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GOVERNMENT OF INDIA
MINISTRY OF CIVIL AVIATION
COMMISSION OF RAILWAY SAFETY

ANNUAL REPORT FOR 2022-2023

BY
CHIEF COMMISSIONER OF RAILWAY SAFETY
LUCKNOW

FOREWORD

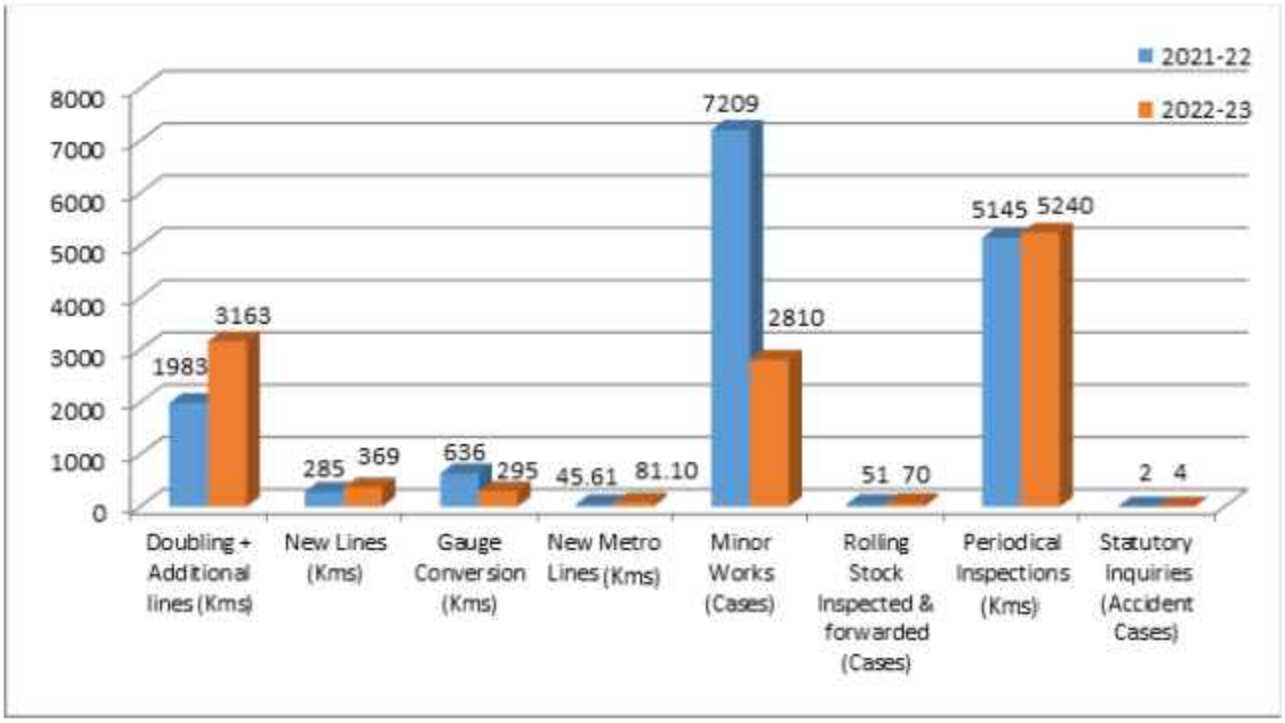
As mandated under Section 10 of The Railways Act, 1989 and Section 12 of Metro Railway (Operation & Maintenance) Act, 2002, the Annual Report for the financial year ended on 31.03.2023 is hereby, presented by the Chief Commissioner of Railway Safety to the Central Government to be laid before each house of the Parliament. The report highlights the activities of the Commission of Railway Safety during the above mentioned period namely opening of new Railway lines, doubling of existing lines, gauge conversion works, investigation of serious train accidents, condonation of infringements of schedule of dimensions and sanctions of minor works, movement of over dimensional consignments, recommendations of new Rolling Stock for operation over Indian Railways and Metro Railways. This Report contains valuable information with respect to measures for improving safety in Railway working and will be useful for Railway personnel.

(Janak Kumar Garg)
Chief Commissioner of Railway Safety

PLACE: LUCKNOW
DATE: 30-11-2023

Comparative Performance of the Commission during 2022-23

Activities	FY (2021-22)	FY (2022-23)
1	2	3
Doubling + Additional lines (Kms)	1983	3163
New Lines(Kms)	285	369
Gauge Conversion(Kms)	636	295
Total (DL+GC+NL)(Kms)	2904	3827
New Metro lines(Kms)	45.61	81.10
Minor Works (Cases)	7209	2810
Rolling Stock Inspected & forwarded(Cases)	51	70
Periodical Inspections(Kms)	5145	5240
Statutory Inquiries(Accident Cases)	02 (Indian Railways) 00 (Metro Railways)	04 (Indian Railways) 00 (Metro Railways)



SUMMARY OF THE ACTIVITIES OF COMMISSIONERS OF RAILWAY SAFETY (2022-23)

	Name of Activity	Details of Activity	Quantity	Reference (Chapter no.)
I.	Statutory inquiries of serious accidents entrusted to the Commissioners on	(a)Indian Railways	**04**	Chapter III and Appendix I
		(b)Metro Railways	**00**	
		(c) No of recommendations in final inquiry reports made out of (a) above	**29**	
		(d)No of recommendations in final inquiry reports made out of (b) above	**00**	
II.	Statutory Inspections of Lines undertaken by the Commissioners prior to their authorization for opening the line for passenger services	**Indian Railways** (a) New Lines (b) Additional Lines (c) Gauge Conversion	**369 Km** **3163 Km** **295 Km**	Chapter II and Appendix II
		Metro Railways- New Lines a) Mumbai Metro Rail Corporation. b) Bengaluru Metro Rail Corporation Ltd. c) Kolkata Metro Rail Corporation Ltd. d) MAHA–Metro Rail Corporation (Nagpur Metro) e) Delhi Metro Rail Corporation f) Kochi Metro Rail Corporation Ltd.	**46.11 Km** **13.28 Km** **11.90 Km** **5.70 Km** **2.30 Km** **1.81 Km**	
III	Sanction accorded by the Commissioners/ Proposals recommended for sanction by Central Government.	a) New Minor Works.	**2810**	Chapter II Para 2.5
		b) Introduction of new types of Rolling Stock and condonation of 'Infringement to SoD' by Rolling Stock.	**70**	Chapter II Para 2.8
IV	Inspection of Govt. Railways	Periodical Inspections	**5240 Km**	Chapter II Para 2.9

CONTENTS

Chapter – I

ORGANISATION AND FUNCTIONS OF COMMISSION

1.1 INTRODUCTION –

During British Era, the construction & operation of Railways were entrusted to private companies. Consulting engineers were appointed by the British Govt. of India to exercise effective control over them. But later on, the government undertook the construction of Railways themselves then the consulting engineers were designated as Government Inspectors. In 1883, their position was statutorily recognized. The power of safety controlling authority remained with Railway Board & Inspectorate office was placed under them.

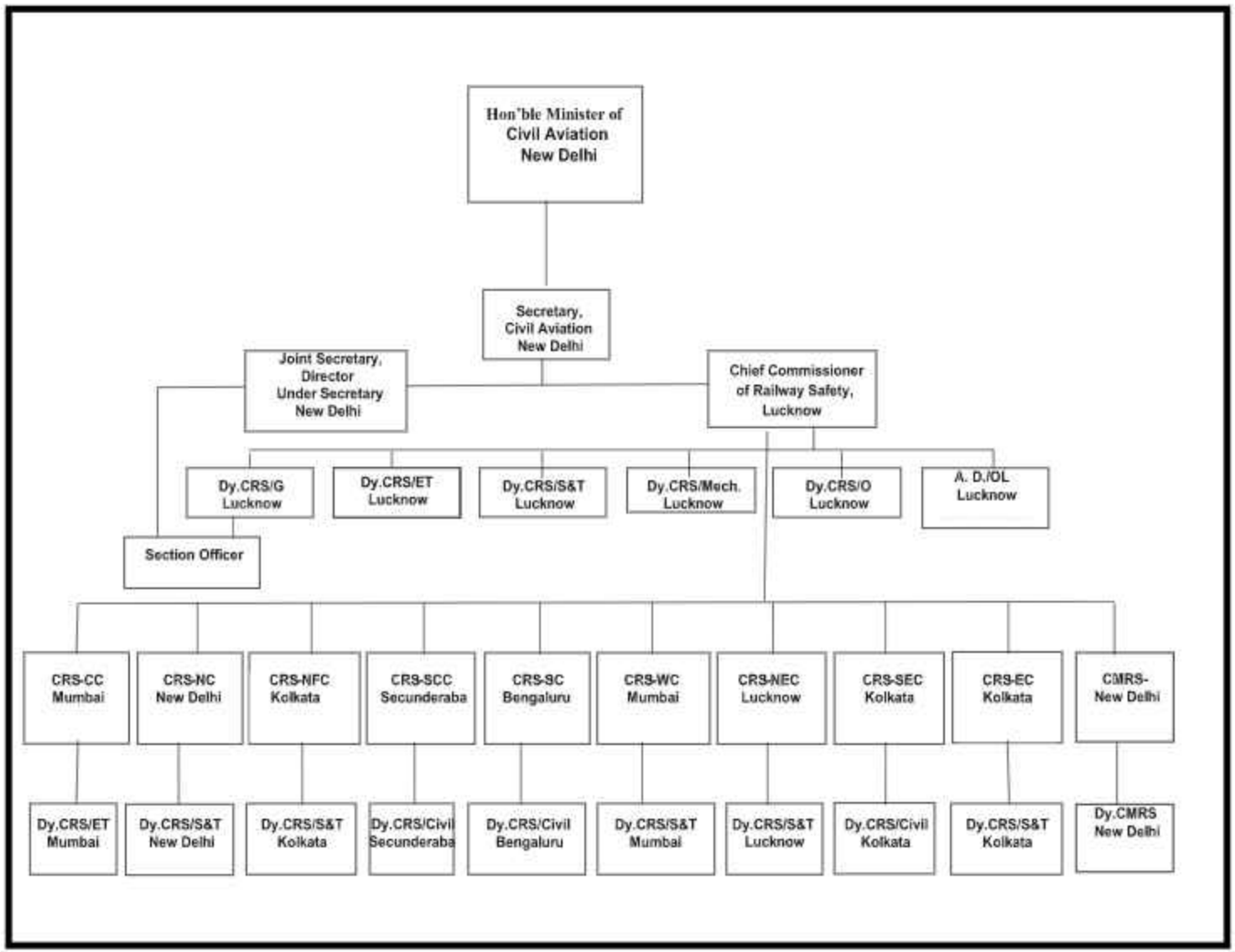
In 1939, the Pacific Locomotive Committee, set up in connection with the Bihta disaster, recommended that Railway Inspectorate should be separated from the Railway Board, on the principle that those responsible for the inspection of Railways should be independent of the Authority administering the Railways, as contemplated in Section 181(3) of the Government of India Act, 1935. These recommendations were approved by the Legislative Assembly in 1939, Council of State in 1940 and accepted by the British Government of India. Accordingly in May 1941, Railway Inspectorate was separated from the Railway Board. Post of Chief Government Inspector of Railways **(CGIR)**, through whom Government Inspectors of Railways **(GIR)** would report to Government, was created. Later on Inspectorate office was placed under the Department of Communication and now it is under Ministry of Civil Aviation (**MoCA**).

On 01.11.1961, CGIR was re-designated as Commissioner of Railway Safety (**CRS**) and GIR, as Additional Commissioners of Railway Safety (**ACRS).**

From June, 1979 designation of **CRS** was changed to Chief Commissioner of Railway Safety (**CCRS**) and **ACRS,** to **CRS.**

CRS are recruited from amongst officers of Indian Railways (IR) but they do not revert to Railways and are absorbed in the Commission of Railway Safety under Ministry of Civil Aviation.

