Initiatives Enhancing Safe Operation of Japanese Railways ~Preventing Accidents & Other Incidents~

Akira Takeshima Safety Administrator Railway Bureau

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Railway Bureau Ministry of Land, Infrastructure, Transport and Tourism

Ministry of Land, Infrastructure, Transport and Tourism



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1 Railway Operating Accident Incidences & Responses

② Specific Initiatives for Ensuring Safety



1 Railway Operating Accident Incidences & Responses

- (i) Number of Rail Transport Operating Accidents and Casualties
- (ii) Operator Reports When Accidents Occur and Government Responses

(iii) Investigation Process Followed by Japan Transport Safety Board

(iv) Illustration of Railway Accident

2 Specific Initiatives for Ensuring Safety

Number of Rail Transport Operating Accidents and Casualties

OIn the long-term, railway operating accidents have trended downward. Personal injury and railway crossing accidents account for approximately 90% of all accidents.



Number of operating accidents by type

OWhen an accident or incident occurs, the railway operator reports the details and other information to MLIT.

ODepending on the information provided in the report, MLIT notifies the Japan Transport Safety Board and provides guidance or other instructions to the operator with the aim of preventing any recurrence.

Accidents, etc. subject to reporting

1. Railway operating accidents

Train collisions, train derailments, train fires, level crossing accidents, railway personal injury accidents, etc.

2. Transportation disruptions

Cases, etc. where a passenger train is delayed by 30 minutes or more

3. Situations deemed to pose risk of railway operating accident occurring (incidents)

• Situations where a signal is displayed indicating a train may proceed regardless of the fact that there is an obstruction in the train's path

• Situations where a train overshoots a stop signal and obstructs the path of another train traveling along the line

• Situations where a breakdown or other such event occurs in the track, operation safety device, rolling stock, or other equipment that then impedes safe operation Etc.

Primary MLIT responses to reports

O Notify the Japan Transport Safety Board

- O Instruct operator to investigate cause and consider measures to prevent a recurrence
- O Conduct on-site inspection of operator and issue instructions to make improvements
- O Provide other operators with summaries of the incident, measures adopted, and other information

%Response depends on severity of the accident, etc. and its impact on society

Investigation Process Followed by Japan Transport Safety Board 🔮 TILIT

*Source: Japan Transport Safety Board website

Investigation Procedure

The JTSB conducts investigations to determine the causes of aircraft, railway and marine accidents, serious incidents^{*1} and damage caused by the accidents. Based on the process or the findings of the accident investigations, the JTSB provides recommendations or opinions to heads of relevant administrative organs or parties relevant to the causes, concerning the measures to be taken to prevent the recurrence of accidents and to mitigate damage caused by the accidents.



Dissemination of Information

JTSB Digests/Annual Reports, etc.

With the aim of fostering awareness of safety, and preventing similar accidents from occurring, we issue "JTSB Digests", "Annual Reports", "Regional Office Analysis" and "Safety Awareness Leaflet". These publication introduce you to statistics-based analyses, summary of the investigation reports, must-know cases of accidents and regional specific subjects.

We also issue the English version of "JTSB Digests" and "Annual Reports" as part of our efforts to disseminate information overseas.



Japan-Marine Accident Risk and Safety Information System (J-MARISIS)

In order to further enhance the safety of maritime transport, the J-MARISIS is provided on the website to display information on accidents and risk information on a map interface.

A global version that enables the search of investigation reports by accident investigation authorities overseas, as well as a mobile version for smartphones and tablets, are also available for use.



Illustration of Railway Accident





1 Railway Operating Accident Incidences & Responses

② Specific Initiatives for Ensuring Safety

- (i) Number of Railway Operating Accident Casualties
- (ii) Circumstances of Railway Personal Injury Accidents (Platform)
- (iii) Measures for Preventing Railway Personal Injury Accidents (Platform)
- (iv) Number of Railway Level Crossings in Japan
- (v) Circumstances of Level Crossing Accidents
- (vi) Measures: Continuous Grade Separation
- (vii) Measures: Level Crossing Improvement
- (viii) Measures: Installation of Safety Equipment
- (ix) Publication of Safety & Other Information
- (x) Government Accident Prevention Efforts

O When personal injury and railway level crossing accidents are combined, they account for approximately 90% of all operating accidents.

