GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

LOK SABHA
UNSTARRED QUESTION NO. 683
TO BE ANSWERED ON 22.07.2026

EXPANSION OF KAVACH IN RAIL ROUTES OF SURGUJA, CHHATTISGARH

†683. SHRI CHINTAMANI MAHARAJ:

Will the Minister of RAILWAYS be pleased to state:

(a) whether the Government is implementing the expansion of the "Kavach" system in Railways and there is any proposal to include the rail routes of Surguja, Chhattisgarh under this system in future if so, the details thereof, phase-wise;

(b) whether effective steps taken/being taken by the Government for the expansion of modern safety system including "Kavach" on the rail routes of Surguja, Chhattisgarh in order to strengthen passenger safety and safe train operations and if so, the details thereof;

(c) whether the Government has formulated any special action plan for the modernisation of the railway network and strengthening of passenger amenities the said States and if so, the details thereof?

ANSWER

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

(SHRI ASHWINI VAISHNAW)

(a) to (c):

Safety is accorded the highest priority on Indian Railways. 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	16 (88% lesser)
2026-27 (upto June 2026)	2

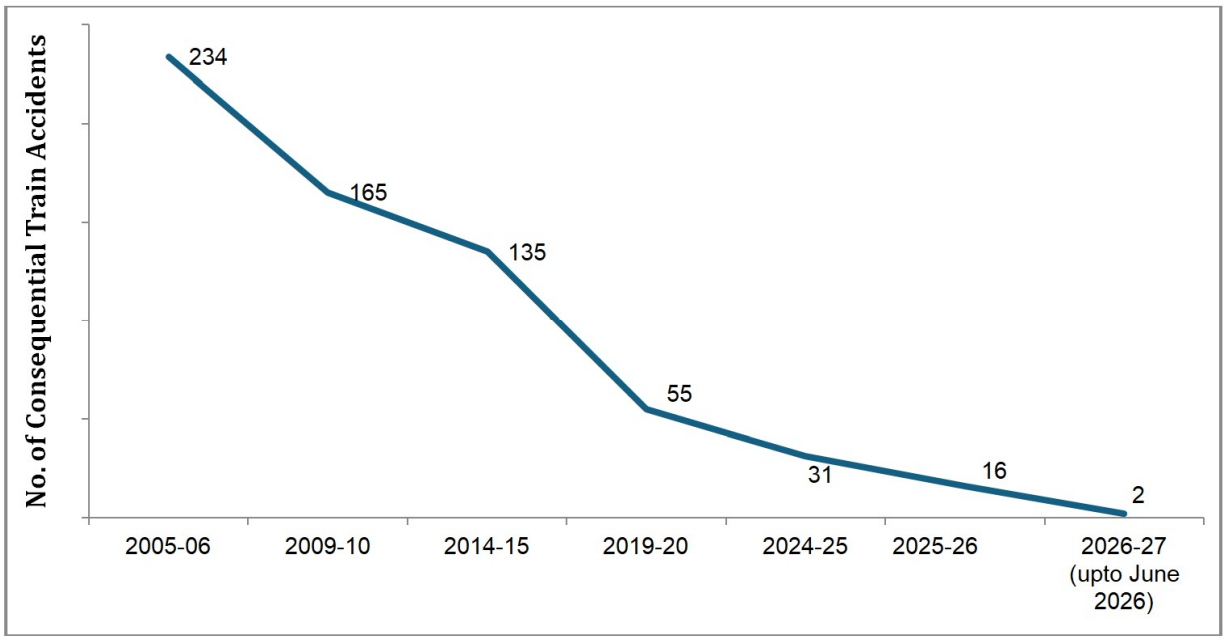
Another important index showing improvement in safety in train operations is Consequential Accident Index, the details of which are as under:-

Consequential Accident Index:-

Year	Accident Index
2014-15	**0.11**
2025-26	**0.01 (91% lesser)**

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

$$\textbf{Accident Index} = \frac{\text{No. of consequential accidents}}{\text{No. of trains X million kilometers run}}$$



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:-

Year	Expenditure/Budget on Safety related activities (Rs. in Cr.)
2013-14	39,200
2022-23	87,336
2023-24	1,01,662
2024-25	1,14,022
2025-26	1,17,693
2026-27	1,20,389

2. Electrical/Electronic Interlocking Systems with centralized operation of points and signals have been provided at 6,671 stations up to 30.06.2026 to reduce accidents due to human failure.
3. Interlocking of Level Crossing (LC) Gates has been provided at 10,395 Level Crossing Gates up to 30.06.2026 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 6,671 stations up to 30.06.2026.
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 improve alertness of Loco Pilots.
8. 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.

