GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

LOK SABHA
UNSTARRED QUESTION NO. 2880
TO BE ANSWERED ON 17.12.2025

UPGRADED RAILWAY TRACKS IN TAMIL NADU

2880. SHRI MALAIYARASAN D:

Will the Minister of RAILWAYS be pleased to state:

(a) the details of the number of railway tracks upgraded during the last five years within Tamil Nadu including electrification, signaling improvements and track renewal particularly in the Kallakurichi Lok Sabha constituency;

(b) the details of the steps taken to ensure passenger safety and reduction of accidents during and after track upgradation;

(c) whether modern technologies like long welded rails, high-speed track monitoring and automated track inspection systems are being deployed and if so, the details thererof;

(d) the details of the initiatives taken to enhance speed and freight capacity on upgraded routes; and

(e) the details of the plans for maintenance and periodic inspection of upgraded tracks to ensure long-term reliability?

ANSWER

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

(SHRI ASHWINI VAISHNAW)

(a) to (e) Upgradation and improvement of railway infrastructure on Indian Railways have been carried out in a big way during last 11 years. The

following measures are being taken by Indian Railways to modernise and upgrade tracks, signalling system etc:

i. **Modern track structure consisting of 60kg, 90 Ultimate Tensile Strength (UTS) rails, Wider and heavier Pre-stressed Concrete Sleepers (PSC) with elastic fastening, fan-shaped layout turnout on PSC sleepers and Steel Channel/H-beam Sleepers on girder bridges are being used while carrying out primary track renewals.**
ii. **The Thick Web Switches and Weldable CMS Crossings are being used in turnout renewal works.**
iii. **Supply of 130m/260m long rail panels have been increased to avoid welding of joints, thereby improving safety.**
iv. **Thick Web Switch Expansion Joints are being used in place of earlier Conventional/Improved SEJs.**
v. **Adoption of better welding technology for rails i.e. Flash Butt Welding.**
vi. **Adoption of mechanized system for track maintenance using high output plain tampers and points & crossing tampers for improved maintainability & reliability of track.**
vii. **Deployment of state-of-the-art modern machines including Rail Grinding Machines to further improve asset reliability.**
viii. **Mechanisation of track laying activities through use of track machines like PQRS, TRT, T-28 etc.**
ix. **Use of advanced Phased Array technology of testing of rail and welds..**
x. **Deployment of Integrated Track Monitoring Systems (ITMS) and Oscillation Monitoring System (OMS) for comprehensive health assessment to ascertain optimal maintenance requirements.**
xi. **Adoption of portable Track Measuring Trolley for continuous recording of track parameters in yards.**

xii. Using web enabled Track Management System (TMS) for integration and data analytics of the track inspection records received through various sources to enable precise maintenance inputs.

xiii. Electrical/Electronic Interlocking Systems with centralized operation of points and signals in place of old mechanical signalling have been provided at 6656 stations as on 31.10.2025.

xiv. Interlocking of Level Crossing Gates (LC) has been provided at 10098 Level Crossing Gates upto 31.10.2025 for enhancing safety at LC Gate.

xv. 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 6142 Block Sections up to 31.10.2025.

xvi. Automatic Block Signalling (ABS) that enhances line capacity within existing track infrastructure has been provided at 6341 Route km upto 31.10.2025.

As a result of above measures, there has been a significant increase in the speed potential of the rail network. The details of speed potential of entire railway network over Indian Railways during 2025 vis-a-vis 2014 are as under:

Sectional Speed (kmph)	2014		2025 (up to Nov'25)	
	Track Km	%	Track Km	%
130 & above	5,036	6.3	23,010	21.8
110 - 130	26,409	33.3	60,726	57.5
< 110	47,897	60.4	21,936	20.8
Total	79,342	100	1,05,672	100

Sections having speed potential of 130 kmph in Tamil Nadu are as under:

- **Chennai – Arambakkam (Chennai – Gudur route)**
- **Chennai – Arakkonam – Katpadi – Jolarpettai**
- **Arakkonam – Ponpadi (Arakkonam – Renigunta route)**
- **Jolarpettai – Patchur (Jolarpettai – Bengaluru)**

The railway line from Salem to Vridhachalam junction passes through Kallakurichi constituency in Tamil Nadu. The speed potential of this line has been upgraded to 110 kmph. Electrification work of this line has been completed.

Safety in train operations

As a consequence of various safety measures taken over the years, there has been a steep decline in the number of accidents.

