GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

RAJYA SABHA
UNSTARRED QUESTION NO. 309
ANSWERED ON 21.07.2023

DERAILING OF TRAINS DUE TO SIGNALLING SYSTEM

309 SHRI ELAMARAM KAREEM:

Will the Minister of RAILWAYS be pleased to state:

(a) whether the train derailment and accidents has increased recently;

(b) the measures taken by the Railways to avoid train derailment and collision;

(c) whether Government is able to find out the reason behind the tragedy in Balasore, Odisha, recently;

(d) whether responsibility has been fixed for such a tragedy and the actions taken; and

(e) in what manner Government proposes to modernise the signalling system of railway network?

ANSWER

MINISTER OF RAILWAYS, COMMUNICATIONS AND
ELECTRONICS & INFORMATION TECHNOLOGY

(SHRI ASHWINI VAISHNAW)

(a) to (e): A Statement is laid on the Table of the House.

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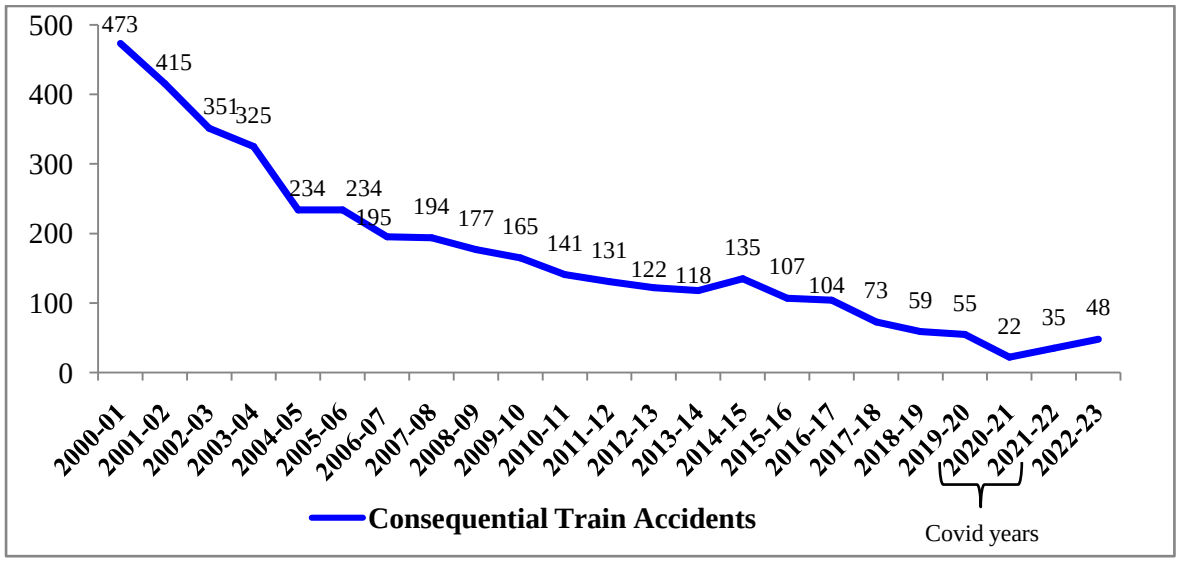
STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (e) OF UNSTARRED QUESTION NO. 309 BY SHRI ELAMARAM KAREEM ANSWERED IN RAJYA SABHA ON 21.07.2023 REGARDING DERAILING OF TRAINS DUE TO SIGNALLING SYSTEM