Organizational Chart of Commission



1.2 ORGANISATIONAL STRUCTURE -

1.2.1 The office of the Chief Commissioner of Railway Safety (CCRS), is headquartered at Lucknow and is a part of Ministry of Civil Aviation (MoCA). He acts as a Principal Technical Advisor to Central Government in all matters with which Commissioners are concerned.

1.2.2 There are 09 Commissioner of Railway Safety (CRS) & 01 Commissioner of Metro Railway Safety (CMRS) located at different places across the country looking after the works of different Zonal Railways and Metro Railways. Their offices are called Circle Offices. Each Circle Office has 9 to 11 office staff consisting of Sr. Private Secretary (1), Office Superintendent(1), UDC(2), LDC(2) and Multi Tasking Staff.

In each Circle, there is one post of Deputy Commissioner of Railway Safety (Dy.CRS) who are from different disciplines of Indian Railways (IR). In 2022-23, distribution of Dy.CRS posts were as follows:-

- SC, SCC and SEC are from Civil Engineering
- CC is from Electrical Engineering and
- EC, NC, NEC, NF and WC are from Signal & Telecommunication (S&T) Engineering.
- In addition to above one post of Dy CMRS is there to assist the CMRS.

1.2.3 There are two wings in the office of CCRS i.e. Railway Safety Wing and Technical Wing.

In the Railway Safety wing, there is one Dy.CRS (General) to assist CCRS in day to day official working as well as for maintaining the interface with the Ministry of Railway (MoR) and MoCA. It has Private Secretary (1), Section Officer (1), Assistants Section Officer (5), Personal Assistant (1), UDC (1), LDC (1) and Multi Tasking Staff.

In the Technical Wing, there are 4 Dy. CRS of various disciplines (Mechanical, S&T, Electrical Engineering and Transportation) to assist CCRS and CRS as and when required on technical matters. The cases of introduction & condonation of infringement to IRSOD of Rolling Stock, upon being received from RDSO are also scrutinized by Technical Wing and forwarded to Railway Board for sanction of the Central Government if found in order. This wing works as think tank and maintains the institutional memory / strength of the Commission of Railway Safety. To assist the Technical Wing, the requisite staff / officers viz. one Assistant Director (Official Language), Junior Hindi Translator(1), Technical Assistant (2), LDC(2), Stenographer(2), Staff Car Driver (1) and Multi Tasking Staff (4) are posted.

Dy. CRS are not statutory authorities. They come from Railways on deputation basis and go back after completion of their deputation period.

1.3 VACANCIES IN THE COMMISSION - As on 31.03.2023, 03 posts of CRS and 04 posts of Dy.CRS/Dy.CMRS were vacant.

1.4 INCUMBENCY OF OFFICERS –

1.4.1 Chief Commissioner of Railway Safety, Lucknow

S.No.	*Designation*	*Period*	*Name (Shri/Smt.)*
(i)	CCRS	01.04.2022 to 31.12.2022	S K Pathak
(ii)	CCRS	01.01.23 to 31.03.2023	R K Sharma

1.4.2 Commissioners of Railway Safety (CRS) :

S.No.	*Circle office*	*Period*	*Name of CRS (Shri/Smt.)*
(i)	CRS-CC	Full Duration	Manoj Arora
(ii)	CRS-EC	01.04.2022 to 17.04.2022	A.M.Choudhary
		18.04.2022 to 31.03.2023	Suvomoy Mitra
(iii)	CRS-NC	Full Duration	Vacant*
(iv)	CRS-NEC	Full Duration	Md. Latief Khan
(v)	CRS-NFC	Full Duration	Vacant*
(vi)	CRS-SC	01.04.2022 to 28.02.2023	A K Rai
		01.03.2023 to 31.03.2023	A.M.Choudhary
(vii)	CRS-SCC	01.04.2022 to 28.12.2022	Vacant*
		29.12.2022 to 31.03.2023	Pranjeev Saxena
(viii)	CRS-SEC	01.04.2022 to 17.04.2022	Suvomoy Mitra
		18.04.2022 to 28.02.2023	A.M.Choudhary
		01.03.2023 to 31.03.2023	Vacant*
(ix)	CRS-WC	Full Duration	R. K. Sharma
(x)	CMRS-New Delhi	Full Duration	Janak Kumar Garg

*All vacant posts of Commissioners are being looked after under additional charge by CCRS/ other CsRS as per the order of Appointments Committee of Cabinet.

1.4.3 Deputy Commissioners of Railway Safety in CCRS office :

S.N.	*Dy.CRS*	*Period*	*Name (Shri/Smt.)*
Railway Safety Wing			
(i)	Dy.CRS(General)	Full Duration	Rajiv Kumar
Technical Wing			
(i)	Mechanical	Full Duration	Ahmad Nadeem Siddiqui
(ii)	Operating	01.04.2022 to 28.11.2022	Vacant (Looked after by OSD/Safety Indu Rani Dubey)
		29.11.2022 to 19.12.2022	Vacant
		20.12.2022 to 31.03.2023	Neelima Singh
(iii)	Electric Traction	01.04.2022 to 16.11.2022	Vacant(Looked after by OSD/ET Shalabh Tyagi)
		17.11.2022 to 31.03.2023	Vacant
(iv)	Signal &Telecom	Full Duration	B.S.Yadava

1.4.4 Deputy Commissioners in Circle Offices :

Deputy Commissioner (Signaling & Telecommunication) :			
S.No.	***Circle office***	***Period***	***Name (Shri/Smt.)***
(i)	CRS-EC	Full Duration	Sitaram Nandi
(ii)	CRS-WC	Full Duration	Avinash Sangoley
(iii)	CRS-NFC	01.04.2022 to 02.06.2022	S.Chattopadhyay
		03.06.2022 to 31.03.2023	Vacant
(iv)	CRS-NC	01.04.2022 to 22.12.2022	Vacant
		23.12.2022 to 31.03.2023	Deepak Kumar
(v)	CRS-NEC	Full Duration	Vacant
Deputy Commissioner (Civil Engg.)			
(vi)	CRS-SEC	Full Duration	B. S. K. Subudhi
(vii)	CRS-SCC	Full Duration	G. Srinivas Rao
(viii)	CRS-SC	Full Duration	Nitish Kumar Ranjan
Deputy Commissioner (Electric Traction) :			
(ix)	CRS-CC	01.04.2022 to 15.07.2022	Vacant
		16.07.2022 to 31.03.2023	P. K. Kataria
Deputy Commissioner of Metro Railway Safety			
(x)	CMRS	Full Duration	Vacant

1.5 JURISDICTIONS OF CIRCLE OFFICES :

1.5.1 As on 31st March, 2023, **Total Route Kilometers** of Indian Railways under different circles were as under:-

Circle Office	***Head Quarter***	***Route Kms***	***Railway Administration***
CRS-CC	Mumbai	8014.82	CR, WCR & KR
CRS-EC	Kolkata	7170.18	ER & ECR
CRS-NC	New Delhi	7361.46	NR
CRS-NEC	Lucknow	6995.00	NER & NCR
CRS-NFC	Kolkata	4378.3	NFR & MR
CRS-SC	Bengaluru	8752.13	SR & SWR
CRS-SCC	Secunderabad	6505.37	SCR
CRS-SEC	Kolkata	8078.71	SER, SECR & ECoR
CRS-WC	Mumbai	11895.45	WR & NWR
	Total Route Kms	***69151.42***	

1.5.2 As on 31st March, 2023, **Total Route Kilometers** of Metro Railways under different circles were as under:-

Name of Circle Office	*Head Quarter*	*Route Kms*	*Metro Railway Administrations*
CMRS-New Delhi	New Delhi	348.13	DMRC
		12.85	HMRTC
	Noida Metro	29.70	NMRC
	Nagpur	40.00	MAHA-METRO
	Pune	12.00	
	Hyderabad	69.20	HMRL
	Kanpur	8.60	UPMRCL
	Lucknow	23.66	
CRS/CMRS-SC	Bengaluru	69.39	BMRCL
	Kochi	26.96	KMRCL
	Chennai	54.50	CMRL
CRS/CMRS-WC	Mumbai	51.64	MMRC
	Gujarat	38.84	GMRC
	Jaipur	11.64	JMRC
	Total Route Kms	***797.11***	

1.6 DUTIES & FUNCTIONS OF THE COMMISSIONERS OF RAILWAY SAFETY:

1.6.1 As detailed in Section 6, Chapter-III of The Railways Act 1989, the duties of Commissioner of Railway Safety (CRS) are as under:-

(a) To inspect any Railway with a view to determine whether they are fit to be opened for the public carriage of passengers and to report thereon, to the Central Government as required by or under this Act;

(b) To make such periodical or other inspections of any Railway or of any Rolling Stock used thereon as the Central Government may direct;

(c) To make inquiry under this Act into the cause of any accident on a Railway; and

(d) To discharge such other duties as are conferred on him by or under this Act.

1.6.2 Functions of the Commissioner of Railway Safety:

(a) Authorization for opening of new Railway lines:

In terms of The Railways Act, 1989, under Section 6, Metro Railways Act, 2002 and 'The Rules for Opening, 2000', Indian Railways / Metro Railways approach to the respective Commissioner along with their application/ proposal seeking sanction of respective CRS for opening of new Railway lines, doubling of existing lines, gauge conversion works etc.

Rules for Opening stipulate that while making a reference to the commissioner for inspection, the concerned Railway shall furnish all the relevant documents to the commissioner one month before the date on which a Railway line or a section of a Railway line is proposed for opening by the Railway.

On receipt of the application, the CRS scrutinizes the application and if everything is in order then a date of inspection is fixed and intimated to the Railway. On the schedule date the CRS conducts the inspection with his team of officers accompanied by Zonal Railway Headquarter and Divisional officers led by DRM of the respective Division.

After inspection, if CRS is satisfied with its fitness with respect to safety of the passengers; he issues authorization /sanction for opening of the subject work with certain stipulations and also forwards the inspection report of the same to the Central Government through CCRS.

If CRS is not satisfied with its fitness with respect to safety of the passengers; he issues the inspection report of the same to the Railway indicating the various deficiencies in the work to be attended to ensure safety of the passengers. It is the discretion of CRS to re-inspect the section after attending all the deficiencies by the Railway before opening the same for public carriage of passengers or else authorize the Central Government to open the subject section after attending the deficiencies.

(b) Sanctions for execution of Minor works:

Structural works affecting the safety of trains on running lines, such as provision of additional bridges, rebuilding or re-girdering of existing bridges, re-modeling of station yards, modification to signaling etc. are carried out by the Railways only after obtaining the sanction of the CRS.

However, as per Gazette Notification no. S. O.2368(E) dated 24.05.2022, the following works have been dispensed from CRS Sanction:

- Construction, rebuilding, modification and strengthening of foot-over-bridges and road-over-bridges;
- Construction, rebuilding, re-girdering and strengthening of minor bridges
- Re-girdering and strengthening of all existing bridges, other than minor bridges
- Elimination of manned level crossing
- Upgradation of level crossing, including interlocking outside station limits
- For introduction of electric traction.

In terms of above provisions, Zonal Railways submit the applications of different works along with all enclosures like **Joint Safety Certificate, Track Certificate, Bridge Certificate, OHE Certificate, RDSO Speed Certificate, Railway Board's previous sanction, Condonation of Railway Board for infringement to the Schedule of Dimensions etc.** After receipt of such applications, CRS examines them as per the provision of various manuals and if found in order, gives the sanction for the same.