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, fan shaped 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 improving safety.
13. Ultrasonic Flaw Detection (USFD) testing of rails to detect flaws and timely removal of defective rails.
14. Laying of longer rails, minimizing the use of Alumino Thermic Welding and adoption of better welding technology for rails i.e., Flash Butt Welding.
15. Monitoring of track geometry by OMS (Oscillation Monitoring System) and TRC (Track Recording Cars).
16. Patrolling of railway tracks to look out for weld/rail fractures.
17. The use of Thick Web Switches and Weldable CMS Crossing in turnout renewal works.
18. Inspections at regular intervals are carried out to monitor and educate staff for observance of safe practices.
19. 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.

20. **Detailed instructions on issues related with safety of Track, e.g. integrated block, corridor block, worksite safety, monsoon precautions, etc. have been issued.**
21. **Preventive maintenance of railway assets (Coaches & Wagons) is undertaken to ensure safe train operations.**
22. **Replacement of conventional ICF design coaches with LHB design coaches is being done.**
23. **All unmanned level crossings (UMLCs) on Broad Gauge (BG) route have been eliminated by January 2019.**
24. **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.**
25. **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.**
26. **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.**
27. **Regular counselling and training of staff is undertaken.**
28. **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.No.	Item	2004-05 to 2013-14	2014-15 to 2025-26	2014-26 Vs. 2004-14
	Technological Improvements			
1.	Use of high-quality rails (60 Kg) (Km)	57,450 Km	1.63 Lakh Km	More than 2.8 times
2.	Longer Rail Panels (260m) (Km)	9,917 Km	87,219 Km	Nearly 9 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 31.03.26: 31,693 Nos.	352 times
5.	Thick Web Switches (Nos.)	Nil	35,971 Nos.	
	Better Maintenance Practices			
1.	Primary Rail Renewal (Track Km)	32,260 Km	57,583 Km	1.78 times
2.	USFD (Ultra Sonic Flaw detection) Testing of Welds (Nos.)	79.43 Lakh	2.25 Crore	More than 2.8 times
3.	Weld failures (Nos.)	In 2013-14: 3,699 Nos.	In 2025-26: 272 Nos.	93 % reduction
4.	Rail fractures (Nos.)	In 2013-14: 2,548 Nos.	In 2025-26: 208 Nos.	92% reduction

	Better Infrastructure and Rolling Stock			
1.	**New Track KM added (Track Km)**	**14,985 Km**	**36,429 Km**	**Almost 2.5 times**
2.	**Flyovers (RoBs)/Underpasses (RUBs) (Nos.)**	**4,148 Nos.**	**14,362 Nos.**	**More than 3 times**
3.	**Unmanned Level crossings (Nos.) on BG**	**As on 31.03.14: 8,948**	**As on 31.03.26: Nil (All eliminated by 31.01.19)**	**Removed**
4.	**Manufacture of LHB Coaches (Nos.)**	**2,337 Nos.**	**49,366**	**More than 21 times**

Kavach Implementation

1. **Kavach is an indigenously developed Automatic Train Protection (ATP) system. Kavach is a highly technology intensive system, which requires safety certification of highest order (SIL-4).**

2. **Kavach aids the Loco Pilot in running of trains within specified speed limits by automatic application of brakes in case Loco Pilot fails to do so and also helps the trains to run safely during inclement weather.**

3. **The first field trials on the passenger trains were started in February 2016. Based on the experience gained and Independent Safety Assessment of the system by Independent Safety Assessor (ISA), three firms were approved in 2018-19, for supply of Kavach Ver 3.2.**

