

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

RAJYA SABHA
UNSTARRED QUESTION NO. 2199
ANSWERED ON 09.08.2024

REASONS FOR FREQUENT TRAIN ACCIDENTS

2199 SHRI VIVEK K. TANKHA:

Will the Minister of RAILWAYS be pleased to state:

- (a) number of incidences of rail accidents that have occurred in the last five years;
- (b) the reasons for these frequent rail accidents;
- (c) whether it is a fact that overburdened employees due to lack of manpower is one of the reasons for the same; and
- (d) the steps being taken to prevent such mishaps in future ?

ANSWER

MINISTER OF RAILWAYS, INFORMATION & BROADCASTING AND
ELECTRONICS & INFORMATION TECHNOLOGY

(SHRI ASHWINI VAISHNAW)

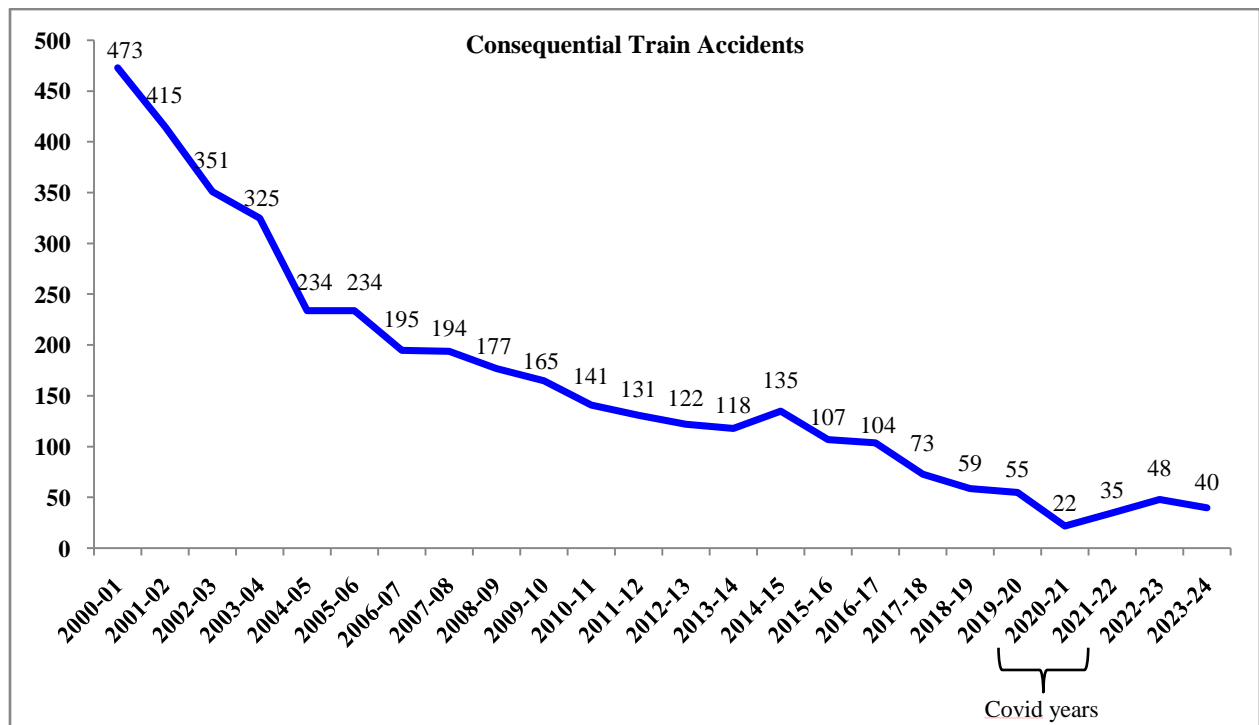
(a) to (d): A Statement is laid on the Table of the House.

STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (d) OF UNSTARRED QUESTION NO. 2199 BY SHRI VIVEK K. TANKHA ANSWERED IN RAJYA SABHA ON 09.08.2024 REGARDING REASONS FOR FREQUENT TRAIN ACCIDENTS

(a) to (d): As a consequence of various safety measures taken over the years, there has been a steep decline in the number of accidents. Consequential Train Accidents have reduced from 473 in 2000-01 to 40 in 2023-24 as shown in the graph below. The causes of these accidents broadly include track defects, Loco/Coach defects, equipment failures, environmental factors, human errors, sabotage etc.

It may be noted that the consequential train accidents during the period 2004-14 was 1711 (average 171 per annum), which has declined to 678 during the period 2014-24 (average 68 per annum).

Another important index showing improved safety in train operations is Accidents Per Million Train Kilometer (APMTKM) which has reduced from 0.65 in 2000-01 to 0.03 in 2023-24, indicating an improvement of more than 95% during the said period.