Number of accidents by type and number of fatalities (FY2023)



Circumstances of Railway Personal Injury Accidents (Platform) TILIT

O Number of accidents where train and someone on the platform collides with a train account for roughly half of all personal injury accidents.

Personal injury accidents over time classified by cause (as of FY2023)



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Measures for Preventing Railway Personal Injury Accidents (Platform) mLIT

Facility improvements (preventing falls from platforms)

- Platform doors
- Tactile paving with platform-side blocks
- •Fall prevention fences Etc.

Facility improvements (preventing contact with trains)

- Emergency stop buttons
- Fall detection mats
- Steps up to platform
- Shelters under platforms

Etc.

Etc.

Intangible measures

 Accident prevention campaigns and posters



Platform doors



Emergency stop button



Fall detection mats

Accident prevention campaign poster



Platformside block

Tactile paving with platform-side block



Steps up to platform



Shelter under platform



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Number of accidents by type and number of fatalities (FY2023)



Number of Railway Level Crossings in Japan

- We are prompting <u>measures</u> (e.g. continuous grade separation, transition from Type 3 & 4 level crossings to Type 1) to reduce railway level crossings.
- These efforts have reduced the number of <u>railway level crossings by 50% over 50 years</u>.
- However, <u>10% of railway level crossings</u> are still <u>without crossing gates</u> and/or <u>alarms</u>.



(Crossing gate: NO, Alarms: NO) 12

Type 2: Railway crossing safety officers are deployed to block road traffic with crossing gates against trains and other traffic during certain time periods (Type 2 have been totally eliminated)

Circumstances of Level Crossing Accidents **MLIT**

C Leading cause of railway crossing accidents:
Over 50% (131 cases) due to pedestrians or vehicles crossing immediately in front of a train.
OViewed by the age of those involved:
People aged 60 and above account for nearly 50% (118 cases).

Number of accidents by railway crossing type, cause, etc. (FY2023)



• Clearance obstruction: Vehicle collides with a train because the vehicle inappropriately stopped just before or after the tracks along the road through a railway crossing • Side impact: Vehicle proceeds onto the tracks where a train is passing through and the vehicle hits the side of the train

Measures: Continuous Grade Separations

- As a safety measure for railway level crossings, the <u>government</u> has been promoting <u>continuous grade separations</u> and <u>consolidation of</u> <u>railway level crossings</u>.
- However, grade separations require significant cost and time, so it is important to implement other parallel measures.



Measures: Level Crossing Improvements

 Japanese government has been promoting <u>level crossing</u> <u>improvements</u>, such as <u>single grade separations</u>, <u>pedestrian grade</u> <u>separation facilities</u>, <u>level crossing widening</u>, etc.



Measures: Installation of Safety Equipment

- In order to detect obstacles at level crossings, <u>railway level crossing obstacle</u> <u>detection devices</u> and <u>emergency push buttons</u> have been installed.
- If <u>car stops inside a level crossing</u>, the obstacle detection device automatically <u>detects it</u>.
- However, <u>if a person, wheelchair or bicycle does</u>, in some cases, <u>the devices</u> <u>cannot detect such objects</u>.
- Therefore, it is important that the <u>button be pressed on an emergency alarm</u> <u>device</u> to notify the driver in the approaching train.

Railway crossing obstacle detection



Emergency button





Publication of Safety & Other Information

- Pursuant to the Railway Business Act, <u>MLIT</u> publishes <u>railway safety information</u>, and <u>railway operators</u> also publish <u>safety information reports</u> every year.
- <u>Passengers</u> may <u>check safety information released</u> not only by the <u>government</u> but also <u>railway operators</u> with the expectation that this helps ensure safety.



Government Accident Prevention Efforts

1. Accident responses

- 1) Accident investigations
- 2) Special safety audits
- 3) Guidance to preventing accident recurrence
- 4) Administrative sanctions



2. Sharing information about accidents at other companies

Notices issued providing guidance
Alerts issued based on safety data
Notices provided at meetings





All these contribute to further ensuring the safety and stability of railway transport



Thank you for your kind attention