(c) Introduction of new Rolling Stock and increase in the speed of existing Rolling Stock:

Prior to 1st October 2018, as per the extant rule, the CRS after examining the proposal used to send the report, with his recommendations to the CCRS. CCRS after examining the proposal, if found in order, forwarded the same with or without stipulations, to the Ministry of Railways for sanction of running of new Rolling Stock or increasing the speed of existing Rolling Stock.

Now, Ministry of Railways, vide **Gazette notification no. 698 dated 01 October 2018,** has amended the Railways Opening for Public Carriage of Passenger Rules, 2000 and revised this procedure. As per present procedure, (Rule 28) RDSO applies to CCRS for both;

a) Sanctioning speed of new designs of Rolling Stock

b) Increasing the speed of existing Rolling Stock.

CCRS after examining the proposal, if found in order, recommend the same, with or without stipulations, to the Ministry of Railways for sanction of running of new Rolling Stock or increasing the speed of existing Rolling Stock.

Vide Gazette Notification No 259 dt. 27.04.2023 Railway (Opening for Public Carriage of Passengers) Rules, 2000 have been further amended and as per Rule 28(6A), sanction for introduction of any locomotive or Rolling Stock which is not considered new and termed as "Derived" shall be accorded by DG/RDSO.

(d) Railway Board has issued the Schedule of Dimensions (revised 2022), Maximum, and Minimum& Recommended Dimensions to be observed on all 1676mm Gauge on IR.

These dimensions given in Schedule-1 of Indian Railway Schedule of Dimensions (IRSOD) (revised 2022) have been classified into two heads; for existing works and for new works. These Dimensions are to be observed on all 1676mm Gauge on Indian Railway unless prior sanction has been obtained from the Railway Board through CRS/CCRS to execute the new work which would infringe the IRSOD.

(e) Any consignment which does not adhere to IRSOD, 2022 is treated as an Over Dimensional Consignment (ODC). For movement of ODC on Indian Railway, separate sanction of the competent authority is required. Railway submits the application for movement of ODC to the concerned CRS, if it requires CRS sanction. The same is examined in the office of the CRS and when found in order, sanction is granted by the CRS for movement of ODC in the concerned Zonal Railway.

(f) Inspection of running lines to keep themselves familiar with Railway working

(g) Investigation into Serious Railway Accidents and review of reports of other train accidents, inquired by Railways.

1.6.3 Functions of the Chief Commissioner of Railway Safety:

(a) CCRS advises Central Government in all matters relating to Railway Safety, recruitment of officers/staff, postings and promotions, budget and expenditure etc.

(b) Reports of inspections of new lines, doubling of existing line, gauge conversion works done by the Commissioners of Railway Safety are forwarded to Railway Board through CCRS office for obtaining the sanction of the Central Government.

(c) The first three reports of statutory inquiries (both preliminary and final) into accidents, conducted by newly appointed Commissioners are to be sent to CCRS for scrutiny before forwarding it to Railway Board.

(d) Scrutiny of Railway's proposals, if any, regarding condonation of infringements to IRSOD received from CRS's office and if found in order then the same is forwarded to Railway Board with suitable stipulations.

(e) Scrutiny of Railway's proposals regarding introduction of new Rolling Stock or increase in the speed of existing Rolling Stock received from RDSO and if found in order then the same is forwarded to Railway Board with/without suitable stipulations.

(f) Similarly, any condonation of infringement to IRSOD in case of Rolling Stock is also sanctioned by Railway Board on recommendation of CCRS.

(g) Examination of Railway Board's proposals for amendments to General Rules, Railway Rules for Opening, Schedule of Dimensions etc. in consultation with the Commissioners and convey the views of the Commission to Railway Board, whenever so referred; and

(h) Preparation of the Annual Report on the activities of Commission of Railway Safety.

(i) Any other work/duty assigned by Central Government with respect to Railway safety.

CHAPTER-II
ACTIVITIES OF COMMISSIONERS OF RAILWAY SAFETY

2.1 Section 22 of Railway Act, 1989, prescribes that Central Government shall, before giving its sanction to opening of a Railway, obtain a report from the Commissioner about fitness of the line for public carriage of passengers.

Section 14 & 15 of Metro Railways (O&M) Act, 2002 prescribes that the Metro Railway in the National Capital Region, metropolitan city and metropolitan area shall not be opened for the public carriage of passengers except with the previous sanction of the Central Government. The Central Government before giving its sanction shall obtain a report from the Commissioner regarding fitness of the line for public carriage of passengers.

Under Section 28 of Railway Act 1989, Rule 22 (1) of 'The Railways (Opening for Public Carriage of Passenger) Rules, 2000' and Rule 22 (1) of 'Opening of Metro Railways for Public Carriage of Passengers, Rules 2013', power for authorizing the Opening of new lines has been delegated to CRS/CMRS.

2.2 During the FY 2022-23, authorizations for the opening of **369 Km of New lines, 3163 Km of Additional/Double lines and 295 Km of Guage conversions** were given. Details of the lines on which Commissioners under powers delegated to them by Central Government authorized public carriage of passengers, are given in Appendix-II.

2.3 ACHIEVEMENTS OF THE COMMISSIONERS OF RAILWAY SAFETY:

In 2022-2023, authorizations for opening of lines for public carriage of passenger traffic accorded by Commissioners of Railway Safety are summarized below:-

Circle	***New Lines*** ***(Km)***	***Doubling/Addl. Lines*** ***(Km)***	***Gauge conversion*** ***(Km)***
CC	61.82	453.22	0
EC	94.18	338.77	48.12
NC	30.46	198.30	0
NEC	0	530.94	34.36
NFC	43.30	74.15	0
SC	36.13	322.84	52.26
SCC	34.38	338.75	0
SEC	28.28	564.67	0
WC	40.45	341.36	160.26
Total	***369***	***3163***	***295***

2.4 ACHIEVEMENTS OF THE COMMISSIONERS OF METRO RAILWAY SAFETY:

In 2022-2023, Metro Railway inspections carried out by Commissioners of Metro Railway Safety are summarized below:-

Circle	***Metro Railways***	***(In Kilometers)***
CMRS Delhi	MAHA-Metro (Nagpur Project)	05.70
	Delhi Metro	02.30
CRS/CMRS-SC	Kochi Metro	01.81
	Bengaluru Metro	13.28
CRS/CMRS-WC	Mumbai Metro	46.11
CRS -NFC*	Kolkata Metro	11.90
	Total	***81.10***

* Kolkata metro is part of Indian Railway governed by the Railway Act 1989.

2.5 NEW MINOR WORKS:

During year 2022-23, the Commissioners of Railway Safety have given sanctions for execution of **2810** minor works by Railway Administration.

Circle	***Minor Works***
Central Circle	459
Eastern Circle	221
Northern Circle	271
North Eastern Circle	287
North Frontier Circle	128
Southern Circle	184
South Central Circle	195
South Eastern Circle	682
Western Circle	331
CMRS, NDLS	52
Total	***2810***

2.6 WORKS INVOLVING INFRINGEMENTS OF SCHEDULE OF DIMENSIONS:

2.6.1 In 2022-23, **414,** proposal/application for Condonation of infringements to IRSOD were sanctioned by the Commissioners of Railway Safety.

2.7 MOVEMENT OF OVER-DIMENSIONAL CONSIGNMENTS:

2.7.1 In 2022-23, no proposal/application for movement of over-dimensional consignments was received by the Commissioners of Railway Safety from Railways.

2.8 NEW TYPES OF LOCOMOTIVES AND ROLLING STOCK:

2.8.1 Section 27 of Railways Act, 1989, prescribes that new Rolling Stock can be introduced only after prior sanction by the Central Government and before sanctioning, Central Government shall obtain a report from the Commission of Railway Safety.

In the year 2022-23, a total of **49** cases of introduction of Rolling Stock have been examined and recommended for sanction to Railway Board. In addition, **21** cases of condonation of 'Infringement to Schedule of Dimensions' by Rolling Stock were recommended for sanction to Railway Board.

During the year 2022-23 statutory inspections of 16 Rolling Stock were conducted by CCRS/CsRS.

Commercial operation of First Vande Bharat train no. 20171/20172 at 160 kmph was recommended for sanction in TKD-AGC section on 30.03.2023.

2.9 INSPECTIONS OF RAILWAY LINES:

During 2022-23, Commissioners carried out inspections of **5240 Km**. of Govt. Railways either on their own or in the company of General Managers. Significant defects and deficiencies noticed during inspections were discussed with Railway Officers during such inspections and reports were sent to the General Managers for compliance.

2.10 INCREASE OF SECTIONAL SPEED TO 130 KMPH :

During 2022-23, raising of Sectional Speed to 130 kmph has been sanctioned for total 2606.825 Km route length on IR. Details are given below :

SN	*Railway*	*Section*	*Total Distance (Km)*
1	WC	Madar-Palanpur	363.13
2	SCC	BZA-VSKP	330.00
3	SEC	Kharagpur-Bhadrak	172.106
4		Bilaspur (Ex.)-Durg	145.00
5		RanitalJn.Cabin-Khurda Road	168.349
6		Khurda Road -Palasa	222.510
7	SC	Chennai-Arakkonam-Ranigunta	133.60
8		Arakkonam-Jolarpettai	144.54
9	CC	Khandwa-Itarsi	181.49
10		Miraj-Kolhapur	47.1
11		IGP-BSL-BD	526.27
12		BD-Sewagram	97.79
13		PA-Daund	74.94
		Total	***2606.825***

2.11 Activities of Commissioners in respect of inquiries into Accidents are given in Chapter-III. In year 2022-23, 4 serious accidents were inquired by Commissioners of Railway Safety.

CHAPTER –III
INVESTIGATION INTO ACCIDENTS

3.1 Commissioners of Railway Safety (CRS) investigate Serious Railway accidents. Other train accidents are investigated by the Committee of Railway Officers. Reports of these inquiries are sent by Railways for review by the concerned CRS. However, if the Commissioner desires, he can ask the Zonal Railway to enhance the scale of inquiry and/or send it back to Railways for re-inquiry after review.

3.2 Train Accident is an accident that involves a train.

3.2.1 Indian Railways has classified Accidents under following heads;

I. Train accidents

II. Yard accidents

III. Indicative accidents

IV. Equipment Failures and

V. Unusual incidents

3.2.2 Train Accidents are further classified into the following categories as:

A) Consequential train accident:

Consequential train accidents include train accidents having serious repercussions in terms of loss of human life, human injury and loss to Railway property or interruption to Rail traffic. Train accidents under the following classification will be termed as consequential train accidents:

I. Collision

II. Fire

III. Level crossing

IV. Derailment

V. Miscellaneous.

B) Other train accidents:

All other accidents which are not covered under the definition of the consequential train accidents are to be treated as other train accidents.

3.3 RULES FOR INQUIRIES BY COMMISSIONERS (CRS):

Rules for holding Inquiries into Railway accidents are contained in 'Statutory Investigation into Railway Accidents Rules -1998' notified by the Ministry of Civil Aviation in the Gazette vide G.S.R. No. 257 dated 26.12.98 and G.S.R. No. 63, dated 06.03.99. Gist of some rules and procedures for statutory investigations by the CRS are given below:-

3.3.1 When should a Statutory Inquiry be held?

Inquiry by the CRS is obligatory in every accident to a passenger carrying train, which is attended with loss of human life, or with grievous hurt as defined in the Indian Penal Code, to a passenger or passengers travelling inside the train or with damage to Railway property of a value exceeding Rs. 2 Crores. Workmen's trains or Ballast trains or Accident Relief Trains or Tower Wagon carrying workmen are passenger trains for this purpose and in the event of a workman getting killed or grievously hurt as a result of an accident to such train, inquiry is obligatory.

