

NOTICE PAPER NO. 9 OF 2012
FOR THE SITTING ON 9 JANUARY 2012

MINISTERIAL STATEMENT ON THE DISRUPTION OF MRT TRAIN SERVICES ON 15 AND 17 DECEMBER 2011

1. Mr Speaker, Sir, Members have raised concerns and queries regarding the two service disruptions on the North-South Line (NSL) that took place on 15 and 17 December 2011. I know the incidents were disruptive and poorly managed. I know it caused a significant amount of frustration and distress to commuters, especially passengers in stalled trains who were put in a position of great duress. For the disruption to have happened on 15 December, and again on 17 December, was clearly unacceptable to Singaporeans, and I fully understand this. I will provide this House with a brief account of the facts of the case as we know them, while leaving the Committee of Inquiry (COI) to do its work in the coming months. I will also update this House on some preliminary lessons learnt and potential weaknesses identified in our current regulatory framework as we make every effort to put things right and restore confidence in the MRT system.

Incidents on 15 and 17 December

2. First, let me provide a factual account of what happened on 15 and 17 December. On the evening of 15 December, an estimated 127,000 commuters were affected by a major service disruption along the North-South Line from

Marina Bay station to Braddell station. Four trains stalled, one between City Hall and Dhoby Ghaut stations, one between Somerset and Orchard stations, one at Braddell station, and one just before Braddell station. The trains stalled because of misalignment between the trains' current collector shoes and the power rail, commonly referred to as the "third" rail. The trains draw locomotive power from the third rail through the train current collector shoes. Due to the misalignment, the trains were unable to draw power and stalled.

3. Two days later, a second service disruption took place on the North-South Line on the morning of 17 December, once more causing stress and inconvenience to about 94,000 commuters. This time, five trains stalled, one each at City Hall, Dhoby Ghaut, Ang Mo Kio, and Bishan stations, and one more along the stretch just before Somerset station. The cause for this second disruption was apparently similar to the earlier disruption: misalignment between the stalled trains' current collector shoes and the third rail.

4. Following the second incident, a complete check was conducted for the entire North-South-East West Line (NSEWL) and its operating fleet of trains. LTA and SMRT wanted to do everything possible to ensure that services would not be disrupted again. LTA and SMRT mobilised their technical and engineering staffs to work through the night of 17 December, and SMRT was able to fully resume service around noon on Sunday, 18 December.

5. As a result of the checks, LTA and SMRT found 21 dislodged or missing claws. These claws secure the third rail to the support brackets, and when a few consecutive claws are dislodged, this may cause the third rail to sag and become misaligned with the collector shoes on the trains passing these sections, damaging or breaking off the collector shoes. This was likely the immediate cause of the incidents on 15 and 17 December. However, many questions remain unanswered: Why did the claws dislodge? Why did it happen on such a scale and only along certain stretches of our tunnels on those two days? And why, after apparently fixing the problem on 15 December on the affected stretches, did train services run smoothly on 16 December, only to have the problem re-surface on 17 December in a different location? These are among the questions that the COI has to look into.

6. We suspected excessive vibrations from the running of the trains could be a factor for the claws to be dislodged. Therefore as a precautionary measure, LTA directed SMRT to impose a speed restriction of 40kph, instead of the usual 80kph, on trains running along the floating slab track (FST) sections. The floating slab tracks are large concrete structures supported on bearings. They are designed to absorb vibrations from passing trains so that the surrounding buildings are not affected. Most of the dislodged claws were found along the

FST sections. SMRT also further secured the claws with cable ties after consulting the manufacturer.

7. The staffs of SMRT and LTA have worked extremely hard to deal with the disruptions and stabilise the situation. They did so under significant time pressure and stress. I know that Singaporeans would want to join me in expressing our sincere appreciation to them for their hard work. Let me also thank commuters who also displayed tolerance and understanding, coping with the slightly degraded service levels by starting their journeys a bit earlier and taking things in their stride. As of today, all but one of the damaged trains have re-entered service, and SMRT is running more trains than before the incidents, because some of the 17 new trains that were delivered recently have entered service. The speed restriction is still in place on the FST stretches of the NSEWL and this has extended journeys by about 2 minutes. Since the two incidents, SMRT has taken steps to secure all the claws along the NSEWL, both underground and aboveground, with cable-ties, as an interim measure to prevent claws from being dislodged while they work on a permanent solution. SMRT has also stepped up inspections, including daily checks on the third rail throughout the network, particularly along the FST sections, to ensure that any signs of recurrence are picked up early and rectified. The condition of the train current collector devices (CCD) is checked daily during operational hours for

any early sign of damage or abnormality, and also at the end of revenue service when the trains return to the depots to ensure the integrity of the system.