4. **Kavach was adopted as National ATP system in July, 2020.**

5. **Implementation of Kavach System involves following Key Activities:**

a. **Installation of Station Kavach at each and every station, block section.**
b. **Installation of RFID Tags throughout the track length.**
c. **Installation of telecom Towers throughout the section.**
d. **Laying of Optical Fibre Cable along the track.**
e. **Provision of Loco Kavach on each and every Locomotive running on Indian Railways.**

6. **Based on deployment of Kavach version 3.2 on 1,465 RKm on South Central Railway and experience gained, further improvements were made. Finally, Kavach specification version 4.0 was approved by RDSO on 16.07.2024.**

7. **Kavach version 4.0 covers all the major features required for the diverse railway network. This is a significant milestone in safety for Indian Railways. Within a short period, IR has developed, tested and started deploying Automatic Train Protection System.**

8. **Major improvement in Version 4.0 includes increased Location Accuracy, Improved Information of Signal Aspects in bigger yards, Station to Station Kavach interface on OFC and Direct Interface to existing Electronic Interlocking System. With these improvements, Kavach Ver.4.0. is planned for large scale deployment over Indian Railways.**

9. **After extensive and elaborate trials, Kavach Version 4.0 has been successfully commissioned on 2,490 Route Kilometres as on 13.07.26, covering the high density Delhi- Mumbai and Delhi-Howrah routes as below:**

SN	Section	Progress (Route Km)
(1)	Delhi-Mumbai route: 1,344 Rkm	
i	Tilak Bridge - Junction cabin – Palwal – Mathura –Nagda –Vadodra-Virar section (Except Mangalmhudi – Panchpipliya)	1,248
ii	Vadodara – Ahmedabad section	96
(2)	Delhi – Howrah route: 1,146 Rkm	
i.	Chipyana - Tundla - Kanpur - Subedarganj section	563
ii.	Kanpur – Lucknow section	71
iii.	DDU(FOC)-Bhabua Road section	50
iv.	Sasaram - Pheser section	43
v.	Gaya -Sarmatarn- Nimiaghat section	159
vi.	Chota Ambana - Bardhaman – Howrah section	260

10. In addition, track side Kavach implementation work is being taken up on 21,937 RKM covering all GQ,GD,HDN and identified sections of Indian Railways including Anuppur – Boridand – Ambikapur section of Chhattisgarh. Ambikapur station serves Surguja district also.

11. The total Progress of key items of Kavach on Indian Railway sections are as under:

SN	Item	Progress
i	Laying of Optical Fibre Cable	11,253 Km
ii	Installation of Telecom Towers	1,668 Nos.
iii	Station Data Centre	958 station
iv	Installation of Track side equipment	7,721 RKm
v	Provision of Kavach in Loco	6,045 Nos.

12. **In addition, work for installation of Kavach in 7,435 Locomotives and 1,200 EMU/MEMU has been taken up.**

13. **Specialized training programmes on Kavach are being conducted at centralized training institutes of Indian Railways to impart training to all concerned officials. By now more than 94,000 technicians, operators and engineers have been trained on Kavach technology. This includes about 57,000 Loco Pilots & Assistant Loco Pilots. Courses have been designed in collaboration with IRISET.**

14. **The funds utilized on Kavach works so far up to Jun'26 is Rs.3874.9 cr. The allocation of funds during the year 2026-27 is Rs.2066.24 crore. Requisite funds are made available as per the progress of works.**

<u>Chhattisgarh</u>

Railway Budget:

Budget allocation in the recent years has increased significantly. Budget allocation for infrastructure projects and safety works, falling fully/partly in the State of Chhattisgarh is as under:

Period	Outlay
2009-2014	₹311 Cr./year
2026-2027	₹7,470 Cr. (approx. 24 times)

Track Construction:

The details of commissioning/laying of new track falling fully/partly in the State of Chhattisgarh is as under:

Period	New Track Commissioned	Average Commissioning of new tracks
2009-14	32 Km	6.4 Km per year
2014-26	1,311 Km	109.29 Km per year (17 times)

Projects Sanctioned:

As on 01.04.2026, 36 projects (8 New Lines and 28 Doubling), of total length of 2,398 Km, costing ₹48,202 crore falling fully/partly in the State of Chhattisgarh are Sanctioned. The summary is as under:-