However the following type of accidents shall be excluded:

Cases of trespassers run over and injured or killed through their own carelessness or of passengers injured or killed through their own carelessness, and; Cases involving persons being Railway employee or holding valid passes/tickets or otherwise who are killed or grievously injured while traveling outside the Rolling Stock of a passenger train (such as on foot board or roof or buffer but excluding the inside of vestibules between coaches), or run over at a Level Crossing or elsewhere on the Railway track by a train, and Level crossing accident where no passenger or Railway employee is killed or grievously hurt; **unless the Chief Commissioner of Railway Safety or Commissioner of Railway Safety is of the opinion that the accident requires the holding of an inquiry by the Commissioner of Railway Safety.**

As per this Para, any accident which is attended with loss of life is considered to be serious accident. There are provisions in this para which are qualified by certain conditions which may necessitate statutory inquiry by the Commissioner even if a simple reading of it implies otherwise. For example, cases of **trespassers run over and injured or killed through their own carelessness** are not covered under the definition of Serious Accidents where statutory inquiry is obligatory. However a simple interpretation of this Para is that not all cases of trespassers are exempted from being considered as serious accidents because if it is so, simply **"trespassers run over and injured or killed"** would have been written without qualifying **"through their own carelessness"**.

A logical corollary to this interpretation would be that cases of trespassers run over, or injured, or killed because of carelessness of Railway employees are **not exempted** and very much covered within the classification of "serious accidents". However, this can only be ascertained after an inquiry whether people got killed or injured because of carelessness of Railway employees or not. Under this provision, even accidents involving death which prima facie appear to be excluded from the purview of CRS inquiry may qualify as one and therefore, many such accidents are inquired into by the Commissioners from time to time.

3.3.2 When shall the Commissioner stop or discontinue his inquiry?

Whenever the Central Government appoints a Commission of inquiry under the Commission of Inquiries Act, the CRS shall discontinue his inquiry.

3.3.3 Procedure when Commissioner is unable to hold an inquiry:

When a CRS is unable to take up an inquiry, he is required to inform CCRS of the reasons as to why the inquiry cannot be done by him. In such a case, CCRS can himself conduct the inquiry or direct another CRS to inquire into the accident or the inquiry can be entrusted to the Railway itself, which will then appoint a Committee of Railway Officers to inquire into the accident. The Committee's inquiry report is submitted to the CRS, who scrutinizes it and in case he agrees with findings, forwards it to the CCRS. In case CRS disagrees with the findings, he returns the inquiry report with his observations to Railways for review.

3.3.4 Procedure for conducting a Statutory Inquiry:

On receipt of the intimation of occurrence of a serious accident from the concerned Railway, CRS notifies his intention to hold an inquiry and at the same time, fixes and communicates the schedule date, time and place of inquiry. A formal notice of inquiry is sent to the concerned Railway with copy to the CCRS, Railway Board and the Secretary, Civil Aviation. He also asks the concerned Railway to make arrangement for his visit to the accident site at the earliest possible time. Notice of inquiry is also published in Newspapers to invite public to give evidence in the inquiry in person or through written communication to the CRS. Officers of the local Magistracy and police are also notified of the dates, time and place of the inquiry. Accordingly, the CRS inspects the accident site along with the Railway Officers and thereafter conducts the statutory inquiry.

3.3.5 Scope:

CRS holds inquiries into the accidents with a view to ascertain the causes of the accident. Investigations are also carried out into the question, whether prompt and adequate steps were taken by the Railway administration for relief measures such as provision of first aid, medical treatment and refreshments to passengers, evacuation of injured passengers and other facilities like arrangements for trans-shipment of passengers for completion of their journey to destination by running of duplicate trains etc.

Based on his inquiry, the CRS makes recommendations:

- To prevent the recurrence of such accidents,
- To lay down new rules or modifying existing rules of working for safe working,
- To improve standards of signaling for safe train operation,
- To improve standards of maintenance of signaling, track, bridges, Rolling Stock etc,
- For speedy restoration of traffic,
- For prompt relief measures and other passenger amenities etc.

He also comments on matters, observed by him during the course of his inquiry, which may not have any direct bearing on the cause of the accident under investigation, but which may, in some cases, affect the safe working of the Railway and lead to accidents.

3.4 INQUIRIES OF SERIOUS TRAIN ACCIDENTS IN 2022-23:

3.4.1 During the year 2022-23, 04 serious accidents (on Indian Railways) were inquired by the Commissioners. In these accidents, 02 accidents resulted in fatalities while other 02 accidents resulted in grievous injuries to persons.

Brief details of these 04 accident inquiries entrusted to commissioners in 2022-23 is given in Appendix - I. 29 recommendations were made in these 04 inquiry reports of the accident of 2022-23. The four accidents are as follows:-

(a) Para 1 of Appendix-I Derailment of 12 coaches of 11061 Dn Lokmanya Tilak Terminus–Jaynagar Pawan Express between Lahavit-Devlali stations on DN line at km. 171/39 in Igatpuri -Bhusaval double line BG electrified section of Bhusaval Division of Central Railway on 03.04.2022. As a result of the accident 1 person was killed, 1 person was grievously injured, 1 person sustained simple injuries and 4 persons sustained trivial injuries.

(b) **Para 2 of Appendix-I** Dashing of Loco No.22203 WAP/4 with train 22157 DN CSMT-MAS Express at Wadi Station on Solapur- Wadi section in Solapur Division of Central Railway on 19.05.2022. As a result of the accident 1 person was grievously injured and 1person sustained simple injuries.

(c) **Para 3 of Appendix-I** Derailment of Goods Train No. UP E/NBOXE/CAP on Up line of Korai Station (KRIH) in Khurda Road Division of East Coast Railway on 21.11.2022. As a result of the accident 3 persons were killed and 4 persons sustained simple injuries.

(d) **Para 4 of Appendix-I** Derailment of 13 coaches of Train No.12480 Suryanagari Superfast Express from Bandra Terminus to Jodhpur between Rajkiawas-Bomadra stations in Marwar Jn. - Luni Jn. Major section in Jodhpur Division of North Western Railway on 02.01.2023.As a result of the accident 3 persons were grievously injured and 68persons sustained simple injuries.

● ● ●

1. **Derailment of 12 coaches of 11061 DnLokmanyaTilak Terminus–Jaynagar Pawan Express between Lahavit-Devlali stations on DN line at km. 171/39 in Igatpuri-Bhusaval double line BG electrified section of Bhusaval Division of Central Railway on 03.04.2022.**

S-11, S-12 and Pantry Car in Derailed Position

2. **Dashing of Loco No.22203 WAP/4 with train 22157 DN CSMT-MAS Express at Wadi Station on Solapur- Wadi section in Solapur Division of Central Railway on 19.05.2022.**

3. **Derailment of Goods Train No. UP E-NBOX(E)/CAP on Up line of Korai Station (KRIH) in Khurda Road Division of East Coast Railway at about 06.44 hrs on 21.11.2022.**

Capsized Wagons at Korai Station

4. **Derailment of 13 coaches of Train No.12480 Suryanagari Superfast Express from Bandra Terminus to Jodhpur between Rajkiawas-Bomadra stations in Marwar Jn. - Luni Jn. Major section in Jodhpur Division of North Western Railway on 02.01.2023.**

Derailed Coaches of Train No.12480

CHAPTER-IV
ANALYSIS OF TRENDS OF ACCIDENTS

4.1 Under section 113 of The Railways Act, 1989 a notice of accident is required to be issued by Railway administration to the concerned authorities. Relevant part of section 113 is reproduced below:-

(1) Where, in the course of working a Railway,-

(a) any accident attended with loss of human life, or with grievous hurt, as defined in the Indian Penal code (45 of 1860), or with such serious injury to property as may be prescribed; or

(b) any collision between trains of which one is a train carrying passengers; or

(c) the derailment of any train carrying passengers, or any part of such train; or

(d) any accident of a description usually attended with loss of human life or with such grievous hurt as aforesaid or with serious injury to property; or

(e) any accident of any other description which the Central Government may notify in this behalf in the Official Gazette.

occurs, the station master of the station nearest to the place at which the accident occurs or where there is no station master, the Railway servant in charge of the section of the Railway on which the accident occurs, shall, without delay, give notice of the accident to the District Magistrate and Superintendent of Police, within whose jurisdiction the accident occurs, the officer in charge of the police station within the local limits of which the accident occurs and to such other Magistrate or police officer as may be appointed in this behalf by the Central Government.

(2) The Railway administration within whose jurisdiction the accident occurs, as also the Railway administration to whom the train involved in the accident belongs, shall without delay, **give notice of the accident to the State Government and the Commissioner having jurisdiction over the place of the accident**."

Train Accidents, under section 113 of the Act, and as per Explanation in Rule (3) of Railway (Notices of and Inquiries into Accidents) Rules,1998 issued by Ministry of Railway, include those Railway accidents, which occur in the course of working of a Railway and usually attended with loss of human life (such as accidents to passenger trains involving collisions, derailments, train wrecking, or attempted train wrecking, cases of running over obstructions placed on line, of passengers falling out of trains or of fires in trains), or grievous hurt as defined

in the Indian Penal Code or serious injury to Railway property of the value exceeding two crores rupees which have not actually occurred but which by the nature of the accident might reasonably have been expected to occur; and also cases of land slides or of breach by rain or flood which cause the interruption of any important through line of communication for at least 24 hours.

4.2 SERIOUS TRAIN ACCIDENTS :

Accidents, referred to in Section 114 of the Railways Act 1989, are investigated by Commissioner of Railway Safety. This section is reproduced below:

"(1) On the receipt of a notice under Section 113 of the occurrence of an accident to a train carrying passengers resulting in loss of human life or grievous hurt causing total or partial disablement of permanent nature to a passenger or serious damage to Railway property, the Commissioner shall, as soon as may be, notify the Railway administration in whose jurisdiction the accident occurred of his intention to hold an inquiry into the causes that led to the accident and shall at the same time fix and communicate the date, time and place of inquiry : Provided that it shall be open to the Commissioner to hold an inquiry into any other accident which, in his opinion, requires the holding of such an inquiry.

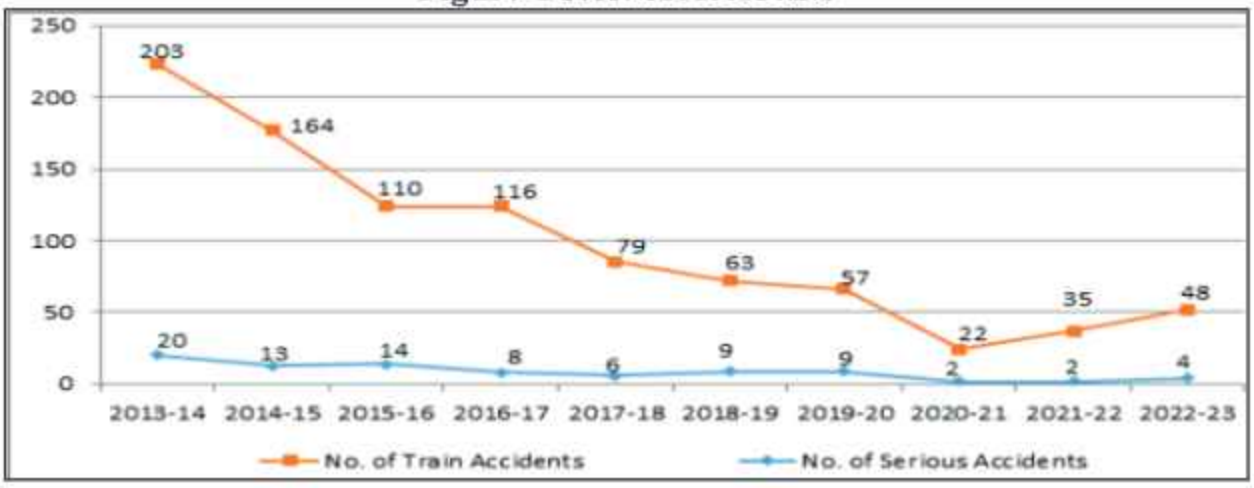
(2) If for any reason, the Commissioner is not able to hold any inquiry as soon as may be after the occurrence of the accident, he shall notify the Railway administration accordingly."

