36

PUNCTUALITY AND TRAVEL TIME IN TRAIN OPERATIONS IN INDIAN RAILWAYS

MINISTRY OF RAILWAYS

PUBLIC ACCOUNTS COMMITTEE
(2025-26)

THIRTY SIXTH REPORT
EIGHTEENTH LOK SABHA

सत्यमेव जयते

LOK SABHA SECRETARIAT
NEW DELHI

PAC NO. 2430

THIRTY SIXTH REPORT

PUBLIC ACCOUNTS COMMITTEE
(2025-26)
(EIGHTEENTH LOK SABHA)

PUNCTUALITY AND TRAVEL TIME IN TRAIN OPERATIONS IN INDIAN RAILWAYS

MINISTRY OF RAILWAYS

Presented to Lok Sabha on: ***04.02.2026***
Laid in Rajya Sabha on: ***19.12.2025***

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

December 2025/ Agrahayana, 1947 (Saka)

CONTENTS

APPENDIX

*** To be appended later.**

COMPOSITION OF THE PUBLIC ACCOUNTS COMMITTEE (2024-25)

Shri K. C. Venugopal - Chairperson

MEMBERS
LOK SABHA

2. Shri T. R. Baalu
3. Dr. Nishikant Dubey
4. Shri Jagdambika Pal
5. Shri Jai Parkash
6. Shri Ravi Shankar Prasad
7. Shri C. M. Ramesh
8. Shri Magunta Sreenivasulu Reddy
9. Prof. Sougata Ray
10. Smt. Aparajita Sarangi
11. Dr. Amar Singh
12. Shri Tejasvi Surya
13. Shri Anurag Singh Thakur
14. Shri Balashowry Vallabhaneni
15. Shri Dharmendra Yadav

RAJYA SABHA

16. Shri Ashokrao Shankarrao Chavan
17. Shri Shaktisinh Gohil
18. Dr. K. Laxman
19. Shri Praful Patel
20. Shri Sukhendu Sekhar Ray
21. Shri Tiruchi Siva
22. Shri Sudhanshu Trivedi

COMPOSITION OF THE PUBLIC ACCOUNTS COMMITTEE (2025-26)

Shri K. C. Venugopal - Chairperson

MEMBERS
LOK SABHA

2. Shri T. R. Baalu
3. Dr. Nishikant Dubey
4. Shri Jagdambika Pal
5. Shri Jai Parkash
6. Shri Ravi Shankar Prasad
7. Dr. C. M. Ramesh
8. Shri Magunta Sreenivasulu Reddy
9. Prof. Sougata Ray
10. Smt. Aparajita Sarangi
11. Dr. Amar Singh
12. Shri Tejasvi Surya
13. Shri Anurag Singh Thakur
14. Shri Balashowry Vallabhaneni
15. Shri Dharmendra Yadav

RAJYA SABHA

16. Shri Ashokrao Shankarrao Chavan
17. Shri Shaktisinh Gohil
18. Dr. K. Laxman
19. Shri Praful Patel
20. Shri Sukhendu Sekhar Ray
21. Shri Tiruchi Siva
22. Dr. Sudhanshu Trivedi

Secretariat

1. Shri H. Ram Prakash - Joint Secretary
2. Smt. Archna Pathania - Director
3. Dr. Faiz Ahmad - Deputy Secretary

INTRODUCTION

I, the Chairperson, Public Accounts Committee (2025-26), having been authorized by the Committee, do present this Thirty-sixth Report (Eighteenth Lok Sabha) on **"Punctuality and Travel Time in Train Operations in Indian Railways"** based on Para 2.1 of C&AG Report number 22 of 2021 relating to the Ministry of Railways (Railway Board).

2. The Report of Comptroller and Auditor General of India was laid in the Parliament on 06 April, 2022.

3. The Public Accounts Committee (2024-25) selected the subject for detailed examination and report. The Committee took oral evidence of the representatives of the Ministry of Railways (Railway Board) at their sitting held on 24.09.2024. The Public Accounts Committee (2025-26) considered and adopted this Report at their sitting held on 02nd December 2025.

4. For facility of reference and convenience, the Observations and Recommendations of the Committee have been printed in **bold** and form Part-II of the Report.

5. The Committee would like to express their thanks to the representatives of the Ministry of Railways (Railway Board) for tendering evidence before them and furnishing the requisite information to the Committee in connection with the examination of the subject.

6. The Committee also 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.

NEW DELHI:
02 December , 2025
11 Agrahayana, 1947 (Saka)

K. C. VENUGOPAL
Chairperson
Public Accounts Committee

PART-I

Introduction

1. The Public Accounts Committee (2025-26) selected the subject "Punctuality and Travel Time in Train Operations in Indian Railways" based on Chapter 2 of C&AG Report No. 22 of 2021 in view of perennial issue of delays and issues arising from average travel time leaving enough scope for improvement in the operational framework.

2. The C&AG Report No. 22 of 2021 for the year ended March 2020 contains significant results of the compliance audit of the Ministry of Railways of the Union Government in Chapter 2 of the said report, Audit reviewed the policy adopted by Indian Railways in relation to two mobility outcomes- Punctuality and Travel Time and in their overview have stated that there has been 0.18 per cent improvement in punctuality performance of Express trains, 0.61 per cent improvement in the average speed of Express trains and decrease of 9.72 per cent in the average speed of Goods trains. Further, the target for achieving speed of 160 Kmph is getting revised from 1960 onward.

3. The Committee considered the subject for detailed examination, took oral evidences of the representatives of Ministries of Railways on 24 September, 2024 and obtained written replies on the same. Based on the oral evidence and written replies, the comprehensive examination of the subject is discussed in the succeeding paragraphs.

Punctuality and Travel Time in Train Operations

4. Indian Railways (IR), which is also known as the lifeline of the nation is one of the world's largest rail networks with 68,103 route Kilometers as on 31 March, 2021. It traverses the entire length and breadth of our nation connecting different regions and States. The Indian Railways system carries both freight and passenger carrying trains on the same track. The Indian Railways has become the 4th Railways to carry 1 Billion tonnes freight traffic in terms of originating loading. This has caused considerable increase in the number of freight trains. Also, due to persistent & burgeoning demands from all quarters, additional passenger carrying trains are to be introduced year on year. The inclusion of additional freight and passenger carrying trains with speed differentials has further crammed the existing congested system taking its toll in the form of loss in punctuality of passenger carrying trains and difficulty in smooth and faster movement of freight trains thus affecting the throughput.

5. Punctuality in train operations is an important element in the quality of service for both passenger and freight transport on IR. IR has been making efforts to improve the punctuality of passenger and freight transport on IR. IR has been making efforts to improve the punctuality of train services and also reducing the running time between two pairs of stations by way of better time tabling, improved infrastructure and rolling

stock. The punctuality performance of Indian Railways during the year 2021-22 was recorded at 90.48% as compared to 75.6% recorded in 2019-20.

Measuring Punctuality benchmark

6. The Ministry in its background note on punctuality performance has stated further as under:

> *"The constant endeavor of the Indian Railways is to become the leader in the nation's transportation sector by providing modern, reliable, safe, customer-led and customer -focused services to the nation. Punctuality is an important element in the quality of service for both passenger and freight transport on IR. IR has been making efforts to improve the punctuality of train services and also reducing the running time between two pairs of stations by way of better time tabling, improved infrastructure and rolling stock. The punctuality performance of Indian Railways during the year 2024-25 (upto August) was recorded at 78.67% as compared to 73.62% recorded in 2023-24. Indian Railways measures punctuality on terminating basis. However, punctuality monitoring is done at originating point and also at en-route stations at Divisional and Zonal levels using real-time on line Integrated Coaching Management System (ICMS). Indian Railways regularly monitors and takes corrective action for cases of punctuality loss at Divisional, Zonal and Railway Board levels. Digitalized electronic systems like Data loggers, Real Time Information Systems (RTIS) fitted locomotives etc. are being proliferated on Indian Railways for prompt and reliable reporting of punctuality. Time-Tabling is now done on a more scientific manner to run Passenger trains punctually in the most organized way. However, there are unforeseen factors like equipment failure and external factors like weather, alarm chain pulling, cattle run over, law and order cases etc. which are spontaneous and beyond the control of operations besides trains detained due to safety and infrastructure improvement works. All these have bearing on the punctuality."*

7. As per Audit, the IR measures the punctuality of trains at the terminating stations. In other countries, it is measured at the originating point, intermediate station, and at terminating stations. In addition, for measuring punctuality, IR provides an allowance of 15 minutes delay with reference to the scheduled time. Other countries have a much stricter threshold as shown in Table 2.3.

Table 2.3: Yardstick for measuring punctuality in different countries

Country	Punctuality Yardstick
Japan	In seconds[22]

Netherlands	3 minutes
Germany and Russia	5 minutes
Great Britain	10 minutes
India	15 minutes

Audit also analyzed the data for Mail/Express trains for 2016-17, 2017-18 and 2018-19 from ICMS report number 201 and noticed that on an average 13,15,456 trains are reported through ICMS per annum. Of these, only 29.64 per cent of trains (3,89,877 trains) reached on time (RT) and 20.17 per cent of trains (2,65,391 trains) arrived before time (BT). Remaining 50.19 per cent of trains (6,60,188 trains) are delayed. Before time cases indicates poor timetabling by provision of extra running time.

8. When asked about the reason for the Ministry to measure punctuality only at the terminating stations, contrary to global best practices that also measure at originating and intermediate stations and any plans to revise this methodology to align the measurement of punctuality with international standards and practices, the Ministry stated as under:

> *"On Indian Railways, though, punctuality is measured on terminating-basis, its monitoring is done at originating point and en-route stations at Divisional and Zonal level using real-time on-line system of Integrated Coaching Management System (ICMS).Thus, the monitoring of running is done on a continuous and real-time basis, and efforts are made to ensure punctual running at every leg of journey. Besides, adoption of Global best practices/ methodologies is an on-going process."*

9. When asked about the reason for decline in punctuality from 79% in 2012-13 to 69.23% in 2018-19 despite allowance of a 15-minute delay when measuring punctuality and the measures the Ministry are implementing to improve punctuality performance, particularly in zones with the poorest punctuality records, such as NCR, the Ministry gave the following reply:

> *"Owing to the consistent endeavour made by Indian Railways there has been a significant improvement in the punctuality performance of trains which was 75.69% during 2019-20 and 90.48% during 2021-22. The punctuality performance of NCR for the corresponding periods stood at 55.12% and 80.24% respectively. Moreover, effort for improvement in punctuality performance is a continuous and ongoing process over Indian Railways."*

10. On being asked whether the Ministry justify the increase in the number of train services (by 20%) as a factor for the decline in punctuality and If so, does it not run in

conflict with the developmental aspirations and parameters and the steps being taken to balance the introduction of new services with maintaining punctuality, the Ministry made the following submission:

> *"In a vast country like ours, there is an ever increasing demand for travel and Indian Railways have to meet the travelling demands, within the limited resources available. The demand far exceeds the resources. The increase in the number of services from various stations to the prominent destinations, adds to the saturation/over-saturation of the sections, thereby impacting throughput and punctuality. The consistent demand for connectivity in the form of provisions of stoppages, which are received/reflected by the large number of requests for provision of stoppages, received from Public representatives including Hon'ble Members of Parliament, Members of State Legislative Assemblies/Councils, etc. It is pertinent to mention that not only has there been an increase in the number of passenger carrying services but also the number of Freight services. Increased economic activities and loading/carrying of Goods/Commodities by Freight Trains, in the absence/very limited availability of dedicated freight corridors, affect the level of saturation and thus punctuality as well. Operating within the given constraints and continuously striving to meet the aspirations of the passengers, consistent efforts are being made to ensure punctual running."*

11. The Ministry representative made the following submission in this context:

> *'I have personally seen how difficult it is even to give a five-minute stop at one station. It is not a question of giving a stop of one minute to a train. It has a cascading effect. A large number of trains get affected. Only the need is, as you suggested, to increase the speed that we have committed. We will be able to do that once more and more trains go on DFC and we segregate that. We are also doing more and more tripling and quadrupling. The DFC will be the end of it.'*

12. When the Committee enquired about the corrective actions been taken by the Ministry to address these delays in view of the increase in the number of delayed trains from 1.27 lakh in 2015-16 to 1.82 lakh in 2018-19, the Ministry stated as under:

> *"The punctuality of trains during 2015-16 was 77.51% while it was 69.23% during 2018-19. However, owing to the consistent efforts and round the clock monitoring at all levels viz. at the Divisional, Zonal and Railway Board level, there has been a significant improvement in the punctuality performance of trains and it rose to 90.48% during 2021-22 and only 45.9 thousand trains showed loss of punctuality.*
> *With a view to improve punctuality, Indian Railways undertakes the assessments of factors impeding the punctual running of trains and initiated remedial measures which are both short term and long term. High priority is accorded to making resources available for speedy execution of critical capacity*

augmentation as these on completion inter-alia facilitate improved efficiency and reliability in train operations.
Root cause analysis is being done on a daily basis at Divisional and Zonal regarding the failures affecting punctual running of trains. Based on the analysis immediate corrective action is being done. Further, Railways have initiated various measures such as launching of Punctuality drives, sensitizing staff involved in train operations and having better co-ordination with State Governments and civil authorities to deal with law & order problems effectively."

