepared to complete ATO testing on 37 ER trains by mid June 2006, after which it would be able to confirm the date for switching back to the ATO mode.

34. Atg DSETW said that HKRI was in receipt of KCRC's application for the switch back to ATO mode of operation and had requested for supporting evidence to prove to the satisfaction of the Administration that the ATO mode was not the cause of the cracking incident; that it would be able to reduce the excessive vibrations experienced by ER trains; and that it was safe and reliable.

Financial implications of upgrading measures

35. Mr WONG Kwok-hing was concerned that the upgrading cost of the ER train carriages would be transferred to passengers and requested for a breakdown on such expenses. CEO,KCRC stated that the upgrading cost would not be passed on to passengers as such was part and parcel of the ongoing expenditure for the upgrading of trains. He said that KCRC had so far spent \$10 million on investigation and \$20 million on installation of temporary rectification measures. While the permanent enhancement measures had yet to be assessed, the cost for replacing the rail tracks would likely to be very small as this would basically be labour cost as part of the rail track replacement cost. It was roughly estimated that upgrading cost would be \$340,000 for each ER train carriage or \$110 million for the 29 train sets comprising 12

Action

cars each, totaling 348 carriages. These would be part of the ongoing fleet enhancement costs in enabling the safe operation of train carriages up to the end of their service lives. Efforts would be made to minimize the cost by using in-house workshop facilities as far as possible.

36. The Chairman sought confirmation that the extra-ordinary cost of \$10 million on investigation and \$20 million on installing temporary rectification measures would not be passed on to passengers. CEO, KCRC said that the \$30 million spent would be an unbudgeted item which had to be recovered through savings on the part of KCRC. Mr WONG Kwok-hing questioned how the \$110 million used for the upgrading of the 348 train carriages could be included within the ongoing fleet enhancement costs. He said that passengers should not be required to shoulder the upgrading cost of \$110 million and the investigation and temporary rectification costs of \$30 million which resulted from KCRC's mismanagement. He sought further confirmation that such should not be included as part of the ongoing enhancement programme and transferred subsequently to passengers. He opined that there was a need to identify the parties responsible for the cracking incident with a view to recovering the expenses incurred. The Chairman said that if not for the cracking incident, KCRC would not have to undergo such enhancement costs and therefore, these should not be regarded as part of the normal enhancement programme. As such, there was a need for KCRC to itemize the upgrading cost to facilitate progress monitoring and to ensure that the cost would not be transferred to passengers.

37. CEO, KCRC reconfirmed that the said cost would not be reflected as fare increases. Besides, the upgrading cost of \$340,000 for each ER train carriage was only an estimate. In the light of the Investigation Report and the inadequacy of support for underframe equipment, KCRC would certainly inspect the whole fleet and introduce strengthening measures. In response to members, he agreed to provide an itemized list on the upgrading cost of ER train carriages and to explain whether such expenses would fall within the normal enhancement programme. The exact timing for the provision of the said information would have to be worked out with the Board of Directors of KCRC.

Admin

Liability and accountability

38. Regarding Mr WONG Kwok-hing's enquiry on who should be held responsible for the cracking incident, CEO/KCRC said that if the resonance frequency had not occurred in ER tracks, the incident would not have happened. The incident was a result of a combination of inherent factors leading to fatigue loading on the mounting brackets.

39. Mr LAU Kong-wah said that he was not entirely convinced by KCRC over the root causes of the cracking incident. He had hoped that the Administration would conduct an independent investigation into the incident but its expert team had already joined KCRC's investigative team. There was hence a need for an explanation on the liability of the incident and whether manufacturers should be held responsible for it.

Action

40. Atg DSETW clarified that Government's expert team had only assessed the effectiveness of the rectification measures but had not joined KCRC in the investigative work. The team would assess the Investigation Report, provide an independent and expert opinion on the findings of the report and recommend follow-up measures to improve the situation. The problem of accountability would be taken care of by the KCRC management as part of its governance.

41. Mr LAU Kong-wah was dissatisfied that the Investigation Report had not addressed one of the main concerns of the public which was the identification of parties responsible for the cracking incidents. He said that as the train car and the rail track manufacturers had both indicated that they had met with specifications and were not at fault, KCRC might have difficulties in seeking compensation from them. He asked if the Administration was satisfied with KCRC's performance given that the latter did have a faulty record in the past which had led to public money being used to settle claims as no party could be held responsible. Atg DSETW said that while Government's expert team would be studying the acceptance procedures for the train cars and rail tracks, KCRC would be following up with its suppliers and manufacturers in accordance with the terms of their contractual agreements. Government would not be in a position to intervene in their commercial dealings. Mr LAU Kong-wah however said that Government had a role to play in KCRC's affairs given that Government was a major shareholder of KCRC and that it was represented in the Board of Directors of KCRC. Atg DSETW responded that the Administration would be monitoring the performance of the two railway corporations but would not be managing them as such was the responsibility of their respective Board of Directors. CEO, KCRC said that both corporations had been providing safe and reliable transport services at very competitive prices

42. The Chairman said that pending the completion of reports by the Review Panel and Government's expert team, a meeting would be held with representatives from the Administration and KCRC to discuss the findings and recommendations of the reports as well as issues relating to liability and accountability.

II Any other business

43. There being no other business, the meeting ended at 11:00 am.