44

DERAILMENT IN INDIAN RAILWAYS

[Action Taken by the Government on the Observations/Recommendations of the Committee contained in their 132nd Report (17th Lok Sabha)]

MINISTRY OF RAILWAYS (RAILWAY BOARD)

PUBLIC ACCOUNTS COMMITTEE
(2025-26)

FORTY FOURTH REPORT

EIGHTEENTH LOK SABHA

LOK SABHA SECRETARIAT
NEW DELHI

PAC NO. - 2450

F O R T Y F O U R T H R E P O R T

PUBLIC ACCOUNTS COMMITTEE
(2025-26)

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MINISTRY OF RAILWAYS
(RAILWAY BOARD)

Presented to Lok Sabha on: ***01.04,2026***

Laid in Rajya Sabha on: ***01.04.2026***

L O K S A B H A S E C R E T A R I A T
N E W D E L H I

March, 2026 /Chaitra, 1948 (Saka)

Contents

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(2025-26)

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INTRODUCTION

I, the Chairperson, Committee on Public Accounts (2024-25), having been authorised by the Committee, do present this Forty Fourth Report (Eighteenth Lok Sabha) on Action Taken by the Government on the Observations and Recommendations of the Committee contained in their One Hundred Thirty Second Report (17th Lok Sabha) on **"Derailment in Indian Railways"** relating to the Ministry of Railways (Railway Board).

2. The One Hundred Thirty Second Report was presented to Lok Sabha/laid on the Table of Rajya Sabha on 24.07.2024. The Committee considered the draft Action Taken Report on the subject and adopted the same at their sitting held on 27.03.2026. Minutes of the Sitting of the Committee form appendix to the Report.

3. For facility of reference and convenience, the Observations and Recommendations of the Committee have been printed in **bold** in the body of the Report.

4. The Committee place on record their appreciation of the assistance rendered to them in the matter by the Committee Secretariat and the office of the Comptroller and Auditor General of India.

5. An analysis of the Action Taken by the Government on the Observations/Recommendations contained in the One Hundred Thirty Second Report (17th Lok Sabha) is given at Appendix-II

NEW DELHI:
27 March, 2026
6 Chaitra, 1948 (*Saka*)

K. C. VENUGOPAL
Chairperson,
Public Accounts Committee

CHAPTER - I
REPORT

This Report of the Public Accounts Committee deals with the Action Taken by the Government on the Observations and Recommendations of the Committee contained in their One hundred thirty second Report (17th Lok Sabha) on "Derailment in Indian Railways"

2. The One hundred thirty second Report was presented to Lok Sabha/laid in Rajya Sabha on 24.07.2024. It contained seventeen Observations/Recommendations. The Action Taken Notes on all the Observations/Recommendations have been received from the Ministry of Railways, and are categorized as under:

(i) Observations/Recommendations which have been accepted by the Government:
Para Nos. Para Nos. 1, 2, 3, 4, 5, 6,7,8,9,10,11,12,13,14,15,16 and 17

Total: 17
Chapter - II

(ii) Observations/Recommendations which the Committee do not desire to pursue in view of the replies received from the Government:
Para No. NIL

Total: 0
Chapter - III

(iii) Observations/Recommendations in respect of which replies of the Government have not been accepted by the Committee and which require reiteration:
Para No. NIL

Total: 0
Chapter - IV

(iv) Observations/Recommendations in respect of which Government have furnished interim replies/no replies:
Para No. NIL

Total: 0
Chapter - V

3. The detailed examination of the subject by the Committee had revealed certain shortcomings/deficiencies on the part of the Ministry of Railways, which *inter-alia* included Shortfalls from 30 to 100 per cent in inspections by Track Recording Cars to assess the condition of railway tracks; Idling of track machines; non submission of inquiry reports of train accidents to the authority; Non-availability of fire extinguishers in 27,763 coaches in violations of extant norms and non-elimination of manned level crossings as per target; Non-maintenance of tracks as major factors responsible for derailment; Deviation of track parameters beyond permissible limits, bad driving/over speeding etc. The Committee had accordingly given their observations/recommendations in their One hundred thirty second Report.

4. The Action Taken Notes furnished by the Ministry of Railways, on each of the Observations/Recommendations of the Committee contained in their One hundred thirty second Report have been reproduced in the relevant Chapters of this Report. The Committee will now deal with the action taken by the Government, on some of their Observations/Recommendations which either need reiteration or merit comments.

5. **The Committee desire the Ministry of Railways to furnish Action Taken Notes in respect of Observations/ Recommendations contained in Chapter I of the Report, positively within three months of the presentation of the Report to the Parliament.**

Recommendation No. 2
Monitoring by Track Recording Cars

6. The Committee in their Original Report No. 132 (17th Lok Sabha) had recommended as under:-

> "Track Recording Cars (TRCs) are specialized vehicles that inspect the geometrical and structural conditions of Railway tracks, identifying defects that could lead to derailment and other accidents. The Committee note from the Audit observation that there were shortfalls in inspections by Track Recording Cars which ranged between 30 per cent and 100 per cent in TRC inspections which has had an adverse impact on the quality of railways assets and also implications on safe

operation of trains on various routes. The Committee also note from one of the 'accident inquiry reports' that the derailment of Seemanchal Express occurred in February 2019 in ECR wherein it was stated that the TRC run over the section was overdue by four months. Had the TRC run been carried out, it could have given vital inputs on possible defects in track. The main reason assigned for the shortfall in the inspections, as informed to the Committee include, non-receipt of the programme for the running of TRCs to be prepared and finalized by Research Designs & Standards Organization (RDSO), Lucknow. From the submissions made by the Ministry, the Committee note that there has been shortfall in frequency of track recording vis-à-vis, the stipulations due to limited number of Cars as also faulty planning. Consequently, the target of inspections by TRCs could not be achieved. Besides, the problem was aggravated due to break downs, scheduled maintenance of Track Recording system, non-availability of path on congested traffic sections etc. The Ministry in their submission to the Committee have stated that in case of non-availability of TRC, alternative means i.e. Oscillation Monitoring Systems were deployed and attention to track maintenance issues is given based on the result. The Committee however, cannot endorse the argument that additional runs of Oscillation Monitoring System (OMS) have been carried out for monitoring the health of the track, as an alternative to, or in lieu of track recording by TRCs as these systems serve separate purposes. While OMS assesses the ride quality of the track, the actual track geometry is recorded by the TRC. The Committee further note from the submission of the Ministry that to address the shortfall, steps like commissioning and procurement of 2 new TRCs each and sanction of 7 more TRCs have been done (including 04 additional TRCs and replacement of 03 old TRCs). The Committee recommend that the Ministry take steps to make sure that TRCs are put to full utilization and a time-bound utilization certificate reflecting stipulated periodicity, length of track recording, time taken to complete the given stretch and consequential action for those falling short of the target be made mandatory. The Committee are of the view that instead of procuring TRCs in batches, the required number of TRCs should be estimated well in advance and procured straightaway in a time bound manner as this would not only put an end to the recurrent shortage/maintenance issues but would also, at the same time, prevent

accidents/derailments caused on account of shortfall in frequency of track recording due to limited number/shortage of TRCs. The Committee desire that the Ministry set a target for 100 percent track recording by the year 2025. The Committee also desire that a compliance report in the matter regarding procurement of Track Inspection and Monitoring Systems and Zero Speed Integrated Track Monitoring Systems be submitted to the Committee."

7. **Action Taken by Ministry**

"The procurement of 7 nos. TRCs include procurement of 3 nos. TRCs against the old 3 nos. TRCs, so that the availability of 11 nos. TRCs will be ensured at a given time. Utilization of available 7 nos. TRCs is improved with track recording achievement of 99.74% in the year 2023-24 by recording 2,82,754 km as against set target of 2,83,494 km. Target for 100% track recording is almost achieved in the year 2023-24.

8. **Vetting Comments of Audit**

"1. What steps has MoR taken to implement Hon'ble PAC's recommendation on issuing time bound utilization certificate for each TRC?

2. What steps have been taken by MoR to comply with Hon'ble PAC's recommendations on procurement policy for TRCs?

3. Has the compliance report regarding procurement of Track Inspection and Monitoring Systems and Zero Speed Integrated Track Monitoring Systems been submitted to the Hon'ble PAC?

4. How is MoR planning to achieve 100 percent track recording by 2025? All relevant details like year wise target set etc. for the same may be furnished.

5. The Track Recording data was verified by Zonal Railway Audit Offices and it was observed that in five Zonal Railways, the percentage of actual run cumulative of TRCs as verified by Zonal Railway Audit offices was less than the data provided by MoR as shown in the following table:"

ZR	ANNUAL TARGET PLANNED		RECORDING PLANNED CUMULATIVE 2023- 24		ACTUAL TRACK RECORDING RUN 2023-24 CUMULATIVE		% ACTUAL RUN CUMULATIVE (PERCENTAGE OF TARGET ACHIEVED)		Difference in % achieved
	MOR (1)	ZR AUDIT (2)	MOR (3)	ZR AUDIT (4)	MOR (5)	ZR AUDIT (6)	MOR (7)	ZR AUDIT (8)	%MoR- %ZR AUDIT Col.(7)-Col.(8)
CR	21005	20335	19973	20335	19991	20335	95.2	100	-4.8
ECOR	13298	15820	12330	11744	12372	11103	93	70.18	22.82
ER	13032	13159	11263	….	11112	11191	85.30	85.04	0.26
NCR	16608	16608	16531	….	17602	14629	106	88.08	17.92
SECR	12113	11037	12339	PERTAINS TO RDSO	12161	10230	100.4	92.68	7.72
SWR	10427	14190	15030	14190	14977	11751	143.6	82.81	60.79

9. Final Reply of Ministry

7 nos. TRCs are under supply. The work is moving as per schedule. Further 7 nos. of TRC were sanctioned in RSP 2024-25 (02 nos.) & RSP 2025-26 (05 nos.) and procurement process for them has been started. Utilization of available 7 nos. TRCs has improved in the year 2024-25 and 2,62,018 track km have been recorded against the target of 2,53,589 track km (Annexure-A).

Comments of the Committee

10. The Committee had in their original Report recommended that Track Recording Cars (TRCs) are put to full utilization and time-bound utilization certificate reflecting stipulated periodicity, length of track recording, time taken to complete the given stretch and consequential action for those falling short of the target be made mandatory. The Committee had also desired that compliance report in the matter regarding Zero Speed Integrated Track Monitoring Systems and procurement of Track Inspection and Monitoring Systems be submitted to the Committee. The Ministry in their ATN have stated that 7 nos. TRCs are under supply. Further 7 nos. of TRC were sanctioned in RSP 2024-25 (02 nos.) & RSP 2025-26 (05 nos.) and procurement process for them has been started. Utilization of available 7 nos. TRCs has improved in the year 2024-25 and 2,62,018 track km have been recorded against the target of 2,53,589 track km. However, the reply of the Ministry is silent on issues like issuing time-bound utilization certificate for each TRC and time taken to complete the given stretch. The Committee, therefore, desire to be communicated about the time-bound utilization certificate reflecting stipulated periodicity, length of track recording, time taken to complete the given stretch and consequential action for those falling short of the target alongwith the mechanism developed to meet the

target of procurement of Track Inspection and Monitoring Systems and compliance report regarding Zero Speed Integrated Track Monitoring Systems.

Recommendation No. 4
Mechanization of track maintenance activities

11. The Committee in their Original Report No. 132 (17th Lok Sabha) had recommended as under:-

> "The Committee note from the audit observation that idling of track machines due to 'block not given by the Operating Department' and 'Stabled due to operational problems' was found in all the twelve Zonal Railways; in eleven Zonal Railways, the track machine was kept idle for 13 to 1881 days due to 'non-availability of track machine staff'. Also, 'idling of track machines' due to 'block not planned by divisions' and 'programme not planned by Track Machine Office' was noticed in ten Zonal Railways. From the submissions of the Ministry, the Committee note that track machines are being used for track renewal work as well and mechanization work too is being carried out as part of the track renewal activity. Besides, the quality of the work is ensured by laying the tracks with the help of track machines and a good number of machines have been inducted for the maintenance work which is being carried out with the help of automatic machines which ensures the quality of maintenance. The Committee also note from the submissions of the Ministry that Satellite Track Machine Maintenance Depots (STMMD) are being set up in each Division to ensure timely maintenance of machines and improved quality. The Committee feel that there have been cases of idling of track machines due to various reasons which has hampered the process of mechanization of track maintenance activities and are of the view that the Ministry need to develop an inbuilt mechanism to make sure that track machines are not kept idle and are put to maximum use. The Committee recommend introduction of the ground penetrating Radar (GPR) for Ballast Bed condition evaluation as soon as possible. The Committee also recommend that human intervention in the activities of track maintenance services be minimized and mechanized maintenance work be maximized which would not only speed up the maintenance Process and eliminate the angle of human error in the process of track maintenance and thereby infuse more confidence on safety issues."

12. Action Taken by Ministry

(i) "For proper planning of blocks for maintenance and renewal of assets on Indian Railways (IR), concept of Rolling Block Plan (RBP) with advance planning for 26 weeks & weekly review has been implemented on IR since June, 2023.

(ii) Track Management System (TMS) is already functional to monitor the idling of track machines due to various reasons on Zonal Railways.

(iii) LOA (Letter of Acceptance) for procurement of Ground Penetrating Radar (GPR) system has been placed by South Central Railway on trial basis being a new

technology for IR. The preparatory works are being done and actual recording will start soon.

(iv) Automated track machines for quality maintenance have been deployed. Further, high output track machines having integrated function of 2/3 machines in one machine are also being procured. This will improve utilization of blocks and ensure progress with maximum mechanized track maintenance with less human intervention."

13. Vetting Comments of Audit

"1. It may be clarified whether Zone wise implementation of Rolling Block Plan (RBP) has been completed across all Zonal Railways? All details regarding stages of implementation, present status etc. may be furnished.

2. It may be clarified in detail how Track Management system is being utilized to monitor and prevent idling of track machines as well as ensure optimum utilization of Track machines across all ZR in IR.

3. Details of Timeline, action plan etc. devised by MoR to implement Ground Penetrating Radar (GPR) system across ZRs may be furnished.

4. Zonal Railways wise details regarding deployment of Automatic Track Machines may be furnished."

14. Final Reply of the Ministry

(i) Rolling Block plans have been implemented in all Zonal Railways and presently all Zonal Railways are preparing 26 weeks Rolling Block Plan. The rolling block was initially started for 1 week and subsequently increased to 2, 4, 8, 12 and 26 weeks' duration.

(ii) Track Management System (TMS) provides information on traffic block demanded & granted and progress achieved. So TMS becomes very effective tool to decide on further action to be taken for preventing idling and ensuring optimum utilization of the machines. Utilization of machines, idling of machines, etc. is also regularly monitored by Track Machine Directorate, Railway Board. Zonal Railways having deficient performance are advised to ensure proper utilization of machines, and machines are also shifted as per requirement to avoid idling and optimize utilization.

(iii) Trials of Ground Penetrating Radar (GPR) are in progress for commissioning of the system.

(iv) Zonal Railways wise details regarding deployment of Track Machines is enclosed as Annexure – B.

Comments of the Committee

15. The Committee had recommended introduction of the ground penetrating Radar (GPR) for Ballast Bed condition evaluation as soon as possible. The Committee note from the ATN that LOA (Letter of Acceptance) for procurement of Ground Penetrating Radar (GPR) system has been placed by South Central Railway on trial basis being a new technology for IR. The preparatory works are being done and actual recording will start soon. Besides, the ATN states that total scope of GPR survey is 48450 km for entire Indian Railways and work on drawing finalization and other preliminary activities are in progress and actual work will start by October, 2024 and complete in 24 months time. The Committee desire to be apprised of the latest status in this regard including the details of Timeline, action plan etc. devised by MoR to implement Ground Penetrating Radar (GPR) system across ZRs. The Committee had also recommended that human intervention in the activities of track maintenance services be minimized and mechanized maintenance work be maximized to eliminate the angle of human error in the process of track maintenance. The Committee note from the ATN of the Ministry that for proper planning of blocks for maintenance and renewal of assets on Indian Railways (IR), concept of Rolling Block Plan (RBP) with advance planning for 26 weeks & weekly review has been implemented on IR since June, 2023. However, the details regarding stages of implementation, present status etc have not been furnished in the ATN. The Committee, therefore, recommend that the same be furnished to the Committee.

Recommendation Para No. 9
<u>Inspections by Higher Authorities</u>

16. The Committee in their Original Report No. 132 (17th Lok Sabha) had recommended as under:-

> "The Committee note from audit observation the discrepancies in the ratio of route kilometer with average number of inspections in various zonal railways. Notably, in South East Central Railway, higher officials did not carry out any inspection, though the zone has 2348 route km which constitutes around 4 per cent of total of Indian Railways' Broad Gauge line. No standard criterion was set for number of inspections to be conducted by higher authorities and hence, there is no accountability for the meagre number of inspections undertaken. The Committee note from the submission of the Ministry that detailed schedule of inspection of field officials (JE/SSE/ADEN) has been stipulated in IRPWM and in addition, the guidelines for inspection by Divisional officers have been issued by Railway Board. Yet, no specific inspection schedule is prescribed for higher ranking officers at the Headquarters. However, as stated by the Ministry, Headquarter level officers carry out the technical inspections suo motu and also during the safety drives launched from time to time, which are

scrutinized on completion of such safety drives. The Committee opine thata target based inspection module needs to be worked out not only for the junior and middle level officers but also for high level authorities who would not only play a monitoring role for inspections but also conduct real time inspection at given time intervals which should be on a monthly basis in place of annual inspection. The Committee also observe that inspection notes were not uploaded in the Track Management System (TMS) portal and compliance to the notes was not available in many cases during field visits to the Senior Section Engineer office. Thus, the in-built monitoring mechanism including the TMS portal was not found to be properly operational. The Committee are, therefore, of the view that the Ministry need to fine-tune the system to the targeted standards so as to make the inspection system meaningful and beneficial. The Committee note that in accordance with the functions laid down in the Railway Act, 1989, a thorough inspection is carried out by the Commission of Railway Safety only when commissioning is done for a new asset which maybe a new line, or doubling a line, or a gauge conversion project, before opening any new asset. The Committee also opine that the office of Commission of Railway Safety which operates under the control of the Ministry of Civil Aviation may be directly involved in the inspection process as an independent and dispassionate agency and the Commissioner of Railway Safety should carry out safety audit in five Railway divisions every year and submit a structured safety audit report on which the Indian Railways (Railway Board) may record their inputs and action taken. The Committee desire that the proposal be examined and related details furnished at the earliest."