13. When asked to provide detailed results from the computerized timetabling, grouping of trains, conflict resolution, and integrated maintenance, which were mentioned as potential ways to improve punctuality and the complete timelines for the full implementation of these initiatives, and how are their impacts planned to be measured, the Ministry responded as under:

"The exercise of rationalization of Time Table, undertaken with the assistance of IIT Bombay using their traffic simulator, has concluded and since November-2021, trains are being operated as per the rationalized time table. The major outcomes of the exercise included provision of integrated maintenance corridor blocks of 3 hours on all busy routes which help operate trains as per schedule and punctually."

Average speed of Trains

14. Indian Railway introduced "Mission Raftaar" in 2016-17 aiming to double the average speed of freight trains from 25 Kmph to 50 Kmph and to increase the average speed of Mail/Express trains from 50 Kmph to 75 Kmph by the end of 2021 22.However, the average speed of Mail/Express trains and Goods trains in 2019 20 were only 50.6 Kmph and 23.6 Kmph, respectively. Thus, the targets in respect of average speed are yet to be achieved by IR.IR has adopted rolling stock with the rated capacity of 100 to 160 Kmph and tracks with Maximum Permissible Speed (MPS) of 100-130 Kmph in certain sections of its network. However, audit analysis revealed that scheduled speed of 97.9 per cent Mail/Express trains was below 75 Kmph.

Table 2.1: Average Scheduled speed of 2951 Express trains – 'Trains at a Glance 2019'

Range of average speed (Kmph)	Number of Express trains
Below 30	60 (2.0 per cent)
30 to 40	219 (7.42 per cent)
40 to 50	933 (31.61 per cent)
50 to 55	578 (19.58 per cent)
55 to 75	1099 (37.42 per cent)
Above 75	62 (2.1 per cent)

15. As against the objective of Mission Raftaar, the average scheduled speed of Mail/Express trains in East Central Railway (ECR), Eastern Railway (ER), North Eastern Railway (NER), Northeast Frontier Railway (NFR), Northern Railway (NR) and South Western Railway (SWR) remained below 50 Kmph. The minimum average schedule speed was 44.85 Kmph for NER and maximum was 62.04 for NCR.

Annexure 2.2
Zone wise scheduled speed summary for Mail/Express
(Reference Para 2.1.8.2.(a))

Zone	Average scheduled speed	Zone	Average scheduled speed
CR	54.86	NWR	55.12
ECOR	53.48	SCR	54.9
ECR	45.62	SECR	56.01
ER	49.72	SER	56.71
KR	53.55	SR	51.44
NCR	62.04	SWR	47.55
NER	44.85	WCR	59.11
NFR	46.45	WR	54.44
NR	47.5	IR	52.98

Source: ICMS COIS REPORT NO.704

16. What specific measures has the Ministry undertaken to achieve the objectives of "Mission Raftaar" in light of the shortfall in the targeted speeds for Mail/Express and Goods trains as found in the Audit para?

> "In order to achieve the optimum speed of the passenger carrying trains, Indian Railways (IR) have taken a number of steps including rationalization of Time Tabling, with the assistance of IIT Mumbai using their traffic simulator, and has been able to enhance the speeds of over 2000 trains. In addition to this, IR has been replacing conventional coaches (ICF coaches) by modern light weight LHB coaches having state-of-the art technology. At the end of 2023-24, more than 50% of the stock holding of IR constitutes LHB stock. IR has also been proliferating Vande Bharat, Namo Bharat Rapid Rail and Amrit Bharat trains."

17. On being asked whether the Ministry can provide a timeline or roadmap for achieving the targets of doubling the speed of freight trains to 50 kmph and increasing the speed of Mail/Express trains to 75 kmph, the Ministry made the following submission:

In respect to infrastructural upgradation, emphasis is being given to enhance sectional speed upto 160 Kmph for Delhi-Howrah and Delhi-Mumbai route and upto 130 Kmph for remaining routes. Further, 100% electrification of the routes have been done, multi-tracking is being done to ease congestion and elimination of level crossings on Golden Quadrilateral and Golden Diagonal routes are also being done. It would be appreciated that the adoption/upgradation of technology, induction of rolling stock like LHB having high speed potential, multitracking works, introduction of services like Vande Bharat, Namo Bharat Rapid Rail and Amrit Bharat trains would help Indian Railways speed up train services in a significant way.

It is submitted that allotment of rakes and their movement over Indian Railways are dynamic in nature, and the freight movement on Indian Railways depends on a complex interplay of various factors. In order to ensure seamless and fast freight movement, Indian Railways has been taking many measures including infrastructure projects such as Eastern Dedicated Freight Corridor (EDFC) and Western Dedicated Freight Corridor (WDFC) to create dedicated freight path to give exclusive access to freight trains. Completion of targeted super critical and critical doubling, multi - tracking and other traffic facility works will lead to higher speed of freight trains. Completion of rail flyover and bypass works is being planned and ensured so that congested junctions are bypassed, leading to higher freight train speed. Higher horsepower locomotives are being inducted. Likewise terminals and their connectivity is being improved as well. Moreover, Ministry of Railways has been approaching the issue of freight movement in a holistic manner and has been addressing the issue through multiple synchronized strategies – both short term and long term. All these strategies will have a positive impact on average speed of freight trains and transit times in railways transportation."

18. As regards maximum permissible speed (MPS) Audit in its report has stated that the target of achieving 160 Kmph speed of Coaching trains and 100 Kmph speed of Freight trains, were fixed on several occasions between 1960 to 2016-17. The timeline to increase the speed was constantly revised. However, the same has not been achieved until 2019-20. Thus, even after many years of planning and targeting, there has been no change in the MPS of Rajdhani and Shatabdi trains since their induction. Rajdhani/Shatabdi trains and other Mail/Express trains have a maximum permissible speed (MPS) of 130 Kmph and 110 Kmph respectively in India. As of March 2020, the top speed in India is 160 Kmph and that too for a few special trains in limited segments. At the end of December 2019, out of 9890 RKMs of Golden Quadrilateral Golden Diagonal routes over the IR network, only 3030 RKMs (30.6 per cent) are fit for train operation at the speed of 130 Kmph.

19. On being enquired as to how the Ministry proposes to address the significant gap between the rolling stock's rated speed capacity (100-160 kmph) and the current average operational speeds, the Ministry stated as under:

"As has been submitted earlier also, the average speed of passenger carrying trains depends upon various factors which include Maximum Permissible Speed (MPS) of a section, number of stoppages, condition/type of the coaching stock being used, traction used, Speed restrictions, Gradients and curves, etc. It would be appreciated that to ensure optimal utilization of the speed potential of rolling stocks, all passenger carrying trains are charted at Maximum Permissible Speed (MPS) of the sections over which they operate. The existing gap between the operational speeds and the rated speeds of the rolling stock would narrow down gradually with the enhancements of sectional speeds for which works are being undertaken by the Indian Railways as a continuous and on-going exercise."

20. When enquired about the primary reasons for underutilization of existing infrastructure and challenges hindering the expansion of track sections to support speeds of 130 kmph or higher and the steps being proposed to be taken by the Government to enhance infrastructure commensurately with the increase in the number of passenger services in order to achieve the targeted speed, the Ministry stated as below:

"The sectional speeds on IR are 110 kmph & 130 kmph and to ensure optimal utilization of the speed potential of rolling stocks and the sectional speeds, all passenger carrying trains are charted at Maximum Permissible Speed (MPS) of the sections over which they operate. Speeding up train services and rationalizing the allowance were also part of rationalization exercise. This in turn helped minimize conflicts in the existing time table and helped in optimal utilization of the existing infrastructure."

21. On being enquired as to why has there been an exponential increase in introduction of new trains in recent without commensurate enhancement of the infrastructure, the Ministry in their written reply have stated as under:

"IR has taken/is taking up all critical infrastructure enhancement works to enable meet the demand of both the Passenger and the Freight segments. However, in a vast country like ours, there is an ever increasing demand for travel and Indian Railways have to meet the travelling demands, within the limited resources available. The demand far exceeds the resources. The increase in the number of services adds to the saturation/over-saturation of the sections, thereby impacting throughput and punctuality. The consistent demand for connectivity is also to be taken care of by the provisions of stoppages. It is pertinent to mention that not only has there been an increase in the number of passenger carrying services but also Freight services. Increased economic activities and loading/carrying of Goods/Commodities by Freight Trains, in the absence/very limited availability of dedicated freight corridors, affect the level of saturation. Operating within the

given constraints, IR is continuously striving to meet the aspirations of the passengers."

22. When asked about further actions planned by the Ministry to sustain and enhance these improvements in train speeds and the criteria for selecting the 2000 trains whose speeds were enhanced and whether there are any plans to extend this exercise to other trains, the Ministry stated as under:

"The exercise was undertaken on the entire Indian Railways encompassing all trains. Trains were speeded up inter alia by removal of excess time allowances, if any, rationalization of stoppage time at stations enroute and by compaction of trains. Indian Railways (IR) constantly strives and would continue with its endeavour to enhance the speed of passenger carrying trains and rationalize time tables of passenger carrying trains.

In view of the fact that introduction of new services, extension and increase in frequencies of existing trains being an on-going and regular exercise, Indian Railways undertakes time tabling exercise every year and accordingly launches new time tables, incorporating all these changes. IR also undertakes Zero Base time tabling, as per requirement."

23. When asked as to why has there been no significant change in the Maximum Permissible Speed (MPS) of Rajdhani, Shatabdi, and other Mail/Express trains since their induction and steps being taken by the Ministry to ensure that all trains with LHB coaches are scheduled at maximum permissible limit and what are the safety concerns and standards that need to be addressed to increase MPS across more segments of the network, the Ministry gave the following reply:

"Acquisition of new coaches for replacement of over-aged stock is a continuous process on Indian Railways. Coaches are replaced after attaining their prescribed codal life or prematurely in case of heavy damage to structural members.

IR has proliferated LHB coaches which are technologically superior with features like Anti climbing arrangement' Air suspension (Secondary) with failure indication system and less corrosive shell. These coaches have better riding and aesthetics as compared to the conventional ICF coaches and have design/operating speed of 180/160 kmph. The Production units of Indian Railways are producing only LHB coaches from April 2018 onwards. The production of LHB coaches has continually increased during the years and more than 35700 LHB coaches have been turned out.

In addition, Vande Bharat trains introduced over the IR network are Semi-High speed train services with higher acceleration and deceleration, design/operating speed of maximum 180/160 kmph. These trains have state of the art facilities and enhanced safety features such as Automatic Train Protection System (KAVACH), Jerk free semi-permanent couplers, Automatic Plug and IC Doors, Fully Sealed Gangways, Ergonomic seats, CCTVs, Coach condition monitoring System (CCMS), Special lavatory in DTC for Divyangjan passengers, Emergency

Alarm Push buttons and Talk Back Units, Platform side cameras including front & rear view cameras outside the Driving coach, Improved Fire safety provisions etc. Enhancement of speed of trains is a continuous and an ongoing process over Indian Railways.

Further, for catering to wider population, 2 Amrit Bharat trains have been introduced over IR network and running in regular service in ER (MLDT-SMVB) & ECR (DBG-ANVT). It has been decided to further proliferate these Amrit Bharat Trains.

Maintenance, Renewal and Upgradation of track on any section are taken up based on the speed potential of section decided by classification of route.

Indian Railway Broad Gauge track has been classified in different groups based on future maximum permissible speeds as under:

Group A: Speed upto 160 kmph.

Group B: Speed upto 130 kmph.

Group C: Suburban sections of Mumbai, Delhi, Chennai and Kolkata.

Group D: Speed upto 110 kmph.

Trains are introduced at maximum permissible speed (MPS) based on the sectional speed of the section depending upon classification.

Sectional speed over 23000 track kms covering Golden Quadrilateral (GQ) & Diagonal routes and other 'B' routes has been raised to 130 kmph. Further, works for raising of sectional speed to 160 kmph on existing New Delhi-Mumbai and New Delhi-Howrah routes are in progress. For movement of freight trains at 100 kmph, rails of higher grade (R260 and above) are required to sustain the increased dynamic loads. Indian Railway has already started using R260 rails at its network for renewal/construction works since 2021. Once these rails are laid on the required routes, the goods train can be permitted at 100 kmph, subject to observance of other protocols.

Presently, the trains operating with LHB stocks are being charted at Maximum Permissible Speed (MPS). However, there are limiting factors like level of sectional utilization, use of mixed stock, operation of mixed traffic, etc. Continuing with its plan for induction and proliferation of LHB coaches, Indian Railways, during the period 2019-20 to 2023-24, have converted 886 rakes, which were being used for operating around 572 pairs of trains, into LHB rakes. Going ahead, during 2024-25 (upto September-2024), 58 rakes have additionally been converted."

24. When asked about the slow progress in conversion of ICF coaches into LHB coaches, the Ministry submitted as under:

"Replacement of coaches is a continuous process and is carried out based on condition/completing codal life etc. The Production units of Indian Railways are producing only LHB coaches from April 2018 onwards. The production of LHB coaches has continually increased during the years and more than 35,700 LHB coaches have been turned out."