8. Since excessive vibration was identified as a possible contributing factor, as an added precaution, SMRT went further to check other vulnerable structures in the tunnel that could be affected by extensive vibrations. SMRT therefore engaged a Professional Engineer to inspect and confirm the infrastructure integrity of the tunnel fixtures and mountings, and I understand that no abnormalities were found after these inspections.

Appointment of the Committee of Inquiry into Service Disruptions

9. The incidents of 15 and 17 December affected more than 200,000 commuters. They have suffered great frustration, inconvenience and distress. The execution of Emergency preparedness plans, especially for the first incident, ought to be significantly improved. SMRT could have better handled the evacuation of the passengers in the stalled trains to reduce the sense of distress, and provided clearer and timelier information and instructions to the public, instead of leaving commuters confused and apprehensive in already disordered circumstances. That the two incidents have the same proximate cause and happened two days apart raises concerns about possible systemic shortcomings. I assure this House that the Government takes a very serious

view of the incidents and the potential safety risk that this could pose to the general public, and that is why I convened a Committee of Inquiry (COI) to investigate the incidents.

10. The Committee comprises three capable and experienced members, chosen for their legal, operational and technical expertise. Under its Terms of Reference, the COI will conduct an independent investigation into both technical and non-technical aspects of the incidents of 15 and 17 December. The Committee will investigate the sequence of events leading to the disruptions, as well as establish the technical, systematic and other causes that may have contributed to the disruptions. Based on these findings, it will make recommendations to minimise the recurrence of similar incidents, as well as improve the management of such incidents. A full report of the proceedings, findings and recommendations will be submitted upon completion of the investigation, and be made public. I hope that this addresses Mr Cedric Foo's and Ms Sylvia Lim's questions on the composition and terms of reference for the COI.

11. Some have also asked if the Committee should look into other service disruptions on other MRT lines. The extent and severity of the service disruptions on 15 and 17 December, and the potential safety risks that they posed are what warrant an independent inquiry into the causes of the

disruptions. The COI should focus on investigating the core issues related to the 15 and 17 December incidents, report on its findings and make their recommendations accordingly. However, if there are any previous incidents or events which are relevant or contributed to the incidents of 15 and 17 December, the COI has the latitude and indeed the obligation to consider them. The Chairman of the COI, Mr Tan Siong Thye, has already stated that the Committee will take a comprehensive and systems approach in its inquiry to thoroughly understand all the underlying causes, both technical and non-technical, that could have contributed to the problem. Er Dr Lee Bee Wah has asked about the reasons for the recent breakdowns. I urge Members to be patient and give the COI time to conduct its investigation thoroughly as it is premature to draw definitive conclusions on the underlying reasons for these two MRT breakdowns at this stage. We should also avoid speculating about the reasons, as this will only undermine the focus of the COI in dispassionately and objectively getting to the bottom of the issues.

12. Ms Sylvia Lim has also asked how the Committee will conduct its hearings. The hearings will be held in public, and interested parties and witnesses have been invited to contact the Committee's Secretary. The Committee will have its own independent investigation team to enable it to carry out primary fact-finding. This will enable it to do a totally independent

investigation, without relying on LTA and SMRT's ongoing investigations. The Committee will also have the power to procure and receive evidence as it thinks necessary or desirable, and examine all such persons as witnesses in order to fulfil its terms of reference.

13. Apart from the COI's investigation, LTA and SMRT have also started their own separate internal investigations. This is to be expected. Both parties clearly have the duty and responsibility to find out what went wrong, especially for those areas that they are accountable for. SMRT as a public transport operator must ensure that it is able to operate a safe and reliable train service, while LTA as the regulator is responsible for identifying any shortcomings on the part of the operator that may have led to the service disruption and will also have to see if there are useful lessons from these incidents to strengthen its regulatory role. The COI on the other hand is an independent party appointed by MOT and will also look into the larger systems issues beyond that which SMRT and LTA will cover in their respective probes.

14. I would like here to update this House on the on-going investigation efforts. As vibrations within the train system appears to be a key issue contributing to the incidents in question, SMRT had engaged an overseas consultant to conduct a series of preliminary vibration testing on 22 December. This was primarily a scoping exercise, to provide data on the dynamic

properties of the various track and train components. The results enabled the experts to develop a proper proposal for the conduct of a series of more detailed tests to be carried in the coming weeks. After that, the data will need to be analysed and interpreted and further tests run if necessary. As some of these activities must be carried out on the actual tracks and tunnels, the various investigating bodies will need to work through how best to do this while SMRT continues to operate the MRT services.

Ensuring Safe Operations of Our MRT System Despite Higher Usage

15. There have been questions raised about whether our MRT system has been strained by the increase in ridership over the last few years with trains becoming more crowded. Because the operators have injected an additional 2,000 weekly trips since 2008 to cater to the higher ridership, some have speculated that the higher intensity usage of our system may have resulted in the breakdowns. I would like to assure the House of the following: First the additional trips added did not exceed the safe operating parameters of the system. Second, LTA requires the Operators to keep strictly to the maintenance regime prescribed by the manufacturers. I will say a little more about this later.