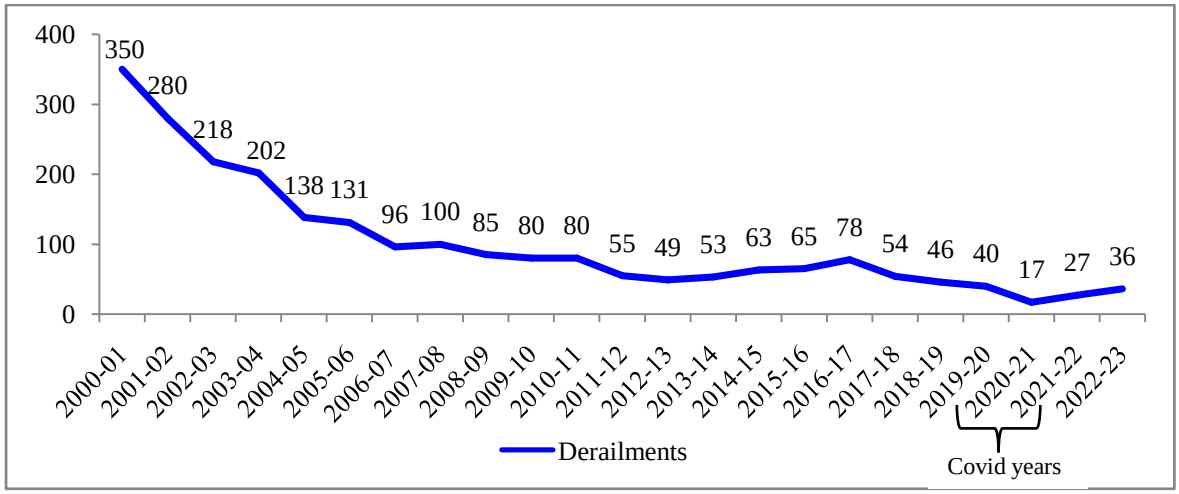
(a): No, Sir. The details of number of consequential train accidents from 2000-01 to 2022-23 are given below:-



As is evident from the graph above, there is a steep decline in the number of consequential train accidents from 473 in 2000-01 to 48 in 2022-23.

The average number of consequential train accidents during the period, 2004-14 was 171.1 per annum, while the average number of consequential train accidents during the period, 2014-23 is 70.9 per annum.

The details of number of consequential train derailments from 2000-01 to 2022-23 are given below:-



As is evident from the graph above, there is a steep decline in the number of consequential train derailments from 350 in 2000-01 to 36 in 2022-23.

The average number of consequential train derailments during the period, 2004-14 was 86.7 per annum, while the average number of consequential train derailments during the period, 2014-23 is 47.3 per annum.

(b): The following measures have been taken by the Indian Railways to avoid train derailment and collisions of trains:-

1. Rashtriya Rail Sanraksha Kosh (RRSK) has been introduced in 2017-18 for replacement/renewal/upgradation of critical safety assets, with a corpus of Rs. 1 lakh crore for five years. From 2017-18 till 2021-22 a Gross expenditure of Rs. 1.08 lakh crore was incurred on RRSK works.
2. Electrical/Electronic Interlocking Systems with centralized operation of points and signals have been provided at 6427 stations upto 31.05.2023 to eliminate accident due to human failure.
3. Interlocking of Level Crossing (LC) Gates has been provided at 11093 level Crossing Gates up to 31.05.2023 for enhancing safety at LC gates.
4. Complete Track Circuiting of stations to enhance safety for verification of track occupancy by electrical means has been provided at 6377 stations upto 31.05.2023.
5. Detailed instructions on issues related with safety of Signalling e.g. mandatory correspondence check, alteration work protocol, preparation of completion drawing, etc. have been issued.
6. System of disconnection and reconnection for S&T equipment as per protocol has been re-emphasized.
7. All locomotives are equipped with Vigilance Control Devices (VCD) to ensure alertness of Loco Pilots.
8. Retro-reflective sigma boards are provided on the mast which is located between two OHE masts prior to the signals in electrified territories to warn the crew about the signal ahead when visibility is low due to foggy weather.
9. A GPS based Fog Safety Device (FSD) is provided to loco pilots in fog affected areas which enables loco pilots to know the distance of the approaching landmarks like signals, level crossing gates etc.
10. Modern track structure consisting of 60kg, 90 Ultimate Tensile Strength (UTS) rails, Prestressed Concrete Sleeper (PSC) Normal/Wide base sleepers with elastic fastening, fanshaped layout turnout on PSC sleepers, Steel Channel/H-beam Sleepers on girder bridges is used while carrying out primary track renewals.