25. When asked about the concrete action taken to address the critical issues affecting the punctuality and travel time in train operations across India, especially for conversion of ICF coaches into LHB coaches and the target date for achieving the ambitious speed of 160 kilometre per hour, following submission has been made by the Ministry:

> *"Enhancement of speed of Trains is a continuous and ongoing process over Indian Railways. With a view to enhance the speed of the trains and their punctuality , IR is adopting a two prong approach- (a) making efforts to enhance capacity & adoption of modern technology (b) ensure optimal utilization of existing resources.*
>
> *Accordingly, in respect to infrastructural upgradation, emphasis is being given to enhance sectional speed upto 160 Kmph for Delhi-Howrah and Delhi-Mumbai route upto 130 Kmph for remaining routes. Further, 100% electrification of the routes have been done, multi-tracking is being done to ease congestion and elimination of level crossings on Golden Quadrilateral and Golden Diagonal routes are also being done.*
>
> *IR are replacing conventional coaches (ICF coaches) by modern light weight LHB coaches having state-of-the art technology. At the end of 2023-24, more than 50% of the stock holding of IR constitutes LHB stock. IR is also proliferating Vande Bharat, Namo Bharat Rapid Rail and Amrit Bharat trains, which are faster services and have state-of-the art technology.*
>
> *For better utilization of existing resources and to achieve the optimum speed of the passenger carrying trains, Indian Railways (IR) have undertaken rationalization of Time Table, with the assistance of IIT Mumbai using their traffic simulator. Standardization of rakes has helped in better utilization of assets and also helped improve punctuality of services."*

26. *When asked about the reasons for the regional disparities in train speeds, with certain zones like NCR achieving higher average speeds and others like NER lagging behind and the specific actions being planned to address these disparities and ensure a more uniform speed enhancement across all zones, the Ministry stated as under:*

> *"Average speed of passenger carrying trains being dependent on various factors like Maximum Permissible Speed (MPS) of a section, condition/type of the coaching stock being used, traction used, Speed restrictions, Gradients and curves, number of stoppages etc. As the sectional speeds on IR are generally below 130 kmph, and extent of such sections is not uniform over all the zonal railways, the thus average speeds are also not uniform. Besides, the number of stoppages, traffic mix and its volume, level of congestion etc. also have a bearing on the average speed of trains.*
>
> *Average speed is governed by sectional speed of the routes, which depend upon route classification irrespective of boundaries of railway zones. Zonal Railways which contain major parts of Group A & B routes and are having favourable terrains will have higher average speeds."*

27. When the Committee asked as to what concrete outputs have been achieved till date and what limitations have been faced, the Ministry replied as below:

> *"In January, 2020, the manual capturing of arrival/departure of Mail/Express trains was around 48% and the remaining 52% was automatic which has increased upto 95%, at present. The percentage of automatic updating of timings is monitored on a daily basis as an index of efficiency of punctual operation and monitored through ICMS reports. Moreover, the integrity of the data relayed is very important as it is in public domain through NTES. The limitations include non- availability of automatic data capture facilities at some stations, occasional RTIS failures and lack of RTIS in some Locos which are not so equipped. However, efforts to reduce failures and proliferation of Real Time Information Systems (RTIS) fitted locomotives is an on-going process."*

28. When the Committee enquired about the steps contemplated to overcome the unforeseen factors like equipment failure and external factors like weather, alarm chain pulling, cattle run over, law and order cases etc. which are spontaneous and beyond the control of operations besides trains detained due to safety and infrastructure improvement works and have a bearing on the punctuality, the Ministry submitted as under:

> *"Some of the external factors viz. weather (fog, excessive rains resulting in line wash out, heavy storms damaging electrical poles / wires), state law & order problem like sitting on dharna on the tracks (resulting in cancellation / diversion of trains) have direct bearing on punctuality of trains, which are completely unforeseen and beyond the control of Railway administration. However, to the extent possible, IR takes steps like coordinating with the State Authorities, to mitigate the impacts of such events on punctual running of trains. While undertaking infrastructural improvement and safety related works, IR has to strike a balance between Passenger Safety & Passenger Convenience (i.e. punctuality), and Safety takes precedence."*

Table 2.3: Yardstick for measuring punctuality in different countrie

Country	**Punctuality Yardstick**
Japan	In seconds[22]
Netherlands	3 minutes
Germany and Russia	5 minutes
Great Britain	10 minutes

India	15 minutes

29. On being enquired whether any comparison had been made with the achievements made by China in the field of improvement in average speed where in the two decades since 1990, average passenger speed has increased by 60% against their achievement of 5%, the Ministry gave the following reply:

> *"While Indian Railways is always open to adoption of new technologies & practices, it may be appreciated that the operating conditions as well as socio-political conditions in India are different from the conditions prevailing in China. As such, a comparison of speeds between the two countries will not be justified. However, speeding up of trains is a constant endeavour and continuous process on Indian Railways."*

30. When asked about the steps taken and achievements made by Indian Railways to reduce the travel time and improve the punctuality and overall performance to the level of best global practices that measure the punctuality and travel time at originating and intermediate stations, the Ministry replied as under:

> *"In its constant endeavour to maintain/ensure punctual running of passenger trains, Indian railways takes corrective measures w.r.t. the causes affecting punctuality. Indian Railways have an integrated digital platform for monitoring of train operations comprising Integrated Coaching Management System (ICMS) and Control Office Application (COA) which are integrated with National Train Enquiry System (NTES). Progressive advancement for automatic uptake of timings by the train movement itself, is being achieved through GPS devices fitted locomotives {Real-Time Train Information System (RTIS) and Remote Monitoring and Management of Locomotives and Trains (REMMLOT)} and Data loggers integrated with the station signaling system. Accordingly, the automatic data capturing of arrival/departure of Mail/Express trains has been increased upto 95%. Furthermore, the percentage of automatic updating of timings is monitored on a daily basis as an index of efficiency of punctual operation and monitored through ICMS reports."*

31. When asked as to why the desired improvement in critical areas like rakes standardisation, modernisation, use of advanced technology, time bound completion of maintenance operations, signalling system, emergency response system etc. could not be achieved to improve the passenger experience in relation to the travel time and punctuality despite the fact that there has been significant investments of Rs.22.5 lakh crore in railway infrastructure over the past decade, the following submission has been made by the Ministry:

> *"With a view to provide better safety and travel experience, Indian Railways have inducted LHB coaches and have also undertaken the standardization of LHB*

rakes for better utilisation of coaching assets. The extant policy on Standardization of LHB rakes, issued in October, 2023, provide for 12 (Twelve) General class & Sleeper class non- AC coaches and 08(eight) AC-Coaches, in a train of 22 coaches, thereby providing greater accommodation for the passengers using General and non-AC Sleeper Coaches.

As a part of its modernisation, Indian Railways (IR) are replacing conventional coaches (ICF coaches) by modern light weight LHB coaches having state-of-the art technology. At the end of 2023-24, more than 50% of the stock holding of IR constitutes LHB stock. Continuing with its plan for induction and proliferation of LHB coaches, Indian Railways, during the period 2019-20 to 2023-24, have converted 886 rakes, which were being used for operating around 572 pairs of trains, into LHB rakes. Going ahead, during 2024-25 (upto September-2024), 58 rakes have additionally been converted.

Further, as a part of the adoption/upgradation of modern technology, faster services like Vande Bharat, Namo Bharat Rapid Rail and Amrit Bharat trains are being introduced. Introduction and proliferation of Vande Bharat services, which are faster services having better speed potential, is a major milestone in the developmental history of IR. Presently, 136 Vande Bharat services, 2 Namo Rapid Rail and 4 Amrit Bharat services are operational over the IR network. Introduction of more such services would help Indian Railways speed up train services in a significant way.

With a view to improve the punctuality of trains, IR has taken a number of steps which include rigorous monitoring, standardization of rakes and provision of spare rake, removal of infrastructure bottlenecks in a planned manner, rationalization of Time Table in a scientific manner, provision of Bye-pass at stations to avoid engine reversal etc. Use of an integrated digital platform for monitoring of train operations comprising the Integrated Coaching Management System (ICMS) and Control Office Application (COA) and their integration with National Train Enquiry System (NTES), used by passengers is a major way forward. Progressive advancement for automatic uptake of timings by the train using GPS fitted locomotives {Real-Time Train Information System (RTIS) and Remote Monitoring and Management of Locomotives and Trains (REMMLOT)} and use of Data loggers in an integrated manner with the station signaling system, are helping in realistic monitoring and reporting of Punctuality of Passenger carrying trains."

32. When the Committee enquired as to how does the Ministry plan to balance the introduction of new train services with maintaining the punctuality of existing services and whether there were any plans to upgrade signaling systems or use advanced technology to better manage increased traffic, the Ministry responded as under:

"In view of increasing demand of train service, Indian Railways regularly introduces new train services; at the same time making all efforts to ensure punctuality of existing services by taking measures like regular monitoring of passenger carrying trains at Divisional, Zonal and Railway Board levels and taking corrective actions for cases of punctuality loss. Necessary time table changes, as and when required are also undertaken, so as to minimize/eliminate conflicts.

Upgradation of Signalling System is a continuous process and Relay/Electronic interlocking, Digital Axle counters, Electric Point machines, LED signals, Electric lifting barrier, data logging and failure alert system etc have been provided for safe and efficient operations. For dealing with more train services on existing network provision of Intermediate Block Signals (IBS) and Automatic Block Signalling (ABS) are implemented on busy sections.

So far, Relay/Electronic interlocking on 6608 stations (99.4%), 4813 Rkm ABS and 770 IBS have been provided on BG network on IR."

33. When the Committee asked as to how does the Ministry assess the effectiveness of its monitoring measures to address punctuality issues and corrective actions taken by the Ministry based on monitoring data and their impact on reducing delays, and steps being taken to address primary internal factors and a detailed breakdown of external factors and their specific impact on train operations, the Ministry gave the following reply:

"During 2024-25 train delays have been reduced by 5% as compared to that of 2023-24. During 2023-24, the percentage of train delays was 26% and in 2024-25 the delay of trains is 21%. The steps takenfor improvement in punctuality are as under:

- *Impetus on infrastructural works such as laying of third, fourth and fifth lines for creation of additional paths.*
- *Early commissioning of Dedicated Freight Corridors.*
- *Electrification of all the BG routes.*
- *Right powering of trains by utilising new generation High capacity locomotives.*
- *Advanced new generation Vande Bharat trains quick acceleration and deceleration.*
- *Raising sectional speeds and speed of loop lines.*
- *Station yard redevelopment.*
- *Provision of fixed maintenance blocks on all sections*
- *Removal of Permanent speed restrictions.*
- *Time-tabling through simulation software."*

Besides, "The External factors include Alarm Chain Pulling, Miscreant Activity, Agitation, Run Over, Law & Order, Incident, Bad Weather, Level crossing Gate etc., while the internal factors include-

- *Asset failures include Diesel Loco, Electric Loco, Carriage & Wagon, Signal & Telecom, OHE/Grid Failure, Electric defect, Accident etc.*
- *Infrastructural and maintenance work includes Construction, Engineering, Non Interlocking, Planned Block, Railway Electrification etc.*
- *Congestion-Traffic, Out of Path, Line not clear etc.*

Based on assessments of factors impeding the punctual running of trains, remedial measures both short term and long term are initiated. High priority is accorded to making resources available for speedy execution of critical capacity augmentation as these on completion inter-alia facilitate improved efficiency and reliability in train operations.

Root cause analysis is being done on a daily basis at Divisional and Zonal level regarding the failures affecting punctual running of trains. Based on the analysis immediate corrective action is being done. Further, Railways have initiated various measures such as launching of Punctuality drives, sensitizing staff involved in train operations and having better co-ordination with State Governments and civil authorities to deal with law & order problems effectively."

Steps towards increasing Average speed

34. Audit noticed that before implementation of Mission Raftaar, the average speed of EMU (Electric Multiple Unit) trains in 2015-16 was 41 kmph. Despite induction of fast moving EMU services, the average speed decreased to 37.9 kmph during 2019-20. Thus, no appreciable improvement in the average speed of EMU trains was achieved despite conversion of trains into MEMU (Mainline Electric Multiple Unit)/ and DEMU (Diesel Electric Multiple Unit).

35. When the Committee asked as to why has there been no significant improvement in the average speed of EMU services, which decreased from 41 kmph in 2015-16 to 37.9 kmph in 2019-20 despite the introduction of MEMU/DEMU services and the conversion of trains to superfast categories, the Ministry in their written reply have stated as under:

"As a part of "Mission Raftaar" and during the period 2015-16 and 2021-22, 414 Passenger train services running with conventional coaches were converted into MEMU services. This has helped speeding up passenger trains. The speed of Passenger trains have increased from 33.9 kmph during 2015-16 to 37.4 Kmph during 2022-23. During 2015-16, on an average daily basis, 5128 sub-urban services were operational. This number rose to 5396 during 2019-20, impacting the speed of EMU services. The capacity creation and augmentation of infrastructural facilities, presently underway, would help improve speed of sub-urban services."

In this regard, the Ministry representative submitted during evidence as under:

'So far as passenger trains are concerned, we are converting them more and more into DEMU and MEMU. Its advantage is that both sides of it have engines.

So, engine reversal does not take time. It saves a lot of time. The station capacity gets improved, and we are able to run more trains.'

36. When asked about the reasons for the wide gap between the potential and actual speeds despite adopting rolling stock with rated capacity of 100-160 kmph and tracks with MPS of 100-130 kmph and the scheduled speed of 97.9% Mail/Express trains being below 75 kmph, the Ministry made the following submission:

"As has been submitted earlier also, the average speed of passenger carrying trains depends upon various factors which include Maximum Permissible Speed (MPS) of a section, condition / type of the coaching stock being used, traction used, Speed restrictions, Gradients and curves, number of stoppages, etc, which are the limiting factors. It would be appreciated that to ensure optimal utilization of the speed potential of rolling stocks, all passenger carrying trains are charted at Maximum Permissible Speed (MPS) of the sections over which they operate. However, the existence of limiting factors has a bearing on the gap between the Potential/rated speed and the actual speed."