17. Action Taken by Ministry

"Regular field inspection of higher officers is carried out especially in extreme weather conditions also. Safety department at divisional/Zonal and Board level monitors the inspections. To carry out compliances of observations during inspections of higher officials, railway has launched a dedicated online module where inspecting officer can record his/her observations of inspection, mark them to concerned officials and take compliances of observations. Close monitoring of inspection of higher officers is being done by this portal."

18. Vetting Comments of Audit

"1. It may be clarified how the regular inspection by Higher Officials at periodic intervals is ensured so that No stretch is left uninspected for longer periods of time?

2. It may be clarified whether the issues of 'compliance to the inspection notes not being uploaded' and 'closure of inspection notes was not found filled' in the Track Management System (TMS) have been resolved? If not, what are the steps being taken/envisaged towards resolution of the same?"

19. Final Reply by the Ministry

"In every department, scheduled inspection of higher officials has been laid down, which are done by concerned officers religiously. For example, every SrDEN has to inspect his/her complete section once in 3 months by foot plate or brake-van fast train. Issue of compliance of inspection notes has been resolved. Consolidated position is being monitored through Track Management System (TMS)."

Comments of the Committee

20. The Committee had expressed the view that the Ministry needed to fine-tune the system to the targeted standards so as to make the inspection system meaningful and beneficial. The Ministry in their ATN have stated that Regular field inspection of higher officers is carried out especially in extreme weather conditions also and Safety department at divisional/Zonal and Board level monitors the inspections. It further states that Issue of compliance of inspection notes has been resolved and the Consolidated position is being monitored through Track Management System (TMS). The Committee, while noting that the Ministry's reply is routine, desire that the latest details regarding the steps to ensure that no stretch is left uninspected for longer periods of time.

The Committee had also opined that the office of Commission of Railway Safety which operates under the control of the Ministry of Civil Aviation may be directly involved in the inspection process as an independent and dispassionate agency and the Commissioner of Railway Safety should carry out safety audit in five Railway divisions every year and submit a structured safety audit report on which the Indian Railways (Railway Board) may record their inputs and action taken. The Committee had desired that the proposal be examined and related details furnished at the earliest. The ATN does not provide details on this aspect. The Committee desire that the details regarding this be also furnished to the Committee.

Recommendation No. 11

<u>Analysis of Accidents/Derailments in Indian Railways and introduction of safety measures</u>

21. The Committee in their Original Report No. 132 (17th Lok Sabha) had recommended as under:-

The Committee note from the audit observation that the factors causing maximum derailments (395) were in 'Engineering Department' followed by 'Operating Department' (173). Out of several factors attributed, the major factor responsible for derailment related to 'maintenance of track' (167 cases), followed by 'deviation of

track parameters beyond permissible limits' (149 cases) and 'bad driving/over speeding' (144 cases). From the submission of the Ministry, the Committee note that measures to reduce derailments have been taken like track renewal and maintenance; track upgradation consisting of 60kg, 90 Ultimate Tensile Strength (UTS) rails; Pre-stressed Concrete Sleeper (PSC); Welded Rails on most of BG tracks wherein short-welded rails of 39m length and single rails have been converted into long welded rails; reduction in population of Alumino-Thermit (AT) welds gradually by using longer rail panels with one/two/three Flash Butt weld (FB) from rail manufacturing plant; Track Recording wherein Supercheck of track parameters is done through regular runs of Track Recording Cars (TRC) and regular bridge inspection. Besides, Measures have been taken to avoid collisions through introduction of Advanced Signaling System, Panel Interlocking/Route Relay Interlocking/Electronic Interlocking (PI/RRI/EI) along with Multiple Aspect Colour Light Signals, Block Proving Axle Counter (BPAC) to ensure complete arrival of train without manual intervention before granting line clear to the next train; Development of India's own state-of-the-art electronic system Automatic Train Protection (ATP) System named KAVACH (Train Collision Avoidance System) by RDSO, which activates the train braking system automatically if the Loco Pilot fails to control the train as per the speed restrictions. However, the system to be an effective safety measure, all need to have the KAVACH system. The Committee, therefore, recommend that a time bound programme for installation of KAVACH system in all divisions/Routes should be taken up by the Ministry. The Committee note from the report of the CCRS on the accident that not adhering to the standard practices stipulated in the Manuals and Work Instructions were not followed during the process of signal modification work, owing to which the accident occurred. The Committee are also of the view that training programmes of all levels of officers/staff should be made more vigorous and result oriented. The Committee while taking note of the measures taken to prevent derailments/accidents/collisions nevertheless also feel concerned to observe that despite these measures, the system is still not capable of putting a full stop to such mishaps and loss of lives and property due to accidents continue to happen. 2024-BC-PAC-XVII/132ndReport I/3106083/2024 Issues like track maintenance, track upgradation and Retro-reflective sigma (∑) boards and electronic interlocking system should be accorded greater priority and should cover all routes/sectors at the earliest and a target should be fixed to achieve a complete makeover towards a zero error and a flawless and accident free operation. The Committee recommend that the Indian Railways need to remodel the operational training programmes keeping in view the five barriers/layers of defense (Swiss Cheese Slices' or 'defense barriers) against accidents/derailments and use this Model as a reference for strengthening the above barriers to avoid occurrence of similar incidents. The Committee also desire to be apprised of the implementation status of this Model and the benefits accruing from it.

22. Action Taken by Ministry

A. Training

Indian Railways has an extensive training mechanism to cater training needs of various categories of railway employees. All safety category railway employees are given structured training at various stages of their career, which includes initial, promotional, refresher and specialized training.

- MoR deputes railway personnel for undergoing courses at reputed Universities as well as permits them to avail various online courses offered by international bodies. Indian Railways also have collaborations with various reputed domestic & international academies to develop/deliver specialized knowledge contents for physical trainings as well as online trainings as per functional needs of IR.
- Trainings are imparted to skill/up-skill domain, functional and behavioral competencies of employees through physical trainings at various railway training centres across the country as well as hybrid and online training interventions.
- All newly recruited maintainers of Indian Railways undergo a detailed training programme of one to one and half years duration. This initial training programme consists on-job training (field training) component as well as classroom training in the Zonal training schools.
- Indian Railways is making concerted efforts to provide technological support & training to the Loco-pilots. The Loco-Pilots are provided with Vigilance Control Device (VCD) to improve alertness and Fog Safe Device to assist them to locate Signals during the fog when visibility is poor.

- Simulator- based training is being imparted for improving the driving skills and reaction time of Loco Pilots.
- There is regular counseling of running staff and interaction with their families.
- Training module has been formulated for frontline staff on Fire Fighting & use of fire extinguishers.
- Yoga and Meditation lessons have been introduced in training centers with an aim to help railway men in coping with the stress involved with their jobs.
- It has been the constant endeavor of Railways to develop Human Resources. During the year 2023-24, around 5,19,566 Railway employees were given different types of training viz. initial, promotional, refresher & specialized.
- All the training activities are monitored at various levels through regular meetings, periodical reports and online data monitoring system.

B. Track Improvement Works

Track renewal and maintenance works, being directly related to safe train operation, are given the top most priority at each level. Retro-reflective sigma boards are provided on the mast which is located 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.

Following progress has been achieved in financial year 2023-24 for important track related works:

1. Rail renewal – 6051 Track Kilometers
2. Deep screening- 10363 Tkm
3. 60 kg rail- More than 70% (cumulatively)
4. Insertion of thick web switches- 5982 Nos.
5. Introduction of new track machines to enhance mechanized track maintenance- 154 Nos

Other than these, following policy measures have been taken to strengthen and speed up the system of track renewal and maintenance in Indian Railways:

1. General Managers have been delegated powers to sanction works up to Rs. 50 Cr. for track renewal works which was earlier Rs. 2.5 Cr. only. Zonal Railways now can sanction most of the identified works related to track safety themselves.
2. To reduce fish plated joints, a provision has been made in Indian Railways Permanent Way Manual in March 2024 to provide Long Welded Rail on curve up to 6.5° in temperature zone- I & II and up to 6° in temperature zone- III & IV.
3. To ensure planned work, concept of Rolling Block Program has been introduced in Indian Railways. Increased predictability of traffic blocks has resulted in better quality of track works and quantum of works has also gone up.

C. Signalling Improvement Works

KAVACH system has so far been deployed on 1465 Route Kms of SCR. Subsequent to deployment in South Central Railway, High density routes have been taken up for deployment of KAVACH and presently work is in progress on two HDN routes Delhi Mumbai and Delhi Howrah on approx. 3,000 route Km, out of which over 1300 Route Kms, the track side work is near completion. All possible efforts are being taken for the rapid deployment of the KAVACH system on the IR network.

Indian Railway has been continuously upgrading its signaling system with changeover from Mechanical to Electromechanical and to Electronic Interlocking signaling system with centralized operation of points and Signals to enhance safety in train operations. High priority is accorded to install and commission new Electronic Interlocking systems for better reliability and safety. During last 2 years itself, about 1000 Electronic Interlocking systems have been installed on IR network.

In the aftermath of Balasore incidence, several measures have been taken to strengthen the existing maintenance practices and safety protocols. Drives have been launched to ensure availability of completion documents at all installations and checking & verification of writing work details of signaling gears at site. Policy for commissioning of new works and alteration to existing signaling installations

has been issued. In case of minor day-to-day works of maintenance, repair & replacement activities, instructions have been issued for thorough testing of gears before resuming train operations.

Besides, the instructions have been issued to Zones/IRISET that more emphasis needs to be given on rigorous practical training in concerned modules of curriculum, for carrying out signalling modifications/ alterations. Special modules on this subject have also been included in training curriculum. In last four months, 04 such courses have been conducted and so far 243 trainees have been trained through these courses, which also include following sessions:

(i) Practical sessions are introduced for modification of wiring for hands on experience for trainees.

(ii) The protocol of disconnection and reconnection memos is practised in each laboratory session.

(iii) The guidelines of Railway Board and the safety practices in installation, testing and maintenance of Signalling assets is emphasized in the instruction (theory) component of training. Further, such courses are being conducted every month at Central Training Institute at Secunderabad.

It would be pertinent to mention that as a result of the various safety measures taken over the years, the number of consequential train accidents have come down from 473 in year 2000-01 to 40 in year 2023-24. Likewise, the number of accidents per million train kms (AMTKs), an index of safety performance of railway system, has reduced from 0.65 to 0.03 respectively during the same period."

23. Vetting Comments of Audit

"1. Action plan implemented/envisaged by MOR to install KAVACH across all division/ZR with timelines may be furnished.

2. It may be clarified whether the Swiss Cheese model has been incorporated in operational training programmes.. If yes, details may be furnished."

24. Final Reply of the Ministry

Safety is accorded highest priority on Indian Railways. Over the years, various measures have been taken by Indian Railways which include track improvement works, signalling improvement works, training of railway staff, etc. in order to enhance safety in train operations.

A. Track Improvement Works

Track renewal and maintenance works, being directly related to safe train operation, are given the top most priority at each level.

Following progress has been achieved in financial year 2024-25 for important track related works:

1. Complete Track Renewal – 6851 Tkm
2. Deep screening – 15433 Tkm
3. 60 kg rail – More than 75% (cumulatively)
4. Insertion of Thick Web Switches – 7161 Nos.
5. Introduction of new track machines to enhance mechanized track maintenance – 55 Nos.

Other than these, following policy measures have been taken to strengthen and speed up the system of track renewal and maintenance in Indian Railways.

i. General Managers have been delegated powers to sanction works up to Rs. 50 Cr. for track renewal work which was earlier Rs. 2.5 Cr. only. Zonal Railways now can sanction most of the identified works related to track safety themselves.

ii. To reduce fish plated joints, a provision has been made in Indian Railways Permanent Way Manual in March 2024 to provide Long Welded Rail on curve up to 6.5° in temperature zone-I & II and up to 6º in temperature zone-III & IV.

iii. To ensure planned work, concept of Rolling Block Program has been introduced in Indian Railways. Increased predictability of traffic blocks has resulted in better quality of track works and quantum of works has also gone up.

iv. Maintenance track parameters for Passenger Loop Line & Goods Loop Lines have been upgraded.

v. 60 kg new rail has been adopted for new laying of Passenger Running Loop Line and renewal of Passenger Running Loop Line.

vi. During 2024-25, total 1704 WCMS crossing have been laid to continue LWR through yards, which are reducing number of joints.

vii. Indian Railways have adopted world class R260 grade rails and Advanced USFD Testing of Rail/Welds by Phased array technology. Indian Railways have also adopted global technologies as Weldable CMS Crossing, Thick Web Switch & Thick Web Switch Expansion Joints for improving safety and efficiency.

B. Signalling Improvement Works

(1) Automatic Train Protection System: Kavach

A) 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).

Kavach aids the Loco Pilot in running of train 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. It consists of the following systems/sub systems:

(a) **Station Kavach:** An electronic equipment which receives the information from Loco Kavach& existing signaling system and guides the Loco Kavach.

(b) **RFID tags:** They are installed on the tracks every Kilometer and at every signal. These are read by Loco Kavach to determine the location and direction of the train.

(c) **Communication Backbone:** Communication towers are erected every few kilometers along the track and are connected through optical fiber cables to exchange information continuously between Loco & Station Kavach equipment.

(d) **Loco Kavach:** An equipment to read RFID tags on the track for getting the location and determining the speed of the loco. It is integrated with the braking system, communicates with the station Kavach equipment and applies automatic braking in case the driver fails to do so.

Taking input from all these systems/subsystems, Kavach guides the loco pilot to stay within the permissible speed limits.

B) 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 KavachVer 3.2.

C) Kavach was adopted as National ATP system in July 2020.

D) Deployment of Kavach involves installation of Station Kavach at each and every station/block section; installation of RFID tags throughout the track length; installation of towers throughout the section and laying of Optical Fiber Cable along the entire track length and provision of installation of Loco Kavach on each and every locomotive running on Indian Railways.

E) Based on deployment of Kavach version 3.2 on 1465 RKm and 162 locomotives on South Central Railway, lots of experience was gained. Using that, further improvements were made. Finally, Kavach specification version 4.0 was approved by RDSO on 16.07.2024. This is a significant milestone in safety for Indian Railways.

F) Kavach version 4.0 covers major features required for the diverse railway network, major improvement in Version 4.0 includes increased Location Accuracy, Improved Information of Signal Aspects in bigger yard, 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.

G) Subsequent to deployment in South Central Railway, High density routes have been taken up for deployment of Kavach and presently work is in

progress on two HDN routes, Delhi-Mumbai and Delhi-Howrah (approx. 3,000 RKm). Progress of key items comprising Kavach system on Indian Railways upto May 2025 is as under:-

i. Laying of Optical Fibre Cable: 5806 RKm
ii. Installation of Telecom Towers: 540 Nos.
iii. Provision of Kavach at Stations: 688 Nos.
iv. Provision of equipment in Loco: 856 Locos
v. Installation of Track side equipments: 3882 RKm

H) Further, Kavach implementation is planned as under:

a. Project for equipping 10,000 Locomotives has been finalized. 69 nos. of loco sheds have been prepared for equipping with Kavach.
b. Bids for track side Works of Kavach for approximately 15000 RKm have been invited out of which 14454 RKm have been finalized. It covers all GQ, GD, HDN and Identified sections of Indian Railways.
c. Currently, 3 OEMs are approved for supply of Kavach System. To increase capacity and scale of implementation, trials and approval of more OEMs are at different stages.

Indian Railways is deploying Kavach on its network progressively. As brought out above, the deployment is complex and time consuming. All efforts are being taken for rapid deployment.

2) Training Programme:

Equipment courses, refresher courses and other training programme are carried out for Railway staff on a regular basis. Besides, instructions have been issued to Zones/IRISET that more emphasis needs to be given on rigorous practical training in concerned modules of curriculum, for carrying out signaling modifications/alterations. Special modules on this subject have also been included in training curriculum. In year 2024-2025, 21 such courses have been conducted and 1256 trainees have been trained through these courses, which also include following sessions:-

(i) Practical sessions are introduced for modification of wiring for hands on experience for trainees.

(ii) The protocol of disconnection and reconnection memos is practiced in each laboratory session.

(iii) The guidelines of Railway Board and the safety practices in installation, testing and maintenance of Signalling assets is emphasized in the instruction (theory) component of training. Further, such courses are being conducted every month at Central Training Institute at Secunderabad.

3) Electronic Interlocking Systems

It is mentioned that Indian Railway has continuously upgraded its signalling system with changeover from Mechanical to Electromechanical and to Electronic Interlocking signalling system with centralized operation of points and signals to enhance safety in train operations. High priority is accorded to install and commission new Electronic Interlocking systems for better reliability and safety. During last 3 years (2022-2025) itself, about 1355 nos. of Electronic Interlocking systems have been installed on Indian Railway network.

C. Training

Indian Railways has a robust, efficient and cost-effective training infrastructure to meet the diverse training needs of its railway staff. Training is imparted across various domains to skill/upskill technical, functional, and behavioral competencies of employees through physical training at various railway training centers, as well as hybrid and online platforms. Structured training programs are conducted for all safety category employees at different career stages, including initial, promotional, refresher, and specialized training before deputing the staff/officer on the working post.