11. Mechanisation of track laying activity through use of track machines like PQRS, TRT, T-28 etc to reduce human errors.
12. Maximizing supply of 130m/260m long rail panels for increasing progress of rail renewal and avoiding welding of joints, thereby ensuring safety.
13. Laying of longer rails, minimizing the use of Alumino Thermic Welding and adoption of better welding technology for rails i.e. Flash Butt Welding.
14. Monitoring of track geometry by OMS (Oscillation Monitoring System) and TRC (Track Recording Cars).
15. Patrolling of railway tracks to look out for weld/rail fractures.
16. The use of Thick Web Switches and Weldable CMS Crossing in turnout renewal works.
17. Inspections at regular intervals are carried out to monitor and educate staff for observance of safe practices.
18. Web based online monitoring system of track assets viz. Track database and decision support system has been adopted to decide rationalized maintenance requirement and optimize inputs.
19. Detailed instructions on issues related with safety of Track e.g. integrated block, corridor block, worksite safety, monsoon precautions etc. have been issued.
20. Preventive maintenance of railway assets (Coaches & Wagons) is undertaken to ensure safe train operations and to keep a check on Rail Accidents across the country.
21. Replacement of conventional ICF design coaches with LHB design coaches is being done.
22. All unmanned level crossings (UMLCs) on Broad Gauge (BG) route have been eliminated by January 2019.
23. Safety of Railway Bridges is ensured through regular inspection of Bridges. The requirement of repair/rehabilitation of Bridges is taken up based upon the conditions assessed during these inspections.
24. Indian Railways has displayed Statutory “Fire Notices” for widespread passenger information in all coaches. Fire posters are provided in every coach so as to inform and alert passengers regarding various Do’s and Don’ts to prevent fire. These include messages regarding not carrying any inflammable material, explosives, prohibition of smoking inside the coaches, penalties etc.
25. Production Units are providing Fire detection and suppression system in newly manufactured Power Cars and Pantry Cars and Fire and Smoke detection system in newly manufactured coaches. Progressive fitment of the same in existing coaches is also underway by Zonal Railways in a phased manner.
26. Regular counselling and training of staff is undertaken.

(c): The cause of the unfortunate Balasore train accident, as reported by the Commission of Railway Safety (CRS) is as below:-

The rear-collision was due to the lapses in the signalling-circuit-alteration carried out at the North Signal Goomty (of the station) in the past, and during the execution of the signalling work related to replacement of Electric Lifting Barrier for level crossing gate no. 94 at the Station. These lapses resulted in wrong signalling to the Train No. 12841 wherein the UP Home Signal indicated Green aspect for run-through movement on the UP main line of the station, but the crossover connecting the UP main line to the UP loop line (crossover 17A/B) was set to the UP loop line; the wrong signalling resulted in the Train No.12841 traversing on the UP loop line, and eventual rear-collision with the Goods train (No. N/DDIP) standing there.

(d): Seven Railway officials have been suspended and D&AR proceedings have been initiated against these Officials.

(e): For improving safety in train operations, Indian Railway is continuously upgrading its Signaling System to reduce the number of incidence of rail accidents:

1. Provision of Electrical/Electronic Interlocking System with centralized operation of points and signals in place of old mechanical signalling. These systems have been provided at 6427 stations as on 31.05.2023, including 2173 stations in last 05 years.
2. Complete Track Circuiting of stations to enhance safety for verification of track occupancy by electrical means has been provided at 6377 stations upto 31.05.23.
3. Interlocking of Level Crossing Gates (LC) has been provided at 11093 Level Crossing Gates upto 31.05.2023 for enhancing safety at LC Gate, including 1696 nos. in last 05 years.
4. Automatic Block Signalling (ABS) has been provided at 3940 route Km upto 31.05.2023, including 1006 nos. in last 05 years.
5. Indigenously developed automatic train protection system “KAVACH” has been adopted as an aid to driver in train running within specified speed limits and also help the train running during inclement weather. KAVACH is being provided progressively over IR.

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