Decline in average speed of trains

37. Audit randomly test checked travel time (Originating to Destination basis) of 300 trains for the year 2012 and 2019. It was observed that there has been an overall average increase of 15 minutes in travel time for these trains.

38. Referring to the Audit, when the Committee asked as to how did the Ministry respond to it and what were the plans to meet the benchmark, the Ministry made the following submission:

"In order to achieve the optimum speed of the passenger carrying trains, Indian Railways (IR) have taken a number of steps including rationalization of Time Tabling, replacement of conventional coaches (ICF coaches) by modern LHB coaches. Accordingly, Indian Railways have speeded up over 2000 trains. Further, at the end of 2023-24, more than 50% of the stock holding on IR constitutes LHB stock. IR has also been proliferating Vande Bharat, Namo Bharat Rapid Rail and Amrit Bharat trains.

In respect to infrastructural upgradation, emphasis is being given to enhance sectional speed upto 160 Kmph for Delhi-Howrah and Delhi-Mumbai route upto 130 Kmph for remaining routes. Further, 100% electrification of the routes has been done, multi-tracking is being done to ease congestion and elimination of level crossings on Golden Quadrilateral and Golden Diagonal routes are also being done.

The adoption/upgradation of technology, induction of rolling stock like LHB coaches, multitracking works, introduction of services like Vande Bharat, Namo Bharat Rapid Rail and Amrit Bharat trains would, help Indian Railways speed up train services in a significant way."

39. When the Committee enquired about the trains like North East Express (12505), Kaifiat Express (12226) having zero per cent punctuality in 2018-19 and asked as to how does it match with their aspirations and the expectations of the travelers and how was it seen by them in the backdrop of VISION 2024, the Ministry stated as under:

> *"The punctuality of 12225/26 Azamgarh-Delhi Kaifiyat Express & 12505/06 Kamakhya-Anand Vihar (T) Express, during the year 2024-25, have improved and are 36%/75% and 83%/55% respectively. Further, Zonal railways have been asked to monitor the punctuality of the services and ensure their punctual running."*

Criteria of Superfast trains in IR

40. In May 2007, IR decided that if the average speed of a train, in both Up and Down directions, is a minimum 55 Kmph on Broad Gauge and 45 Kmph on Metre Gauge, it would be treated as a Superfast (SF) train. The benchmark of 55 Kmph for classifying a train as Superfast is itself low, given the MPS of rolling stock and sectional speed. There has been no change in the criteria of classification of SF trains since 2007. Audit found that, out of 478 Superfast trains of IR, the scheduled speed of 123 Superfast trains was less than 55 Kmph.

41. When asked as to what measures are being taken by the Ministry to increase the average speed of freight trains, particularly in zones like Prayagraj division of NCR, where the speed is less than 30 kmph, the Ministry made the following submission:

> *"In order to ensure seamless and fast freight movement, Indian Railways has been taking many measures including infrastructure projects such as Eastern Dedicated Freight Corridor (EDFC) and Western Dedicated Freight Corridor (WDFC) to create dedicated freight path to give exclusive access to freight trains. Completion of targeted super critical and critical doubling, multi - tracking and other traffic facility works will lead to higher speed of freight trains. Completion of rail flyover/bypass works is being planned and ensured so that congested junctions are bypassed, leading to higher freight train speed. Higher horsepower locomotives are being inducted. Likewise terminals and their connectivity are being improved as well. As regards Prayagraj division of NCR, yard remodeling of Prayagraj junction will also help in increasing freight train speeds. Work for doubling of connectivity between DFC and IR stations in Prayagraj division is under process to improve transit times over Prayagraj division."*

42. On being enquired as to how is the Ministry addressing operational conflicts in mixed traffic regimes where slower freight trains impede other train services and why has the Ministry not revised the criteria or taken corrective actions to meet the standards given that 123 trains categorized as Superfast are scheduled to run at

speeds below the minimum requirement of 55 kmph, the following submission has been made by the Ministry:

"As per the current policy relating to categorisation of services into superfast trains, the trains having an average end to end speed of above 55 Kmph are qualified as super fast service. As regards the 123 trains having speed below the criterion of 55 kmph of Superfast trains but still categorized as Superfast trains, a scrutiny of the list of 123 trains reveals as under:-

S.I.	***Number of services in the list of 123 trains***	***Reply***
1.	*40 services*	*have speed over 55 kmph as per the current data available in ICMS*
2.	*07 services*	*As per the existing guidelines in respect of trains in operation on Konkan Railway, a weightage of 30% on the actual average speed is given, to calculate the net average speed. As such, the average speed of these trains is more than 55 Kmph, as per data available.*
	Total- 47 services	

In respect of the remaining Superfast trains for which the speed has been found to be less than 55 Kmph, it is stated that at the time of introduction of these trains, the charting of these was done in line with the criteria fixed for Superfast trains and were operating well beyond 55 Kmph. However, due to provision of additional stoppages after commencement of regular operation of these trains, the average speed of a few trains have got affected. Standing instructions are in place which stipulates that the extant rules regarding superfast categorization be strictly adhered to by the Zonal railways. The same has been reiterated in the month of August, 2024."

43. When asked whether there are any plans by the Ministry to review and update the criteria for classifying trains as Superfast, considering that the benchmark has not changed since 2007, the Ministry stated as under:

"At present, there is no proposal to review and update the criteria for classifying a train as Superfast train service."

44. On being asked about specific measures taken by the Ministry to improve the punctuality of the 23 trains that had consistently performed poorly in both 2015-16 and 2018-19 and why did some trains, like the North East Express and Kaifiat Express, have zero percent punctuality in 2018-19, and what steps were taken by the Ministry made the following submission:

"With a view to improve punctuality, Indian Railways undertakes the assessments of factors impeding the punctual running of trains and initiated remedial measures which are both short term and long term. High priority is accorded to making resources available for speedy execution of critical capacity augmentation as these on completion inter-alia facilitate improved efficiency and reliability in train operations.

Root cause analysis is being done on a daily basis at Divisional and Zonal regarding the failures affecting punctual running of trains. Based on the analysis immediate corrective action is being done. Further, Railways have initiated various measures such as launching of Punctuality drives, sensitizing staff involved in train operations and having better co-ordination with State Governments and civil authorities to deal with law & order problems effectively.

The punctuality of 12225/26 Azamgarh-Delhi Kaifiyat Express & 12505/06 Kamakhya-Anand Vihar (T) Express, during the year 2024-25, have improved and are 36%/75% and 83%/55% respectively. Further, Zonal railways have been asked to monitor the punctuality of the services and ensure their punctual running."

45. When asked as to why has there been an increase of only 3.5% in average speed over the last ten years despite investments in track infrastructure, rolling stock, and signaling systems and what are the main challenges preventing more substantial progress and what plans do the Ministry have for further infrastructure enhancements to meet the speed targets of Mission Raftaar, the Ministry stated as under:

"Adoption/upgradation of technology, induction of rolling stock like LHB having high speed potential, multitracking works have enabled Indian Railways, introduce faster services like Vande Bharat, Namo Bharat Rapid Rail and Amrit Bharat trains. However, IR is still in the phase of transition with limiting factors like operation of mixed traffic, congestion at terminals, saturations of line-capacity, etc. still persisting. Number of stoppages and introduction of new services etc. also have a bearing on the average speed.

Conversion of conventional ICF coaches into LHB coaches is being done in a phased manner. The full functionality of the DFCs would help reduce congestion on IR network, although in a limited manner. However, it will help improve the speed and punctuality of passenger carrying trains. The on-going infrastructural works help improve train operations both in terms of speed and punctuality."

46. On being enquired about the detailed data on punctuality measured continuously and in real-time, as claimed in response to the Audit, and how it compares with the terminating station measurements and what specific steps are being taken by the Ministry to address the significant regional disparities in average train speeds and punctuality across different zones, the Ministry responded as below:

"The punctuality, on Indian Railways, is measured on terminating-basis. However, monitoring of punctuality is done at originating point and en-route stations at Divisional and Zonal level using real-time on-line system of Integrated Coaching Management System (ICMS). As such, monitoring of running is done on a continuous and real-time basis.

The automatic data capturing of arrival/departure of Mail/Express trains has been increased upto 95%. The percentage of automatic updating of timings is monitored on a daily basis as an index of efficiency of punctual operation and monitored through ICMS reports. Moreover, the integrity of the data relayed is very important as it is in public domain through NTES.

The regional/zonal differences can be attributed to non-uniformity ofsectional speeds, territorial coverage under 110kmh/130 kmph, the differences in the volume of traffic handled, the traffic-mix, level of congestion etc. All these have a bearing on the average speed of trains."

Punctuality of Goods trains

47. As against the target of IR to double the average speed of freight trains, the actual average speed of freight trains declined by 7.45 per cent. The slow moving freight trains reduce track availability, thereby impacting the passenger trains also. Most of the zones have not incorporated Goods paths (time window for operation of freight train) in their Working Time table. Also, the schedule of freight trains is largely not laid down/ fixed. As a result, punctuality in the running of freight trains cannot be measured.

48. When the Committee asked as to why has the average speed of freight trains declined by 7.45% against the target of doubling the speed and why have most zones not incorporated Goods paths in their Working Time Tables and what actions are being taken by the Ministry to ensure the inclusion of freight train paths in all zones and how does the Ministry plan to establish fixed schedules for freight trains to allow for the measurement of their punctuality and fixed time of delivery for consignments,the Ministry made the following submission:

"On IR network, both coaching and freight trains run simultaneously, and coaching/passenger trains are given priority over goods trains. Therefore, it is not possible to have enforceable time-tabled goods paths. Even in case of a few time-tabled freight trains, they are rarely able to run on their scheduled paths due to various reasons such as:

(i) Aggregation of demand due to uncertainty in placement of indents along with timely supply of empty rakes and uncertainty in completion of loading time

(ii) The challenge in matching the demand and supply at origin and destination points

(iii) Network capacity and terminal handling constraints as well as congestions on-route/en-route junction and congestions due to freight terminal capacity, traction change due to incomplete electrification, engine reversals, out of path coaching trains and asset failures etc.

(iv) Heterogeneous traffic moving on common IR network as well as speed differentials due to different permissible speeds for different freight stock for loaded and empty stock and for weighted and unweighted trains.

Indian Railways is working out freight corridors in time tables to streamline the running of freight trains. With capacity augmentation (multi-tracking) and junction easing (RORs and bypasses), freight traffic movement shall be seamless across various zones."

Further, "Ministry of Railways had started schedule-based Time table container train services on 25 streams. However, it is to be noted that on IR network, both coaching and freight trains run simultaneously, and coaching/passenger trains are given priority over goods trains. Therefore, it is not possible to have enforceable time-tabled goods paths. Moreover, Ministry of Railways has been approaching the issue of freight movement in a holistic manner and has been addressing the issue through multiple synchronized strategies – both short term and long term. All these strategies will have a positive impact on average speed of freight trains and transit times in railways transportation."

Table 2.8: Delay of Goods trains at interchange points

Name of the interchange point	**Zones**	**Range of detention during 2018-19**
Jharsuguda	SER – SECR	2-11936 minutes
BHC	ECoR – SCR	151-248 minutes
Odur	SR – SCR	5-40 minutes
NKJ	SECR – WCR	171 -262 minutes
Gudur	SCR – SR	2-213 minutes
ITR	SECR	66-186 minutes
Coaching train delayed in 2018-19 at Interchange point		
Gudur	SR - SCR	1384
Duvvada	SCR - ECOR	758
Nagpur	CR-SECR	482

49. On being enquired as to why has there been a little improvement in reducing travel time, improving punctuality despite the significant increase in capital investments since 2015, the Ministry responded as under:

> *"Since 2014, IR has made significant capital investments in increasing capacity. Various network capacity augmentation works of multi-tracking, ROR, bypasses etc are being undertaken by IR, with some of them. These are at various stages of completion. The effect of these capital investments will be visible only after complete network wide capacity augmentation. Moreover, there has been a significant growth in traffic since 2014 in the number of trains: both goods and passenger. This is evident from the fact that freight loading has increased from 1051.64 MT in FY 2013-14 to 1588.02 MT in FY 2023-24 (provisional) excluding loading on Konkan Railway Corporation Limited (KRCL). Maintenance corridors have been created to ensure smooth running of these increased number of trains, which has affected the speed of trains for the time being. As regards guaranteeing delivery times for freight trains, once separate corridors for goods and passengers trains are completed, fixing guaranteed delivery times will become operationally feasible. In this direction, Ministry of Railways has proposed 3 economic corridors namely Energy corridor, Mineral corridor and Cement corridor for exclusive freight train running. Completion of these will, over time, lead to increase in freight train speed."*

50. Given the impact of freight services on passenger train operations, when the Committee asked as to what coordination mechanisms exist between freight and passenger service management to optimize track usage and ensure punctuality and how does the Ministry prioritize the scheduling of passenger and freight services, especially in high-traffic sections, the Ministry responded as below:

> *"Indian Railways lacks a dedicated corridor for operation of freight services and in such a scenario both types of services viz. the freight and the passenger services are operated utilizing the same infrastructure. While passenger trains operate as per a charted schedule, the freight services are operated to open timings. Thus, a delicate balance is maintained by the Indian Railways to ensure seamless supply of Goods and essential commodities across the country and operate passenger trains to time. Normally, precedence is given to passenger carrying trains."*

51. On being asked as to what criteria are used to select freight trains for timetabling, and how are performance metrics established and tracked for these trains an whether there are any long-term strategies or projects planned to address the underlying issues affecting freight train speed and punctuality, the Ministry made the following submission:

> *"Dedicated freight path is required for time table freight services. Performance is measured on the basis of journey completion and terminal handling after the*

periods of transit and loading, unloading, shunting and examination. Indian Railways have, however, approached the issue of low freight speeds in a holistic manner and is addressing the issue through multiple synchronized strategies which have an individual impact, but upon coming together, would work synergistically to have a healthy impact on average speed of freight trains and transit times in railways transportation.