- MoR deputes railway personnel for undergoing courses at reputed Universities as well as permits them to avail various online courses offered by international bodies. Indian Railways also have collaborations with various reputed domestic & international academies to develop/deliver specialized knowledge contents for physical trainings as well as online trainings as per functional needs of Indian Railways.
- All newly recruited maintainers of Indian Railways undergo a detailed training programme of one to one and half year duration. Before posting in the working post this initial training programme consists on-job training (field training) component as well as classroom training in the Zonal training schools.
- The training modules for different categories of staff are being regularly updated to ensure continuous development and upgradation of skills as well as addressing the evolving needs of the railway system.
- As safe train operation is the top most priority of Indian Railways, Kavach system is being proactively installed on the busy routes and special emphasis is being given to the training of safety category employees. Recently, a training module with course content for imparting training on 'KAVACH to running staff, Chief Loco Inspectors, Loco Pilots, Assistant Loco Pilots and Traffic Department have also been issued.
- Indian Railways is making concerted efforts to provide technological support & training to the Loco-pilots. The Loco-Pilots are provided with Vigilance Control Device (VCD) to improve alertness and Fog Safe Device to assist them to locate Signals during the fog, when visibility is poor.

- Simulator-based training is being imparted for improving the driving skills and reaction time of Loco Pilots. There is regular counseling of running staff and interaction with their families.
- Training module has been formulated for frontline staff on Fire Fighting & use of fire extinguishers.
- Yoga and Meditation lessons have been introduced in training centers with an aim to help railway men in coping with the stress involved with their jobs.
- It has been the constant endeavor of Railways to develop Human Resources. During the year 2024-25, around **5,72,819** railway employees were given different types of training viz., initial, promotional, refresher & specialized.
- All the training activities are monitored at various levels through regular meetings, periodical reports and online data monitoring system.
- Multi layered checking of signaling designs and multilayered testing of signaling installation have been embedded in the codal provisions for Railway Signaling installation and the same are followed before any new signaling installed is brought to use.

Comments of the Committee

25. The Committee had recommended that a time bound programme for installation of KAVACH system in all divisions/Routes should be taken up by the Ministry. The Committee had recommended that the Indian Railways needed to remodel the operational training programmes keeping in view the five barriers/layers of defense (Swiss Cheese Slices' or 'defense barriers) against accidents/derailments and use this Model as a reference for strengthening the above barriers to avoid occurrence of similar incidents. The Committee also desired to be apprised of the implementation status of this Model and the benefits accruing from it. The Committee note from the submission of the Ministry in their ATN that they have not reflected upon the timeframe for 100 percent implementation of the programme for installation of KAVACH system nor have they furnished the details of implementation status of Swiss Cheese Slices' or 'defense barriers model and the benefits accruing from it across all division/ZR. The Committee desire to be apprised of the latest details in these regards.

Recommendation No. 14

<u>Fire accidents in coaches</u>

26. The Committee in their Original Report No. 132 (17th Lok Sabha) had recommended as under:-

> The Committee note from audit observation that out of the identified 44,407 coaches on 12 ZRs, fire extinguishers have not been provided in 27,763 (62 per cent) coaches. The reasons attributed for non-provision of fire extinguishers include

delays in tendering processes, failure of firm to supply the fire extinguishers, supply awaited/under progress etc. The Committee note from reply of the Ministry that measures like usage of fire retardant furnishing materials in coaches, provision of fire detection and suppression system in Power Cars and Pantry Cars and Fire and Smoke detection system in AC coaches, provision of fire extinguishers in all AC coaches and all newly manufactured Non-AC coaches and Display of statutory "Fire Notices" for widespread passenger information in all coaches have been taken and fire extinguishers have been installed in 39000 coaches. Besides, till now, Indian Railways has provided fire detection cum suppression system in nearly 1775 Power Cars and 800 Pantry Car Coaches. Fire detection cum alarm system has been provided in nearly 11,000 AC Coaches and fire extinguishers have been provided in nearly 34700 Non AC coaches and that it is planned to cover all coaches with fire safety system by March 2024. The Committee while acknowledging the steps taken by the Ministry observe that there is still much left to be desired as regards installation of fire extinguishers. The Committee are of the view that the tendering/procurement process needs to be reworked to make sure that supply of fire extinguishers and their installation is not hindered in any way and the target of covering all coaches with fire safety system by March 2024 is met without fail. The Committee desire that a strict protocol for inspection, service and maintenance of fire extinguishers should be put in place. The Committee are of the considered view that a comprehensive Fire Risk Assessment of trains and stations should be conducted by an independent agency/Authority to enable the Ministry to formulate a comprehensive Fire Safety protocol for Indian Railways. The Committee also feel that Fire Safety Audits should be conducted at regular intervals for assessing the preparedness in Indian Railways against fire hazards.

27. Action Taken by Ministry

Provision of Fire extinguishers in 100% coaches has been achieved by March 2024. The system of periodic checking and maintenance is in place. The instructions have again been reiterated to all Zonal Railways.

Following systems are already in place for fire safety in passenger coaches:

1. **Provision of Fire and Smoke Detection Systems (FSDS) in air-conditioned (AC) coaches: -** To improve fire safety in the running trains, Automatic fire and smoke detection system has been provided in all the AC coaches. Instructions are in place for all the production units to manufacture the AC coaches with the provision of FSDS in all AC coaches.

2. Provision of Fire Extinguishers in all coaches:

Dry chemical powder type/water mist type fire extinguishers are provided in all operational coaches viz. Air-conditioned coaches, Second class- cum-guard and luggage van and Pantry cars and Non-AC coaches.

3. Provision of Fire Detection and Suppression Systems (FDSS) in Pantry Cars and Power Cars: -

Pantry and Power Cars have been provided with Automatic Fire detection and Suppression systems. Instructions are in place for all the production units to manufacture the pantry and power cars with these provisions only.

4. Provision of flameless cooking system in Pantry Cars: -

Indian Railways have envisaged for flameless cooking in the operational pantries. The provision for completely flameless cooking, water-heating arrangements are available in all the LHB pantry cars.

5. Aerosol-based fire suppression: -

The Aerosol based fire suppression system has been provided in electrical cubicle of all Vande Bharat

Train-set Rakes. Also, the newly manufactured coaches are turned out from PUs with the fitment of Aerosol Based fire suppression system.

6. Emergency talk-back system in Vande Bharat Train-sets: -

There is a provision of 4-Emergency Talk Back Units in every coach of Train-set. This facility can be used by passengers to communicate with Train Manager and Loco Pilot in case of exigencies /emergencies like fire incidence etc.

7. **Emergency Alarm System: -**

Passenger Emergency Alarm Buttons have been provided in the Vande Bharat Train-sets. Every coach is provided with 4 such push buttons for emergency usage, this will provide an indication to the Loco Pilot for taking suitable action. Similarly, alarm chains have been provided in all the coaches for usage to stop the train during emergencies like fire incidence etc. Regular inspections are done during maintenance schedules at Depots/Sheds etc. for ensuring the proper upkeep of various systems. Inter Zonal audits, Safety Drives, Inspections at different levels etc are also done to check for the functionality of these systems in regular manner. Further, RCF has been advised to take necessary action for getting fire risk assessment done for trains and Northern Railway to do similar action for the stations.

28. Vetting Comments of Audit

1. It may be clarified whether a strict protocol for inspection, service and maintenance of fire extinguishers has been put in place across all Zonal Railways. If not, action taken/proposed to be taken for the same may be furnished.

2. How is MOR reworking the tendering/procurement process to ensure that the supply of fire extinguishers and their installation is not hindered in any way?

3. It may be clarified whether MoR has conducted a comprehensive fire risk assessment of trains and stations through an independent agency. If yes, then how has MoR incorporated the findings of this assessment to formulate more efficient fire safety protocols for IR.

4. It may be clarified whether Fire safety audits are conducted at regular intervals across all Zonal Railways in IR.

29. Final Reply of the Ministry

Indian Railways is having a well laid down procedure for conducting Inquiries. A very stiff deadline of 30 days for completion of Departmental Inquiries has been fixed by Railway Board. The accidents inquiries in all unusual cases is conducted in a professional manner with lots of technical inputs, viz. Metallurgical/Chemical test reports from laboratories, Forensic reports from State agencies and due deliberations with RDSO to reach at proper conclusion. This obviously increases the inquiry duration.

In spite of above limitations, as per data of last three years, i.e., 2022-23, 2023-24 and 2024-25, Departmental inquiries have been completed in 100% cases, i.e., 105 cases and out of these inquiries, 71 cases (approx. 70% cases) had been completed by Railways within the time frame.

30. The Committee had expressed the view that a comprehensive Fire Risk Assessment of trains and stations should be conducted by an independent agency/Authority to enable the Ministry to formulate a comprehensive Fire Safety protocol for Indian Railways. The Committee also felt that Fire Safety Audits should be conducted at regular intervals for assessing the preparedness in Indian Railways against fire hazards. The Ministry in their ATN have *inter alia* submitted that Indian Railways is having a well laid down procedure for conducting Inquiries. A very stiff deadline of 30 days for completion of Departmental Inquiries has been fixed by Railway Board. The accidents inquiries in all unusual cases is conducted in a professional manner with lots of technical inputs and in spite of limitations, as per data of last three years, i.e., 2022-23, 2023-24 and 2024-25, Departmental inquiries have been completed in 100% cases. It also states that Rail Coach Factory (RCF) has

been advised to take necessary action for getting fire risk assessment done for trains and Northern Railway to do similar action for the stations. However, it does not elaborate upon the details regarding the conduct of comprehensive Fire Risk Assessment of trains and stations by an independent agency/Authority. The Committee desire that the details of latest measures taken/proposed to help formulate a foolproof fire safety protocol along with details of fire safety audit be furnished to the Committee.

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CHAPTER II
OBSERVATIONS/RECOMMENDATIONS OF THE COMMITTEE WHICH HAVE BEEN ACCEPTED BY THE GOVERNMENT

Observation/Recommendation No. 1

The Indian Railway (IR) is one of the world's largest railways. It functions as a vertically integrated organization providing Passenger and Freight services. It is a single system which consists of 67,956 route km of track that traverses the country. More than 21648 number of trains ply on IR carrying about 22.15 million passengers and hauling nearly 3.32 million tonnes of freight every day. Accidents in Indian Railway tarnish the image and raises questions on safe and sound working procedures. Accidents occur on account of acts of omission or commission, evasion of rules, unsafe practices, etc. Out of various categories of accidents, most serious consequences are witnessed in collisions, derailments, fire in running trains and accidents at level crossings accidents etc. There exist statutory rules known as Indian Railways (Open Lines) General Rules (GR), 1976 to regulate safe operation of trains. These Rules have been notified as per the powers delegated by the Railways Act, 1989. These Rules are further supplemented by Zonal Railways, by way of issuing Subsidiary Rules (SR), to ensure safety, punctuality and mobility. All new Railway lines for the public carriage of passengers and major modifications of existing systems require inspection and clearance by the Commission of Railway Safety (CRS), which is an independent organization under the administrative control of Ministry of Civil Aviation. A dedicated Safety department operates as an internal auditor in the Railways at three tiers, viz. Railway Board Level, Zonal Level and Divisional Level. A number of initiatives and safeguards have been taken continuously in the past to improve the safety performance, as a result of which the safety of Railways has been claimed to have improved over the years. Some of the issues contained in the Audit Report have been examined by the Committee and commented upon suitably in the succeeding paragraphs.

Action taken by Ministry

Introductory.

Ministry of Railway's case No. 2024-BC-PAC-XVII/132ndReport dated: 30.05.2024

Vetting comments of Audit

No further comments

Observation/Recommendation No. 2

Track Recording Cars (TRCs) are specialized vehicles that inspect the geometrical and structural conditions of Railway tracks, identifying defects that could lead to derailment and other accidents. The Committee note from the Audit observation that there were shortfalls in inspections by Track Recording Cars which ranged between 30 per cent and 100 per cent in TRC inspections which has had an adverse impact on the quality of railways assets and also implications on safe operation of trains on various routes. The Committee also note from one of the 'accident inquiry reports' that the derailment of Seemanchal Express occurred in February 2019 in ECR wherein it was stated that the TRC run over the section was overdue by four months. Had the TRC run been carried out, it could have given vital inputs on possible defects in track. The main reason assigned for the shortfall in the inspections, as informed to the Committee include, non-receipt of the programme for the running of TRCs to be prepared and finalized by Research Designs & Standards Organization (RDSO), Lucknow. From the submissions made by the Ministry, the Committee note that there has been shortfall in frequency of track recording vis-à-vis, the stipulations due to limited number of Cars as also faulty planning. Consequently, the target of inspections by TRCs could not be achieved. Besides, the problem was aggravated due to break downs, scheduled maintenance of Track Recording system, non-availability of path on congested traffic sections etc. The Ministry in their submission to the Committee have stated that in case of non-availability of TRC, alternative means i.e. Oscillation Monitoring Systems were deployed and attention to track maintenance issues is givenbased on the result. The Committee however, cannot endorse the argument that additional runs of Oscillation Monitoring System (OMS) have been carried out for monitoring the health of the track, as an alternative to, or in lieu of track recording by TRCs as these systems serve separate purposes. While OMS assesses the ride quality of the track, the actual track geometry is recorded by the TRC. The Committee further note from the submission of the Ministry that to address the shortfall, steps like commissioning and procurement of 2 new TRCs each and sanction of 7 more TRCs have been done (including 04 additional TRCs and replacement of 03 old TRCs). The Committee recommend that the Ministry take steps to make sure that TRCs are put to full utilization and a time-bound utilization certificate reflecting stipulated periodicity, length of track recording, time taken to complete the given stretch and consequential action for those falling short of the target be made mandatory. The Committee are of the view that instead of procuring TRCs in batches, the required number of TRCs should be estimated well in advance and procured straightaway in a time bound manner as this would not only put an end to the recurrent shortage/maintenance issues but would also, at the same time, prevent accidents/derailments caused on account of shortfall in frequency of track recording due to limited number/shortage of TRCs. The Committee desire that the Ministry set a target for 100 percent track recording by the year 2025. The Committee also desire that a compliance report in the matter regarding

procurement of Track Inspection and Monitoring Systems and Zero Speed Integrated Track Monitoring Systems be submitted to the Committee.

Action taken by Ministry

The Ministry of Railways (Railway Board) in their Action Taken Notes have stated as under:

"The procurement of 7 nos. TRCs include procurement of 3 nos. TRCs against the old 3 nos. TRCs, so that the availability of 11 nos. TRCs will be ensured at a given time. Utilization of available 7 nos. TRCs is improved with track recording achievement of 99.74% in the year 2023-24 by recording 2,82,754 km as against set target of 2,83,494 km. (Annexure-1). Target for 100% track recording is almost achieved in the year 2023-24.

Vetting Comments of Audit

"1. What steps has MoR taken to implement Hon'ble PAC's recommendation on issuing time bound utilization certificate for each TRC?

2. What steps have been taken by MoR to comply with Hon'ble PAC's recommendations on procurement policy for TRCs?

3. Has the compliance report regarding procurement of Track Inspection and Monitoring Systems and Zero Speed Integrated Track Monitoring Systems been submitted to the Hon'ble PAC?

4. How is MoR planning to achieve 100 percent track recording by 2025? All relevant details like year wise target set etc. for the same may be furnished.

5. The Track Recording data was verified by Zonal Railway Audit Offices and it was observed that in five Zonal Railways, the percentage of actual run cumulative of TRCs as verified by Zonal Railway Audit offices was less than the data provided by MoR as shown in the following table:"

ZR	ANNUAL TARGET PLANNED		RECORDING PLANNED CUMULATIVE 2023- 24		ACTUAL TRACK RECORDING RUN 2023-24 CUMULATIVE		% ACTUAL RUN CUMULATIVE (PERCENTAGE OF TARGET ACHIEVED)		Difference in % achieved
	MOR (1)	ZR AUDIT	MOR	ZR	MOR	ZR	MOR	ZR	%MoR- %ZR

		(2)	(3)	AUDIT (4)	(5)	AUDIT (6)	(7)	AUDIT (8)	AUDIT Col.(7)-Col.(8)
CR	21005	20335	19973	20335	19991	20335	95.2	100	-4.8
ECOR	13298	15820	12330	11744	12372	11103	93	70.18	22.82
ER	13032	13159	11263	….	11112	11191	85.30	85.04	0.26
NCR	16608	16608	16531	….	17602	14629	106	88.08	17.92
SECR	12113	11037	12339	PERTAINS TO RDSO	12161	10230	100.4	92.68	7.72
SWR	10427	14190	15030	14190	14977	11751	143.6	82.81	60.79

Final Reply of the Ministry

7 nos. TRCs are under supply. The work is moving as per schedule. Further 7 nos. of TRC were sanctioned in RSP 2024-25 (02 nos.) & RSP 2025-26 (05 nos.) and procurement process for them has been started. Utilization of available 7 nos. TRCs has improved in the year 2024-25 and 2,62,018 track km have been recorded against the target of 2,53,589 track km. (Annexure A)

Ministry of Railway's case No. 2024-BC-PAC-XVII/132ndReport
[Comments of the Committee, see Para No. 10 of Chapter I]

Observation/Recommendation No. 3

From the audit observation, the Committee find that the status of outsourcing was found to be inadequate as against the required number of work force of the Civil Engineering Department. Though the percentage of vacancies in Indian Railways for Civil Engineering Department ranged between 9-36 per cent, no outsourcing was done in East Central Railway for addressing the problem of shortage of work force in divisions selected for review. From the submissions of the Ministry, the Committee note that accident Inquiry reports of the zone revealed that in 23 per cent of the total derailments (40 out of 172) in East Central Railways, one of the factors responsible for the derailment was improper track maintenance. Despite the fact that the three Zonal Railways viz. North Central Railways, North Frontier Railway, and West Central Railway had more than seven percent vacancies, no serious efforts seem to have been made for filling up the vacant posts nor outsourcing was done in any of these Zonal Railways. The Committee further note from the submission of the Ministry that the total Non-gazetted Group 'C' (including level – 1) vacancies in Civil Engineering department of Indian Railways as on 01.07.2023 was 68619. During 2018-2019 to 2022-2023, 11784 (Provisional) candidates had been empanelled in Civil Engineering Department (for Group 'C' posts excluding Level 1) by 21 Railway Recruitment Boards (RRBs). The Committee are of the view that adequate monitoring mechanism

should be worked out to maintain a 'Database' containing the details of track maintenance by the permanent staff and the extent of shortage of staff that needs to be met by outsourcing. The Committee are also of the view that the Ministry need to work out a mechanism preferably in the form of an 'Outsourcing Coordination Cell' to ensure that a viable 'Stop-Gap' arrangement to address the issue of shortage of 'permanent or regular staff' is taken care of by way of engaging qualified contractual staff. The Committee are of the view that the quantum of work based on the field requirement needs to be worked out by the respective units of the division well in advance to make good the shortage of permanent staff and in furtherance of this objective, the 'Outsourcing Coordination Cell' should be entrusted with the responsibility of maintaining the 'Database' with a view to eliminating the possibility of staff requirement-gap; and also to monitor, assess and grade the outsourced staff. The Committee recommend that recruitment of sufficient permanent staff should be carried out at the earliest to ensure regular and reliable supply of workforce and also to make sure that punitive actions are initiated against those found responsible for any negligence or breaking the established rules which cause accidents/derailments.