16. In response to Mr Gan Thiam Poh's question on whether 2-minute intervals are the minimum and safest margin for MRT trains to run during peak

hours, the present signalling system on the NSEWL is designed to safely allow for minimum headways of 120 seconds or 2 minutes. It is therefore technically feasible and safe for the operator to run trains at 2-minute intervals during peak hours. The additional trips that SMRT has been putting on are only for periods where the train intervals were longer than 2 minutes previously. Where trains were already running at 2-minute intervals, no further trips were added. The signalling system is designed to disallow trains from coming too close to the next train. This is the reason why, as we come closer to running at the minimum 2-minute headways, we see more occasions where trains have to stop mid-way between stations for a while before re-starting. This is because the train ahead that has stopped at the station is sometimes delayed from moving off on time because some commuters have tried to embark when the doors are closing.

17. Members have raised concerns about the adequacy of the current maintenance regime, and indeed a strong maintenance regime must be in place to ensure that the system is safe and reliable. Under SMRT's current maintenance regime, the company has been performing maintenance works and inspections based on the schedules recommended by the manufacturers. Notwithstanding this, the quality and adequacy of the maintenance regime, be it for preventive or corrective maintenance, are areas that will be closely

scrutinised by the COI as well as the internal investigation teams set up by SMRT and LTA.

18. Ms Foo Mee Har has asked about how SMRT is held accountable for maintenance of the RTS system. LTA as the regulator requires the Operators to comply with their Operating Performance Standards (OPS). The OPS mandates the minimum service adequacy that the Operators must fulfil. If found in breach of the OPS, operators can be penalised up to \$1 million per incident, taking into account the severity of the incident. Besides OPS, operators are required to submit their 2-year maintenance plans to LTA for review, and LTA may ask the operators to adjust or improve on the plans as necessary. I should also point out that, even in the absence of the OPS, it would still be in the operators' interest to maintain the RTS system well as this would extend the operational life of the assets.

19. Mr Gerald Giam has asked if LTA has to date exercised its power to impose conditions relating to the appointment, re-appointment or removal of MRT operators' CEO, chairman or any of its directors, and about the criteria that LTA uses to decide when to impose such conditions. Decisions relating to the changes of these key appointments in the company are initiated by the company or (in the case of the chairman and directors) the shareholders, and cannot be unilaterally imposed by LTA. However, under LTA's current

licences, operators must seek LTA's approval for the appointment, re-appointment or removal of any director or the Chairman of its Board of Directors. While LTA has veto powers over the appointment of the operators' Board, these are generally intended to be used as a last resort against clearly unsuitable nominees, and to date, LTA has not found it necessary to exercise this veto power.

20. One of the questions that needs to be answered is whether the regulatory regime is sufficiently robust. Together with the COI's more holistic findings, the Government will thoroughly review the regulatory and penalty framework and its oversight over the operators' maintenance regimes to strengthen it where necessary.

Emergency Preparedness

21. Several Members, including Ms Foo Mee Har, Mr Gan Thiam Poh, Er Dr Lee Bee Wah, Mr Low Thia Kiang, and Ms Irene Ng have asked about the readiness of our system to respond to an emergency. Er Dr Lee Bee Wah has also asked specifically about the role of the SCDF in such incidents, and if the incidents have impacted the Government's planning for a terror attack on the train system. Let me say at the onset that these disruptions exposed gaps in emergency preparedness and crisis response and we need to do better.

22. The current processes require that the operators work with LTA to come up with plans that will be activated based on various plausible scenarios. Operators are required to have a Rail Incident Management Plan (RIMP) that is activated in the event of a train service disruption. Under the RIMP, the operators are responsible to provide timely information and regular updates to the public and passengers, maintain train services where possible, carry out recovery of service, and provide alternative services to stations that may be affected by the service disruption, including the timely activation of bus bridging services. Operators are also expected to have clear procedures for handling passengers in affected trains, including the “detrainment” of commuters onto the MRT tracks and the relevant safety precautions put in place in such instances, such as turning off the electrical power to relevant sections of the third rail to ensure commuter safety.

23. LTA regularly reviews the Operators’ RIMP, and works with the Operators on improvements to service recovery and incident management measures. Regular table-top exercises (TTXs) are also conducted to check the Operators’ crisis management procedures. Prior to the opening of a new line or section of line, LTA also requires the Operator to carry out a full-scale exercise involving first responders like the SCDF and SPF, to ensure that coordination between the Operator and first responders is smooth. The Operator is required

to validate its SOPs during these exercises, so that adjustments can be made if necessary. Where possible, grassroots organisations and school pupils are invited to participate in such exercises, to improve the emergency readiness of residents.