In order to increase average speed of freight trains, Ministry of Railways has been taking many measures. Dedicated freight paths are being created to give exclusive access to freight trains. The Eastern Dedicated Freight Corridor (EDFC) and Western Dedicated Freight Corridor (WDFC) are being executed. Completion of targeted super critical and critical doubling, multi - tracking and other traffic facility works will lead to higher speed of freight trains. Completion of rail flyover/bypass works is being ensured so that congested junctions are bypassed, leading to higher freight train speed. Higher horsepower locomotives are being procured. Terminals and their connectivity are being improved as well.

Long term strategies to address freight train speed and punctuality are as under:

- *Capacity enhancement works e.g. new line, multi-tracking, terminal development works, Rail over Rail (ROR), bypass lines, flyovers etc.*
- *Construction of Dedicated Freight Corridors (DFCs)*
- *Elimination of level crossings*
- *Provision for corridors maintenance blocks (Rolling stock block programme)*
- *Safety fencing along tracks*
- *Regular monitoring of freight train through digital platforms e.g. Freight Operation and Information System (FOIS), Integrated Coach Management System (ICMS) etc."*

52. On being asked as to how much freight has been transferred from road traffic to rail traffic after DFC, the Ministry stated as following:

The details of Trucks on train service on WDFC are as under (till 20th Oct, 2024.)

Financial Year	***Tonnage (T)***
2021-2022	*136439*
2022-2023	*55541*
2023-2024	*196404*
2024-2025 (Till Oct, 2024)	*159204*

Total	***547588***

The details of NMGHS service on WDFC are as under (till Sept, 2024):-

Financial Year	***Tonnage (T)***
2023-2024	*6012.27*
2024-2025	*12877.55*
Total	***18889.82***

Note:

(i) Containerized traffic from ICDs connected with DFCCIL has shown a significant growth to the tune of 59.12% as compared to pre-DFC traffic.

(ii) Apart from through train operations, DFCCIL has generated 32.43 million tons outward traffic, generating revenue of 2,506.25 crores.

Factors impacting Punctuality

53 .Out of 33 factors, major six factors caused 66 per cent of detention to trains over the IR network. These factors are Out of path, Engineering, Re scheduling of trains by various Zonal Railways (ZR), delay from other Railways, Planned block open line and Traffic.

54. When the Committee enquired as to why has the Ministry not adequately addressed the top six internal factors, which contributed to 66% of train detentions over two years (2017-19), the Ministry made the following submission:

"The top six internal factors (Out of path, Engineering, Rescheduling of trains, From other Railways, Planned block open line, Traffic) are the reasons which have reduced punctuality from 66% in 2017-19 to 47% in 2024-25. Signalling assets reliability improvement measures (technological upgradation, midterm rehabilitation and redundancy) are regularly undertaken. Specific measures like power supply system (IPS); Earthing & lightening protection system; Data logging & failure alert generation, replacement of Signal filament lamps by LED signals, hardware redundancy in critical equipments & communication media diversity (Copper /OFC media etc) are being implemented.

Impact of Signalling Asset failure on punctuality is less due to degraded mode for train operations such as "Calling-On Signal operations" in case of track circuit failures at stations. Moreover, Signalling failure still allows train operations on Paper Authority. Due to above reasons, the overall impact on punctuality of trains on account of signalling asset failures is limited to 4%- 6% of the total on IR.

Signal Punctuality Loss on Indian Railway						
Dept.	***2022-23***	***2021-22***	***2020-21***	***2019-20***	***2018-19***	***2017-18***
S&T	*10667*	*5707*	*1346*	*17772*	*22261*	*12263*
IR total	*255555*	*107805*	*23624*	*302405*	*376573*	*297107*
% of IR	***4%***	***5%***	***6%***	***6%***	***6%***	***4%***

During 2017-19, signalling Asset failure impact on train punctuality was 5%.

Acquisition of new coaches for replacement of over-aged stock is a continuous process on Indian Railways. Coaches are replaced after attaining their prescribed codal life or prematurely in case of heavy damage to structural members.

IR has proliferated LHB coaches which are technologically superior with features like Anti climbing arrangement, Air suspension (Secondary) with failure indication system and less corrosive shell. These coaches have better riding and aesthetics as compared to the conventional ICF coaches and have design/operating speed of 180/160 kmph. The Production units of Indian Railways are producing only LHB coaches from April 2018 onwards. The production of LHB coaches has continually increased during the years and more than 35700 LHB coaches have been turned out.

In addition, Vande Bharat trains introduced over the IR network are Semi-High speed train services with higher acceleration and deceleration, design/operating speed of maximum 180/160 kmph. These trains have state of the art facilities and enhanced safety features such as KAVACH, Jerk free semi-permanent couplers, Automatic Plug and IC Doors, Fully Sealed Gangways, Ergonomic seats, CCTVs, Coach condition monitoring System (CCMS), Special lavatory in DTC for Divyangjan passengers, Emergency Alarm Push buttons and Talk Back Units, Platform side cameras including front & rear view cameras outside the Driving coach, Improved Fire safety provisions etc. Enhancement of speed of trains is a continuous and an ongoing process over Indian Railways.

Further, for catering to wider population, 2 Amrit Bharat trains have been introduced over IR network and running in regular service in ER (MLDT-SMVB) & ECR (DBG-ANVT).

It has been decided to further proliferate these Amrit Bharat trains.

Track modernization and improvement works have been taken up to enhance reliability of track and minimize the delays on Engg. Account as under:

i. *Laying of track structure consisting of 60 kg longer rails on prestressed reinforced concrete (PSC) sleepers with modern fittings.*
ii. *Use of thick web switches and weldable Cast Manganese Steel (CMS) crossings etc.*
iii. *Providing Long welded rails/Continuous welded rails to eliminate the joints.*

iv. Use of Flash butt welding in place of thermit welds by providing long rail panels and testing of Flash Butt welds by advanced technology of Phased Array Ultrasonic testing to enhance weld

vii. Mechanization of track laying reliability.

v. Adoption of mechanized system for track maintenance using high output plain tampers and points & crossing tampers for improved maintainability & reliability of track.

vi. Deployment of state-of-the-art modern machines including Rail Grinding machines manufactured in India on Railway network to further improve asset reliability.

vii. Mechanization of track laying activity through use of track machines like PQRS, TRT, T-28 etc. to improve progress of track renewal along with ensuring quality and to reduce human errors."

55. In the given background that more than 60% of detentions occurred in Northern Railway (NR), North Central Railway (NCR), and East Central Railway (ECR), when the Committee enquired as to why have these zones not adequately controlled the top internal factors causing delays and what targeted actions are being taken by the Ministry to specifically address the issues of "availability of path," "Engineering," and "Traffic" delays in these zones, the Ministry submitted as under:

"Indian Railways on regular basis instructs Zonal Railways, including Northern Railway, North Central Railway and East Central Railway, to monitor punctuality and improve punctuality. Besides, all efforts are made to avoid traffic delays. To ease out operational constraints and for capacity augmentation - Infrastructural and safety related works are being undertaken on priority basis."

56. Referring to the audit observation that the "Engineering" factor was identified as a critical cause of delays in both Northern and East Central Railways, when the Committee asked about specific engineering issues contributing to the said delays and the way they were being addressed and whether there is a proposal by the Ministry to invest in new technology or infrastructure to minimize engineering-related delays, the Ministry stated as under:

"Factor related to Engg. mainly pertain to Traffic Block and Temporary Speed Restrictions which are required for execution of track maintenance and renewal activities. These are integral part of the train operation system to ensure safety and speed potential of the trains. Concept of Rolling Block Program has been introduced vide Gazette Notification G.S.R. 870(E) dated 29th November, 2023 to enable integrated maintenance planning for all infrastructure in optimal and efficient manner."

57. With reference to the rescheduling of trains within different railways which has been cited by the Ministry as one of the top reasons for delays in Northern Railway, when the Committee enquired about the main reasons behind frequent rescheduling and the steps being taken by the Ministry to minimize this issue and adopting a more

dynamic and responsive scheduling system to mitigate the impact of rescheduling on train punctuality, the Ministry replied as under:

> *"There are several factors leading to rescheduling of trains. Among the factors responsible for rescheduling of trains are: Non-Interlocking work for undertaking major infrastructural work on a section, bad weather (particularly foggy weather, leading to delay in arrival of the rake for its return journey in up /down direction), law & order problem in any particular area viz. Kisan Andolan in the recent past on the borders of Delhi leading to diversion of routes which resulted in delayed arrival /departure of the trains, accidents etc. In order to minimize the problem of rescheduling rakes, if available in reserve, are deployed in case of late arrival of rakes. In case of issues relating to law and order, coordination with State Authorities is done to mitigate the impact."*

58. In the backdrop of the submission of the Ministry mentioning external factors beyond the control of Railway administration as a reason for performance decline and contention of the audit that these factors contributed only 12.89% to delays in the period 2017-19, when the Committee enquired about the primary internal factors affecting punctuality and steps being taken to address them and a detailed breakdown of external factors and their specific impact on train operations, the Ministry submitted as under:

> *"The External factors include Alarm Chain Pulling, Miscreant Activity, Agitation, Run Over, Law & Order, Incident, Bad Weather, Level crossing Gate etc., while the internal factors include-*
>
> - *Asset failures include Diesel Loco, Electric Loco, Carriage & Wagon, Signal & Telecom, OHE/Grid Failure, Electric defect, Accident etc.*
> - *Infrastructural and maintenance work includes Construction, Engineering, Non Interlocking, Planned Block, Railway Electrification etc.*
> - *Congestion-Traffic, Out of Path, Line not clear etc.*
>
> *Based on assessments of factors impeding the punctual running of trains, remedial measures both short term and long term are initiated. High priority is accorded to making resources available for speedy execution of critical capacity augmentation as these on completion inter-alia facilitate improved efficiency and reliability in train operations.*
>
> *Root cause analysis is being done on a daily basis at Divisional and Zonal level regarding the failures affecting punctual running of trains. Based on the analysis immediate corrective action is being done. Further, Railways have initiated various measures such as launching of Punctuality drives, sensitizing staff involved in train operations and having better co-ordination with State Governments and civil authorities to deal with law & order problems effectively."*

59. As per the Audit, although external factors contribute only 12.89% to overall delays, the Ministry's response highlighted those factors as significant. In the light of this, when the Committee asked about the plan of the Ministry to distinguish and

address both internal and external factors effectively, given their varying impacts on punctuality, the Ministry responded as below:

> *"While the external factors are beyond the control of Indian Railways, all efforts are made to address and minimize the issues related and contributing to the loss of punctuality of trains owing to internal factors. It may be appreciated that the cascading effect of these unforeseen factors/events is also quite significant on the punctuality of train services.*
> *The steps taken include assessments of factors impeding the punctual running of trains, and initiating both short term and long term remedial measures. High priority is accorded to making resources available for speedy execution of critical capacity augmentation as these on completion inter-alia facilitate improved efficiency and reliability in train operations. Root cause analysis is being done on a daily basis at Divisional and Zonal level regarding the failures affecting punctual running of trains. Based on the analysis immediate corrective action is being done. Further, Railways also takes measures such as launching Punctuality drives, sensitizing staff involved in train operations, undertaking preventive/periodic maintenance of assets to ensure asset reliability, etc.*
> *Signalling assets reliability improvement measures (technological upgradation, midterm rehabilitation and redundancy) are regularly undertaken. Specific measures like power supply system (IPS); Earthing & lightening protection system; Data logging & failure alert generation, replacement of Signal filament lamps by LED signals, hardware redundancy in critical equipments & communication media diversity (Copper /OFC media etc) are being implemented.*
> *Impact of Signalling Asset failure on punctuality is less due to degraded mode for train operations such as "Calling-On Signal operations" in case of track circuit failures at stations. Moreover, Signalling failure still allows train operations on Paper Authority. Due to above reasons, the overall impact on punctuality of trains on account of signalling asset failures is limited to 4%- 6% of the total on IR.*
> *During 2017-19, Signalling Asset failure impact on train punctuality was 5%.*

Inadequate Path availability

60. Path i.e. occupancy free section, is the primary requirement for smooth running of trains. The trains starting on right time but get delayed due to non- availability of path indicate inefficient monitoring mechanism.

61. When enquired about the strategic measures being taken by the Ministry to optimize path availability and reduce traffic congestion and whether there were any plans to expand or upgrade the existing track infrastructure to accommodate the increasing number of trains and improve path availability, the Ministry made the following submission:

> *"Indian Railways have taken a number of steps including rationalization of Time Tabling, with the assistance of IIT-Bombay using their traffic simulator, to*

accommodate the increasing number of trains and improve path availability. Functional operation of Dedicated Freight Corridor(DFC), completion of major infrastructural works are also aimed at reducing congestion and generating capacity. Further, electrification of the routes, multi-tracking are done to ease traffic congestion. However, in a vast country like ours, there is an ever increasing demand for travel and Indian Railways have to meet the travelling demands, within the limited resources available. The demand far exceeds the resources. The increase in the number of services from various stations to the Prominent destinations, adds to the saturation/over-saturation of the sections, thereby impacting throughput and punctuality. The consistent demand for connectivity is also to be taken care of by the provisions of stoppages. It is pertinent to mention that not only has there been an increase in the number of passenger carrying services but also the number of Freight services. Increased economic activities and loading/carrying of Goods/Commodities by Freight Trains, in the absence/very limited availability of dedicated freight corridors, affect the level of saturation and thus punctuality as well. Operating within the given constraints and continuously striving to meet the aspirations of the passengers, consistent efforts are being made to ensure smooth/punctual train operation."