Safety is accorded the highest priority on Indian Railways. The various safety measures taken to improve safety in train operations are as under:-

1. On Indian Railways, the expenditure on Safety related works has increased over the years as under:

Expenditure on Safety		(Rs in Cr)	
	2022-23 (Act)	2023-24(Act)	BE 2024-25
Maintenance of Permanent Way & Works	18,115	20,322	21,386
Maintenance of Motive Power and Rolling Stock	27,086	30,864	31,494
Maintenance of Machines	9,828	10,772	11,864
Road Safety LCs and ROBs/ RUBs	5,347	6,662	9,980
Track Renewals	16,326	17,850	17,652
Bridge Works	1,050	1,907	2,137
Signal & Telecom Works	2,456	3,751	4,647
Workshops Incl. PUs and Misc. expenditure on Safety	7,128	9,534	9,634
Total	87,336	1,01,662	1,08,795

2. Electrical/Electronic Interlocking Systems with centralized operation of points and signals have been provided at 6,589 stations up to 30.06.2024 to eliminate accident due to human failure.
3. Interlocking of Level Crossing (LC) Gates has been provided at 11,048 level Crossing Gates up to 30.06.2024 for enhancing safety at LC gates.
4. Complete Track Circuiting of stations to enhance safety by verification of track occupancy by electrical means has been provided at 6,609 stations up to 30.06.2024.
5. Kavach is a highly technology intensive system, which requires safety certification of highest order. Kavach was adopted as a National ATP system in July 2020. Kavach has so far been deployed on 1465 Route km and 144 locomotives (including Electric Multiple Unit rakes) on South Central Railway. Kavach is provided progressively in phased manner.
6. Axle counters for Automatic clearance of Block Section, BPAC (Block Proving Axle Counter) are provided to ensure complete arrival of train without manual intervention

before granting line clear to receive next train and to reduce human element. These systems have been provided on 6079 Block Sections upto 30.06.2024.

7. A project for provision of Long Term Evolution (LTE) based Mobile Train Radio Communication system has been approved for 34,803 Rkms over Indian Railways.
8. The project for provision of Tunnel Communication has been taken up in various zonal Railways.
9. Emergency talk-back system and Emergency Alarm Systems have been provided in Vande Bharat Train sets.
10. CCTVs have been provided in all Vande Bharat Express coaches. Till date more than 9572 coaches are equipped with CCTV.
11. 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.
12. System of disconnection and reconnection for S&T equipment as per protocol has been re-emphasized.
13. All locomotives are equipped with Vigilance Control Devices (VCD) to improve alertness of Loco Pilots.
14. Retro-reflective sigma boards are provided on the mast which is located two OHE masts prior to the signals in electrified territories to alert the crew about the signal ahead when visibility is low due to foggy weather.
15. 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.
16. 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.
17. Mechanisation of track laying activity through use of track machines like PQRS, TRT, T-28 etc to reduce human errors.
18. Maximizing supply of 130m/260m long rail panels for increasing progress of rail renewal and avoiding welding of joints, thereby improving safety.
19. Ultrasonic Flaw Detection (USFD) testing of rails to detect flaws and timely removal of defective rails.

20. Laying of longer rails, minimizing the use of Alumino Thermic Welding and adoption of better welding technology for rails i.e. Flash Butt Welding.
21. Monitoring of track geometry by OMS (Oscillation Monitoring System) and TRC (Track Recording Cars).
22. Patrolling of railway tracks to look out for weld/rail fractures.
23. The use of Thick Web Switches and Weldable CMS Crossing in turnout renewal works.
24. Inspections at regular intervals are carried out to monitor and educate staff for observance of safe practices.
25. 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.
26. Detailed instructions on issues related with safety of Track e.g. integrated block, corridor block, worksite safety, monsoon precautions etc. have been issued.
27. Preventive maintenance of railway assets (Coaches & Wagons) is undertaken to ensure safe train operations.
28. Replacement of conventional ICF design coaches with LHB design coaches is being done.
29. All unmanned level crossings (UMLCs) on Broad Gauge (BG) route have been eliminated by January 2019.
30. 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.
31. Indian Railways has displayed Statutory "Fire Notices" for widespread passenger information in all coaches. Fire posters are provided in every coach so as to educate 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.
32. Production Units are providing Fire detection and suppression system in newly manufactured Power Cars and Pantry Cars, 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.
33. Regular counselling and training of staff is undertaken.

34. Concept of Rolling Block introduced in Indian Railways (Open Lines) General Rules vide Gazette notification dated 30.11.2023, wherein work of integrated maintenance/ repair/ replacement of assets is planned up to 52 weeks in advance on rolling basis and executed as per plan.