Action taken by Ministry

"The staff position of Civil Engineering Department of Indian Railways (Group C including Level-1 Posts), as on 01.06.2024, as obtained from MPP Portal is as under:-

Staff Strength position of Civil Engineering Department of Indian Railways (ZRs+PUs) as on 01.06.2024		
Sanctioned Strength	**On Roll**	**Vacancy**
355531	299011	299011

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 requirements. During the process, vacancies may arise and these are filled subsequently. Further, 94703 (Provisional) candidates have been empanelled in Civil Engineering Department (for Group 'C' posts including Level 1) by 21 Railway Recruitment Boards (RRBs) & Zonal Railways during 2018-2019 to 2022-2023. The details are as under:

S. No.	**Year**	**Candidates Empanelled in Civil Engineering Department (for Group 'C' posts) ***	
		Level 2 to 7	**Level 1**
1.	2018-2019	13	
2.	2019-2020	8467	36,313
3.	2020-2021	596	
4.	2021-2022	467	
5.	2022-2023	2241	46,572
6.	2023-2024*	34	
	Total	**11818***	**82,885***

Provisional*

Centralized Employment Notification (CEN) no. 02/2024, for 9144 vacancies of Technicians (including 1430 Engineering vacancies) have been published on 08.03.2024. Guidelines are already in place wherein it is mentioned that 20 activities can be executed through contract system (Annexure-I). As per requirement and assessment by zonal railways, contracts are awarded for period in the range of one or two years covering scope of these activities. Each and every derailment is inquired by a joint committee of prescribed level and responsibilities are fixed based on the finding of committee. Employees found responsible are taken up under D&A Rules. This complete position is maintained and monitored by Safety department on regular basis."

Vetting Comments of Audit

"1. It may be clarified whether there are any unnecessary delays in the recruitment process pertaining to civil engineering department in IR? If yes, how is IR eliminating these delays?

2. It may be clarified whether the vacancies in Civil Department is adequately filled by both outsourcing and recruitment process? If not, then steps taken/envisaged by IR may be furnished."

Final Reply of Ministry

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 requirements. During the process, vacancies may arise and these are filled subsequently.

2.1 Further, 11909 (Provisional) candidates have been empanelled in Civil Engineering Department (for Group 'C' posts excluding Level 1) by 21 Railway Recruitment Boards (RRBs) during 2018-2019 to 2024-2025. The details are as under:

S. No.	Year	Candidates Empanelled in Civil Engineering Department (for Group 'C' posts excluding Level 1)*
1	2018-2019	13
2	2019-2020	8467
3	2020-2021	596
4	2021-2022	467
5	2022-2023	2241
6	2023-2024	60

7	2024-2025	65*
Total		**11909***

*Provisional.

3. Further, as a system improvement, the Ministry of Railways has introduced a system of publishing annual calendar from 2024 onwards for recruitment to various categories of Group 'C' posts.

3.1 Accordingly, as per annual calendar 2024 & 2025, following Centralized Employment Notifications (CENs) having Civil Department vacancies have been issued-

S.N.	Year	CEN. No.	Name of post
I.	2024	02/2024	Technicians(14298 vacancies)
II.		03/2024	Junior Engineers (JEs) /Depot Material Superintendent (DMS) /Chemical & Metallurgical Assistant (CMA)(7951 vacancies)
III.	2025	02/2025	Technicians (6238 vacancies)

3.2 Under these three notifications, a total 3145 vacancies have been notified for civil engineering department.

The total number of vacancies of Non-gazetted (Group 'C' including Level-1) in Civil Engineering Department as on 01.07.2025 is **64623**.

Outsourcing of Track Maintenance activities: The candidates empanelled in posts of Asst. Track Machine and Track Maintainer Grade IV in Level-1 under CEN RRC-01/2019 in the year 2023-24 and 2024-25 is as follows:

Post	**2023-24**	**2024-**

		25
Asst. Track Machine	1434	177
Track Maintainer Grade IV	15826	2192

Further, the following vacancies in the above categories have been notified to be filled up through CEN No. 08/2024

Post	Notified Vacancies
Asst. Track Machine	799
Track Maintainer Grade IV	13187

2. To reduce difficulties being experience by Zonal Railways due to Vacant posts a 'Stop Gap' arrangement is being made by Railway Board through Re-engagement of retired Railway staff (Non-Gazetted) in Level-1 to Level-9 by calling volunteers who retired from posts in same cadre/category up to three level higher than the post against which re-engagement is being considered on contractual basis and also Engagement of Ex-Servicemen as Gatemen (both Civil & Traffic Deptt.) on contract basis is being made for smooth functioning of Railway operations

Ministry of Railway's case No. 2024-BC-PAC-XVII/132nd Report

Observation/Recommendation No. 4

The Committee note from the audit observation that idling of track machines due to 'block not given by the Operating Department' and 'Stabled due to operational problems' was found in all the twelve Zonal Railways; in eleven Zonal Railways, the track machine was kept idle for 13 to 1881 days due to 'non-availability of track machine staff'. Also, 'idling of track machines' due to 'block not planned by divisions' and 'programme not planned by Track Machine Office' was noticed in ten Zonal Railways. From the submissions of the Ministry, the Committee note that track machines are being used for track renewal work as well and mechanization work too is being carried out as part of the track renewal activity. Besides, the quality of the work is ensured by laying the tracks with the help of track machines and a good number of machines have been inducted for the maintenance work which is being carried out with the help of automatic machines which ensures the quality of maintenance. The Committee also note from the submissions of the Ministry that Satellite Track Machine Maintenance Depots (STMMD) are being set up in each Division to ensure timely maintenance of machines and improved quality. The Committee feel that there have

been cases of idling of track machines due to various reasons which has hampered the process of mechanization of track maintenance activities and are of the view that the Ministry need to develop an inbuilt mechanism to make sure that track machines are not kept idle and are put to maximum use. The Committee recommend introduction of the ground penetrating Radar (GPR) for Ballast Bed condition evaluation as soon as possible. The Committee also recommend that human intervention in the activities of track maintenance services be minimized and mechanized maintenance work be maximized which would not only speed up the maintenance Process and eliminate the angle of human error in the process of track maintenance and thereby infuse more confidence on safety issues.

Action Taken by Ministry

(i) "For proper planning of blocks for maintenance and renewal of assets on Indian Railways (IR), concept of Rolling Block Plan (RBP) with advance planning for 26 weeks & weekly review has been implemented on IR since June, 2023.

(ii) Track Management System (TMS) is already functional to monitor the idling of track machines due to various reasons on Zonal Railways.

(iii) LOA (Letter of Acceptance) for procurement of Ground Penetrating Radar (GPR) system has been placed by South Central Railway on trial basis being a new technology for IR. The preparatory works are being done and actual recording will start soon.

(iv) (iv) Automated track machines for quality maintenance have been deployed. Further, high output track machines having integrated function of 2/3 machines in one machine are also being procured. This will improve utilization of blocks and ensure progress with maximum mechanized track maintenance with less human intervention."

Vetting Comments of Audit

"1. It may be clarified whether Zone wise implementation of Rolling Block Plan (RBP) has been completed across all Zonal Railways? All details regarding stages of implementation, present status etc. may be furnished.

2. It may be clarified in detail how Track Management system is being utilized to monitor and prevent idling of track machines as well as ensure optimum utilization of Track machines across all ZR in IR.

3. Details of Timeline, action plan etc. devised by MoR to implement Ground Penetrating Radar (GPR) system across ZRs may be furnished.

4. Zonal Railways wise details regarding deployment of Automatic Track Machines may be furnished."

Final Reply of the Ministry

1. Rolling Block plans have been implemented in all Zonal Railways and presently all Zonal Railways are preparing 26 weeks Rolling Block Plan. The rolling block was

initially started for 1 week and subsequently increased to 2, 4, 8, 12 and 26 weeks' duration.

2. Track Management System (TMS) provides information on traffic block demanded & granted and progress achieved. So TMS becomes very effective tool to decide on further action to be taken for preventing idling and ensuring optimum utilization of the machines. Utilization of machines, idling of machines, etc. is also regularly monitored by Track Machine Directorate, Railway Board. Zonal Railways having deficient performance are advised to ensure proper utilization of machines, and machines are also shifted as per requirement to avoid idling and optimize utilization.

3. Trials of Ground Penetrating Radar (GPR) are in progress for commissioning of the system.

4. Zonal Railways wise details regarding deployment of Track Machines is enclosed as Annexure – B.

Ministry of Railway's case No. 2024-BC-PAC-XVII/132ndReport)

[comments of the Committee, see Para No. 15 of Chapter I]

Observation/Recommendation No. 5

The Committee note from the audit observation that Research Design and Standard Organization (RDSO) had developed a new wider and heavier pre-stressed concrete sleeper (RT-8527) for Indian Railways to keep pace with the increased freight traffic by allowing higher axle load on existing track. The Committee find that despite Railway Board directive issued vide letter dt. 17.10.2018 communicating its approval on usage of wider and heavier sleepers (RT8527) from financial year 2019-20 onwards, the sleepers were not used by some zonal railways at the time of track renewal due to non-availability of the rate reference in Indian Railways Projects Sanctions and Management (IRPSM) and web based application for RT-8527 sleepers at the stage of preparing detailed estimates. The Committee further note from the submissions of the Ministry that the tender for procurement of wider sleepers (RT-8527) was finalized by the Board in May, 2019 with provision of mobilization period of 4 months for shifting to production of wider sleepers. Accordingly, Zonal Railways started production of wider sleepers from September 2019 onwards and started using wider sleeper (RT-8527) based on availability of wider sleepers & its matching fittings. The Committee note from the submission of the Ministry that Zonal Railways also continued using normal sleepers (RT2496) till the stocks and matching fittings were available, with a view to avoiding wastage of resources. In this regard, the Committee concur with the audit observation that there is a need to upgrade and standardize the existing track structure for 25 tonne axle load on IR, as the existing sleepers are slender and lightweight and are less fit for higher impact load caused by flat wheels which may lead to premature failure of sleepers and consequently rail disasters in the form of

derailment/accidents. The Committee are not convinced with the explanation furnished by the Ministry and are of the view that sleepers that are lightweight and are less fit for higher impact load should be replaced on war footing with PSC sleepers and a target oriented working/monitoring group should be put in place to make sure that the recommendations of the Railway Board for use of PSCS is implemented both in letter and spirit without further delay. The Committee are of the view that the idea of 'avoiding wastage of resources till old stocks last' should not in any way override issues of safety. The Committee also desire that the Ministry furnish a compliance report on use of PSCS as per the advisory of the Railway Board.

Action Taken by Ministry

Normal sleepers (RT-2496) are fit for 25 Ton action load trains up to 60 kmph as per Board's circular no. 2018/CE-II/TS/25T dated 14.03.2018 (Annexure-2). Further 25 tons action load trains are permitted to run on identified routes at 45 kmph only on 60 kg rail as per Railway Board letter no.2019/CE-II/TS/25t dated 01.09.2020 (Annexure-3). Accordingly, 25 ton trains are running at 45 kmph only, although normal sleeper (RT 2496) is fit up to 60 kmph. Therefore, there is no safety hazard for running 25 ton axle load on existing sleepers and there is no need to replace the normal sleepers with wider sleepers on an urgent basis. Further the normal sleeper are being replaced with wider sleeper whenever due for renewal.

Vetting Comments of Audit

1. It may be clarified whether all instructions, subject to which the permission to operate 25T axle load trains on Normal sleepers (RT-2496) on selected routes of IR have been granted, are being followed to the letter.
2. How is MoR ensuring compliance to all the instructions issued vide Railway Board letter no.2019/CE-II/TS/25t dated 01.09.2020?

Final Reply of Ministry

1. All instructions for operation of 25 T axle load tracks on normal sleepers are being followed.
2. Railway Board's guidelines pertain to multi-disciplinary authorities under overall domain of General Managers of Zonal Railways who have been entrusted for the same, vide referred letter. Any subsequent queries/clarifications as required by General Managers are taken care of through Railway Board's directives issued from time to time and also during inspection by Railway Board authorities.

Ministry of Railway's case No. 2024-BC-PAC-XVII/132ndReport)

Observation/Recommendation No. 6

The Committee note from the audit observation that while the targets in respect of the less preferred AT welding (manual process) were achieved, there was shortfall in achievement of targets for the more preferred FB welding and that the Railway administration failed in implementing the directives issued on rail welds in the 'Corporate Safety Plan of IR' (2003-

13). From the audit observation, the Committee also note that the Railway Board reiterated (August 2019) that the elimination of AT welding except in emergency shall be the way forward. From the submissions of the Ministry, the Committee note that the concerned zonal Railways have listed reasons like, unavoidability of use of AT welds for regular maintenance, use of AT welding where FB welding is not economical, non-fixation of targets for removal of AT welds and isolated welding as the reasons for opting for the less preferred AT welding. In response to the recommendation of the Standing Committee on Railways, the Ministry had stated that technology upgradation in laying and maintenance of track is being carried out continuously including switching over to mobile FB welding technology in place of AT welding to carry out weld renewals. The Committee note that AT welding was given more weightage over FB Welding which is indicative of a lackadaisical approach practiced towards implementation of Railway Board directives and also towards the recommendation of the Standing Committee on Railways which clearly that expressed the view elimination of AT welding except in cases of emergency should be 'the way forward'. The Committee opine that advocacy of use of AT welding, where FB welding is not economical, does not hold much ground, as safety of human life should be given precedence over economics of scale. The Committee are of the view that the Ministry need to work out a timeline for completion of replacement of AT welds with FB welds and a monitoring mechanism should be put in place to oversee the process on a regular basis till the objective is achieved. The Committee desire to be apprised of the timeline fixed in this matter.

Action Taken by Ministry

Road Map for reduction of AT Welding on Indian Railways (IR) had been prepared in 2019 and is being followed by IR. Accordingly, older AT welds are being replaced with more preferred FB welds by through weld renewal using Mobile Flash Butt Plants. Technology upgradation in laying and maintenance of track is being carried out continuously, switching over to FB welding in place of AT welding to carry out the maintenance/renewals. IR has also adopted to use long rail panels to reduce population of welds. IR has achieved supply of 90% of total rails in the form of long rails in FY 23-24 and is targeting for 92% in FY 24-25. IR is planning to increase long rails to 95% of its total requirement by FY 26-27. So, use of AT weld will be reduced considerably by FY 26-27. 100% replacement of AT welds with FB welds is not practically possible as AT welding has to be done for certain isolated locations such as for attention to rail/weld failures, removal of USFD defects, Scabbed rails, isolated SEJ renewals, point and crossing approaches, glued joints etc. However, all efforts are being made to reduce AT welds & to provide FB welds.

Vetting comments of Audit

1. It may be clarified whether any specific targets of replacing Alumino Thermit welds with FB welds were set in terms of percentage etc. If yes, details of the same may be furnished.

2. Zone wise present status of replacing Alumino Thermit welds with FB welds till date along with shortfalls in achieving the target set, if any, may be furnished.
3. Steps taken by MoR to mitigate the shortfalls in said replacement w.r.t. the target set for 24-25 may also be furnished.

Final Reply of Ministry

Road Map for reduction of AT Welding on Indian Railways (IR) had been prepared in 2019 and is being followed by IR. Accordingly, older AT welds are being replaced with more preferred FB welds using Mobile Flash Butt Plants. Technology upgradation in laying and maintenance of track is being carried out continuously, switching over to FB welding in place of AT welding in infrastructure works is being maximized.

IR has also adopted to use long rail panels to reduce population of welds. IR has achieved supply of 94% of total rails in the form of long rails in FY 2024-25 and is targeting for 95% in FY 25-26. IR planning to increase long rails to 97% of its total requirement by FY 26-27. So, use of AT weld will be reduced considerably by FY 26-27.

Though IR is committed to maximize FB welding, but 100% replacement of AT welds with FB welds is not practically possible as AT welding has to be done for certain isolated locations such as for attention to rail/weld failures, removal of USFD defects, Scabbed rails, isolated SEJ renewals, point and crossing approaches, glued joints etc. However, all efforts are being made to reduce AT welds & to provide FB welds.

Observation/Recommendation No. 7

From the audit observation, the Committee note that there were shortfalls in USFD testing in rails and welds during 2017-2021. The ultrasonic flaw detection system is used in Indian Railways for detection of flaws in railways to enable timely removal of defects. The Committee note with dismay that whereas this shortfall was 50 percent in the Northern Railways in respect of USFD testing in rails, it reached as high as 100 percent in the East Coast Railway in respect of USFD testing on welds. The Committee note from the reply of the Ministry that Indian Railway has already adopted a web enabled Track Management System (TMS) to ensure monitoring of the track inspection and maintenance activities at various levels of Railway working and that Alarm/Reminder is provided by TMS for any location of rails & welds due for USFD testing, based on which planning and deployment of USFD testing team is done. The Committee note that there have been instances in the past when derailments have taken place because of rail breakage. The Ministry has informed that the USFD testing is being done in the range of 305 thousand track kilometer per year and USFD testing is being done for weld and the number has increased to 2533 thousand

welds per year and that to meet the shortfall over and above the departmental resources, outsourcing agencies are made available over and above the departmental workforce. The Committee are of the view that the Ministry need to work out a mechanism advisably in the form of a 'USFD testing Monitoring Cell' to make sure that there is no shortfall in USFD testing in all Zonal Railways and also to ensure that there is no demand gap in terms of departmental workforce to carry out this task. The Committee are of the view that the conventional method of using trolleys for USFD of rails is becoming increasingly difficult as repair window shrinks due to train speed reaching above 130 kmph. The Committee recommend that self-propelled Ultrasonic Rail Testing (SPURT) Cars should be inducted at the earliest. The Committee also note that efforts made to introduce SPURT Cars in the past have not been successful and recommend that the Ministry should make earnest efforts to procure SPURT Cars as soon as possible and furnish a compliance report about the procurement of SPURT Cars. The Committee are of the view that more technologically advanced tools on the pattern of web enabled Track Management System should be explored and implemented in order to ensure shielding from human error in USFD testing procedure.