62. Given the fact that the non-availability of path due to conflicts in the timetable is a major cause of train delays, when the Committee enquired as to why is there still reliance on manual methods for timetable preparation and why computerized timetabling systems to minimize conflicts and optimize train schedules were not fully implemented by the Ministry and what was the timeline for the adoption of a fully automated and integrated timetable preparation system across Indian Railways, the Ministry replied as under:

"To address the major cause of train delays arising out of non-availability of path Indian Railways has undertaken the exercise of rationalization of Time Table, with the assistance of IIT Bombay using their traffic simulator, to accommodate the increasing number of trains and improve path availability. Besides, Indian Railways is also using and improving the SatSANG application for time-tabling exercise to optimize path and avoid conflict."

63. When the Committee asked as to what specific actions are being taken to expand capacity or reduce congestion at bottleneck points and how was the Ministry planning to balance the addition of new trains with the existing line capacity to prevent further congestion, the Ministry made the following submission:

"To decongest major junctions like Kanpur, Prayagraj, Patna etc. and those junctions which have high traffic volume, Indian Railways, with a view to avoid terminal congestion, as a short term measure, undertake shifting of trains to satellite stations keeping in view operational feasibility and passenger convenience. Accordingly, train services have been/are shifted to satellite stations like Panki Dham for Kanpur; Rambagh, Allahabad City, Chheoki for

Prayagraj; Patliputra, Rajendra Nagar & Danapur for Patna; Madan Mahal for Jabalpur, Duvvada for Visakhapatnam, Anand Vihar and Brijwasan like stations for Delhi area, Narmadapuram for Bhopal, New Raipur for Raipur, etc. These efforts would help reduce congestion at these terminals and create spare capacity.

To expand capacity and reduce congestion at bottleneck points, following efforts are being done:

- *Capacity enhancement works e.g. new line, multi-tracking, terminal development i.e. yard modifications, Rail over Rail (ROR), bypass lines, flyovers etc.*
- *Signaling improvements works such as automatic signaling, Intermediate Block Huts (IBH), splitting of longer block section etc.*
- *Elimination of level crossings, provision of Road over bridge, Road under bridge etc*
- *Safety fencing along tracks.*

Aforementioned efforts will help in running of additional new trains and reduce congestion at bottleneck points."

Sectional Capacity

64. Sectional capacity increased with doubling/tripling/automatic signaling, but the handling capacity of traffic nodes (Junction/yard) were not raised in proportion, resulting in bottlenecks. There is higher line capacity utilization in the adjacent section of the major junctions due to receipt/dispatch and accumulation of multidirectional traffic; trains get bunched at Major Junctions. For example, the line capacity utilization near Kanpur Central Junction is 175 *per cent* (Kanpur-Juhi) and in Prayagraj area it is around 137 *per cent*. Similarly, near Patna junction (PNBE), the line capacity utilization was 172.6 *per cent* in Rajinder Nagar (RJPB)-PNBE and 170 *per cent* in Danapur (DNR)-PNBE section.

65. Referring to the fact that despite increases in sectional capacity, the handling capacity of traffic nodes (junctions, yards) has not been raised proportionately, when the Committee asked about the Ministry's plan to upgrade handling capacities at these critical nodes and further asked whether they had any ongoing projects to automate or modernize terminal operations to facilitate faster arrivals, departures, and other related activities, theMinistry stated as under:

"In the year 2024-25, Rs. 26000 Cr has been allotted for traffic facility works which includes terminal development works such as adding loop lines, yard development, standardization of loop lengths, Intermediate Block Huts (IBH), splitting of longer block section etc. To facilitate faster arrival and departure at terminals, in addition to above works, automatic signaling works near major junctions are also being taken up."

66. When asked whether there are any plans in place to establish a centralized and integrated control system with automated tools for traffic control and how did the

Ministry expect to transition from a manual, voice-command-based system to a fully automated, computerized control system, the Ministry replied as under:

> *"Centralized Traffic Control (CTC) which enables centralized operation of station signaling gears from remote place, has been installed on Ghaziabad –Kanpur section of 400 RKm to gain further experience."*

67. Referring to the Ministry's claim that monitoring and planning are done in real-time through ICMS, critical decisions like loop/platform allocation are still made manually, when the Committee asked about the steps being taken by the Ministry to automate decision-making processes to reduce human error and improve efficiency and whether there was any timeline for integrating all station resource management under a centralized, computerized system to minimize delays at interchange points, the Ministry stated as under:

> *"Normally, the train services on IR operate from designated platforms. It is only in cases of late running/late arrival etc, that these are to be changed/ altered. Adoption of new technologies on Indian Railways is an on-going process."*

68. When the Committee enquired as to what infrastructure projects were being undertaken to expand capacity and reduce congestion and how did the Ministry intend to manage traffic better at these heavily utilized sections to prevent bottlenecks, the Ministry responded as under:

> *"Indian Railways are undertaking electrification of the routes, multi-tracking, etc. for creation of additional capacity and to reduce congestion. On the existing sections, shifting/diversion of trains, operating Freight though by-passes/alternate route, if any, is done to mitigate the effect of traffic congestion.*
> *As on 01.04.2024, across Indian Railways, 488 Railway Infrastructure projects (New Line, Gauge Conversion and Doubling) of 44,488 Km length, costing approx. Rs 7.44 lakh crore are in planning/approval/construction stage, out of which 12,045 Km length has been commissioned and an expenditure of approx. Rs 2.92 lakh crore has been incurred upto March, 2024. Completion of these Infrastructure projects will enhance line capacity of the IR network."*

Time table preparation and Allowances

69. In IR, time table is prepared manually and the existing timetables are being modified based on needs. In comparison, globally, simulators and computerized systems are used in the preparation of the time table. The running time of trains is fixed on scientific calculations. Though IR has simulators but does not use the same for time table preparation. International Union of Railways (UIC) recommended a time supplement of three to five percent for passenger trains up to speed of 140 Kmph.

70. The Ministry in their background note have stated in this regard as under:

"Under the recently concluded exercise of rationalization of Time Tabling, undertaken with the assistance of IIT Bombay and CRIS/New Delhi, the corridors for maintenance blocks have been increased from two to three hours and also resulted in increased number of freight paths. IR has been able to enhance the speeds of over 2000 trains. Under the exercise, the travelling time of 1600 trains have been reduced by more than 30 minutes & more (including 900 trains in which travelling time has been reduced by more than an hour), 362 passenger trains have been converted into Mail/Express trains by speeding up while 120 Mail/Express have been converted into super fast service (i.e. end to end speed of above 55 Kmph). Thus, an increase of about 5% in the average speed of passenger train services has been achieved by rationalization of Time Table."

71. In the backdrop of the fact that there is a wide variation in time allowances (ranging from 7% to 38%) across different trains and zones, when the Committee asked as to why has a standardized yardstick for traffic allowances not been prescribed to reduce these disparities and how did the Ministry plan to align time allowances more closely with international standards, such as those recommended by the International Union of Railways (UIC), to improve punctuality and consistency, the Ministry made the following submission:

"Indian Railways endeavours to keep the Traffic Allowance at a bare minimum and it is fixed as per the actual requirement of running depending on the level of congestion, cross movement, crossing/precedence etc. Since, these factors are different on different zonal railways there is no uniform Traffic allowance."

72. In view of the fact that despite the availability of simulators, the Indian Railways does not use them for timetable preparation, when the Committee wanted to know the reasons for this underutilization and further asked as to when did the Ministry plan to fully integrate simulators and computerized systems for timetable creation and what steps were being taken to ensure that running times are based on scientific calculations rather than manual approximations, the following was submitted by the Ministry:

"Making use of the Simulator of IIT-Bombay, Indian Railways have undertaken the rationalization of time table. Besides, Indian Railways is using and improving the SatSANG application for time-tabling exercise to optimize path and avoid conflict. Time-Tabling is done to run Passenger trains punctually in the most organized way. Though the Simulators give a fair evaluation for planning, however, the simulation under ideal conditions may not reflect the reality at ground level of actual operations where unforeseen factors like terminal detentions, loss of path, equipment failures, external factors, etc. have a significant role and impact. As such, there will always be a visible gap between simulation results and outputs from ground operations."

73. When the Committee asked about the measures being taken to streamline operations and improve coordination between different zones, the following reply was made by the Ministry:

> *"In view of the fact thatIndian Railways lacks a dedicated corridor for operation of freight services passenger trains are operated as per a charted schedule or scheduled time-table, while the freight services are operated to open timings. As such, there is normally no issue with regard to handling over/taking over of Passenger carrying train. However, as the Freight trains are operated to open timings, there may be possibility of conflict/clash of timings, which are mutually resolved."*

74. When the Committee asked why there is still reliance on manual methods for timetable preparation and the timeline for the adoption of a fully automated and integrated timetable preparation system across Indian Railways, the Ministry submitted as below:

> ***"****To address the major cause of train delays arising out of non-availability of path Indian Railways has undertaken the exercise of rationalization of Time Table, with the assistance of IIT Bombay using their traffic simulator, to accommodate the increasing number of trains and improve path availability. Besides, Indian Railways is also using and improving the SatSANG application for time-tabling exercise to optimize path and avoid conflict."*

75. When the Committee asked to provide more details on the methodology and outcomes of the rationalization of time tabling exercise conducted with IIT Mumbai, the following submission has been made by the Ministry:

> *"The exercise was undertaken in two phases. In the phase-I of the rationalization exercise, Mumbai-Delhi corridor had been taken up for zero base time tabling with the help of Software Aided Train Scheduling and Network Governance (SATSANG) application of CRIS. To assess the outcome and ascertain whether the results were optimum, IIT-Bombay had been involved for validation of the results obtained. After validation of Zero Base Time Table concepts on New Delhi-Mumbai Central Route, with the simulator of IIT-Bombay, the same was adopted for other routes. The exercise involving CRIS included- (a) use of IT System for dynamic data extraction, (b) integration with the actual running data, (c) removal of excess time allowances beyond the norms, (d) Rationalization of halt time at stations and (e) compaction of trains to create Corridor Blocks and Freight paths.*
>
> *In the Phase-II, the Zero Base Time Table exercise was taken up on the Mumbai-Howrah, Howrah-Chennai sectors and Chennai-Mumbai sectors with technical support from CRIS and IIT Bombay for simulation, and further implementation by Zonal Railways on other routes."*

General

76. When the Committee asked the number of top priority projects that have been completed and the number of projects remaining and the plans to complete the unfulfilled objectives, the Ministry made the following submission:

> *"As per Vision-2024, 272 sanctioned projects of total length 24,358 km were identified for completion, out of which 152 projects of length 12,299 km have been completed. Of the remaining 120 projects of length 12,058 km, sections of 6,618 km length have been commissioned.*
> *Apart from above, 51 sanctioned projects of total length 6,488 km were identified for completion during the period 2025-30, out of which 02 projects of total length 84 km have been completed. Of the remaining 49 projects of total length 6,403 km, sections of length 1,770 km have been commissioned.*
> *48 unsanctioned projects of total length 4,958 km were also included in Vision 2024 statement, out of which 29 projects of total length 2,853 km have been sanctioned since inception of Vision 2024 to till date.*
> *The completion of any Railway project(s) depends on various factors like quick land acquisition by State Government, forest clearance by officials of forest department, deposition of cost share by State Government in cost sharing projects, priority of projects, shifting of infringing utilities, statutory clearances from various authorities, geological and topographical conditions of area, law and order situation in the area of project(s) site, number of working months in a year for particular project site due to climatic conditions etc. and all these factors affect the completion time and cost of the project(s).*
>
> ***Steps taken to expedite completion of projects***
>
> *Various steps taken by the Government for speedy approval and implementation of rail projects include (i) setting up of Gati Shakti units (ii) prioritisation of projects (iii) substantial increase in allocation of funds on priority projects (iv) delegation of powers at field level (v) close monitoring of progress of project at various levels, and (vi) regular follow up with State Governments and concerned authorities for expeditious land acquisition, forestry and Wildlife clearances and for resolving other issues pertaining to projects. This has led to substantial increase in rate of commissioning since 2014.*
> *In Vision-2024, 58 super critical and 68 critical works were identified. All 58 super critical works have been completed. Out of 68 critical works,32 works have been completed and remaining 36 works are under various stages of execution."*

77. When asked to elaborate on the role of digital systems like Real Time Information System (RTIS) and Data Loggers in improving operational efficiency and punctuality and about future technological advancements being implemented, the Ministry stated as under:

"Indian Railways have progressively moved to automatic uptake of timings by the train movement itself. This is achieved through GPS devices fitted with locomotives {Real-Time Train Information System (RTIS) and Remote Monitoring and Management of Locomotives and Trains (REMMLOT)} and Data loggers integrated with the station signaling system. This helps in better monitoring of trains. The application of new technologies can be considered as and when they come.

Data logger system logs signaling events and sent to centrailised divisional server. At present data logger system is mainly used for 'offline' simulation purpose to analyse signaling faults.