In such a situation the inquiry shall be conducted as per the provision laid down under Section 115 of the Railway Act.

4.3 TREND OF TRAIN ACCIDENTS :

4.3.1 Total Numbers of train accidents and serious accidents investigated by CRS on Indian Railways in last ten years is shown in Figure-1.

Figure-1 Nos. of Accidents



Appreciation of the above graph (Fig. 1) indicates that:-

- **Total number of train accidents had increased to 48 in the year 2022-23** as against 35 during the year 2021-22.
- **Number of serious train accidents had increased to 04 accidents in 2022-23** as against 02 accidents in 2021-22.
- There was a declining trend in the accidents from 2013-14 to 2019-20. In the year 2020-21 there was complete suspension of all passenger carrying trains from 22nd March 2020 due to lockdown imposed because of COVID-19 pandemic. There was only partial resumption of some 230 pairs of trains from May-2020 but overall traffic was very low. The year 2021-22 was also affected by COVID-19 pandemic but unlike previous year there was no complete lockdown although the traffic was still low compared to Pre-Covid period. The traffic resumed to normal level during 2022-23.

4.3.2 Breakup of Passenger and Goods train accidents (Consequential train accidents) in 2021-22 and 2022-23 is shown in Table 1.

TABLE – 1

SN	*Description*	*2021-22*	*2022-23*
1	***No. of Train Accidents***	35	48
2	***No. of Passenger Train Accidents***	21	33
3	***No. of Goods Train Accidents***	14	15
4	***Accidents Per million train-Kilometers (as per Ministry of Railways data)***	0.03	0.03

Figure-2 Accident per Million Train Kilometres

4.4 RAILWAY-WISE TREND OF ACCIDENTS :

(a) Number of accidents, which occurred in each Zonal Railway in the years 2021-22 and 2022-23, are shown in Table 2 below:

TABLE 2

SN	*Railway*	*Total number of Train Accidents*					
		2021-22			*2022-23*		
		Pass.	*Goods*	*Total*	*Pass.*	*Goods*	*Total*
1	Central	2	1	3	7	1	8
2	Eastern	1	0	1	2	0	2
3	East Central	1	2	3	3	3	6
4	East Coast	1	3	4	3	2	5
5	Northern	4	1	5	3	3	6
6	North Central	1	2	3	3	1	4
7	North Eastern	1	0	1	1	0	1
8	Northeast Frontier	3	1	4	0	0	0
9	North Western	1	1	2	2	0	2
10	Southern	0	0	0	0	0	0
11	South Central	0	0	0	2	1	3
12	South East Central	0	2	2	3	2	5
13	South Eastern	1	1	2	2	1	3
14	South Western	3	0	3	0	0	0
15	Western	1	0	1	2	1	3
16	West Central	0	0	0	0	0	0
17	Konkan Railway	1	0	1	0	0	0
TOTAL		***21***	***14***	***35***	***33***	***15***	***48***

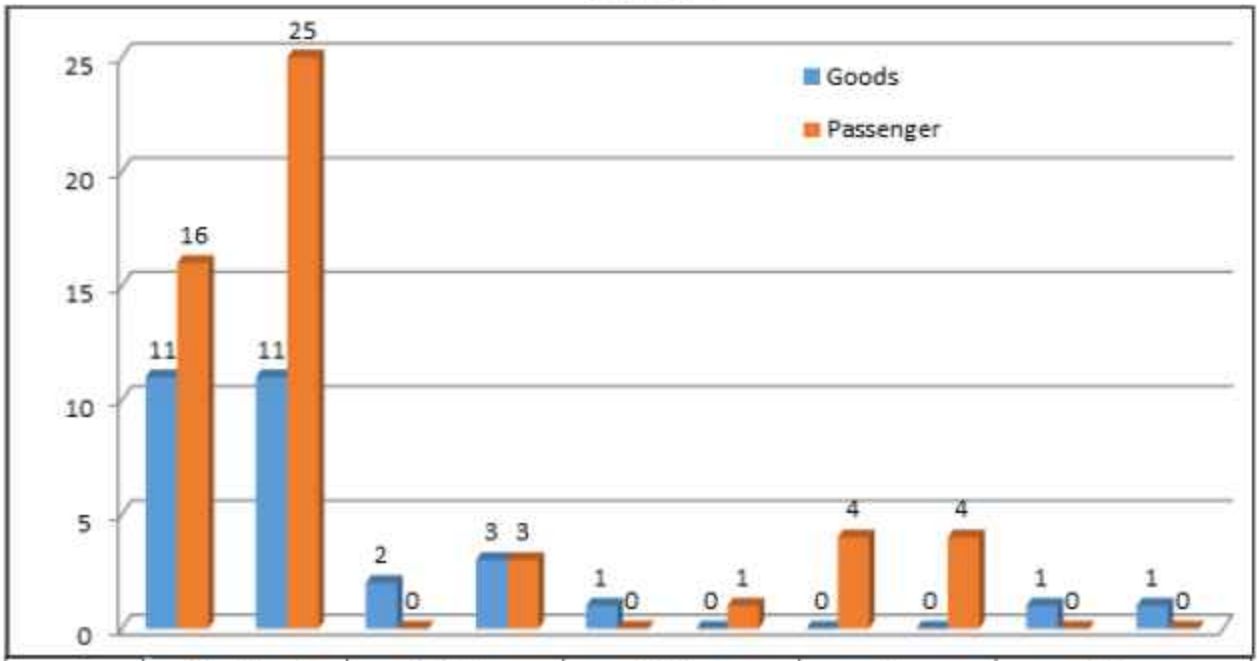
Appreciation of above reveals that:-

- The **Number of passenger train accidents increased to 33** in 2022-23 as against 21 in 2021-22.
- The **Number of Goods train accidents increased to 15** in 2022-23 as against 14 in 2021-22.
- Number of accidents **increased in 10 Railway Zones** namely, Central, Eastern, East Central, East Coast, Northern, North Central, South Central, South East Central, South Eastern & Western.
- Number of accidents either **reduced or remained same in remaining 07 Railway Zones** namely North Eastern, Northeast Frontier, North Western, Southern, South Western, West Central & Konkan Railway.

4.5 ANALYSIS OF TRAIN ACCIDENTS:

Various types of accidents (on account of derailment, collision, fire, level crossings, other causes) for passenger trains and goods trains for the year 2021-22 and 2022-23 is shown in the form of Bar Chart in Figure-3.

Figure-3



	Derailment		*Collision*		*LC Gate*		*Fires*		*Others*	
	2021-22	2022-23	2021-22	2022-23	2021-22	2022-23	2021-22	2022-23	2021-22	2022-23
Goods	11	11	2	3	1	0	0	0	1	1
Passenger	16	25	0	3	0	1	4	4	0	0

Derailments constitute the biggest chunk of train accidents, accounting for 75% (36 accidents) of the total accidents in 2022-23 as against 77.14% in 2021-22.

Accidents due to Collision were next accounting for 12.5% (6 accidents) of total accidents in 2022-23 as compared to 5.71% in 2021-22.

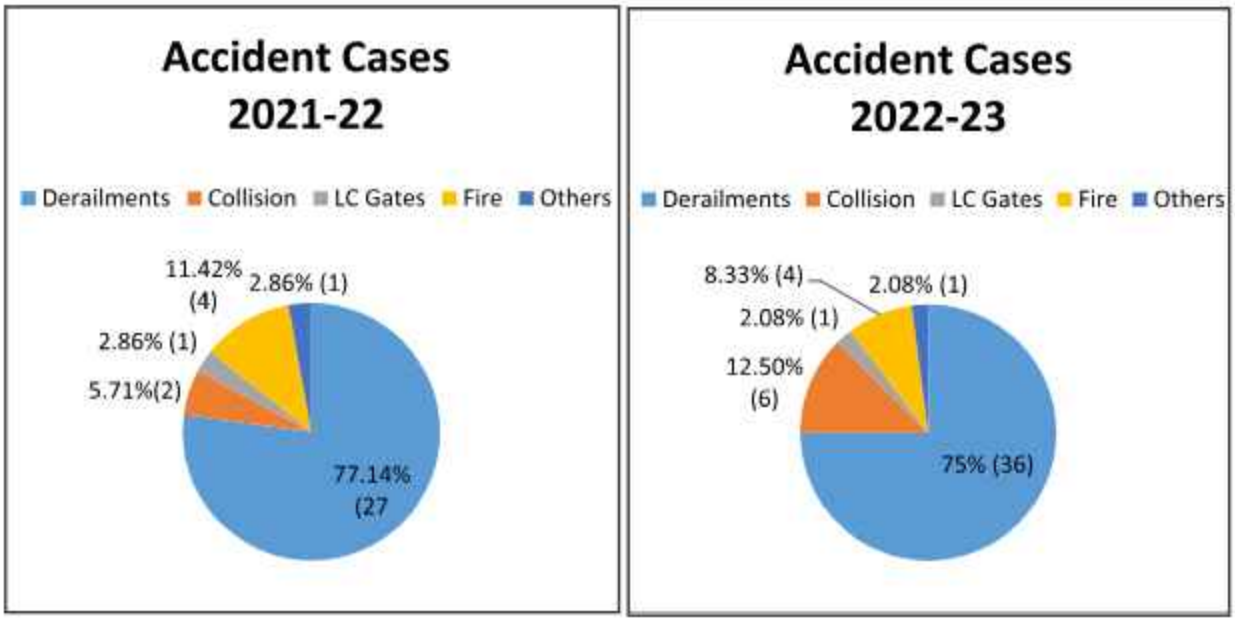
04 Number of Fire accidents accounted for 8.33% of total accidents in 2022-23 as compared to 11.42% in 2021-22.

01 Level Crossing accident accounted for 2.08% of total accidents in 2022-23 compared to 2.86% in 2021-22.

01 accident in Others category accounted for 2.08% of total accidents in 2022-23 compared to 2.86% in 2021-22.

The breakup of various types of consequential train accidents is shown in Figure 4.