Category	No. of projects	Total Length (in km)	Length Commissioned till March, 2026 (in Km)	Total Exp upto March 2026 (Rs. in cr.)
NL	8	887	262	7,535
DL	28	1,512	889	11,298
TOTAL	36	2,398	1,151	18,833

Recently Completed Projects:

Details of some of the recently completed projects falling fully/partly in the state of Chhattisgarh are as under:

S.No.	Name of Project	Cost (cr.)
1	Kharsia-Korichhapar New Line (43 Km)	851
2	Bilaspur-Urkura 3rd line (110 Km)	365
3	Salka Road-Khongsara doubling (26 Km)	181
4	Durg-Rajnandgaon Doubling (31 Km)	250
5	Khodri Anuppur Doubling with flyover at Bilaspur (72 Km)	792
6	Champa-Jharsuguda 3rd Line (152 Km)	1,227
7	Pendra Road –Annupur 3rd Line (50 Km)	394
8	Raipur - Titlagarh Doubling (203 Km)	1,171
9	Dallirajahra-Rowghat (95 Km)	1,628

Ongoing Projects:

Some of the major projects falling fully/partly in the State of Chhattisgarh which have been taken up are as under:

S.N	Name of Project	Cost (cr.)
1	Kharsia-Dharamjaygarh New Line (122 Km)	3,407
2	Gevra Road-Pendra Road New Line (135 Km)	3,724
3	Dharamjaigarh-Korba New Line (63 Km)	1,686
4	Chirimiri-Nagpur Halt New Line (17 Km)	670
5	Sardega-Bhalumunda New Line (37 Km)	1,282
6	Kharsia - Parmalkasa 5th and 6th line (278 Km)	7,854
7	Rowghat-Jagdalpur New Line (140 Km)	3,513
8	Kirandul-Jadgalpur Doubling (150 km)	1,780
9	Jagdalpur-Koraput Doubling (107 Km)	1,547
10	Jharsuguda-Bilaspur -4th line (206 Km)	2,596
11	Gevra Rd-Pendra Rd Doubling (135 Km)	3,475
12	Rajnandgaon-Nagpur 3rd line (228 Km)	3,545
13	Raipur-Dhamtari & Abhanpur-Rajim gauge conversion (67.20 km)	3,250
14	4th line between of Durg-Rajnandgaon (31 Km)	464
15	Gondia-Dongargarh 4th line (84 Km)	2,223
16	Baikunth- Urkura 4th line (26 Km)	426
17	Champa-Korba 3rd Line (42 Km)	755

Rail Connectivity to Surguja district:

Surguja district is presently served by Ambikapur railway station which is a terminal station on Anuppur – Ambikapur Line. To improve the rail connectivity of Ambikapur, the work of Boridand – Surajpur Road (80 Km) Doubling has been sanctioned and works taken up.

To further improve the rail connectivity in Surguja District, the following Final Location surveys (FLS) have been sanctioned:

S.N.	FLS	Status
1	Ambikapur – Ramanujganj – Garwa Road and Ramanujganj-Barwadih New Line (262 Km)	Field survey works has been completed and Detailed Project Reports (DPR) has been prepared
2	Sardega - Pathalgaon - Ambikapur new line (218 km)	Field survey works has been completed and Detailed Project Reports (DPR) has been prepared
3	Ambikapur – Surajpur Doubling (38 Km)	Survey Sanctioned

After preparation of DPR, sanctioning of project requires consultation with various stake-holders including State Governments and necessary approvals viz. appraisal of NITI Aayog, Ministry of Finance etc. As sanctioning of projects is a continuous and dynamic process, exact timelines cannot be fixed.

Amrit Bharat stations:

Ministry of Railways has launched Amrit Bharat Station Scheme for redevelopment of stations with a long-term approach.

The scheme involves preparation of master plans and their implementation in phases to improve the stations of Indian Railways. The master planning, keeping in view the necessity of each station, includes:

- **Improvement of access to station and circulating areas**
- **Integration of station with both sides of city**
- **Improvement of station building**

- **Improvement of waiting halls, toilets, sitting arrangement, water booths**
- **Provision of wider foot over bridge/subway to commensurate with passenger traffic**
- **Provision of lifts/escalators/ramps**
- **Improvement of platform surface/ provision of platform shelter**
- **Provision of kiosks for local products through schemes like 'One Station One Product'**
- **Parking development**
- **Amenities for Divyangjans**
- **Better passenger information systems**
- **Provision of air concourse, executive lounges, Multimodal integration, landscaping, etc.**

The scheme also envisages sustainable and environment friendly solutions etc. as per necessity, phasing and feasibility and creation of city centre at the station in the long term.