RTIS provides Real Time Train information about location of the Train for feeding it to control office application which in turn is integrated to National Train Enquiry System."

78. When asked about the steps being taken to implement measures like computerized timetabling, train grouping, conflict resolution and integrated maintenance which could improve punctuality, the Ministry responded as under:

"Computerized timetabling, train grouping, conflict resolution and integrated maintenance have all been the part of the exercise of rationalization of Time Table undertaken in the year 2020-21, with the assistance of IIT-Bombay using their traffic simulator."

Standardization of Rakes

79. IR initiated action for standardization of rakes to enable flexibility in train operations and improve Punctuality. As on 01July 2019, 1000 rakes out of 2700 have been standardized/integrated. Thus, the rake standardization has been done to an extent of 37 per cent only but the timeline has not been fixed for complete standardization. The attempt to standardize the rakes has not gained momentum in all the zones and the non-standardization of rakes impacted the Punctuality.

80. When asked as to why the desired improvement in critical areas like rakes standardization, modernization, use of advanced technology, time bound completion of maintenance operations, signaling system, emergency response system etc. could not be achieved to improve the passenger experience in relation to the travel time and punctuality, the Ministry submitted as under:

"With a view to provide better safety and travel experience, Indian Railways have inducted LHB coaches and have also undertaken the standardization of LHB rakes for better utilisation of coaching assets. The extant policy on Standardization of LHB rakes, issued in October, 2023, provide for 12 (Twelve) General class & Sleeper class non- AC coaches and 08(eight) AC-Coaches, in a

train of 22 coaches, thereby providing greater accommodation for the passengers using General and non-AC Sleeper Coaches.

As a part of its modernisation, Indian Railways (IR) are replacing conventional coaches (ICF coaches) by modern light weight LHB coaches having state-of-the art technology. At the end of 2023-24, more than 50% of the stock holding of IR constitutes LHB stock. Continuing with its plan for induction and proliferation of LHB coaches, Indian Railways, during the period 2019-20 to 2023-24, have converted 886 rakes, which were being used for operating around 572 pairs of trains, into LHB rakes. Going ahead, during 2024-25 (upto September-2024), 58 rakes have additionally been converted.

Further, as a part of the adoption/upgradation of modern technology, faster services like Vande Bharat, Namo Bharat Rapid Rail and Amrit Bharat trains are being introduced. Introduction and proliferation of Vande Bharat services, which are faster services having better speed potential, is a major milestone in the developmental history of IR. Presently, 136 Vande Bharat services, 2 Namo Rapid Rail and 4 Amrit Bharat services are operational over the IR network. Introduction of more such services would help Indian Railways speed up train services in a significant way.

With a view to improve the punctuality of trains, IR has taken a number of steps which include rigorous monitoring, standardization of rakes and provision of spare rake, removal of infrastructure bottlenecks in a planned manner, rationalization of Time Table in a scientific manner, provision of Bye-pass at stations to avoid engine reversal etc.

Use of an integrated digital platform for monitoring of train operations comprising the Integrated Coaching Management System (ICMS) and Control Office Application (COA) and their integration with National Train Enquiry System (NTES), used by passengers is a major way forward. Progressive advancement for automatic uptake of timings by the train using GPS fitted locomotives {Real-Time Train Information System (RTIS) and Remote Monitoring and Management of Locomotives and Trains (REMMLOT)} and use of Data loggers in an integrated manner with the station signaling system, are helping in realistic monitoring and reporting of Punctuality of Passenger carrying trains."

*****

PART II

OBSERVATIONS AND RECOMMENDATIONS

Introduction

Indian Railways (IR), often referred to as the lifeline of the nation, is one of the world's largest rail networks, spanning about 69000 route kilometers and has the distinction of being the fourth railway network worldwide and transports over 1 billion tonnes of freight traffic in terms of originating loading. However, one of the major challenges that continue to hinder Indian Railways' overall efficiency is the issue of punctuality. The issues raised in the Chapter 2 of Audit Report No. 22 of 2021 have been thoroughly examined by the Public Accounts Committee followed by detailed observations and recommendations in the subsequent sections of this report. The Committee believe that addressing punctuality challenges through policy reform, technological intervention, and operational efficiency measures will significantly improve the overall performance and reliability of Indian Railways.

Recommendation No.1

Need for improvement on Parameters like Punctuality and average speed of time for Indian Railways

Indian Railways is one of the largest transportation organization in the world carrying crores of passengers and operating thousands of trains everyday

throughout the country. The train network in the country is lifeline of the country for the people at large to cater their travel needs and the citizens of the country have high expectations from Indian Railways in meeting their travel requirements. They also expect Indian Railways to maintain basic operational requirements like punctuality, cleanliness and affordability as far as train services are concerned. It is seen from the audit report that the punctuality and average speed of trains in any significant way have not seen any improvement over the last two decades. This indicates a sorry state of affairs as well as the priorities of Indian Railways.

While the Committee recognize that Indian Railways have introduced Vande Bharat Trains which are high speed trains as well as technologically advanced coaches, the bulk of the Indian Railways network is catered by normal express, superfast and passenger trains. The Committee would like to point out that the road network in the country have seen phenomenal increase by way of new routes, wide and smooth roads with minimum signals alongwith significant advancement in automobile technologies. Now public can and are using roads for travelling even long distances and the average travelling time for a truck and the logistic costs have seen good improvement. Similarly, the Indian aviation Sector has also grown significantly with the addition of new airports as well as more aircrafts in the fleet. Indian Railway is the lifeline of the country and the Committee feel that there is a need to comprehensively review different facets of railway operations like punctuality, average speed of trains, hygiene, better services, easier booking and cancellation mechanism, etc. The Committee,

therefore, recommend that the Ministry and Indian Railways should take help from outside agencies to comprehensively improve upon average speeds of express and other trains and also work upon making punctuality of trains a key corner stone of railway operations.

Recommendation No. 2

Punctuality threshold of Coaching Trains

The Committee note from audit observation that IR measures the punctuality of trains at the terminating stations. Whereas, in other countries, it is measured at the originating point, intermediate station, and at terminating stations. Besides, for measuring punctuality, IR provides an allowance of 15 minutes delay with reference to the scheduled time. The Committee also note that global best practices for measuring punctuality reflects a much stricter threshold as the yardstick in Japan is in seconds and a train arriving before scheduled time is also considered as punctuality loss. Besides, in Netherlands, it is 3 minutes; in Germany and Russia, it is 5 minutes; and in Great Britain, it is 10 minutes. Despite a low benchmark and higher threshold of 15 minutes, the punctuality of Mail/Express trains over IR declined from 79 per cent (2012-13) to 69.23 per cent (2018-19) that too at the terminating stations only. The Committee note that out of 6.22 lakh trains, 1.82 lakh trains did not meet the punctuality yardstick of15 minutes. The Committee further note that on an average 13,15,456 trains are reported through Integrated Coaching Management System (ICMS) per annum and out of these, only 29.64 per cent of trains (3,89,877 trains) reached on

time (RT) and 20.17 per cent of trains (2,65,391 trains) arrived before time (BT) and the remaining 50.19 per cent of trains (6,60,188 trains) are delayed.

The punctuality of trains during 2015-16 was 77.51% while it was 69.23% during 2018-19. However, there has been a significant improvement in the punctuality performance of trains and it rose to 90.48% during 2021-22. The punctuality performance of Indian Railways during the year 2024-25 (up to August) was recorded at 78.67% as compared to 73.62% recorded in 2023-24. The Committee have further observed that, though Indian Railways measures punctuality on terminating stations but, it is also done at originating point and at en-route stations at Divisional and Zonal levels using real-time on line Integrated Coaching Management System (ICMS). During 2024-25 train delays have been reduced by 5% as compared to that of 2023-24. During 2023-24, the percentage of train delays was 26% and in 2024-25 the delay of trains is 21%.

The Committee are of the view that this narrow approach to punctuality monitoring fails to account for delays experienced enroute, leading to an incomplete and often misleading picture of actual train performance. The existing allowance of a 15-minute delay within Indian Railway's punctuality benchmark further dilutes the accuracy of performance assessment. Any Consumer, whether a Passenger travelling in a train or sending goods in freight train expects the train to reach his destination on the time given in the time table. The 15 minutes extra threshold is too large. The current yardstick for Punctuality being adopted by Indian Railways does not reflect the expectation of the people. The Committee, therefore, recommend the Indian Railways to review and revise time punctuality

assessment through integrated monitoring at originating / intermediate stations alongside the existing termination station. The Committee also desire to be communicated about the steps taken in this direction.

Recommendation No. 3

Need for strict and scientificYardstick for increasing average speed

The Committee note from audit observation that the target of achieving 160 Kmph speed of Coaching trains and 100 Kmph speed of Freight trains, were fixed on several occasions between 1960 to 2016-17 and the timeline to increase the speed has been constantly revised. However, the same has not been achieved yet. Indian Railways introduced "Mission Raftaar" in 2016-17 aiming to double the average speed of freight trains from 25 Kmph to 50 Kmph and to increase the average speed of Mail/Express trains from 50 Kmph to 75 Kmph by the end of 2021- 22. However, the average speed of Mail/Express Trains and Goods Trains were only 50.6 kmph and 23.6 kmph respectively.

The Committee note that the average speed of passenger carrying trains depends upon various factors which include Maximum Permissible Speed (MPS) of a section, type of the coaching stock being used, traction used, Speed restrictions, Gradients and curves, number of stoppages, etc. adding that to ensure optimal utilization of the speed potential of rolling stocks, all passenger carrying trains are charted at Maximum Permissible Speed (MPS) of the sections over which they operate. Indian Railways have taken a number of steps including

rationalization of Time Tabling, with the assistance of IIT Mumbai using their traffic simulator, replacing of conventional coaches ICF (Integrated Coach Factory) coaches by modern light weight LHB (Linke Hofmann Buch), emphasis being given to enhance sectional speed upto 160 Kmph for Delhi-Howrah and Delhi-Mumbai route and upto 130 Kmph for remaining routes, 100% electrification of the routes etc. done. The Ministry has further elaborated that the adoption/upgradation of technology, induction of rolling stock like LHB having high speed potential, multi-tracking works, introduction of services like Vande Bharat, Namo Bharat Rapid Rail and Amrit Bharat trains would help Indian Railways speed up train services in a significant way. The Committee note that while High-speed / Super Fast and Express trains are using the same track, it fails to understand why the speed of long distance trains which have 2000 KM more distance has not increased over the years. In order to ensure seamless and fast freight movement, Indian Railways has been taking many measures including infrastructure projects such as Eastern Dedicated Freight Corridor (EDFC) and Western Dedicated Freight Corridor (WDFC) to create dedicated freight path to give exclusive access to freight trains, completion of targeted super critical and critical doubling, multi - tracking and other traffic facility works, completion of rail flyover and bypass works so that congested junctions are bypassed, leading to higher freight train speed. The Committee are of the view that though the Ministry has taken number of steps to improve the average speed/maximum speed of trains but lack of an integrated approach involving all zonal railways is proving hindrance in the way, therefore, the Committee recommend the Ministry

to prepare a plan encompassing zonal Railways to achieve the desired increase in the average and maximum speed of Passenger and Freight trains in their network and strive to achieve it without compromising safety. The Committee would expect an incremental increase in average speed of trains from 5 to 10 km/hr every few years in express trains which will reduce travelling time by a few hours for long distance trains.

Recommendation No. 4

Introduction of EMU/MEMU rakes across all the railway zones

The Committee learn from audit finding that before implementation of Mission Raftaar, the average speed of EMU trains in 2015-16 was 41 kmph. Despite induction of fast moving EMU services, the average speed decreased to 37.9 kmph during 2019-20. Thus, no appreciable improvement in the average speed of EMU trains was achieved despite conversion of trains into MEMU/DEMU. The Committee also note from audit observation that for EMU/MEMU trains, which have shorter runs compared to Mail Express trains, the possible savings per 50 km is 16-17 minutes.

One of the components of Mission Raftaar was replacement of conventional Passenger Trains with fast moving MEMU services. During 2015-16 to 2021-22, 414 Passenger train services running with conventional coaches were converted into MEMU services and this has helped speed up passenger trains from 33.9 kmph during 2015-16 to 37.4 kmph during 2022-23. Besides, under the rationalization exercise, 120 Trains over several Railway zones have been

speeded up to Superfast category. The Committee note that as a part of "Mission Raftaar" that during 2015-16, on an average daily basis, 5128 sub-urban services were operational. This number rose to 5396 during 2019-20, impacting the speed of EMU services. The capacity creation and augmentation of infrastructural facilities, presently underway, would help improve speed of sub-urban services. The Indian Railways is converting the passenger trains more and more into DEMU and MEMU the advantage of which is that both sides of it have engines, so, engine reversal does not take time and saves a lot of time. The station capacity gets improved, more trains can be run.

The Committee while appreciating the effectiveness of the EMU/MEMU rakes recommend that exercise of conversion of passenger trains into DEMU and MEMU may be expedited in order to obtain optimum speed and be applied to all passenger trains across all the railway zones. The Committee also desire to be apprised of the latest status in regard to the initiatives taken and achievements made in this regard.

Recommendation No. 5

Holistic mechanism for real-time monitoring of train movements

The Committee note from audit observation that Sectional capacity increased with doubling/tripling/automatic signaling, but the handling capacity of traffic nodes (Junction/yard) were not raised in proportion, resulting in bottlenecks.Route-bound operation, Centralized & Integrated control with automated tools of traffic control are not available in Indian Railways. Voice

commands & distributed control system exist in IR. These are mostly manual & section oriented.