Figure 4



4.6 CAUSE-WISE ANALYSIS OF VARIOUS TYPES OF TRAIN ACCIDENTS.

4.6.1 DERAILMENTS :

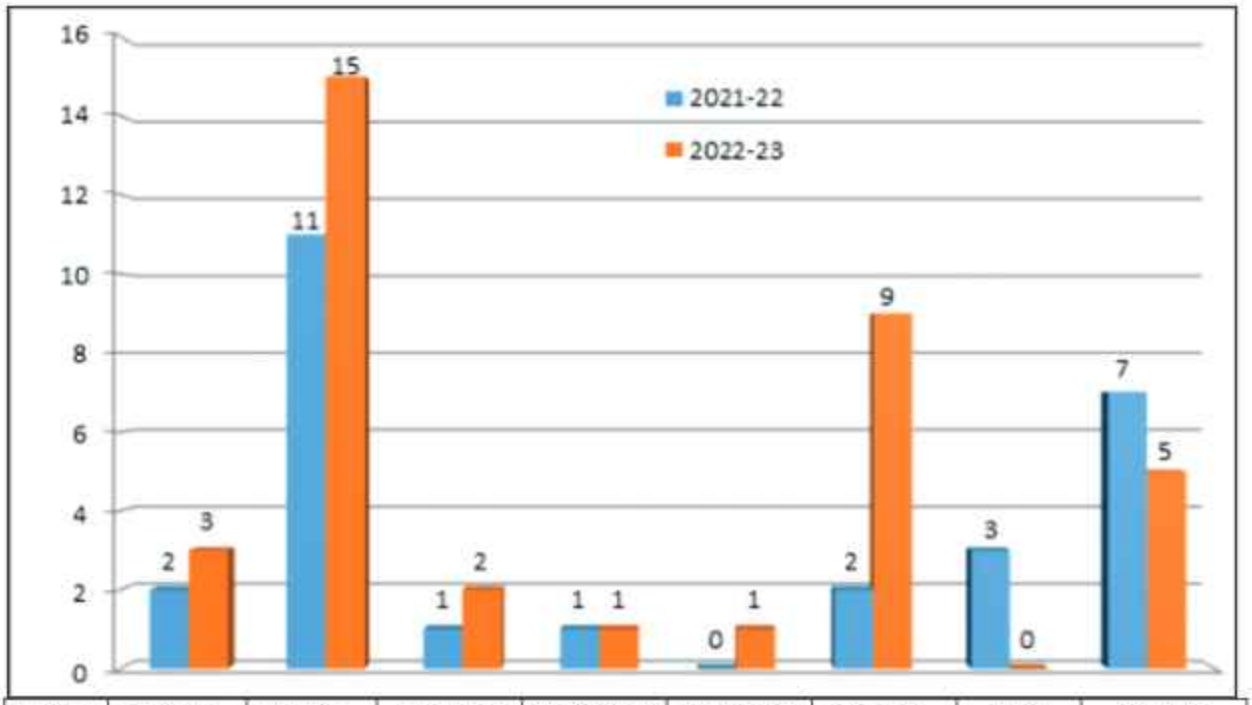
Numbers of derailments were as follows:-

2022-2023 36 (Passenger-25, Goods-11)

2021-2022 27 (Passenger-16, Goods-11)

Cause-wise analysis of derailments in the year 2022-23 and 2021-22 is shown in Figure 5.

Figure-5



Years	Rolling Stock	Track	Error in driving	On Signal Account	Error by Station Staff	Combi-nation	Elec. Traction	Others
2021-22	2	11	1	1	0	2	3	7
2022-23	3	15	2	1	1	9	0	5

There were total 36 derailments during 2022-23, in consequential train accidents. The cause wise analysis/break up of these derailments is as follows:

- 15 derailments occured due to Track/P.Way defects.
- 3 derailments were due to Rolling Stock defects.
- 2 derailments occurred due to error by Loco Pilot.
- 1 derailment was due to error by Signal staff.
- 1 derailment occurred due to error by Station Staff (Traffic).
- 9 derailments occurred due to Combination of errors/factors.
- 5 derailments occurred due to Other causes (CRO).

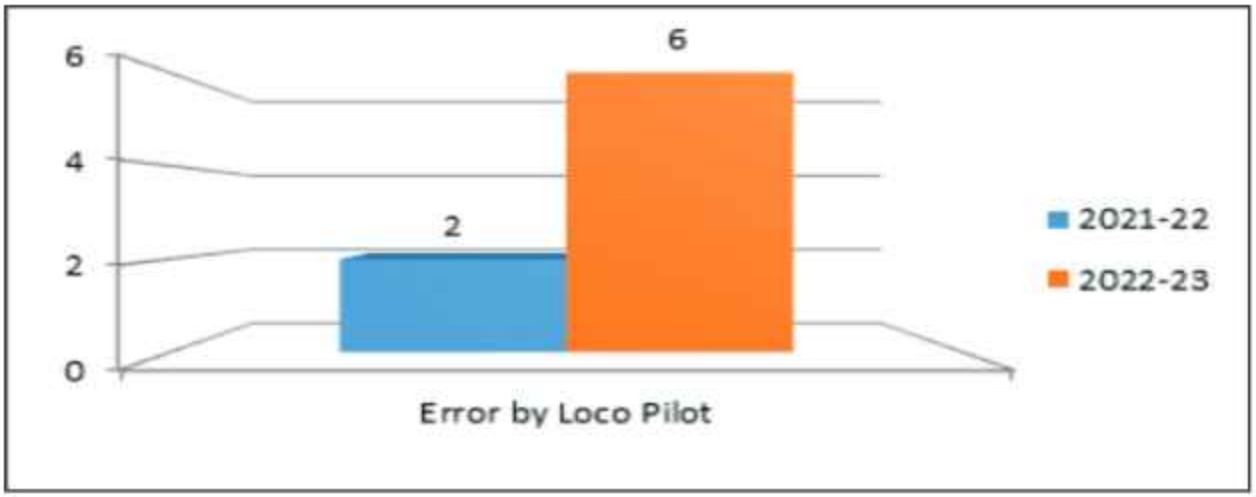
4.6.2 COLLISIONS :

Numbers of collisions were as follows:-

2022-2023	**06 (Passenger-03, Goods-03)**
2021-2022	**02 (Passenger-00, Goods-02)**

Figure 6 shows cause-wise analysis of collisions during 2022-23 and 2021-22.

Figure-6



COLLISION

06 accidents due to collision during 2022-23 were caused on account of error by Loco Pilot.

4.6.3 ACCIDENTS AT LEVEL CROSSINGS :

Numbers of level crossing accidents were as follows:-

2022-2023	**01 (Passenger-01, Goods-00)**
2021-2022	**01 (Passenger-00, Goods-01)**

Cause-wise analysis of train accidents at level crossings in the years 2022-23 & 2021-22 is shown below.

Figure 7

L-XING GATE

Only 01 Level Crossing Accident during 2022-23 was notified which occurred due to error by Railway Staff.

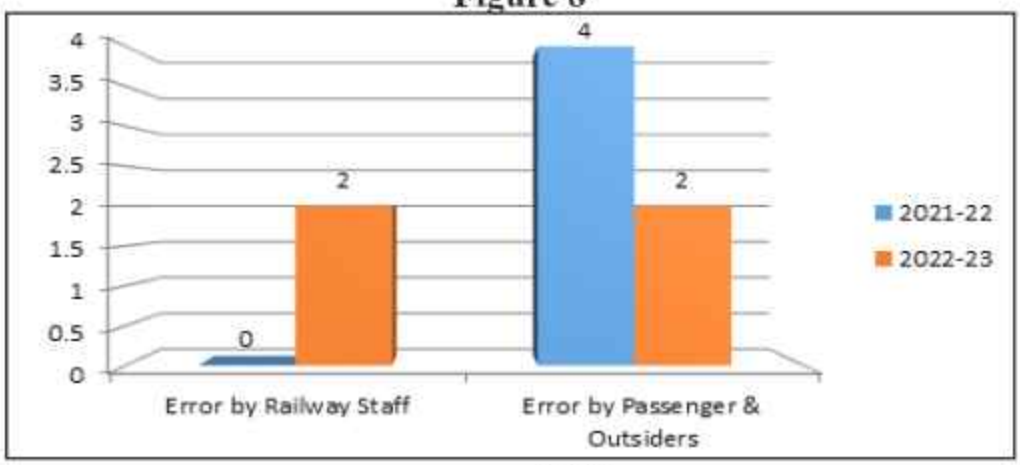
4.6.4 FIRES IN TRAINS :

Numbers of Fire cases were as follows:-

2022-2023	**04 (Passenger-04, Goods-00)**
2021-2022	**04 (Passenger-04, Goods-00)**

Figure 8 shows cause-wise analysis of fire accidents in trains during 2022-23 and 2021-22

Figure 8



FIRE

Out of 04 accidents of fire in train during 2022-23, 2 caused due to Error by Railway staff and 2 accidents were due to Error by Outsiders.

4.7 TRAIN ACCIDENTS DUE TO HUMAN ERROR :

4.7.1 No. of train accidents and contribution of human error (by Railway staff as well as other than Railway Staff) during the year 2022-23 and 2021-22 is shown in Table 3:-

TABLE – 3

SN	Item	2021-22	2022-23
1.	No. of train accidents	35	48
2.	No. of train accidents due to error in working of Railway Staff.	15	34
3.	No. of train accidents due to error in working by persons other than Railway Staff.	4	3
4.	No. of train accidents due to error in working by persons (2+3)	19	37
5.	% of train accidents due to error in working of Railway Staff (2÷1)	42.86%	70.83%
6.	% of train accidents due to human error(Both Railway and other than Railway Staff) (4÷1)	54.28%	77.08%

4.7.2 Percentage of train accidents, attributable to error in working by Railway Staff is 70.83% in the year 2022-23 against 42.86% in the year 2021-22. The error caused due to human failure, comprising both Railway Staff as well as other than Railway Staff such as road users, passengers, miscreants etc. was responsible for 77.08% of train accidents for the year 2022-23 against 54.28% of train accidents in the year 2021-22.

4.8 TREND OF SERIOUS TRAIN ACCIDENTS:

4.8.1 Total number of train accidents, serious accidents including those resulting in fatalities of passengers (including Railway Staff) travelling in trains (as distinct from other fatalities, such as, those occurring among trespassers, Level Crossing Road users etc.) for last 5 years are compared in Table 4 :

TABLE 4

SN	Year	No. of accidents	No. of Serious accidents	No. of accidents resulting in passenger fatalities	No. of fatalities including Passengers, Railway staff& Others
1	2018-19	63	09	08	37
2	2019-20	57	10	00	05
3	2020-21	22	02	00	04
4	2021-22	35	02	02	17
5	2022-23	48	04	00	08
Average for 5 years		**45**	**5.4**	**02**	**14.20**

4.8.2 Number of accidents resulting in passenger, Railway staff & other fatalities has come down in this period of five years from 2018-19. In 2022-23, number of fatalities in accidents was 8, who were either Railway Staff or others. In 2022-23, number of fatalities decreased to 8 as against 17 in the year 2021-22.

4.8.3 Total numbers of serious accidents inquired by the Commission was 04 in 2022-23 as compared to 02 serious accidents inquiry in 2021-22.

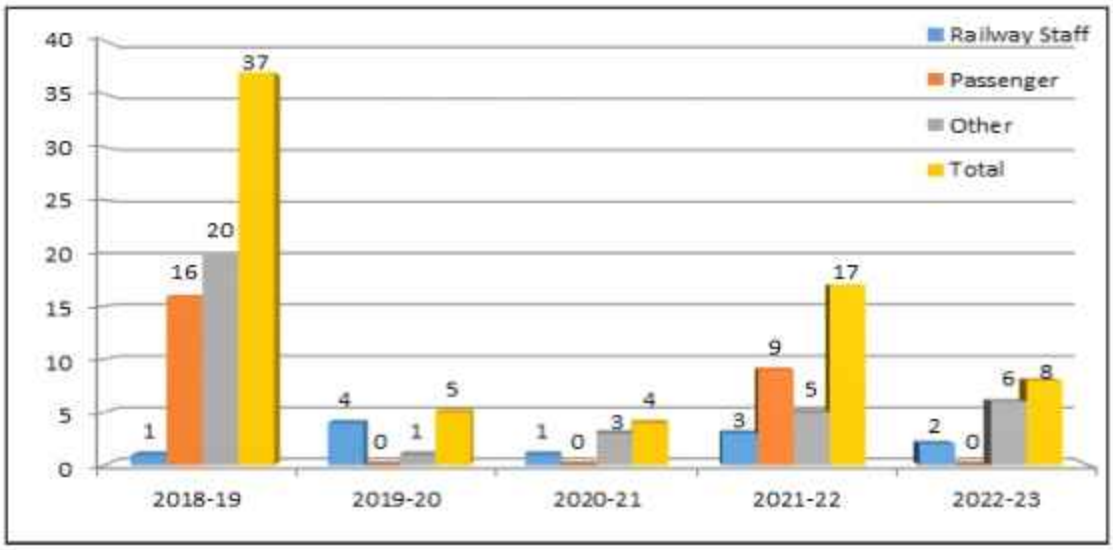
4.8.4 Total Number of accidents has increased to 48 in the year 2022-23 as against 35 during the year 2021-22 (37 % increase).