Action Taken by Ministry

Indian Railways has a set system of testing of rails and welds by Ultrasonic Flaw Detection Testing (USFD) machines at prescribed frequencies. These testing are being monitored at field, division and Zonal Railways regularly. Timely testing by USFD is helping in early detection of vulnerable points and initiating necessary remedial measures to reduce the probability of accidents. Indian Railways has already adopted a web enabled Track Management System (TMS) to ensure monitoring of the track inspection and maintenance activities at various levels of Railway working. Alarm/Reminder is provided by TMS for any locations of rails & welds due for USFD testing, based on which planning and deployment of USFD testing team is done efficiently. Track Management System is a tool for management and storage of data in standard format for subsequent data analysis. However, AI based Self Propelled Ultrasonic Rail Testing Car (SPURT) and Rail Cum Road Vehicle (RCRV) based USFD testing system for testing of Rails/welds is in the process of adoption on IR. USFD testing of rail/welds by SPURT/RCRV based system has minimum human interface. Through this system, suspect list of defects is generated through software tool of the vehicular USFD system after testing of a stretch. The suspect list containing km/chainage and GPS locations of suspected defect is verified at site with Trolley mounted USFD machines. IR is in process of procurement of 18 no. SPURT car and expected to be supplied in next 2-4 years. Also, Rail Cum Road Vehicle (RCRV) is under trial and decision of adoption on IR will be taken subsequently.

Vetting comments of Audit

1. Present status of the procurement of SPURT cars and outcome of RCRV trials may be furnished.

2. What are the various measures taken by MOR to mitigate the shortfall in USFD Testing?

Ministry's Final Reply

During the year 2024-25, USFD testing of 471 thousands Tkm of rail and 2580 thousands of welds was done over IR. There is no shortfall of USFD testing on IR.

Indian Railway has a set system of testing of rails and welds by Ultrasonic Flaw Detection Testing (USFD) machines at prescribed frequencies. These testing are being monitored at field, division and Zonal Railways regularly. Timely testing by USFD is helping in early detection of vulnerable points and initiating necessary remedial measures to reduce the probability of accidents. Indian Railway has already adopted a web enabled Track Management System (TMS) to ensure monitoring of the track inspection and maintenance activities at various levels of Railway working. Alarm/Reminder is provided by TMS for any locations of rails & welds due for USFD testing based on which planning and deployment of USFD tests team is done efficiently.

Track Management System is a tool for management and storage of data in standard format for subsequent data analysis. However, AI based Self Propelled Ultrasonic Rail Testing Car (SPURT) and Rail Cum Road Vehicle (RCRV) based USFD testing system for testing of Rails/welds is in the process of adoption on IR. USFD testing of rail/welds by SPURT/RCRV based system has minimum human interface. Through this system, suspect list of defects is generated through software tool of the vehicular USFD system after testing of a stretch. The suspect list containing km/chainage and GPS locations of suspected defect is verified at site with Trolley mounted USFD machines. IR is in process of procurement of 18 no. SPURT car are expected to be supplied in next 2-4 years. Also, Rail Cum Road Vehicle (RCRV) is under trial and decision of adoption on IR will be taken subsequently.

Ministry of Railway's case No. 2024-BC-PAC-XVII/132ndReport

Observation/Recommendation No. 8

The Committee note from the observation of the audit that against the demand of 7339:28 hours for Yard line maintenance, only 4667:56 maintenance block hours were granted by the Zonal Railways during 2017-2021. The Committee note from the submissions of the Ministry that the reasons for the shortfalls were due to the agencies not turning up to execute the work in time, less number of blocks granted against those demanded and non-availability of materials, etc. The Committee also note from the submissions of the Ministry that there is a concept of corridor block which is inbuilt in the working time table issued by Zonal Railways. Further, Joint Procedure Orders (JPOs) from the Engg. & Traffic Dte. have been issued to Railways for advance planning of traffic blocks for maintenance of assets. Recently, system of Rolling Block Plan (RBP) has been introduced at Divisional level for

advance two week block planning for maintenance of assets by different departments working in same block to avail maximum benefits of traffic blocks, which is reviewed on weekly basis by the Divisions and Zonal Railways. Besides, works are executed by the outsourcing agency based on detailed planning for supply of men and machinery etc required for the work. Regular monitoring of progress is being done by Railway officials linked with the execution of works. Action in terms of conditions of contract is taken in case of delay attributable to the contractor. The Committee feel that there is a yawning difference in the demand hours and supply hours for maintenance and there is a need to bridge the gap. The Committee are of the view that there is a need to increase absolute block hours granted. The Committee are also of the view that stricter control needs to be exercised over the outsourced agencies involved in this work and the conditions of contract should be reworked to ensure complete compliance. The Committee desire that the Ministry furnish a compliance report to them in the matter.

Action Taken by Ministry

Maintenance of Yard Lines is one of area where due attention and resource allocation is increasing. To increase the block availability, Rolling Block Programme is now being prepared for 26-weeks in advance in place of 2 weeks. To incorporate 'Rolling Block Programme' in system of working permanently, new clause 15.02(c) has been added in Indian Railways (Open Lines) General Rules, 1976 vide Gazette Notification dated 29.11.2023 (Annexure-II).

Vetting comments of Audit

Steps taken by MoR to exercise stricter control over outsourced agencies in execution of the maintenance contract including action taken in case of any lapses on their part may be furnished.

Final Reply of Ministry

In addition to the previously submitted Action Taken Note above, the updated comments are as under:

To improve and regular monitoring of track in all yard lines, regular measurement of track parameter has been introduced vide ACS-3 of IRPWM-2024, the same is reproduced below:

Sl. No.	***Type of Inspection***	***Schedule of Inspection***
2	*Measurement of track parameters of loop lines and yard lines*	*Track parameters (gauge, cross level, twist & versine) of all loop lines and yard lines excl.main lines (which are measured by ITMS/TRC), shall be measured by JE/SSE/P.Way (Sectional) by manual or mechanized means:* *(a) Passenger running loop lines including cross overs: Once in 3 months* *(b) All other running and non-running lines including cross overs: Once in 6 months*

		Note: Records of measurement will be kept in the form of registers, which will be countersigned by SSE/P.Way (In-charge) and ADEN during their Foot/Push Trolley inspections.

Ministry of Railway's case No. 2024-BC-PAC-XVII/132nd Report

Observation/Recommendation No. 9

The Committee note from audit observation the discrepancies in the ratio of route kilometer with average number of inspections in various zonal railways. Notably, in South East Central Railway, higher officials did not carry out any inspection, though the zone has 2348 route km which constitutes around 4 per cent of total of Indian Railways' Broad Gauge line. No standard criterion was set for number of inspections to be conducted by higher authorities and hence, there is no accountability for the meagre number of inspections undertaken. The Committee note from the submission of the Ministry that detailed schedule of inspection of field officials (JE/SSE/ADEN) has been stipulated in IRPWM and in addition, the guidelines for inspection by Divisional officers have been issued by Railway Board. Yet, no specific inspection schedule is prescribed for higher ranking officers at the Headquarters. However, as stated by the Ministry, Headquarter level officers carry out the technical inspections suo motu and also during the safety drives launched from time to time, which are scrutinized on completion of such safety drives. The Committee opine thata target based inspection module needs to be worked out not only for the junior and middle level officers but also for high level authorities who would not only play a monitoring role for inspections but also conduct real time inspection at given time intervals which should be on a monthly basis in place of annual inspection. The Committee also observe that inspection notes were not uploaded in the Track Management System(TMS) portal and compliance to the notes was not available in many cases during field visits to the Senior Section Engineer office. Thus, the in-built monitoring mechanism including the TMS portal was not found to be properly operational. The Committee are, therefore, of the view that the Ministry need to fine-tune the system to the targeted standards so as to make the inspection system meaningful and beneficial. The Committee note that in accordance with the functions laid down in the Railway Act, 1989, a thorough inspection is carried out by the Commission of Railway Safety only when commissioning is done for a new asset which maybe a new line, or doubling a line, or a gauge conversion project, before opening any new asset. The Committee also opine that the office of Commission of Railway Safety which operates under the control of the Ministry of Civil Aviation may be directly involved in the inspection process as an independent and dispassionate agency and the Commissioner of Railway Safety should carry out safety audit in five Railway divisions every year and submit a structured safety audit report on which the Indian Railways (Railway Board) may record their inputs and action taken. The Committee desire that the proposal be examined and related details furnished at the earliest.

Action Taken by Ministry

Regular field inspection of higher officers is carried out especially in extreme weather conditions also. Safety department at divisional/Zonal and Board level monitors the inspections. To carry out compliances of observations during inspections of higher officials, railway has launched a dedicated online module where inspecting officer can record his/her observations of inspection, mark them to concerned officials and take compliances of observations. Close monitoring of inspection of higher officers is being done by this portal.

Vetting comments of Audit

1. It may be clarified how the regular inspection by Higher Officials at periodic intervals is ensured so that No stretch is left uninspected for longer periods of time?
2. It may be clarified whether the issues of 'compliance to the inspection notes not being uploaded' and 'closure of inspection notes was not found filled' in the Track Management System (TMS) have been resolved? If not, what are the steps being taken/envisaged towards resolution of the same?

Final Reply of Ministry

In every department, scheduled inspection of higher officials has been laid down, which are done by concerned officers religiously. For example, every SrDEN has to inspect his/her complete section once in 3 months by foot plate or brake-van fast train. Issue of compliance of inspection notes has been resolved. Consolidated position is being monitored through Track Management System (TMS).

Ministry of Railway's case No. 2024-BC-PAC-XVII/132ndReport

[For comments of the Committee, please see Para No. 20 of Chapter I]

Observation/Recommendation No. 10

The Committee note from the audit observation that 794 officials dealing with track maintenance activities were not given training at various levels be it the induction level or refresher course level and there were also shortfalls in conducting training at supervisory level such as SSE/JE/P. Way in many Zonal Railways. The reasons for the shortfall in imparting training at various levels were mainly attributed to Covid-19 situation, staff not being spared due to special work and other assignments, non-receipt of training schedule in the units and nonupdating of information of employees in Track Management System (TMS) etc. From the submission of the Ministry, the Committee note that all safety category railway employees are to be imparted structured training at various stages of their career which includes, Simulatorbased training imparted for improving the driving skills and reaction time of Loco Pilots; Training module formulated for running staff on Fire Fighting and use of fire extinguishers; Regular counseling of running staff etc. and that It has been the constant endeavor of Railways to develop Human Resources. From the information

furnished, the Committee note that during 2022-23, all employees have not been given different types of training viz. initial, promotional, refresher & specialized. The Committee take a grim view of the position and feel that there have been gaps in providing training at different levels of officers/staff and are of the view that the Ministry needs to develop a mechanism to ensure that there are no shortfalls in the training programmes at any point of time and the limitations attributed as reasons for the shortfall are addressed systematically. The Committee are of the view that officials need to be encouraged to undergo internationally recognized certification courses to develop proficiency. The Ministry should also consider examining the feasibility of collaborating with IITs and IIMs to develop specialized courses aimed at offering advanced technical and management training to officers. The Committee also recommend that an independent supervisory body be constituted to formulate and monitor training schedules and prepare a monthly report containing details of implementation of training programmes and also to ensure that no untrained hand is deployed for duty for any reason.

Action taken by Ministry

With reference to recommendation no. 2.13 & 2.14 (Rec. No. 2) of C&AG's Report No. 22 of 2022, reply has already been provided (copy enclosed). Also, Board's letter dt. 19.06.23 was issued to All Indian Railways to strictly ensure that training is imparted to Railway employees on time. These instructions have further been reiterated, vide Board's letter dated 28.05.2024 and railways have been advised to strictly ensure on-time training of Railway Personnel of all the departments of IR. Indian Railways has an extensive training mechanism to cater to training needs of various categories of railway employees. Trainings are imparted to skill/up-skill domain, functional and behavioral competencies of employees through physical trainings at various railway training centres across the country as well as hybrid and online training interventions. Railway personnel undergo Initial, Refresher, Promotional as well as Specialized training courses at appropriate stages of their career

During the year 2023-24, around 5,19,566 railway employees were imparted Initial, Refresher, Promotional and Specialized training. MoR also deputes railway personnel for undergoing courses at foreign Universities. Indian Railways also have collaborations with various reputed domestic & international academies to develop/deliver specialized knowledge contents for physical trainings as well as online trainings as per functional needs of IR. All the training activities are monitored at various levels through regular meetings, MCDOs and online data softwares.

Vetting comments of Audit

1. What are the specific outcomes of the monitoring through meetings and MCDOs?

2. What specific steps are being taken /envisaged to systematically reduce shortfall in trainings?

3. What are the specific value additions achieved through the collaborations with the reputed Domestic and International academies for meeting Training needs of MOR?

Final Reply of Ministry

1. Indian Railways (IR), with a workforce of around 1.25 million dedicated employees, is committed towards providing safe and efficient rail services nationwide. To maintain a skilled workforce, IR has developed a robust and structured training framework that addresses the diverse needs of employees across all departments. Personnel receive Initial, Refresher, Promotional, and Specialized training at relevant stages of their careers.
2. IR operates an extensive network of training centers, where more than 500,000 personnel participate in various programs annually, as reflected in the annual training statistics below:

Year	2024-2025	2023-24	2022-23	2021-22	2020-19*	2019-18
No. of railway staff imparted training	**5,72,819**	**5,19,566**	**5,00,833**	**4,74,236**	**3,79,668**	**4,23,990**

*covid period

3. Zonal Railways and training institutes have been instructed to deliver training strictly as per the prescribed schedules and are regularly monitored using review meetings, MCDOs, and digital platforms. The Safety Department also conducts periodic reviews to ensure compliance. Besides, Zonal Railways are also periodically pursued through reminder letters, emphasizing timely and effective delivery of training. Training programs are aligned with operational needs

3.1 Any training gaps identified during these review meetings are promptly addressed in coordination with the concerned Railway units through appropriate remedial measures. Due to consistent monitoring via meetings and MCDOs, a notable improvement was achieved in 2024–25, with a 10% increase in the number of personnel trained compared to 2023–24.

4. The Ministry of Railways (MoR) continues to implement various initiatives aimed at strengthening employee competencies through both domestic and international partnerships. To further enhance training quality, IR has partnered with reputed institutions—both in India and abroad—to develop and deliver specialized modules through classroom-based and online formats. Additionally,

MoR facilitates the deputation of select personnel to pursue advanced training courses at leading foreign universities.

4.1 International Training Collaboration – Japan:

In terms of *Memorandum of Co-operation* signed with Japan, a **Study Programme in Japan in the field of High-Speed Rail Technology** and related subjects is offered by the Japanese universities to Indian Railway officers with MEXT scholarship and provides **20 slots per academic year** for Indian Railway officers. Details of officers deputed for the same are as follows;

Year	No. of Officers opted	No. of Officers selected	No. of Officers deputed	Remarks
2016	30	9	8	1 officer returned after 2 weeks course on personal ground
2017	15	6	5	1 officer could not proceed for the course
2018	30	12	12	X
2019	42	12	12	X
2020	32	18	18	X
2021	21	13	11	• Nomination of 1 officer withdrawn by Univ. • 1 officer withdrew on personal ground
2022	39	20	16	4 officers withdrew on personal ground
2023	33	20	17	3 officers withdrew on personal ground
2024	45	19	• 7 officers selected for April session deputed. • 12 officers are to be deputed in October 2024.	
2025	Nomination process is going on.			

4.2 Management Development Programme (MDP):

The Management Development Programs (MDP), which is a mandatory course for Senior Scale railways officers contains one-week module by IIM-A, out of total 4 weeks course duration.

4.3 Gati Shakti Vishwavidyalaya (GSV):

GSV, established under the aegis of the Ministry of Railways, is in its second academic year (2024–25). The university is offering 02 M.Tech courses, 03 MBA courses & 01 Ph.D courses for Executives/Working professionals including from MoR besides other B.Tech/M.Tech/MBA courses for regular students.

5. In response to recommendations 2.13 and 2.14 (Rec. No. 2) of the C&AG's Report No. 22 of 2022, IR has undertaken various initiatives to enhance training practices. A detailed training module for non-gazetted staff of the civil engineering department—covering JE/SSE (P. Way), track maintainers, and welders—was issued via Board's letter no. (MPP)/2019/3/46 dated 28.10.2019 (RBE No. 183/2019), approved by the concerned Board Members.