So far, 1340 stations have been identified for development under Amrit Bharat Station Scheme, out of which 32 stations are located in Chhattisgarh. The names of stations identified for development under Amrit Bharat Station Scheme in Chhattisgarh are as following:

State	No. of Stations	Names of Stations
Chhattisgarh	32	Akaltara, Ambikapur, Baikunthpur Road, Balod, Baradwar, Belha, Bhanupratappur, Bhatapara, Bhilai, Bhilai Nagar, Bhilai Power House, Bilaspur, Champa, Dallirajhara, Dongargarh, Durg, Hathbandh, Jagdalpur, Janjgir Naila, Korba, Mahasamund, Mandir Hasaud, Marauda, Nipania, Pendra Road, Raigarh, Raipur Jn, Raj Nandgaon, Sarona, Tilda Neora, Urkura, Uslapur

Completed Stations:

Development works at railway stations under Amrit Bharat Station Scheme in Chhattisgarh have been taken up at a good pace. Details of stations completed in Chhattisgarh are as under:

State	No. of Stations	Names of Stations
Chhattisgarh	10	Ambikapur, Balod, Bhanupratappur, Bhilai. Champa, Dallirajhara, Dongargarh, Raj Nandgaon, Sarona, Urkura

The activities for development at other stations have also been taken up at good pace and progress of some of the stations is as given below:

Bilaspur station: The foundation works of new North-East side station building and new South-West side station building have been completed. The works of superstructure of new North-East side station building, new South-West side station building, residential quarters, substation building and service buildings have been taken up.

Akaltara station: The works of improvement of station building, improvement of circulating area, parking, waiting halls, booking counter, platform shelters, new toilet, landscaping, installation of CCTV and signages have been completed. The work of 12 m wide foot over bridge has been taken up.

Korba station: The works of improvement of station building, waiting halls, booking counter, improvement of circulating area, parking, platform shelters, landscaping, installation of CCTV and signages have been completed. The work of 12 m wide foot over bridge has been taken up.

Jagdalpur station: The works of new station building, 12 m wide foot over bridge, improvement of platform surface, improvement of circulating area, toilets, platform shelters and waiting hall have been completed. The works of lifts, signages and installation of Coach Indication Boards have been taken up.

Mahasamund station: The structural works of new station building, improvement of platform surface and platform shelters have been completed. The finishing works of new station building, improvement of circulating area and 12 m wide foot over bridge have been taken up.

Further, development / redevelopment / upgradation / modernisation of stations on Indian Railways is a continuous and ongoing process and works in this regard are undertaken as per requirement, subject to inter-se priority and availability of funds. Development / redevelopment / upgradation I modernisation of a station is carried out based on category of station/condition/traffic handled etc.

Development / Upgradation of railway stations is a complex in nature involving safety of passengers & trains and requires various statutory clearances such as tree cutting, heritage, fire clearance, airport clearance etc. These stations are in operation since long, so brownfield work challenges are being faced, such as shifting of utilities (involving water/sewage lines, optical fibre cables, gas pipelines, power/signal cables, etc.), infringements, operation of trains without hindering passenger movement, speed restrictions due to works carried out in close proximity of the tracks and near to high voltage power lines, etc. and these factors affect the progress of work and completion time.

Development / upgradation / modernisation of stations including under Amrit Bharat Station Scheme is generally funded under Plan Head-53 'Customer Amenities'. The details of allocation and expenditure under Plan Head-53 are maintained Zonal Railway wise and not station-wise or

state-wise. Chhattisgarh is covered under the jurisdiction of two railway zones, namely. South East Central Railway and East Coast Railway. For these zones, an allocation of Rs. 1,132 crore has been made for the financial year 2026-27, out of which an expenditure (up to June, 2026) of Rs. 486 crore has been incurred so far.

*****