The details of the Safety related works undertaken by Railways are tabulated below:

SN	Item	2004-05 to 2013-14	2014-15 to 2023-24	2014-24 vs 2004-14
Track Maintenance				
1.	Expenditure on Track Renewal (Rs. in Cr.)	47,018	1,09,659	2.33 times
2.	Rail Renewal Primary (Track Km)	32,260	43,335	1.34 times
3.	Use of high-quality rails (60 Kg) (Km)	57,450	1,23,717	2.15 times
4.	Longer Rail Panels (260m) (Km)	9,917	68,233	6.88 times
5.	USFD (Ultra Sonic Flaw detection) Testing of Rails (Track km)	20,19,630	26,52,291	1.31 times
6.	USFD (Ultra Sonic Flaw detection) Testing of Welds (Nos.)	79,43,940	1,73,06,046	2.17 times
7.	New Track KM added (Track km)	14,985	31,180	2.08 times
8.	Weld failures (Nos.)	In 2013-14: 3699	In 2023-24: 481	87% reduction
9.	Rail fractures (Nos.)	In 2013-14: 2548	In 2023-24: 383	85% reduction
10	Thick Web Switches (Nos.)	Nil	21,127	
11	Track Machines (Nos.)	As on 31.03.14 = 748	As on 31.03.24 = 1,661	122% increase
Level Crossing Gate Elimination				
1.	Elimination of Unmanned Level Crossing Gates (Nos.)	As on 31.03.14: 8948	As on 31.03.24: Nil (All eliminated by 31.01.19)	100% reduction
2.	Elimination of Manned Level Crossing Gates (Nos.)	1,137	7,075	6.21 Times
3.	Road over Bridges (RoBs)/ Road under Bridges (RUBs) (Nos.)	4,148	11,945	2.88 Times
4.	Expenditure on LC Elimination	5,726	36,699	6.40 Times
Bridge Rehabilitation				
1.	Expenditure on Bridge Rehabilitation (Rs. in Cr.)	3,919	8,008	2 Times
Signalling Works				
1.	Electronic Interlocking (Stations)	837	2,964	3.52 times
2.	Automatic Block Signaling (Km)	1,486	2,497	1.67 times
3.	Fog Pass Safety Devices (Nos.)	As on 31.03.14: 90	As on 31.03.24: 19,742	219 times

Rolling Stock				
1.	Manufacture of LHB Coaches (Nos.)	2,337	36,933	15.80 times
2.	Provision of Fire and Smoke Detection System in AC coaches (Nos. of Coaches)	0	19,271	
3.	Provision of Fire Detection and Suppression System in Pantry and Power Cars (Nos. of Coaches)	0	2,991	
4.	Provision of Fire Extinguishers in Non –AC coaches (Nos. of Coaches)	0	66,840	
Budget allocation				
1	Gross Budgetary Support for Railway Investment (Rs. in Cr.)	1,56,739	8,25,967	5.3 times

Occurrence and filling up of vacancies are continuous process on Indian Railways considering its size, spatial distribution and criticality of operation. The vacancies are filled up primarily by placement of indents by Railways with Recruitment agencies as per operational and technological requirements. Adequate and suitable manpower is provided to cater to the regular operations taking into account changes in technology, mechanizations and innovative practices.

After easing of restrictions imposed on account of COVID 19, two major examinations involving more than 2.37 crore candidates have been conducted successfully.

Computer Based Test (CBT) exam for more than 1.26 crore candidates was conducted in 7 phases from 28.12.2020 to 31.07.2021 in 133 shifts in 68 days across 211 cities and 726 centres.

Similarly, CBT was conducted for more than 1.1 crore candidates in 5 phases from 17.08.2022 to 11.10.2022 in 99 shifts in 33 days across 191 cities and 551 centres.

Based on these exams, 1,30,581 candidates have been recruited in railways.

The RRB examinations are quite technical in nature entailing large scale mobilization of men and resources and training of manpower. Railway overcame all these challenges and successfully conducted the recruitment in a transparent manner following all laid down guidelines. No instance of paper leakage or similar malpractice has occurred during the entire process.

Recruitment done in Indian Railways during 2004-2014 vis-à-vis during 2014 – 2024 is given as under. Majority of the recruitment done is in safety categories.

Period	Recruitments
2004-14	4.11 lakh
2014-24	5.02 lakh

Further, as system improvement, the Ministry of Railways has introduced a system of publishing annual calendar this year for recruitment to various categories of Group ‘C’ posts. Accordingly, five Centralized Employment Notifications (CENs) for 40,554 vacancies have been notified during January to July 2024 for filling up of posts of Assistant Loco Pilots, Technicians, Sub-Inspectors & Constables in Railway Protection Force (RPF), Junior Engineers, Depot Material

Superintendents and Chemical and Metallurgical Supervisors. The introduction of annual calendar will benefit the aspirants in the following manner:

- More opportunities for candidates;
- Opportunities to those becoming eligible every year;
- Certainty of exams;
- Faster Recruitment process, Training and Appointments