Ministry of Railway's case No. 2024-BC-PAC-XVII/132ndReport

Observation/Recommendation No. 11

The Committee note from the audit observation that the factors causing maximum derailments (395) were in 'Engineering Department' followed by 'Operating Department' (173). Out of several factors attributed, the major factor responsible for derailment related to 'maintenance of track' (167 cases), followed by 'deviation of track parameters beyond permissible limits' (149 cases) and 'bad driving/over speeding' (144 cases). From the submission of the Ministry, the Committee note that measures to reduce derailments have been taken like track renewal and maintenance; track upgradation consisting of 60kg, 90 Ultimate Tensile Strength (UTS) rails; Pre-stressed Concrete Sleeper (PSC); Welded Rails on most of BG tracks wherein short-welded rails of 39m length and single rails have been converted into long welded rails; reduction in population of Alumino-Thermit (AT) welds gradually by using longer rail panels with one/two/three Flash Butt weld (FB) from rail manufacturing plant; Track Recording wherein Supercheck of track parameters is done through regular runs of Track Recording Cars (TRC) and regular bridge inspection. Besides, Measures have been taken to avoid collisions through introduction of Advanced Signaling System, Panel Interlocking/Route Relay Interlocking/Electronic Interlocking (PI/RRI/EI) along with Multiple Aspect Colour Light Signals, Block Proving Axle Counter (BPAC) to ensure complete arrival of train without manual intervention before granting line clear to the next train; Development of India's own state-of-the-art electronic system Automatic Train Protection (ATP) System named KAVACH (Train Collision Avoidance System) by RDSO, which activates the train braking system automatically if the Loco Pilot fails to control the train as per the speed restrictions. However, the system to be an effective safety measure, all need to have the KAVACH system. The Committee, therefore,

recommend that a time bound programme for installation of KAVACH system in all divisions/Routes should be taken up by the Ministry. The Committee note from the report of the CCRS on the accident that not adhering to the standard practices stipulated in the Manuals and Work Instructions were not followed during the process of signal modification work, owing to which the accident occurred. The Committee are also of the view that training programmes of all levels of officers/staff should be made more vigorous and result oriented. The Committee while taking note of the measures taken to prevent derailments/accidents/collisions nevertheless also feel concerned to observe that despite these measures, the system is still not capable of putting a full stop to such mishaps and loss of lives and property due to accidents continue to happen. 2024-BC-PAC-XVII/132ndReport I/3106083/2024 Issues like track maintenance, track upgradation and Retro-reflective sigma (∑) boards and electronic interlocking system should be accorded greater priority and should cover all routes/sectors at the earliest and a target should be fixed to achieve a complete makeover towards a zero error and a flawless and accident free operation. The Committee recommend that the Indian Railways need to remodel the operational training programmes keeping in view the five barriers/layers of defense (Swiss Cheese Slices' or 'defense barriers) against accidents/derailments and use this Model as a reference for strengthening the above barriers to avoid occurrence of similar incidents. The Committee also desire to be apprised of the implementation status of this Model and the benefits accruing from it.

Action Taken by Ministry

A. Training

Indian Railways has an extensive training mechanism to cater training needs of various categories of railway employees. All safety category railway employees are given structured training at various stages of their career, which includes initial, promotional, refresher and specialized training.

- MoR deputes railway personnel for undergoing courses at reputed Universities as well as permits them to avail various online courses offered by international bodies. Indian Railways also have collaborations with various reputed domestic & international academies to develop/deliver specialized knowledge contents for physical trainings as well as online trainings as per functional needs of IR.

- Trainings are imparted to skill/up-skill domain, functional and behavioral competencies of employees through physical trainings at various railway training centres across the country as well as hybrid and online training interventions.

•All newly recruited maintainers of Indian Railways undergo a detailed training programme of one to one and half years duration. This initial training programme consists on-job training (field training) component as well as classroom training in the Zonal training schools.

•Indian Railways is making concerted efforts to provide technological support & training to the Loco-pilots. The Loco-Pilots are provided with Vigilance Control Device (VCD) to improve alertness and Fog Safe Device to assist them to locate Signals during the fog when visibility is poor.

•Simulator- based training is being imparted for improving the driving skills and reaction time of Loco Pilots.

•There is regular counseling of running staff and interaction with their families.

•Training module has been formulated for frontline staff on Fire Fighting & use of fire extinguishers.

•Yoga and Meditation lessons have been introduced in training centers with an aim to help railway men in coping with the stress involved with their jobs.

•It has been the constant endeavor of Railways to develop Human Resources. During the year 2023-24, around 5,19,566 Railway employees were given different types of training viz. initial, promotional, refresher & specialized.

•All the training activities are monitored at various levels through regular meetings, periodical reports and online data monitoring system.

B. Track Improvement Works

Track renewal and maintenance works, being directly related to safe train operation, are given the top most priority at each level. Retro-reflective sigma boards are provided on the mast which is located 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.

Following progress has been achieved in financial year 2023-24 for important track related works:

1. Rail renewal – 6051 Track Kilometers
2. Deep screening- 10363 Tkm

3. 60 kg rail- More than 70% (cumulatively)
4. Insertion of thick web switches- 5982 Nos.
5. Introduction of new track machines to enhance mechanized track maintenance- 154 Nos

Other than these, following policy measures have been taken to strengthen and speed up the system of track renewal and maintenance in Indian Railways:

1. General Managers have been delegated powers to sanction works up to Rs. 50 Cr. for track renewal works which was earlier Rs. 2.5 Cr. only. Zonal Railways now can sanction most of the identified works related to track safety themselves.

2. To reduce fish plated joints, a provision has been made in Indian Railways Permanent Way Manual in March 2024 to provide Long Welded Rail on curve up to 6.5° in temperature zone- I & II and up to 6° in temperature zone- III & IV.

3. To ensure planned work, concept of Rolling Block Program has been introduced in Indian Railways. Increased predictability of traffic blocks has resulted in better quality of track works and quantum of works has also gone up.

C. Signalling Improvement Works

KAVACH system has so far been deployed on 1465 Route Kms of SCR. Subsequent to deployment in South Central Railway, High density routes have been taken up for deployment of KAVACH and presently work is in progress on two HDN routes Delhi Mumbai and Delhi Howrah on approx. 3,000 route Km, out of which over 1300 Route Kms, the track side work is near completion. All possible efforts are being taken for the rapid deployment of the KAVACH system on the IR network.

Indian Railway has been continuously upgrading its signaling system with changeover from Mechanical to Electromechanical and to Electronic Interlocking signaling system with centralized operation of points and Signals to enhance safety in train operations. High priority is accorded to install and commission new Electronic Interlocking systems for better reliability and safety. During last 2 years itself, about 1000 Electronic Interlocking systems have been installed on IR network.

In the aftermath of Balasore incidence, several measures have been taken to strengthen the existing maintenance practices and safety protocols. Drives have been launched to ensure availability of completion documents at all installations and checking & verification of writing work details of signaling gears at site. Policy for commissioning of new works and alteration to existing signaling installations has been issued. In case of minor day-to-day works of maintenance, repair &

replacement activities, instructions have been issued for thorough testing of gears before resuming train operations.

Besides, the instructions have been issued to Zones/IRISET that more emphasis needs to be given on rigorous practical training in concerned modules of curriculum, for carrying out signalling modifications/ alterations. Special modules on this subject have also been included in training curriculum. In last four months, 04 such courses have been conducted and so far 243 trainees have been trained through these courses, which also include following sessions:

(i) Practical sessions are introduced for modification of wiring for hands on experience for trainees.
(ii) The protocol of disconnection and reconnection memos is practised in each laboratory session.
(iii) The guidelines of Railway Board and the safety practices in installation, testing and maintenance of Signalling assets is emphasized in the instruction (theory) component of training. Further, such courses are being conducted every month at Central Training Institute at Secunderabad.

It would be pertinent to mention that as a result of the various safety measures taken over the years, the number of consequential train accidents have come down from 473 in year 2000-01 to 40 in year 2023-24. Likewise, the number of accidents per million train kms (AMTKs), an index of safety performance of railway system, has reduced from 0.65 to 0.03 respectively during the same period.

Vetting comments of Audit

1. Action plan implemented/envisaged by MOR to install KAVACH across all division/ZR with timelines may be furnished.

2. It may be clarified whether the Swiss Cheese model has been incorporated in operational training programmes.. If yes, details may be furnished.

Final Reply of Ministry

Safety is accorded highest priority on Indian Railways. Over the years, various measures have been taken by Indian Railways which include track improvement works, signalling improvement works, training of railway staff, etc. in order to enhance safety in train operations.

A. Track Improvement Works

Track renewal and maintenance works, being directly related to safe train operation, are given the top most priority at each level.

Following progress has been achieved in financial year 2024-25 for important track related works:

1. Complete Track Renewal – 6851 Tkm

2. Deep screening – 15433 Tkm
3. 60 kg rail – More than 75% (cumulatively)
4. Insertion of Thick Web Switches – 7161 Nos.
5. Introduction of new track machines to enhance mechanized track maintenance – 55 Nos.

Other than these, following policy measures have been taken to strengthen and speed up the system of track renewal and maintenance in Indian Railways.

i. General Managers have been delegated powers to sanction works up to Rs. 50 Cr. for track renewal work which was earlier Rs. 2.5 Cr. only. Zonal Railways now can sanction most of the identified works related to track safety themselves.

ii. To reduce fish plated joints, a provision has been made in Indian Railways Permanent Way Manual in March 2024 to provide Long Welded Rail on curve up to 6.5° in temperature zone -I & II and up to 6º in temperature zone-III & IV.

iii. To ensure planned work, concept of Rolling Block Program has been introduced in Indian Railways. Increased predictability of traffic blocks has resulted in better quality of track works and quantum of works has also gone up.

iv. Maintenance track parameters for Passenger Loop Line & Goods Loop Lines have been upgraded.

v. 60 kg new rail has been adopted for new laying of Passenger Running Loop Line and renewal of Passenger Running Loop Line.

vi. During 2024-25, total 1704 WCMS crossing have been laid to continue LWR through yards, which are reducing number of joints.

vii. Indian Railways have adopted world class R260 grade rails and Advanced USFD Testing of Rail/Welds by Phased array technology. Indian Railways have also adopted global technologies as Weldable CMS Crossing, Thick Web Switch & Thick Web Switch Expansion Joints for improving safety and efficiency.

B. Signalling Improvement Works

(1) Automatic Train Protection System: Kavach

A) 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).

Kavach aids the Loco Pilot in running of train 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. It consists of the following systems/sub systems:

(a) Station Kavach: An electronic equipment which receives the information from Loco Kavach & existing signaling system and guides the Loco Kavach.

(b) RFID tags: They are installed on the tracks every Kilometer and at every signal. These are read by Loco Kavach to determine the location and direction of the train.

(c) Communication Backbone: Communication towers are erected every few kilometers along the track and are connected through optical fiber cables to exchange information continuously between Loco & Station Kavach equipment.

(d) Loco Kavach: An equipment to read RFID tags on the track for getting the location and determining the speed of the loco. It is integrated with the braking system, communicates with the station Kavach equipment and applies automatic braking in case the driver fails to do so. Taking input from all these systems/subsystems, Kavach guides the loco pilot to stay within the permissible speed limits.

B) 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.

C) Kavach was adopted as National ATP system in July 2020.

D) Deployment of Kavach involves installation of Station Kavach at each and every station/block section; installation of RFID tags throughout the track length; installation of towers throughout the section and laying of Optical Fiber Cable along the entire track length and provision of installation of Loco Kavach on each and every locomotive running on Indian Railways.

E) Based on deployment of Kavach version 3.2 on 1465 RKm and 162 locomotives on South Central Railway, lots of experience was gained. Using that, further improvements were made. Finally, Kavach specification version 4.0 was approved by RDSO on 16.07.2024. This is a significant milestone in safety for Indian Railways.

F) Kavach version 4.0 covers major features required for the diverse railway network, major improvement in Version 4.0 includes increased Location Accuracy, Improved Information of Signal Aspects in bigger yard, 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.

G) Subsequent to deployment in South Central Railway, High density routes have been taken up for deployment of Kavach and presently work is in progress on two HDN routes, Delhi-Mumbai and Delhi-Howrah (approx. 3,000 RKm). Progress of key items comprising Kavach system on Indian Railways upto May 2025 is as under:-

i. Laying of Optical Fibre Cable: 5806 RKm
ii. Installation of Telecom Towers: 540 Nos.
iii. Provision of Kavach at Stations: 688 Nos.
iv. Provision of equipment in Loco: 856 Locos
v. Installation of Track side equipments: 3882 RKm

H) Further, Kavach implementation is planned as under:

a. Project for equipping 10,000 Locomotives has been finalized. 69 nos. of loco sheds have been prepared for equipping with Kavach.
b. Bids for track side Works of Kavach for approximately 15000 RKm have been invited out of which 14454 RKm have been finalized. It covers all GQ, GD, HDN and Identified sections of Indian Railways.
c. Currently, 3 OEMs are approved for supply of Kavach System. To increase capacity and scale of implementation, trials and approval of more OEMs are at different stages.

Indian Railways is deploying Kavach on its network progressively. As brought out above, the deployment is complex and time consuming. All efforts are being taken for rapid deployment.

2) Training Programme:

Equipment courses, refresher courses and other training programme are carried out for Railway staff on a regular basis. Besides, instructions have been issued to Zones/IRISET that more emphasis needs to be given on rigorous practical training in concerned modules of curriculum, for carrying out signaling modifications/alterations. Special modules on this subject have also been included in training curriculum. In year 2024-2025, 21 such courses have been conducted and 1256 trainees have been trained through these (i) courses, which also include following sessions:-

(i) Practical sessions are introduced for modification of wiring for hands on experience for trainees.

(ii) The protocol of disconnection and reconnection memos is practiced in each laboratory session.

(iii) The guidelines of Railway Board and the safety practices in installation, testing and maintenance of Signalling assets is emphasized in the instruction (theory) component of training. Further, such courses are being conducted every month at Central Training Institute at Secunderabad.

3) Electronic Interlocking Systems

It is mentioned that Indian Railway has continuously upgraded its signalling system with changeover from Mechanical to Electromechanical and to Electronic Interlocking signalling system with centralized operation of points and signals to enhance safety in train operations. High priority is accorded to install and commission new Electronic Interlocking systems for better reliability and safety. During last 3 years (2022-2025) itself, about 1355 nos. of Electronic Interlocking systems have been installed on Indian Railway network.

C. Training

Indian Railways has a robust, efficient and cost-effective training infrastructure to meet the diverse training needs of its railway staff. Training is imparted across various domains to skill/upskill technical, functional, and behavioral competencies of employees through physical training at various railway training centers, as well as hybrid and online platforms. Structured training programs are conducted for all safety category employees at different career stages, including initial, promotional, refresher, and specialized training before deputing the staff/officer on the working post.

- MoR deputes railway personnel for undergoing courses at reputed Universities as well as permits them to avail various online courses offered by international bodies. Indian Railways also have collaborations with various reputed domestic & international academies to develop/deliver specialized knowledge contents for physical trainings as well as online trainings as per functional needs of Indian Railways.
- All newly recruited maintainers of Indian Railways undergo a detailed training programme of one to one and half year duration. Before posting in the working post this initial training programme consists on-job training (field training) component as well as classroom training in the Zonal training schools.

- The training modules for different categories of staff are being regularly updated to ensure continuous development and upgradation of skills as well as addressing the evolving needs of the railway system.
- As safe train operation is the top most priority of Indian Railways, Kavach system is being proactively installed on the busy routes and special emphasis is being given to the training of safety category employees. Recently, a training module with course content for imparting training on 'KAVACH to running staff, Chief Loco Inspectors, Loco Pilots, Assistant Loco Pilots and Traffic Department have also been issued.
- Indian Railways is making concerted efforts to provide technological support & training to the Loco-pilots. The Loco-Pilots are provided with Vigilance Control Device (VCD) to improve alertness and Fog Safe Device to assist them to locate Signals during the fog, when visibility is poor.
- Simulator-based training is being imparted for improving the driving skills and reaction time of Loco Pilots. There is regular counseling of running staff and interaction with their families.
- Training module has been formulated for frontline staff on Fire Fighting & use of fire extinguishers.
- Yoga and Meditation lessons have been introduced in training centers with an aim to help railway men in coping with the stress involved with their jobs.
- It has been the constant endeavor of Railways to develop Human Resources. During the year 2024-25, around 5,72,819 railway employees were given different types of training viz., initial, promotional, refresher & specialized.
- All the training activities are monitored at various levels through regular meetings, periodical reports and online data monitoring system.
- Multi layered checking of signaling designs and multilayered testing of signaling installation have been embedded in the codal provisions for Railway Signaling installation and the same are followed before any new signaling installed is brought to use.

Ministry of Railway's case No. 2024-BC-PAC-XVII/132ndReport

[For comments of the Committee, please see Para No. 25 of Chapter I]

Observation/Recommendation No. 12

From the observation of the audit the Committee note that there were delays in different stages of accident inquiries and that the inquiry reports were not submitted to the accepting authority within the time schedule prescribed by Railway Board in 63 per cent cases and also that delays in submission of the inquiry report had a cascading effect on acceptance of the reports by the accepting authority. The Committee also note from audit observation that in 49 percent cases, there was delay in acceptance of the reports by the authorities concerned. The Committee note from the submission of the Ministry that as per complexity

of an accident case, multiple witnesses are required to be examined, detailed investigation reports e.g. Metallurgical, Chemical test reports from Laboratories, RDSO, Forensic Examination report from state agencies and other external agencies are required by the Inquiry Committee to arrive at the 'root cause' of the accident for taking corrective and preventive actions. The Committee also took note of the fact that in February 2006, Railway Board had prescribed the timeline of D+10 days for Departmental Inquiry in Consequential Accidents which was revised to D+30 days in view of the complexities in December 2019 and further that the progress of departmental inquiries for their early finalization is monitored at the highest level at Zonal Railway Headquarters as well as at Railway Board. The Committee observe that delays in stages of accident inquiries and non submission of inquiry reports to the accepting authority within the time schedule prescribed by Railway Board have been playing havoc with the lives and property and were of the view that unwavering commitment to the timeline for inquiries and submission of report to the accepting authority must be ensured. The Committee also recommend that effective steps should be taken to prevent any delay in acceptance of the reports by the authority concerned within a reasonable timeframe and punitive mechanism should be put in place to discourage avoidable delays in any respect.

Action Taken by Ministry

All the consequential train accidents (including derailments) are inquired into by a committee of Railway officers. The committee is required to submit its Inquiry Report within D+30 days. Continuous efforts are being made to ensure that accident inquiries are being completed within the stipulated time frame. Towards this direction, Zonal Railways are counseled for timely completion and submission of train accidents inquiry reports. All the accident related data are entered in SIMS module by the concerned Railway, which is monitored on regular basis by Safety Directorate of Railway Board. In case, delay is noticed in the finalization/acceptance of an inquiry, necessary intervention is immediately made with the concerned Railway.