The Committee further note that Indian Railways have an integrated digital platform for monitoring of train operations comprising Integrated Coaching Management System (ICMS) and Control Office Application (COA) which are integrated with National Train Enquiry System (NTES). Besides, progressive advancement for automatic uptake of timings by the train movement itself, is being achieved through GPS devices fitted locomotives {Real-Time Train Information System (RTIS) and Remote Monitoring and Management of Locomotives and Trains (REMMLOT) and Data loggers integrated with the station signaling system. While appreciating the adoption of GPS-enabled locomotives, Real-Time Train Information Systems (RTIS), and the Integrated Coaching Management System (ICMS) and the automatic data capturing of arrival/departure of Mail/Express trains up to 95%, the Committee note with constraint that the manual data capturing is still persisting in certain zones.

The Committee desire that Indian Railways should adopt new / modern technological tools / system to improve speed, reduce delay and capture the data. The Committee are of the view that an integrated digital platform is the need of the hour to ensure a comprehensive and foolproof data capturing and monitoring. The Committee, therefore, recommend that an integrated digital platform encompassing features of all the existing systems for real time monitoring system should be developed and implemented. The Committee desire to be

apprised of the steps taken in this regard and the status of success in its implementation.

Recommendation No. 6

Need to review the criteria of Superfast trains in Indian Railways

The Committee note that in May 2007, IR decided that if the average speed of a train, in both Up and Down directions, is a minimum 55 Kmph on Broad Gauge and 45 Kmph on Metre Gauge, it would be treated as a Superfast (SF) train. Audit has observed that the benchmark of 55 Kmph for classifying a train as Superfast is itself low, given the MPS of rolling stock and sectional speed. There has been no change in the criteria of classification of SF trains since 2007.

Audit has pointed that out of 478 Superfast trains of Indian Railways, the scheduled speed of 123 Superfast trains was less than 55 Kmph. The Ministry, in its response has stated that a scrutiny of the list of 123 trains categorized as Superfast reveals that 47 services have speed over 55 kmph as per the current data whereas in respect of the remaining Superfast trains for which the speed has been found to be less than 55 Kmph, it states that at the time of introduction of these trains, the charting of these was done in line with the criteria fixed for Superfast trains and were operating well beyond 55 KMPH. However due to provision of additional stoppages after commencement of regular operation of these trains, the average speed of a few trains have got affected. The Committee while expressing concern over categorization of trains running at a mere speed of

55 kmph as 'Superfast Trains', convey their unhappiness over lack of adherence to the limit set by the Ministry itself. The Committee are forced to conclude that the demarcation of trains as superfast was to apply higher charges. As and when the speed of trains fell below, Indian Railways should have removed the train from Super Fast Category and revised the fare.

The Committee consider the superfast benchmark of 55 kmph too conservative and anachronous and not in consonance with the present time specially when some of the east Asian countries like China and Japan have been running their trains at speeds far beyond our speed benchmarks. The Committee recommend the Ministry to review and rationalize the criteria for categorizing the trains as 'Superfast' comparable with global standards approximating to 100 kmph and explore the feasibility of achieving a consistent speed of 100 kmph not just at the terminating point, but throughout the entire journey—from the originating station, through intermediate stops, and up to the terminating point—by the year 2030. The Committee are also of the view that introduction of new trains tends to cause delays due to halting of other existing Express/Superfast trains for enabling them to pass off and, therefore, recommend that the Ministry should focus more on ensuring that the existing express and super fast trains run on time over other newly introduced trains. The Committee also feel that charging of full fare for tickets under RAC and where the ticket holder continues in RAC category after Chart Preparation without berth facility is not justified and, therefore, desire that the Ministry should devise a mechanism to refund partial fare to the customer/traveler who could not get full berth but had to pay full

charges at the time of boarding. The Committee desire to be apprised of the steps taken in this regard and also of the steps proposed/taken to transform the superfast train network into a truly high-speed and efficient mode of transportation.

Recommendation No. 7

Need to streamline freight trains' movement

The Committee note from audit observation that IR has not fixed time of delivery of consignment and schedule for running of Goods trains nor has incorporated Goods paths in their Working Time Tables. The Committee also observe that freight loading has increased from 1051.64 MT in FY 2013-14 to 1588.02 MT in FY 2023-24 (provisional). The Committee note that path for freight services are provided after the scheduled running of coaching trains and, therefore, it is not possible to have enforceable time-tabled goods paths. Even in case of a few time-tabled freight trains, they are rarely able to run on their scheduled paths. In order to ensure seamless and fast freight movement, Indian Railways has been taking many measures including infrastructure projects such as Eastern dedicated freight corridor and Western dedicated freight corridor, completion of rail flyover/bypass works so that congested junctions are bypassed, induction of higher horsepower locomotives, etc. Likewise terminals and their connectivity are being improved as well. The Committee further note that there is limited availability of dedicated freight corridors and once separate

corridors for goods and passengers trains are completed, fixing guaranteed delivery times will become operationally feasible. The Committee have also noted that Various network capacity augmentation works of multi-tracking, ROR, bypasses etc are being undertaken by IR. These are at various stages of completion. The effect of these capital investments will be visible only after complete network wide capacity augmentation. Moreover, there has been a significant growth in traffic since 2014 in the number of trains: both goods and passenger. This is evident from the fact that freight loading has increased from 1051.64 MT in FY 2013-14 to 1588.02 MT in FY 2023-24 (provisional) excluding loading on Konkan Railway Corporation Limited (KRCL).

The Committee, however, note that despite efforts made hitherto, the Indian Railways has not been able to incorporate Goods Train paths in their Working Time Tables to have a proper schedule for running of goods train. Considering the large volume of freight being carried out by the Indian Railways and contribution of as much as 1.5 of country's GDP, the Committee, urge upon the Ministry to address the issues through multipronged strategy in order to streamline the running of freight trains in a coordinated and time bound manner. The Committee recommend that the Ministry should ensure the time bound completion of various measures taken by it for seamless and fast freight movement and work out an implementation strategy for a freight service time table for guaranteed timely delivery of consignments to ensure continued relevance of railway transportation network.

Recommendation No. 8

Need to fix controllable internal factors and minimize external factors

The Committee note that, as per ICMS data which captures all the incidents that caused the train operations' delay, out of 33 factors responsible for punctuality loss, 27 factors are controllable by Railways and the remaining six factors are external factors. The total contribution of external factors for the two-year period (2017-19) was 12.89 per cent. The internal factors, which contributed to 66 per cent could have been controlled well by IR but were not addressed adequately.

The Committee further note that top six internal factors (Out of path, Engineering, Rescheduling of trains, from other Railways, Planned block open line, Traffic) contributing to train detention to the extent of 66% in 2017-19 has been reduced to 47% in 2024-25. However, continuous monitoring is also done at different levels to ease traffic congestion through infrastructural inputs. Signalling assets reliability improvement measures (technological upgradation, midterm rehabilitation and redundancy) are regularly undertaken. Specific measures like power supply system (IPS); Earthing & lightening protection system; Data logging & failure alert generation, replacement of Signal filament lamps by LED signals, hardware redundancy in critical equipments & communication media diversity (Copper /OFC media etc) are also being implemented.

The Committee, however, find the claimed improvement as insufficient and unsatisfactory as the share of internal factors is more in train delays than the

external factors. The Committee, therefore, recommend that the Ministry need to conduct a study of internal factors to find out the ways to check the detention caused by them and take concrete steps to fix the controllable internal factors on a war footing within a reasonable timeframe. The Committee also recommend the Ministry to find ways to control and manage the external factors. This would help secure punctuality and alleviate the painful waiting period for passengers and thus serve the established principle of 'Time is Money'.

Recommendation No. 9

Segregation of passenger and freight trains

The Committee observe that use of common path for movement of both coaching and freight trains has been cited as one of the major obstacles in securing the objective of punctuality and travel time in the Indian Railways. In order to ensure seamless and fast freight movement, Indian Railways has been taking many measures including infrastructure projects such as Eastern Dedicated Freight Corridor (EDFC) and Western Dedicated Freight Corridor (WDFC) to create dedicated freight path to give exclusive access to freight trains. Besides, more and more tripling and quadrupling is being done and will culminate in the DFC. The Committee note that because of the speed change, the running speed is 130 Kmph as well as 160Kmph on a few sections. The speed difference causes a lot of wastage as far as the throughput is concerned, and that was one of the major points why Indian railways, way back in 2006, planned for

dedicated freight corridors. Around 300 trains are running on dedicated freight corridors.

In view of the Indian Railways, being the life line of the Country, the Committee find it worth the cost to focus on developing a dedicated freight corridor and recommend the Ministry to complete the process of segregation of passenger and freight corridors in a time bound manner. The Committee are of the view that the Ministry should explore the feasibility of laying extra lines for reasonable length in sections where land is available so as to facilitate stay/stoppages/halts of additional/standing trains so as to ensure uninterrupted movement of running trains. The Committee desire to be apprised of the action taken status regarding development of dedicated freight corridor within 6 months of presentation of report. The Committee desire that new shorter routes may also be explored to quicken the travel.

Recommendation No. 10

Need to update the Time-Tabling Mechanism

The Committee note from audit observation that in Indian Railways, time table is prepared manually and the existing time tables are being modified based on needs. In comparison, globally, simulators and computerized systems are used in the preparation of the time table. The running time of trains is fixed on scientific calculations. Though Indian Railways has simulators but does not use the same for time table preparation. The Committee also note from audit finding that as per data for Mail/Express trains for 2016-17, 2017-18 and 2018-19 from

ICMS report, 20.17 per cent of trains *i.e.* 2,65,391 trains, out of an average of 1315456 trains, arrived before time which indicates poor timetabling by provision of extra running time.

The Committee further note that under the recently concluded exercise of rationalization of Time Tabling, undertaken with the assistance of IIT Bombay and CRIS/New Delhi using their traffic simulator, the corridors for maintenance blocks have been increased from two to three hours and also resulted in increased number of freight paths and thus, the Indian Railways has been able to enhance the speeds of over 2000 trains leading to an increase of about 5% in the average speed of passenger trains by rationalization of Time Table whereas average freight speeds increased by 10.64% and the punctuality performance during 2020-21 was recorded at 90.48% as compared to 75.6% recorded during 2019-20. Under this exercise, the travelling time of more than 900 trains have been reduced by more than an hour while for 1600 trains, the travelling time has been reduced by more than 30 minutes. The Committee note that the allowance given to trains keeps on varying, zone-wise, to maintain the punctuality performance of trains.Further, Charting of trains are done utilizing SATSaNG (Software Aided Train Scheduling and Network Governance).

Since well-designed railway timetable is the foundation to enhance punctuality by providing time buffers to absorb unexpected delays and for coordinating train movements to avoid conflicts, the Committee recommend that the Indian Railways should undertake a review of time-tabling exercise and usher in an integrated and simulation based digital and use of AI (Artificial Intelligence)

in time of Trains to inculcate the spirit of punctuality in running of trains. The Committee also recommend that effective measure should be taken to eliminate the 'before time' cases of loss of punctuality by way of shortening the provision of extra running time. The Committee further recommend to explore the possibility of loop line in certain sections of existing route,which can help in decongestion / speeding up the existing trains. This can be done at low additional cost and with huge benefit so far as increasing the average speed of train is concerned.

Recommendation No. 11

Need to expedite Standardization of Rakes

The Committee note from audit observation that a timeline for complete standardization has not been established and that as of July 1, 2019, only 1,000 out of 2,700 rakes have been standardized or integrated, indicating that the rake standardization has reached only 37 percent. The Committee are also given to understand that the attempt to standardize rakes has not gained sufficient momentum across all zones, and the lack of standardization is adversely affecting punctuality. The Committee note that standardization of rakes is feasible primarily in cases where the nature of services is similar. However, Indian Railways operates a diverse range of services, including short to medium distance intercity services, long-distance Mail/Express services, and premium services such as Vande Bharat, Tejas, Rajdhani, and Shatabdi.

The Committee further observe that in replacing conventional ICF coaches with modern, lightweight LHB coaches that incorporate state-of-the-art technology, by the end of 2023-24, more than 50 percent of Indian Railway's stock will consist of LHB coaches. The production units of Indian Railways have been exclusively producing LHB coaches since April 2018 with production continually increasing over the years, resulting in more than 35,700 LHB coaches being manufactured. During the period 2019-20 to 2023-24, Indian Railways have converted 886 rakes into LHB rakes. Further, upto September, 2024, 58 additional rakes have been converted. The conversion of conventional ICF coaches into LHB coaches is being carried out in a phased manner, and ongoing infrastructural works are expected to improve train operations in terms of both speed and punctuality.

The Committee are of the opinion that all out efforts are required to bring about functional uniformity in the traffic pattern and services to the maximum possible extent and the standardization of rakes can pave the way for that. The Committee, therefore, recommend the Indian Railways to augment the production of LHB coaches and expedite the process of standardization of rakes including conversion of ICF coaches to LHB coaches in order to enhance operational efficiency and punctuality across the network and within the stipulated timeframe. The Committee further recommend that Indian Railways should enhance the production capacity of LHB coaches to meet the growing demand and ensure that the transition from ICF to LHB coaches is seamless. The

Committee emphasize the need for a coordinated effort across all zones of Indian Railways to ensure that the standardization of rakes is uniformly implemented.

*****

NEW DELHI:
02 December, 2025
11 Agrahayana, 1947 (*Saka*)

K. C. VENUGOPAL
Chairperson
Public Accounts Committee