24. I would also like to assure the House that a Whole-Of-Government approach is adopted with regard to commuter safety on our public transport system, and the Police and SCDF are activated during major service disruptions. During the recent incidents, Police officers were promptly deployed to assist SMRT on various fronts, and SCDF officers were also deployed to help those in distress. Apart from LTA-led safety exercises, the PTOs also participate in security exercises led by MHA at the national level. For example, in 2006, Exercise Northstar V was carried out with the public transport operators. This exercise simulated multiple terror attacks in train stations and tested out contingency plans and coordination among various stakeholders from the public, private and people sector. Shortcomings in areas such as incident management, crowd control and casualty evacuation were identified, and follow-up actions were taken to address them. More recently in 2009, as part of Exercise Northstar VII, a swarm attack by gunmen was also simulated at Raffles Place MRT station. Apart from conducting emergency preparedness exercises, the Public Transport Security Command (TransCom) was also

formed in Aug 2009 under the Singapore Police Force (SPF) to provide dedicated resources to enhance the safety and security of the MRT and bus systems.

25. There are, nevertheless, limitations to such simulated exercises since these are often pre-planned and scripted, with volunteers from grassroots organisations and schools as willing and psychologically prepared participants. The most realistic exercise would be an unannounced major simulated disruption that involves actual commuters during peak hours, but such exercises would significantly inconvenience many commuters. Nevertheless, there is certainly more that LTA and the operators can do to increase the realism and effectiveness of such exercises and to extract greater value from these exercises to improve the SOPs and communications plans to the commuters and the public. Future exercises would therefore be conducted using more challenging scenarios to test the readiness of the operators and improve the multi-agency coordination needed to enhance emergency preparedness and crisis response. I believe that this is something that the COI will look into as well.

Lessons Learnt and Improvements Made

26. Members have also asked if measures have already been taken to improve existing procedures. Even as the COI looks into these two incidents, I would

like to assure this House that improvement measures have been initiated so that we are better prepared for a major train service disruption. I will speak about three areas in particular, with regard to communication with commuters, bus bridging, and coordination between Government agencies and the operators in the event of a service disruption.

27. First, measures have been put in place to improve communication to in-train commuters and the general public in the event of a service breakdown. Changes have been implemented to enable the SMRT Operations Control Centre (OCC) to broadcast directly to passengers on a stalled train. This will provide those most affected by a disruption with more timely and accurate updates. The LTA is also working with the operators on having emergency announcements made in other languages besides English, in case of a service disruption. SMRT has also improved its detrainment procedures so the decision to detrain can be taken more quickly. After the first incident, SMRT has also set up a Twitter account to provide timely information on service delays. In addition to traditional media, LTA and the operators are also exploring the use of mass SMS broadcasts to alert commuters to service disruptions.

28. Second, on bus bridging, it has been observed that the activation of bus bridging services sometimes took too long, and encountered various execution and logistical problems. Since the incidents, LTA has further reviewed SMRT

and SBST's bus bridging plans to ensure that bus routing and passenger boarding and alighting points are updated, logical and sufficient to cater to the volume of passengers expected. On the ground, this would include the improvement of signage for evacuation routes and bus bridging points. In addition, pre-prepared instructions to drivers have been reviewed to ensure that they are clear and easily understood. And as an added assurance, SMRT will deploy an officer with every bus convoy whose drivers may be unfamiliar with the route to guide them along.

29. As the regulator, LTA is also working with both SMRT and SBST to improve contingency plans for train service disruptions, including a more integrated and holistic approach to incident management and service recovery. For example, instead of relying only bridging shuttle bus services which could take some time to activate, LTA is working with SMRT to allow for free travel on its bus services that serve SMRT stations where train services are disrupted, and to explore extending this arrangement across both operators, so that affected commuters can continue their journeys on either operators' bus services for free, regardless of which line is disrupted.

30. Lastly, coordination among operators and agencies has been further enhanced. We have streamlined the communications protocol so that LTA, SPF and SCDF can be alerted more quickly, if assistance is required. In addition,

the SCDF, LTA and Police are already reviewing and refining response protocols and emergency procedures with the operators.

Ensuring A Safe and Reliable Public Transport System

31. Let me assure this House again that the safety of our commuters is paramount. The rail system is the backbone of our public transport system, carrying millions of commuters each day, and its safety and reliability must be ensured. We have taken a number of immediate measures after the two disruptions and we will continue to improve the MRT system to regain the confidence and trust of commuters. While we know that the claws were dislodged, we do not yet know why this happened. The COI will get to the bottom of this matter, we will get the problems fixed, we will improve the overall resilience and robustness of our public transport system and enhance our incident management capabilities. I seek Members' and the public's understanding and patience in the meantime.