Vetting comments of Audit

1. What are the steps being taken to discourage avoidable delays in any/all aspects?
2. Please elaborate on the point- 'In case, delay is noticed in the finalization/acceptance of an inquiry, necessary intervention is immediately made with the concerned Railway'."

Final Reply of Ministry

Indian Railways is having a well laid down procedure for conducting Inquiries. A very stiff deadline of 30 days for completion of Departmental Inquiries has been fixed by Railway Board. The accidents inquiries in all unusual cases is conducted in a professional manner with lots of technical inputs, viz. Metallurgical/Chemical test reports from laboratories, Forensic reports from State agencies and due deliberations with RDSO to reach at proper conclusion. This obviously increases the inquiry duration.

In spite of above limitations, as per data of last three years, i.e., 2022-23, 2023-24 and 2024 25, Departmental inquiries have been completed in 100% cases, i.e., 105 cases and out of these inquiries, 71 cases (approx. 70% cases) had been completed by Railways within the time frame.

Ministry of Railway's case No. 2024-BC-PAC-XVII/132nd Report

Observation/Recommendation No. 13

The Committee note from audit observation that there has been an assured annual funding of Rs.15000 crore out of the 'Gross Budgetary Support. However, an annual amount of Rs.5000 crore (25 per cent) amounting to total contribution of Rs 20,000 from 2017-18 to 2020-21 per year to this fund designed to be met from Railways internal resources had been falling short of target to the tune of Rs. 15775 crore constituting 78.88 % during the years 2017-18 to 2020-21. The Committee also note from audit observation that the physical as well as financial targets in respect of track renewals need to be enhanced as per the annual requirement for track renewals for safety. From the submission of the Ministry the Committee note that during this period, Railways' internal resource generation was adversely affected following Covid Pandemic which led to passenger trains completely halting and freight trains running with only essential commodities. Further, despite the pandemic and other recessionary conditions, IR provided funds for incurring gross expenditure of Rs.1.08 lakh crore on RRSK works from 2017-18 till 2021-22. Besides, with the improvement in the net revenue position on account of higher incremental loading and passenger revenues along with astute expenditure management, MoR is able to supplement RRSK from 2022-23. The Committee also note from Ministry's submission that in 2022-23, the Government has extended the currency of RRSK for another period of five years w.e.f. 2022-23 with total Gross Budgetary Support of Rs.45000 crore. Against Revised Estimate 2022-23 provision of Rs.1000 crore to RRSK from internal resources, IR has contributed Rs.1797 crore considering requirement of funds. In addition, in 2023-24, Rs.1000 crore from internal generation of resources have been budgeted. Regarding fulfillment of target for renewal of tracks, the Committee note from submission of the Ministry that due to assured funding under RRSK, the Budget allocation and expenditure over Indian Railway network for track renewal works has almost doubled from 2017-18 to 2023-24 and there has been no deficit of funds for RRSK works, which have progressed as per their targets. The Committee feel that generation of internal resources has seen an aberrant trend and has been falling short of the target and the resultant short deployment of funds by Railways from internal resources to the tune of Rs. 15,775 crore (78.88 per cent) out of the total share of Rs. 20,000 crore had defeated the primary objective of creation of RRSK to support absolute safety in Railways. The Committee are of the view that funding to and expenditure from RRSK for safety purposes should be ensured at highest level in order to accord paramount importance to safety. The Committee are also of the view that the Ministry need to set up a 'Financial Task Force' to trace the reasons causing decline in the generation of internal resources and find ways to develop the resources to ensure funding

to the RRSK and its use for critical safety works. The Committee also desire to be apprised of the latest status of the same.

Action Taken by Ministry

During Covid period, Railways' 'Net Revenue' was negative due to the reasons the Hon'ble Committee has already mentioned in the recommendations. In the post Covid period, Railways have shown an impressive recovery and generated an internal resource of Rs. 3,217.38 cr. in 2022-23 to supplement Capex. Out of which, Rs.1517.38 cr. were appropriated to RRSK against "nil" provision made in RE 2022-23. In 2023-24 also, Railways generated an internal resource of Rs.4059.56 cr. and from this, an amount, Rs.1759.56 cr. (provisional) has been appropriated to RRSK vis-à-vis the estimate of Rs.1000 cr. in RE 2023-24.

Safety has been accorded highest priority in Indian Railways. Financing of safety works from source RRSK will help Railways in achievement of the "Mission Zero Accidents". From 2017-18 to 2021-22 expenditure towards RRSK works including EBR(S) was Rs 1,08,742.57 cr. It is pertinent to mention that apart from RRSK, expenditure on safety related works is also being funded from DRF, RSF and GBS (Capital) under various Plan heads i.e Bridge works, Signal and Telecom works, Track Renewals etc. With continuous and assured funding from GBS, safety works have been prioritized and adequate funding to works has ensured that safety works are carried out as per priority.

Railways are making continuous efforts to improve and generate enough Net Revenue to supplement Capex. Towards this end, Railways are taking various steps like induction of more AC travel coaches, introduction of state of art Vande Bharat Trains, Tejas trains etc. as per popular demand of passengers. Railway stations are being developed to generate revenue from non-fare revenue sources. In the medium and long run, various policy initiatives have been/are being undertaken to diversify freight basket, to achieve a loading of 3000 MT by the year 2030 and substantially regain Railways' market share in freight. For this, Indian Railway has undertaken a major drive to augment the capacity of the system to carry more cargo and to modernize passenger services by way of spending Capex. By virtue of these efforts, Railways achieved a total revenue of Rs. 2,40,176.96 cr. in 2022-23 against Rs. 1,91,367.01 cr. achieved in 2021-22 i.e. Rs. 48,809.95 cr. higher over 2021-22. In 2023-24 also, Railways' total receipts grew by 6.6% to Rs. 2,56,093.42 cr. (provisional).

Additionally, expenditure control measures are also being taken such as electrification of the entire Railway network so as to save on fuel, institution of strict economy and austerity measures, improved man-power planning, better asset utilization, inventory management, 2024-BC-PAC-XVII/132ndReport I/3106084/2024 optimizing fuel consumption etc. to reduce operating costs. As a result of the efforts to increase the revenue and control the expenditure, Railways' Net Revenue increased to Rs. 2,517.38 cr. in 2022-23 against negative of Rs. 15,024.58 cr. in

2021-22. In 2023-24, Railways' Net Revenue grew by 29.5% to Rs. 3,259.56 cr. (provisional) which was appropriated to Railways funds like RRSK and DF to supplement critical projects with safety related implications also.

The Committee observed that the Ministry need to set up a 'Financial Task Force' to trace the reasons of causing decline in the generation of internal resources and find ways to develop the resources to ensure funding to the RRSK and its use for critical work. Here, it is pertinent to mention that Railways has generated surplus revenue during last two years as explained in above paras. The increase in generation of internal resources is due to the several proactive measures taken by Railways. IR is ensuring proper funding to the RRSK. It is reiterated again that safety is being accorded the highest priority in Indian Railways. All the funding made to RRSK is being deployed for critical safety works. Hence, concerns raised by Committee have already been addressed by IR as the earnings and surplus both have increased as compared to pre-Covid times.

Vetting comments of Audit

Has MoR envisaged ways to enhance the apportionment to RRSK from its internal resources to the extent of the committed amount?

Final Reply of Ministry

During Covid period, Railways' 'Net Revenue' was negative due to the reasons the Hon'ble Committee has already mentioned in the recommendations. In the post Covid period, Railways have shown an impressive recovery and generated an internal resource of Rs. 4,059.68 cr. in 2023-24 out of which Rs. 1,760 cr. was appropriated to RRSK. In 2024-25(Prov.), Railway appropriated Rs. 2,118 cr. to RRSK against Rs. 1,341 cr. provisioned at RE 2024-25 stage. Railways have appropriated Rs. 1,517.38 cr. in 2022-23, Rs. 1,759.68 cr. in 2023-24 and Rs. 2,117.84 cr. in 2024-25(Prov.) to RRSK which was nil in 2021-22. Therefore, in the post Covid period, appropriation to RRSK increased year-on-year.

Safety has been accorded highest priority in Indian Railways. Financing of safety works from source RRSK will help Railways swift achievement of "Mission Zero Accidents". From 2017 18 to 2021-22 expenditure towards RRSK works including EBR(S) was Rs 1,08,742.57 cr. Safety related works are also being funded from DRF and RSF, in addition to RRSK. It is pertinent to mention that expenditure on safety related works is also made through Capital (GBS) such as Bridge Works, Signal & Tele Works etc. With continuous and assured funding from GBS, safety works have been prioritized and adequate funding to works has ensured that safety works are carried out as per priority.

Railways are making continuous efforts to improve and generate enough Net Revenue to supplement Capex. Towards this end, Railways are taking various steps like induction of more AC travel coaches, introduction of state of art Vande Bharat Trains, Tejas trains etc. as per popular demand of passengers. Railway stations are being developed to generate revenue from non-fare revenue sources. In the medium

and long term, various policy initiatives have been/are being undertaken to diversify freight basket, to achieve a loading of 3000 MT by the year 2030 and substantially regain Railways' market share in freight. For this, Indian Railways has undertaken a major drive to augment the capacity of the system to carry more cargo and to modernize passenger services by way of spending Capex. By virtue of these efforts, Railways achieved a total revenue of Rs. 2,65,677.03 cr. in 2024-25 (Provisional) against Rs. 2,56,093.42 cr. achieved in 2023-24.

Additionally, expenditure control measures are also being taken such as electrification of the entire Railway network so as to save on fuel, institution of strict economy and austerity measures, improved man-power planning, better asset utilization, inventory management, optimizing fuel consumption etc. to reduce operating costs. As a result of the efforts to increase the revenue and control the expenditure, Railways generated a Net Revenue of Rs. 2,659.23 cr. in 2024-25(Provisional) despite interest payment of Rs. 1,358.69 cr. towards loan provided by Ministry of Finance due to Covid related resource gap in 2020-21. Net Revenue was appropriated to Railways funds like RRSK and DF to supplement critical projects with safety related implications also.

The Committee observed that the Ministry need to set up a 'Financial Task Force' to trace the reasons of causing decline in the generation of internal resources and find ways to develop the resources to ensure funding to the RRSK and its use for critical work. Here, it is pertinent to mention that Railways has generated surplus revenue during last three years which as explained in above paras. The increase in generation of internal resources is due to the several proactive measures taken by Railways. IR is ensuring proper funding to the RRSK. It is reiterated again that safety is being accorded the highest priority in Indian Railways. All the funding made to RRSK is being used only for critical safety works. Hence, concerns raised by Committee has already been addressed by IR as the earnings and surplus both have increased as compared to pre-Covid times.

Updated comments on Audit's vetting remarks:

Appropriation to RRSK was Rs. 1,517.38 cr. in 2022-23, Rs. 1,759.68 cr. in 2023-24 and Rs. 2,117.84 cr. in 2024-25(Prov.). In 2021-22, no provision was made to RRSK due to negative Net Revenue. It is therefore clear that Railway are increasing appropriation to RRSK from internal resources year on year.

Appropriation to RRSK from internal resources is dependent on Net Revenue generated by Railways. As also stated in the original reply, Railways are making continuous efforts to improve and generate enough Net Revenue to supplement Capex. The endeavor comprises of a combination of initiatives aimed at maximizing revenue receipts and minimizing controllable revenue expenses. Revenue enhancing measures, inter alia, include targeting progressively higher traffic throughput, expansion of commodity basket, effective and innovative marketing strategies to capture more and more traffic, creation of additional capacity and optimum utilization

of the existing rail infrastructure including rolling stock, enhancement in productivity and efficiency, improvement of passenger interface, periodic rationalization of fare and freight rates and focus on increasing the share of non-fare revenue sources in Railways' total revenue. Expenditure control measures include strict economy and austerity measures, improved man-power planning, better asset utilization, inventory management, optimizing fuel consumption etc.

Railways have set an ambitious loading target of 3000 MT by the year 2030 and substantially regain Railways' market share in freight. For this, Indian Railways has undertaken a major drive to augment the capacity of the system to carry more cargo and to modernize passenger services by way of spending Capex. In the coming years, benefits from investment in capacity augmentation works will start accruing and the Net Revenue position will improve further to supplement Capex.

Ministry of Railway's case No. 2024-BC-PAC-XVII/132ndReport

Observation/Recommendation No. 14

The Committee note from audit observation that out of the identified 44,407 coaches on 12 ZRs, fire extinguishers have not been provided in 27,763 (62 per cent) coaches. The reasons attributed for non-provision of fire extinguishers include delays in tendering processes, failure of firm to supply the fire extinguishers, supply awaited/under progress etc. The Committee note from reply of the Ministry that measures like usage of fire retardant furnishing materials in coaches, provision of fire detection and suppression system in Power Cars and Pantry Cars and Fire and Smoke detection system in AC coaches, provision of fire extinguishers in all AC coaches and all newly manufactured Non-AC coaches and Display of statutory "Fire Notices" for widespread passenger information in all coaches have been taken and fire extinguishers have been installed in 39000 coaches. Besides, till now, Indian Railways has provided fire detection cum suppression system in nearly 1775 Power Cars and 800 Pantry Car Coaches. Fire detection cum alarm system has been provided in nearly 11,000 AC Coaches and fire extinguishers have been provided in nearly 34700 Non AC coaches and that it is planned to cover all coaches with fire safety system by March 2024. The Committee while acknowledging the steps taken by the Ministry observe that there is still much left to be desired as regards installation of fire extinguishers. The Committee are of the view that the tendering/procurement process needs to be reworked to make sure that supply of fire extinguishers and their installation is not hindered in any way and the target of covering all coaches with fire safety system by March 2024 is met without fail. The Committee desire that a strict protocol for inspection, service and maintenance of fire extinguishers should be put in place. The Committee are of the considered view that a comprehensive Fire Risk Assessment of trains and stations should be conducted by an independent agency/Authority to enable the Ministry to formulate a comprehensive Fire Safety protocol for Indian Railways. The Committee also feel that Fire Safety Audits should be conducted at regular intervals for assessing the preparedness in Indian Railways against fire hazards.

Action Taken by Ministry

Provision of Fire extinguishers in 100% coaches has been achieved by March 2024. The system of periodic checking and maintenance is in place. The instructions have again been reiterated to all Zonal Railways.

Following systems are already in place for fire safety in passenger coaches:

1. **Provision of Fire and Smoke Detection Systems (FSDS) in air-conditioned (AC) coaches: -**

To improve fire safety in the running trains, Automatic fire and smoke detection system has been provided in all the AC coaches. Instructions are in place for all the production units to manufacture the AC coaches with the provision of FSDS in all AC coaches.

2. Provision of Fire Extinguishers in all coaches:

Dry chemical powder type/water mist type fire extinguishers are provided in all operational coaches viz. Air-conditioned coaches, Second class- cum-guard and luggage van and Pantry cars and Non-AC coaches.

3. Provision of Fire Detection and Suppression Systems (FDSS) in Pantry Cars and Power Cars: -

Pantry and Power Cars have been provided with Automatic Fire detection and Suppression systems. Instructions are in place for all the production units to manufacture the pantry and power cars with these provisions only.

4. Provision of flameless cooking system in Pantry Cars: -

Indian Railways have envisaged for flameless cooking in the operational pantries. The provision for completely flameless cooking, water-heating arrangements are available in all the LHB pantry cars.

5. Aerosol-based fire suppression: -

The Aerosol based fire suppression system has been provided in electrical cubicle of all Vande Bharat

Train-set Rakes. Also, the newly manufactured coaches are turned out from PUs with the fitment of Aerosol Based fire suppression system.

6. Emergency talk-back system in Vande Bharat Train-sets: -

There is a provision of 4-Emergency Talk Back Units in every coach of Train-set. This facility can be used by passengers to communicate with Train Manager and Loco Pilot incase of exigencies /emergencies like fire incidence etc.

7. **Emergency Alarm System: -**

Passenger Emergency Alarm Buttons have been provided in the Vande Bharat Train-sets. Every coach is provided with 4 such push buttons for emergency usage, this will provide an indication to the Loco Pilot for taking suitable action. Similarly, alarm chains have been provided in all the coaches for usage to stop the train during emergencies like fire incidence etc. Regular inspections are done during maintenance schedules at Depots/Sheds etc. for ensuring the proper upkeep of various systems. Inter Zonal audits, Safety Drives, Inspections at different levels etc

are also done to check for the functionality of these systems in regular manner. Further, RCF has been advised to take necessary action for getting fire risk assessment done for trains and Northern Railway to do similar action for the stations.

Vetting Comments of Audit

1. It may be clarified whether a strict protocol for inspection, service and maintenance of fire extinguishers has been put in place across all Zonal Railways. If not, action taken/proposed to be taken for the same may be furnished.
2. How is MOR reworking the tendering/procurement process to ensure that the supply of fire extinguishers and their installation is not hindered in any way?
3. It may be clarified whether MoR has conducted a comprehensive fire risk assessment of trains and stations through an independent agency. If yes, then how has MoR incorporated the findings of this assessment to formulate more efficient fire safety protocols for IR.
4. It may be clarified whether Fire safety audits are conducted at regular intervals across all Zonal Railways in IR.

Final Reply of Ministry

Fire safety audit of electrical systems in coaches have been carried out at RCF. The compliance of the same is under process.