4.9 FATALITIES IN TRAIN ACCIDENTS.

Nos. of fatalities in train accidents in last five years are shown in figure-9.

Figure – 9

Fatalities (including Passengers, Railway Staff & others etc.) in Train Accidents.



4.10 LOSS OF RAILWAY PROPERTY IN ACCIDENTS:

Estimated cost of damages to Railway property resulting from train accidents during last ten years are given in Figure-10.

Figure – 10

Loss of Railway Property in train accidents during last 10 years

CHAPTER – V
RAILWAYS' RESPONSE TO ACCIDENT INQUIRY REPORTS

5.1 10 Action Taken Reports were received from Ministry of Railways in 2022-23 and reconciliation of position regarding Action Taken Reports was done. As on 31.03.2023, response of Ministry of Railways on 09 accident inquiry reports is still pending.

The oldest such inquiry report is of an accident which occurred in the year 2013-14 which is long overdue. The breakup of these pending reports are as follows:

Table 5

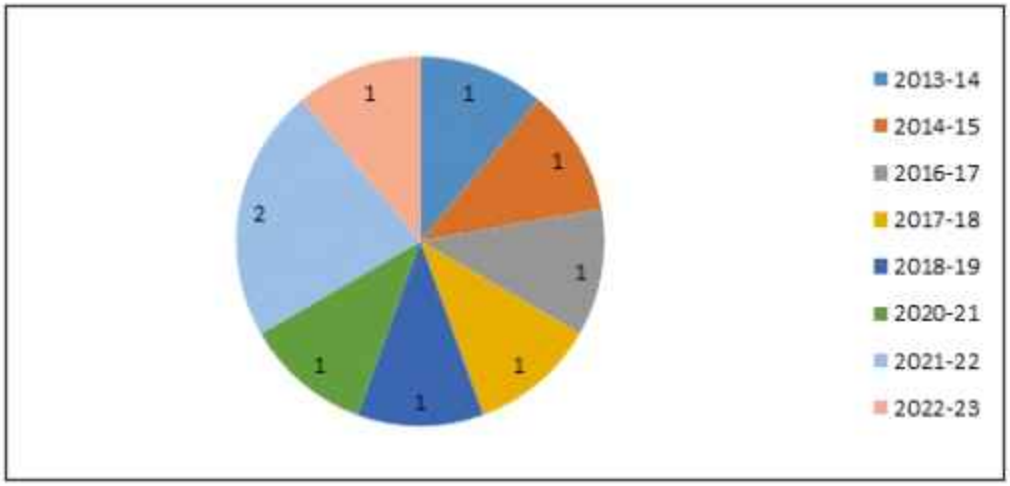
Accident occurring in the Year	**Number of ATR*s received from Railway Board**		**Number of Pending ATRs**
	Received	**No. of Recommendations**	
2013-14	---	---	1
2014-15	---	---	1
2016-17	2	15	1
2017-18	1	8	1
2018-19	2	17	1
2019-20	3	33	0
2020-21	1	9	1
2021-22	---	---	2
2022-23	1	4	1
Total	**10**	**86**	**9**

*Action Taken Report by Ministry of Railway on accident inquiry report submitted by CsRS.

There is generally delay in communication of ATR by Ministry of Railways on the recommendations made by CRS in their inquiry reports. The report of the oldest accident of 2013-14 was submitted to Railway Board in December-2014 is still pending. There is always some backlog in receipt of 'Action Taken Report' from the Ministry of Railways. The issue of non reporting of ATR/status of the recommendations to the commission has been raised regularly during the coordination meetings. Ministry of Railways has mentioned that administration/implementation of the provisions connected with the Safety of train operation requires deliberation at various levels, hence the delay.

Based on their inquiry into various aspects of the accidents, Commissioners have made a total of 90 recommendations in their final Accident Inquiry Reports (09 nos) which are still pending with the Railway Board.

The year wise details of pending ATRs are as follows:-.



5.2 During the year 2022-23, four (04) accident inquiries were entrusted to the Commissioners out of which two (02) were finalized during the year and preliminary inquiry reports in respect of other two accident cases were issued. Apart from that one (01) accident inquiry pertaining to an accident that occurred in 2021-22 was also finalized in 2022-23. All these three final accident inquiry reports were forwarded to Railway Board in this year (viz. 2022-23).

5.3 Some of the important recommendations made in these accident enquiry reports forwarded to Railway Board during the year 2022-23, are given below-

- The Railway shall create national data base of Locomotives to capture its historical data including major equipment on board and fixture, record the various inspection schedule (Major and Minor) including trip inspection, history of failures, breakdowns and kilometers earned after every trip. In case any schedule/inspection is not done in time it shall create an alarm and send to concerned officials including safety officers.
- The traction motor which have completed 18 years of service shall be withdrawn from the system and replaced on programmed basis. The life of traction motor shall be reset to the original life prescribed i.e. 18 years.
- The loco links issued on Railways shall be examined to ensure that station nominated for TI schedule have requisite facilities and manpower to carry out the inspection. Railway shall make a review of inspection and maintenance facilities available in routes electrified in last 4 years.

- Since electrification of most of the routes is near completion, availability of diesel locomotives is getting reduced, there is the need to convert all the ARME to self-propelled dedicated units so that the medical help can be provided at site at the earliest.

- The quality of videography and photography of the accident sites being done by ART staff at present is very erratic and unprofessional. So the training to ART staff in videography and photography for recording site observations and clues shall be arranged. These trained staff should be ordered to work under Safety Organization of the Division for the purpose of videography and photography of the accident site to preserve the clues. Drone cameras can be provided in the ART.

- All records of coach maintenance shall be computerized in order to use these data for the analysis and scrutiny purposes in future. Coach history shall be maintained with the records from sick lines with details of repair done and total time given to the coaches for repair.

- Maintenance of BOXN wagons should be done as per the wagon-maintenance manual - the closing and locking mechanism of the wagon-doors must be functional while issuing BPC for Premium/CC rakes, man hours and spares required for the purpose should be ensured.

- At present the switch BPP/BPR are different in colour i.e. BPP in green colour and BPR in red colour. It may not be possible to see colour when ALP/LPs are standing. So to identify by the feel of button, the BPP button shall be provided with the sharp embossed design on it. This will enable LP/LPs operating the BPP to know by feel of button that he is notching up.

- At present, system of filing the inspection note in the TMS is based on the user ID and the password. So it is strongly recommended that the lodging of inspection note in TMS should be supported by biometric for each and every individual inspection note so that work of making and filing the inspection note in the TMS cannot be sublet to the others.

- B-scan USFD machine keeps record of all the scanning and flaw patterns and also tags the GPS co-ordinates and time with scanning records. With A-scan, it is not possible to verify at a later stage whether the USFD was done properly since scanning records are not preserved. Therefore it is recommended :

(i) All the stretches of track where "D" marked rails are existing in track shall be scanned one time out of turn by B-scan machine and hence forth such stretches shall be scanned by B-scan machines only.

(ii) All the USFD machine including DRT and SRT (at all the locations irrespective of "D" marked rail) shall be replaced with B-scan USFD machine, without waiting for completion of codal life of exiting A-scan USFD machines.

(iii) A proper system of preservation of continuous scanning record of B-scan shall be designed (preferably through TMS) and implemented by the Railway Board.

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CHAPTER VI
MAJOR ISSUES CONCERNING SAFETY ON INDIAN RAILWAYS

Indian Railways has given huge impetus for improvement in Railway Infrastructure like substantial increase in track renewal, introduction of modern coaches, making corridor blocks mandatory besides improvement in signaling. As a result of these activities, there has been reduction in reported accidents over the years.

Safety is accorded the highest priority by Indian Railways and all possible steps are undertaken on a continual basis which includes up-gradation of technology to aid safe running of trains. A well-established safety management system is existing which identifies Safety hazards and unsafe practices in the Railway operation so that corrective action can be initiated much before occurrence of a disaster. Instructions have been issued from time to time to inculcate safety habits amongst all Railway employees.

The trend of accidents over Indian Railways shows a decline but the rising graph of Passenger carrying train derailments is a cause of concern. The Commission of Railway Safety has communicated to the Ministry of Railways certain focus areas which require urgent attention to improve overall health of Railway safety. These include replacement of over-aged assets, elimination of manned level crossings, adoption of suitable technologies for up-gradation and maintenance of track. Rolling Stock, signaling and interlocking systems, safety drives, greater emphasis on training of officials and inspections at regular intervals to monitor and educate staff for observance of safe practices.

These issues were highlighted to the Ministry of Railways through:

- Recommendations of the Commission of Railway Safety based on inquiry of serious accidents. Some important Recommendations are covered in Chapter-V.
- Suggestions given from time to time regarding critical safety issues based on the observations made during various inspections.
- Inspection Reports of newly opened Railway Lines, Electrification of existing Railways Line and introduction of new Rolling Stock.
- Coordination Meetings with Railway Board.

Some of the Safety Issues are discussed in detail in the subsequent paragraphs.

PART - A

Safety Issues highlighted by the Commission during various interactions with Railways:

I. Improved Standard Yard Layout Design with Mid Line as Common Loop:

Guidelines for Standard yard layout design have been issued by Planning and Signal Directorates for different stations on single & double line sections of IR. Similarly, standard layout for longer loops has also been circulated for guidance of Zonal Railways. However, in all such layouts, the issue of 15 kmph speed limit for trains for safely negotiating second or subsequent loops or 2nd crossover for common loop on double line section is a persistent limitation hampering high speed potential on all such routes. In order to overcome this handicap, it is suggested to issue directive for sandwich type common loop layout at stations wherever common loop is required on sections going for doubling or multiple line works in future. The advantages of this layout are as follows:

- **No criss-cross movement** for reception of trains on Common loop.
- **30 kmph speed potential** on all loops including the Common loop.
- **Saving of 20-22 minutes** by avoiding cross movement for reception of trains on common loops.
- **Improved safety** due to movement of trains negotiating fewer points.
- **Enhanced sectional capacity** without additional input.
- Common loop can be converted into long loop for handling long haul trains.
- **Operational flexibility & improved train handling capacity etc.**

Such a layout design with common loop sandwiched between the two Main Lines will provide improved train handling capacity without any additional cost and it does not have any detrimental effects on safety because cut across movement is avoided. Simultaneous movements of trains will become possible without any safety hazards. It is also pointed out that the slight curve required on one Main line to accommodate such a loop between the two Main lines will not cause any negative impact on speed potential of through running trains. Moreover, at the time of doubling, such a layout will facilitate continued utilization of existing platforms on the single line section stations thereby reducing expenditure on such projects considerably. Other lines like sidings etc. may be added by Railways as per requirements.

In view of the above advantages with improved safety scenario, Commission advocates for implementation of yard layout with sandwich type common loop at all feasible locations in doubling projects under sanction.

II. Distributed Architecture EI:

Electronic Interlocking with distributed architecture should be provided at stations irrespective of number of routes. It has many advantages like

- Saving of copper cable,
- System availability due to redundancy,
- Reduced Electromagnetic Interference (EMI) due to OFC cable and
- Reduction in maintenance effort, cable meggering & theft of copper cable.