Number of Consequential Train Accidents has reduced as shown in the table below:-

Year	Consequential Accidents
2014-15	135
2025-26 (Till date)	11 (90% lesser)

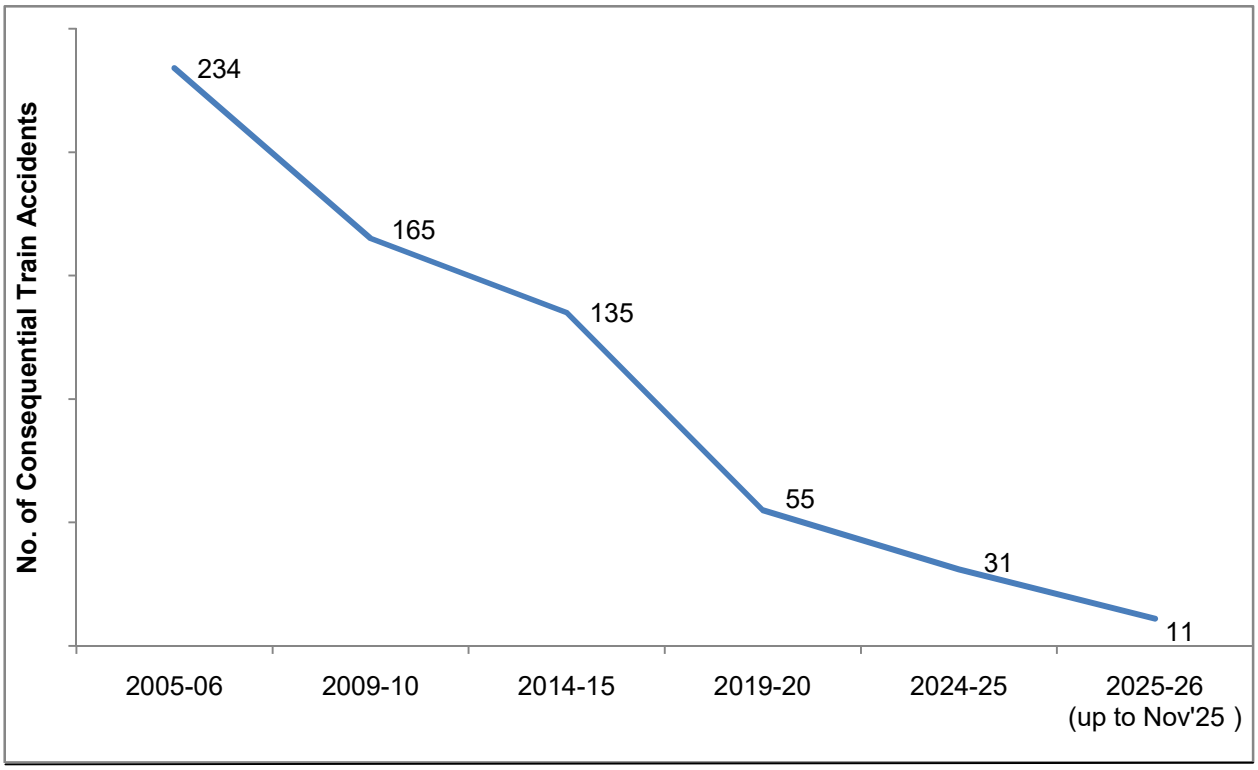
Another important index showing improvement in safety in train operations is Consequential Accidents Index, the details of which are as under:-

Consequential Accident Index:-

Year	Accident Index
2014-15	0.11
2024-25	0.03 (73% lesser)

This index measures number of consequential accidents as a ratio of total running Kilometers of all trains.

Index = No. of consequential accidents / No. of trains X million kilometers



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

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

Expenditure/Budget on Safety related activities (Rs. in Cr.)				
2013-14 (Act.)	2022-23 (Act.)	2023-24 (Act.)	2024-25	2025-26
39,463	87,327	1,01,651	1,14,022	1,16,470

2. Electrical/Electronic Interlocking Systems with centralized operation of points and signals have been provided at 6,656 stations up to 31.10.2025 to reduce accidents due to human failure.

3. **Interlocking of Level Crossing (LC) Gates has been provided at 10,098 Level Crossing Gates up to 31.10.2025 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 6,661 stations up to 31.10.2025.**
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 is provided progressively in phased manner. Initially, Kavach Version 3.2 was deployed on 1465 RKm of South Central Railway and 80 RKm of North Central Railway. Kavach specification Version 4.0 was approved by RDSO on 16.07.2024.**

   After extensive and elaborate trials, Kavach Version 4.0has been successfully commissioned onPalwal-Mathura-Kota- Nagda section (633Rkm) on Delhi- Mumbai route and on Howrah-Bardhaman section (105RKm)on Delhi-Howrah route. Kavach implementation has been taken up in balance sections of Delhi-Mumbai and Delhi-Howrah route.