Ministry of Railway's case No. 2024-BC-PAC-XVII/132ndReport

[For comments of the Committee, please see Para No. 30 of Chapter I]

Observation/Recommendation No. 15

The Committee note from audit observation that except for North West Railway, the shortfall in elimination of manned level crossings in 15 ZRs ranged from 6 per cent (WR) to 61 per cent (ECR) and the main reasons cited for delay in completion of the work was delay in finalization of drawing, delay in preparation and sanction of detailed estimates, issues related to land acquisition and non-finalization of cost sharing issues etc. From the submission of the Ministry, the Committee note that all Unmanned Level Crossings (UMLCs) on Broad Gauge (BG) routes on Indian Railways have been eliminated by 31.01.2019. Elimination of Manned Level Crossing gates is under process, by provisioning for Road Under Bridges (RUB) and Road Over Bridges (ROB) at these locations, and the priority of elimination of level crossing (LC) is based on its impact on safety in train operations, mobility of trains, impact for road users and feasibility etc. The Committee further note from the reply of the Ministry that one of the major constraints faced in elimination of level crossings has been allocation of limited funds by state Governments for sanction and construction of ROBs/RUBs on cost sharing basis. The Committee note that a Comprehensive review of policy has been done by the Railways and the revised policy dated 02.03.2023 has been issued to remove bottlenecks in sanctioning and for faster execution of these works. As per revised policy, 100% cost of work of ROB/RUB at LCs shall be borne by Railways except LCs located on National Highways (NH) and where State

Govt /Road Owning Authority/ Local Authority want to take up the works at their own cost. Besides, the level crossings on MG & NG sections will be eliminated along with gauge conversion work of the section to BG. While appreciating the fact that all Unmanned Level Crossings (UMLCs) on BG routes on Indian Railways have been eliminated and the revision of earlier policy has been effected with a view to fastening of the process of elimination of remaining Manned Level Crossings, the Committee observe that there is still much space left for expediting and completing the left over Level Crossings in the categories of Broad Gauge, Metre-Gauge and Narrow Gauge. The Committee are of the view that a special cell may be created to see to it that all bottlenecks in completely eliminating level crossings are removed and all level crossings are done away with by the year 2025. The Committee also recommend that chances should not be taken with Metre-Gauge and Narrow Gauge level crossings either and elimination of level crossings irrespective of category should be the priority over anything else particularly in view of the fact that availability of finances has not been a hindrance. The Committee desire to be apprised of the latest developments and decisions taken by the Ministry in the matter.

Action Taken by Ministry

"As on 01.04.2024, there are 17,773 nos. of Level Crossings (LCs) on Indian Railways. As per the progress made during the last 03 years, average progress for LC elimination per year comes out to be 844. With the introduction of new policy for sanctioning of ROB/ RUB works, the sanctioning of works has increased. 1247 no. of works have been sanctioned in 2023-24. The ministry has taken following measures, so far, to remove the bottlenecks and expedite the progress of elimination of LC Gates:-

(i) Standardization of designs
(ii) Land acquisition permitted as per special Railway projects
(iii) Permit innovative design for faster execution
(iv) Execution to be done on Single Entity Basis
(v) LC Gates on MG/ NG found critical are also considered for elimination

Further, posting of CAO/Construction/Road Safety Projects (CAO/C/RSP) has been planned for execution of Road Safety Works exclusively for holistic planning of Road Safety Works including feasibility studies & DPR preparation, sanction of work, detailed structural design, detailed estimate for execution and supervision as per requirement. This will be an additional executing unit for Road Crossings works along with other existing units. It is also proposed to engage General Consultants/ Detailed Design Consultants who will provide all technical & supervisory assistance for faster execution of ROB/ RUB works.

Elimination of level crossings (LCs) is an ongoing process and these works are taken up on a programmed basis. Priority of LC elimination shall be based on its impact on safety in train operations, mobility of trains and impact for road users & feasibility etc.

All efforts are being made to pace up the execution of ROB/ RUB works for early elimination of LC Gates."

Vetting Comments of Audit

Gauge–wise break up of 1247 Nos. of works sanctioned in 2023-24, along with the present status of the same may be furnished.

Final Reply of Ministry

As on 01.04.2025, there are 16,349 nos. of Level Crossings (LCs) on Board Gauge network of Indian Railways. As per the progress made during the last 03 years, average progress for LC elimination per year comes out to be 824. With the introduction of new policy for sanctioning of ROB/ RUB works, the sanctioning of works has increased. 830 no. of works have been sanctioned in 2024-25. The ministry has taken following measures so far to remove the bottlenecks and expedite the progress of elimination of LC Gates:

i. Standardization of designs.
ii. Land acquisition permitted as per special Railway projects.
iii. Permit innovative design for faster execution.
iv. Execution to be done on Single Entity Basis.
v. LC Gates on MG/ NG found critical are also considered for elimination.

Further, posting of CAO/Construction/Road Safety Projects (CAO/C/RSP) has been planned for execution of Road Safety Works exclusively for holistic planning of Road Safety Works including feasibility studies & DPR preparation, sanction of work, detailed structural design, detailed estimate for execution and supervision as per requirement. This will be an additional executing unit for Road Crossings works along with other existing units. It has also been planned to engage Project Consultants who will provide all technical & supervisory assistance from feasibility to commissioning stage for faster execution of ROB/ RUB works.

Elimination of level crossings (LCs) is an ongoing process and these works are taken up on a programmed basis. Priority of LC elimination shall be based on its impact on safety in train operations, mobility of trains and impact for road users & feasibility etc. All efforts are being made to pace up the execution of ROB/ RUB works for early elimination of LC Gates.

Completion & commissioning of ROB/RUB works depends on various factors like cooperation of State Governments in giving consent for closure of LC, fixing of approach alignment, approval of General Arrangement Drawing (GAD), land acquisition, removal of encroachment, shifting of infringing utilities, statutory clearances from various authorities, law and order situation in the area of project / work sites, duration of working season in a year for the particular project / area due to climatic conditions etc. All these factors affect the completion time of the projects / works.

Ministry of Railway's case No. 2024-BC-PAC-XVII/132ndReport

Observation/Recommendation No. 16

The Committee note from the audit observation that important precautionary measures related to provision of signage boards, construction of underpasses, provision of fencing and deputation of forest staff in divisional offices has not been implemented in many sections, even after a lapse of more than 10 years following the issue of Joint General Advisories by Ministry of Environment & Forests, and Ministry of Railways. The Committee note from the submission of the Ministry that to reduce the safety hazards for animals, during construction of new line/multitracking/gauge conversion projects in forest area, the Railway is taking required wildlife mitigation measures in consultation with forest authorities like imposition of speed restrictions in identified locations, Provision of signage board for pre-warning the train crew about animal crossing zones, need based clearance of vegetation on the sides of the track within railway land, construction of underpasses and ramps for the movement of wildlife at identified locations, provision of fencing at isolated locations, deployment of forest Department staff in Railway control offices to liaison with Railway and elephant trackers engaged by Forest Department for timely action by alerting station master and loco pilots and installation of honey bee sound systems at locations which are prone to crossing of elephants. Besides, regular inspections at different levels are conducted to check the above measures taken in different sections and shortcomings noticed are made good at the earliest and necessary instructions to defaulting officials are issued for immediate compliance. The Committee are of the view that Road Crossing works, in lieu of Level Crossings should exclusively be carried out by the Railways without leaving this job to State Govt. /Road Owning Authority/Local Authority. The Committee also recommend that a database be prepared against those held accountable for not implementing important precautionary measures as issued by Joint General Advisories by Ministry of Environment & Forests and Ministry of Railways and action be taken promptly and without fail.

Action Taken by Ministry

All the efforts have been made to prevent Animal accidents on track. This is a continuous process. A number of preventive measures have already been taken by Zonal Railways in coordination with Ministry of Environment and Forest. Despite above measures, certain cases of train hits occur, for which new technological initiatives like Intrusion Detection system, Honey bee sounding system etc are being tried over Zonal Railways to further mitigate the cases of elephant mortality. As implementation of Joint General Advisories is a multi-departmental and long-drawn process, it is difficult to fix individual responsibility. Ministry of Railways is earnestly pursuing all the works required for prevention of elephant deaths on track.

Vetting Comments of Audit

No further comments

Final Reply of Ministry

In order to prevent accidents involving elephants on Railway tracks, works for installation of Optical Fiber Cable (OFC) based Distributed Acoustic Sensing (DAS), also known as Intrusion Detection System (IDS) for detecting presence of elephants on tracks at vulnerable locations, has been sanctioned.

Presently, it is working over 141 RKms on critical & vulnerable locations in Northeast Frontier Railway.

Ministry of Railway's case No. 2024-BC-PAC-XVII/132nd Report

Observation/Recommendation No. 17

Proper maintenance of the railway tracks is a pre-requisite for operating the trains without the occurrence of accidents. Mechanized maintenance should be prioritized as far as possible and human intervention should be kept to the minimum. For this purpose, there is a need for new machines and advanced technologies like B Scan USFD machine, Phased Array Ultrasonic Testing etc. Tracks which are of concrete sleepers should normally be maintained by heavy on-track machines. Provisions of integrated maintenance blocks/traffic blocks/corridor blocks for timely maintenance of assets on all routes including yard lines need to be given greater emphasis to prevent accidents. In October 2018, the Railway Board had directed for usage of wider and heavier PSC sleepers (RT-8527) on all tracks from 2019-20 onwards which is a welcome step in the direction of safety. Similarly, action plan for gradual replacement of flash butt (FB) welds in place of Alumino Thermit (AT) welds had been envisaged in Corporate Safety Plan (CSP) 2003-13. Despite the efforts made in this direction hitherto, there is much room left for achievement of the final goal and the process requires to be fast tracked. Training and certification as per International Standards and as prescribed in manuals, to the officials dealing with track maintenance, training and certification of welders in particular, and also conducting regular medical examination at prescribed intervals are some of the key areas to be given attention to, which would go a long way in developing a fatality free performance of the Railways.

Action Taken by Ministry

Ministry of Railways continuously exert on safe running of trains which covers the track safety also. Regular maintenance and inspection of track is done as per standards in Indian Railway Permanent Way Manual (IRPWM), which is revised from time to time. Various technological inputs are being introduced in inspection and maintenance both to minimize the human intervention and increase the reliability of assets.

Training module prepared by IRICEN and Guidelines of the same issued by E(MPP) dte. are already in place for imparting training of the officials related to track maintenance works which are of international standards (Annexure-III).

Policy regarding periodical medical examination of officials of Permanent Way has already been implemented over Indian Railways. Zonal Railways frequently conduct

periodical medical examination of their staff in the scheduled time as per laid down procedure.

Following steps have been taken to adopt the preferred FB welding and minimize AT welding: -

1. For all New Line/Gauge conversion/Doubling Projects, initial track laying is being done by using Second hand service rails. These service rails are been replaced by Long rail panels of 260m with one/two/three Flash Butt weld (FB) supplied from rail manufacturing plant. As maximum proportion in the form of long rails is being supplied to the field, therefore, number of AT welds requirement is reducing.
2. In all New Line/Gauge conversion/Doubling Projects, FB Welding by Mobile FB plant is being used to convert 260m rail panels into continuous welded rails.
3. Rails of different lengths are being used by cutting long rail panels, for use in Points and Crossings (P&C) area, so as to reduce AT Welding.
4. For loop lines and sidings, FB welding by Mobile Plants is being used for welding.
5. Older AT welds are being replaced with FB welds by through weld renewal works with Mobile Flash Butt Plant.

It is submitted that all the observations and recommendations made by committee are being taken in true spirit by Ministry of Railways which will make all genuine efforts to implement those to increase safety in train operation.

Vetting Comments of Audit

1. MoR may elaborate the various technological inputs introduced in Inspection and maintenance to increase the reliability in assets w.r.t mechanized maintenance of tracks.
2. MoR may elaborate on the steps being taken/envisaged to reduce the reasons for possible shortfall in provisions of various integrated maintenance blocks/traffic blocks/corridor blocks for timely maintenance of assets on all routes, yard lines etc.
3. It may be clarified whether there is any shortfall in conducting the prescribed medical examination of P-way officials in various Zonal Railways. If yes, Action plan implemented/envisaged by MOR to reduce this shortfall may be furnished.
4. Action plan, along with present status to replace AluminoThermit welds with Flash But welds may be furnished.
5. Action plan to mitigate the shortfall in providing Training and certification as per International Standards and as prescribed in manuals, to the officials dealing with track maintenance, with special emphasis on training the personnel posted as 'welders' may be furnished.

Final Reply of Ministry

Ministry of Railways continuously exert on safe running of trains which covers the track safety also. Regular maintenance and inspection of track is done as per standards in Indian Railway Permanent Way Manual (IRPWM), which is revised from time to time. Various technological inputs are being introduced in inspection and

maintenance both to minimize the human intervention and increase the reliability of assets.

Training module prepared by IRICEN and Guidelines of the same issued by E(MPP) dte. are already in place for imparting training of the officials related to track maintenance works which are of international standards (Annexure-C).

Policy regarding periodical medical examination of officials of Permanent Way has already been implemented over Indian Railways. Zonal Railways frequently conduct periodical medical examination of their staff in the scheduled time as per laid down procedure.

Following steps have been taken to adoption preferred Flash Butt (FB) welding and minimize Alumino Thermit (AT) Welding:

1. All New Line/Gauge conversion/Doubling Projects, initial track laying is being done using second hand service rails. These service rails are being replaced by long rail panels of 260m supplied for rail manufacturing plant. As maximum proportion in the form of long rail is being supplied to the field, therefore, number of AT welds requirement is reducing.
2. In all New Line/Gauge Conversion/Doubling projects project, FB welding by Mobile FB plant is being used to convert 260m rail panels into continuous welded rails.
3. Rails of different lengths are being used by cutting long rail panels for use in Points and Crossing (P&C) area, so as to reduce AT welding.
4. For Loop lines and sidings, FB welding by Mobile plants is used for welding.
5. Older AT welds are being replaced with FB welds by through welds renewal works with Mobile Flash Butt Plants.

It is submitted that all the observations and recommendations made by committee are being taken in true spirit by Ministry of Railways, which will make all genuine efforts to implement those to increase safety in train operation.

Ministry of Railways' case no. 2024-BC-PAC-XVII/132nd Report

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CHAPTER III
OBSERVATIONS/RECOMMENDATIONS WHICH THE COMMITTEE DO NOT DESIRE TO PURSUE IN VIEW OF THE REPLIES RECEIVED FROM THE GOVERNMENT

NIL

CHAPTER IV
OBSERVATIONS/RECOMMENDATIONS IN RESPECT OF WHICH REPLIES OF THE GOVERNMENT HAVE NOT BEEN ACCEPTED BY THE COMMITTEE AND WHICH REQUIRE REITERATION

NIL

CHAPTER V
OBSERVATIONS/RECOMMENDATIONS IN RESPECT OF WHICH GOVERNMENT HAVE FURNISHED INTERIM REPLIES/NO REPLIES

NIL

NEW DELHI:
27 March 2026
6 Chaitra, 1948 (*Saka*)

K.C. Venugopal
Chairperson,
Public Accounts Committee

APPENDIX-II

(Vide Paragraph 5 of Introduction)

ANALYSIS OF THE ACTION TAKEN BY THE GOVERNMENT ON THE OBSERVATIONS/RECOMMENDATIONS OF THE PUBLIC ACCOUNTS COMMITTEE CONTAINED IN THEIR ONE HUNDRED THIRTY SECOND REPORT (SEVENTEENTH LOK SABHA)

(i)	**Total number of Observations/Recommendations**	**17**
(ii)	**Observations/Recommendations of the Committee which have been accepted by the Government:** **Para Nos. 1, 2, 3, 4, 5, 6,7,8,9,10,11,12,13,14,15,16 and 17**	**Total: 17** **Percentage: 100**
(iii)	**Observations/Recommendations which the Committee do not desire to pursue in view of the reply of the Government:** **Para No. – NIL**	**Total: 0** **Percentage: 0**
(iv)	**Observations/Recommendations in respect of which replies of the Government have not been accepted by the Committee and which require reiteration:** **Para No. – NIL**	**Total: 0** **Percentage: 0**
(v)	**Observations/Recommendations in respect of which the Government have furnished interim replies:** **Para No. – NIL**	**Total: 0** **Percentage: 0**

MINUTES OF THE TWENTY THIRD SITTING OF THE PUBLIC ACCOUNTS COMMITTEE (2025-26) HELD ON 27th MARCH, 2026.

The Public Accounts Committee (2025-26) sat on Friday, the 27th March, 2026 from 1500 hrs to 1610 hrs in Samanvay-3, Parliament House, New Delhi.

PRESENT

Shri K. C. Venugopal - Chairperson

MEMBERS

LOK SABHA

2. Shri Jagdambika Pal
3. Shri Jai Parkash
4. Dr. C M Ramesh
5. Smt. Aparajita Sarangi
6. Dr. Amar Singh
7. Shri Anurag Singh Thakur

RAJYA SABHA

8. Shri Shaktisinh Gohil
9. Dr. K Laxman
10. Shri Sukhendu Sekhar Ray
11. Dr. Sudhanshu Trivedi

LOK SABHA SECRETARIAT

1.	Smt. Mamta Kemwal	-	Joint Secretary
2.	Smt. Archna Pathania	-	Director
3.	Shri Alok Mani Tripathi	-	Deputy Secretary
4.	Shri Pankaj Kumar Sharma	-	Deputy Secretary
5.	Ms. Malvika Mehta	-	Deputy Secretary
6.	Dr. Faiz Ahmad	-	Deputy Secretary

OFFICERS OF THE OFFICE OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA

1.	Shri Anand M. Bajaj	-	Dy. C&AG
2.	Shri Pravir Pandey	-	Addl. Dy. C&AG
3.	Shri Samar Kant Thakur	-	Addl. Dy. C&AG

4.	Shri Biren Parmar	-	Director General
5.	Ms. Reena Saha,	-	Director General
6.	Shri Mukul Jamloki	-	Dy. Director

PART A

XXXXX	XXXXX	XXXXX	XXXXX
XXXXX	XXXXX	XXXXX	XXXXX
XXXXX	XXXXX	XXXXX	XXXXX

PART B

1. Thereafter, for the second agenda of the Sitting – consideration and adoption of Draft Reports, the Hon'ble Chairperson invited suggestions of the Members on the following Draft Reports:-

(i) **********
(ii) **********
(iii) **********
(iv) **********
(v) **********
(vi) Draft Report on Action Taken by the Government on the Observations/ Recommendations of the Committee contained in their 132nd Report (17th Lok Sabha) on 'Derailment in Indian Railways'.

3. After some deliberations, the Committee adopted the aforesaid Draft Reports ******* and authorised the Chairperson to finalise the Reports in the light of factual verification done by the Audit.

The Committee then adjourned.

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