   Further, Kavach implementation has been taken up on 15,512 RKm covering all GQ, GD, HDN and identified sections of Indian Railways.
6. **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.**
7. **System of disconnection and reconnection for S&T equipment as per protocol has been re-emphasized.**
8. **All locomotives are equipped with Vigilance Control Devices (VCD) to improve alertness of Loco Pilots.**
9. **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.**

10. 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.
11. Modern track structure consisting of 60kg, 90 Ultimate Tensile Strength (UTS) rails, Prestressed Concrete Sleeper (PSC) Normal/Wide base sleepers with elastic fastening, fan shaped layout turnout on PSC sleepers, Steel Channel/H-beam Sleepers on girder bridges is used while carrying out primary track renewals.
12. Mechanisation of track laying activity through use of track machines like PQRS, TRT, T-28 etc. to reduce human errors.
13. Maximizing supply of 130m/260m long rail panels for increasing progress of rail renewal and avoiding welding of joints, thereby improving safety.
14. Ultrasonic Flaw Detection (USFD) testing of rails to detect flaws and timely removal of defective rails.
15. Laying of longer rails, minimizing the use of Alumino Thermic Welding and adoption of better welding technology for rails i.e., Flash Butt Welding.
16. Monitoring of track geometry by OMS (Oscillation Monitoring System) and TRC (Track Recording Cars).
17. Patrolling of railway tracks to look out for weld/rail fractures.
18. The use of Thick Web Switches and Weldable CMS Crossing in turnout renewal works.
19. Inspections at regular intervals are carried out to monitor and educate staff for observance of safe practices.
20. 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.
21. Detailed instructions on issues related with safety of Track, e.g. integrated block, corridor block, worksite safety, monsoon precautions, etc. have been issued.

22. **Preventive maintenance of railway assets (Coaches & Wagons) is undertaken to ensure safe train operations.**
23. **Replacement of conventional ICF design coaches with LHB design coaches is being done.**
24. **All unmanned level crossings (UMLCs) on Broad Gauge (BG) route have been eliminated by January 2019.**
25. **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.**
26. **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.**
27. **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.**
28. **Regular counselling and training of staff is undertaken.**
29. **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 related to better maintenance practices, Technological improvements, better infrastructure and rolling

stock etc. undertaken by Railways are tabulated below:-

S.N.	Item	2004-05 to 2013-14	2014-15 to 2024-25	2014-25 Vs. 2004-14
	Technological Improvements			
1.	Use of high-quality rails (60 Kg) (Km)	57,450 Km	1.43 Lakh Km	More than 2 times
2.	Longer Rail Panels (260m) (Km)	9,917 Km	77,522 Km	Nearly 8 times
3.	Electronic Interlocking (Stations)	837 Stations	3,691 Stations	More than 4 times
4.	Fog Pass Safety Devices (Nos.)	As on 31.03.14: 90 Nos.	As on 31.03.25: 25,939 Nos.	288 times
5.	Thick Web Switches (Nos.)	Nil	28,301 Nos.	
	Better Maintenance Practices			
1.	Primary Rail Renewal (Track Km)	32,260 Km	49,941 Km	1.5 times
2.	USFD (Ultra Sonic Flaw detection) Testing of Welds (Nos.)	79.43 Lakh	2 Crore	More than 2 times
3.	Weld failures (Nos.)	In 2013-14: 3699 Nos.	In 2024-25: 370 Nos.	90 % reduction
4.	Rail fractures (Nos.)	In 2013-14: 2548 Nos.	In 2024-25: 289 Nos.	More than 88% reduction
	Better Infrastructure and Rolling Stock			
1.	New Track KM added (Track Km)	14,985 Km	34,428 Km	More than 2 times
2.	Flyovers (RoBs)/Underpasses (RUBs) (Nos.)	4,148 Nos.	13,808 Nos.	More than 3 times
3.	Unmanned Level crossings (Nos.) on BG	As on 31.03.14: 8,948	As on 31.03.24:Nil (All eliminated by 31.01.19)	Removed
4.	Manufacture of LHB Coaches (Nos.)	2,337 Nos.	42,677	More than 18 times

In order to enhance speed and freight capacity, the following measures have been taken by Indian Railways:

i. **Introduction of new wagon designs. BOSM wagon for transportation of bulk commodities as well as point load commodities like steel coils and ACT1 wagon for transportation of automobiles particularly SUVs have been introduced.**

ii. **Regular production of stainless steel body BOBSNS wagon used for iron ore transport commenced which has 11% higher throughput as compared to existing BOBSN rake.**

iii. **Flat Multipurpose Wagon for transportation of automobiles, trucks, military equipment, steel coils etc. has been introduced.**

iv. **Enhanced loading in upper deck of double stack container has been permitted enhancing loading in upper deck from approx. 26t to 30.5t.**

v. **Ensuring increased availability of rakes/wagons against demand.**

vi. **Increasing the loadability for carrying additional traffic per wagon. Length of freight trains has also been increased to increase throughput per train.**

vii. **For increasing network capacity multi tracking on busy sections. ROR, bypass on busy junctions are being taken up.**

viii. **Use of Information Technology in freight operations to improve monitoring and utilization of assets.**

ix. **Induction of higher horsepower locomotives.**

x. **Induction of higher capacity and high speed wagons.**

xi. **Improvement in maintenance practices of wagons and locomotives resulting in increased availability of loco and rolling stock for traffic use.**

xii. **Improvement in track and signalling to carry higher volume of traffic.**

xiii. **Training staff and officers to adopt the new technology and management practices.**

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