III. Axle Counters with Clamp type arrangement:

Axle counters having clamp arrangement with rail should be provided which has many advantages like:

- No need of drilling hole in the Rail.
- Wheel sensor size is very compact
- Separate cable not required for Trans and Receive.
- Same quad for both functions.
- 5m/15m molded cable
- No earthing at site is required
- Height is adjustable w.r.t. Rail Head
- Reliable as no electronics at site

IV. Provision of Gantry Signal:

This is an important item for safety in train operation. In area where visibility of signal is restricted due to any reason like multiple lines, or less track center distance etc., Gantry type signaling as per GR Para 3.04, 3.20 and 3.21 must be designed and provided as a greater number of 3rd and 4th lines will be commissioned in near future. The Commission has recommended for provision of Gantry Signals in three accident inquiry reports -

1. The incident of falling of passengers in Chennai Division of SR on 23.02.2017.
2. Incident of falling of passengers in Chennai Division of SR on 24.07.2018.
3. Collision of EMU Train with Tower car at in Howrah Division of ER on 06.04.2019.

Based on these recommendations IR has initiated action for design and trials of Gantry signals but progress in this regard needs to be expedited.

V. Streamlining procedure to effect proper function of Automatic fire detection & alarm system (AFDAS) in Relay rooms :

Ensuring adequate sensitivity of Automatic fire detection & alarm system (AFDAS) was an issue and most of the time; it was difficult to test the functionality of Smoke/fire detectors. Railway was stressed by Commission to formulate a standard testing procedure for confirming effectiveness of Smoke/Heat detectors. Accordingly, NWR made reference to RDSO and in turn RDSO on 22.12.2021 has issued Procedure Order defining testing procedure for smoke/heat detectors duly indicating prescribed limits.

VI. Measures to improve safety & reliability of Rolling Stock over Indian Railways:

Vande Bharat Train set & MEMU/EMU:

a) Voice logger may be provided for Emergency Talk Back Unit and for communication between driver and guard with provision of voice recording for at least one-hour duration.

b) There is no provision of locking the cab door connecting the cab to the passenger area. This may create an unsafe situation during run due to entry of any unauthorized person in the cab. Suitable arrangement may be made in the cab door for locking it from inside (driver side) whenever desired.

c) Presently there is provision to open the door by pressing a button from outside. This provision is very unsafe as any unwanted person may open the door when train is standing in yard or wayside station or in section at isolated location. Provision should be made to enable or disable these switches by Driver so that no unwanted person is able to open the door.

d) In case of emergency, passenger evacuation is through coach doors. As it is inconvenient to get down at ground level using steps and in case of emergency may lead to falling of passenger, Railways should study and make efforts to provide evacuation slides (similar to emergency exits in aircrafts) at doors which can be inflated in case of emergency to provide safe and faster passage for passenger evacuation.

e) Aerosol-based automatic fire detection and suppression system may be provided in all electrical panels.

f) Adequacy of electrical cabling and of existing materials being used needs to be confirmed for its compliance to fire retardant norms. Use of fire survival cables in critical circuits need to be ensured in new as well as old stock.

g) It is suggested that Fire Safety Audit of MEMU/EMU trains & Mail/Express trains on sampling basis over IR system should be done to identify weak areas and suggest remedial measures with a view to avoid occurrence of any serious fire incident in future.

h) Fire Load (Fire Heat Release Rate) of MEMU/EMU coaches needs to be critically examined as per NFPA norms. FHRR aims at use of materials in passenger coaches with minimum possible heat release rate.

i) Similar to Metro System dealing with mass transit, passenger egress study needs to be conducted to ensure safe evacuation of passengers in minimum time from affected coaches.

Coaches:

a) In recent fire incidents, it has been observed that CCTV Control Unit and Fire Detection & Suppression System Control Unit were also gutted in fire. It is, therefore, suggested that CCTV Control Unit and Fire Detection & Suppression System Control Unit may be relocated to under frame so that data is retrieved for analysis of fire and other incidents.

b) Adequate no. of condensed aerosol based stand-alone unit similar to LWACCNE Coach or a superior arrangement may be provided inside the electrical panel/cubicle.

Track machines:

a) It must be ensured that various units of the track machines used in the formation clear the section after the block in one direction only to avoid subsequent signal failure due to mismatch in axle counter at both the end of the block section.

b) Railway Board may issue suitable guidelines regarding training to be imparted to the operator (private person) & the qualification of the Railway staff accompanying the machine for calling out the signals & rendering other assistance during operation & movement of the machine.

c) There is no provision to record the instantaneous speed of the track machines which can be later downloaded and analyzed. Suitable provisions similar to locos must be made to record & download the instantaneous speed.

d) Dead man's handle and Vigilance Control Device, Similar to what is available in Locomotives, should be provided. It is much more essential as track machines are generally driven by single crew.

e) Provision of fire survival cable should be made in the communication system and brake system for enhanced fire safety.

f) Necessary provision should be made to record the conversation between staff present in the cabs for reference during enquiry of any unusual incident/accident.

g) Necessary modifications should be made to record CCTV footage for at least 30 days as there is no provision to record the CCTV footage for reference during investigation/ enquiry of an unusual incident.

h) Optical Fiber based Linear Heat Detection (LHD) system should be provided wherever there are bunching of cables. This will help in detecting heating spots before they are converted in to fire.

i) Provisions should be made for logging the actual working/operation timings of machine so that performance of the machine can be compared against its rated output.

Wagons:

Board & RDSO must take necessary steps to reduce the no of wagon variants by identifying "Best in Class" wagons and by running "pure rakes" i.e. rakes having wagons with same axle load and speed potential with twin pipe brake system.

VII. Safety measures for Train Operations at 160 Kmph:

Vande Bharat Train set and all variants of AC LHB coaches have been sanctioned for 160 Kmph operation. Though, at present only one section (TKD-PWL-AGC) of IR is fit for 160 Kmph train operations, the number of such sections is likely to increase in future. With more and more trains running at 160 Kmph the safe train operations at such a high speed will becomes a challenging task. Some of the recommendations made by Commission while forwarding the cases of Coaching Stock at 160 Kmph operation to Railway Board to ensure safe train operations at 160 Kmph are listed below:

a) Railway shall ensure provision of sturdy fencing in section of standard design to prevent trespassing by human &cattle which poses a threat to trains in compliance of Para 202 of IRPWM 2020.

b) Level crossing gates should be eliminated in the 160 kmph section. In exceptional cases, relaxation should be taken but duly ensuring adequate safety measures for public safety including deployment of RPF and such gates should be eliminated on high priority. Hangers/frills may be provided on the booms of lifting barriers to prevent cases of 2 wheelers &public passing underneath barrier of closed gate.

c) As the leading coach of Vande Bharat train set are much lighter than the locomotive, hitting of any obstruction or even cattle run over may lead to

serious accident at higher speeds. Therefore,

- Railway shall identify regular trespassing locations/cattle ingress and to avoid trespassing at these locations, suitable mechanism such as deployment of RPF personnel, regular patrolling, providing subway (for passing farmers along with cattle) etc. shall be put in place.
- Periodic drives shall be conducted to check and prevent trespassing by RPF with concerned departments by way of counselling of residents of land adjoining Railway track and by conducting surprise checks to act as deterrent.

d) It should be ensured that run through line is not platform line for safety of occupants and rail passengers. In case of non-compliance, RPF/station staff shall be exclusively deployed on platform at the time of passing of above train for safety of public duly ensuring suitable precautionary measures.

e) Stipulated corridor blocks shall be regularly granted for ensuring track maintenance to required standards considering need of intensive track monitoring/maintenance at higher speed.

f) While increasing sectional speed to 130/160kmph several new permanent speed restrictions have been introduced in sections having sharp curves. Presence of large numbers of PSRs and TSRs keep the Loco Pilot under stress continuously. Railway should make sincere efforts to reduce number of such PSRs by easing curves, increasing transition lengths and simplifying yard layout. Wherever considered prudent, PSRs can be combined to reduce total number of PSR.

VIII. Expeditious Implementation of Kavach over Indian Railways:

KAVACH is an indigenously developed Automatic Train Protection (ATP) System meant to provide protection to the trains against Signal Passing at Danger (SPAD), over speed and collisions. KAVACH provides continuous update of Movement Authority (distance up to which the train is permitted to travel without danger).Hence, during unsafe situations when brake application is necessitated, and the Crew has either failed to do so, or is not in position to do so, automatic brake application shall take place. KAVACH has additional features to display information like speed, location, distance to signal ahead, Signal aspects etc. in Locomotive cab and also generation of Auto and Manual SOS messages (Distress message) from Locomotive as well as from the Station unit in case of emergency situation. The communication between Stationary KAVACH and Loco KAVACH units shall be Safety Integrity Level 4 (SIL 4) certified as per the CENELEC standards for Railways. Communication between two or more Loco KAVACH systems, Non-Signalling based additional collision protection (i.e. Head-on, Rear-end & Side

Collisions) and Manual SoS are non-SIL based (i.e. not fail safe).

The important features in KAVACH System are :

- Prevention of Signal Passing at Danger (SPAD).
- Cab-Signaling, Loop Line Speed Control.
- Prevention of Over Speed.
- Protection of Roll back and Reverse movements
- Prevention of Side-collision in block section
- Prevention of Head-on & Rear end collisions.
- LC Gate Automatic Warning.
- Save Our Souls (SOS) Messages.
- Computation of Train Length.
- Shunt Limits Validation
- Centralized live monitoring of Train movements in Networking Monitoring System (NMS).

IX. Safe working of Contractors - Protection at Work Site:

There have been two recent accidents due to non-provision of proper safety arrangement as per IRPWM para 819 Safe Working of Contractors at work site, during execution of work parallel to existing Railway track.

1. Derailment of Train No. 12225 Kaifiyat Exp. Allahabad Division/NCR on 23.08.2017 due to dashing of Road Dumper.

2. Dashing of Train No. 21181 with empty Truck Jhansi Division/NCR ON 01.10.2019.

For ensuring the proper work site safety, Railway shall ensure all the provisions of IRPWM Para-819. MOU shall be made between Railway Authorities and

Executing agency regarding additional safety precautions.

PART - B

SOME OF THE MEASURES ADOPTED BY INDIAN RAILWAYS TO BRING ABOUT OVERALL IMPROVEMENT IN SAFETY:

Indian Railway has taken various measures over the years for improvement in quality and maintenance of its assets e.g. Signalling, Track, Bridge and Rolling Stock etc. to improve safety performance.

I. Improvements in Signaling Systems

a) **Electronic Interlocking**

- Replacing earlier generation mechanical signals by Panel Interlocking/Route Relay Interlocking/Electronic Interlocking (PI/RRI/EI) along with Multi Aspect Colour Light Signals provided at 6,396 Stations out of 6,506 Stations on BG Routes, up to 31.03.2023.
- Electronic Interlocking have been provided on 3045 stations, up to 31.03.2023.

b) **Use of Block Proving Axle Counters**

- Block Proving Axle Counter (BPAC),to ensure complete arrival of train without manual intervention before granting line clear to the next train, provided at 6,364 Block Sections out of 6,607 Block Sections on BG Routes up to 31.03.2023.

c) **Kavach (Automatic Train Protection System)**

- RDSO, along with Indian OEMs, has developed Automatic Train Protection (ATP) System named KAVACH (Train Collision Avoidance System). First field trials on passenger trains started in February 2016. Based on the experience so gained and Independent Safety Assessment of the system by a 3rd party (Independent Safety Assessor: ISA), Kavach was adopted as a National ATP system in July 2020.
- Kavach already deployed on 1465 Route km and 121 locomotives (including Electric Multiple Unit rakes) on South Central Railway.
- Contracts have been awarded for Delhi –Mumbai & Delhi – Howrah corridors (approximately 3000 Route km) and work is in progress on these routes. Includes KAVACH for 760 locomotives
- Detailed Project Report (DPR) for another 6274 Route Km covering Mumbai-Howrah, Delhi-Chennai, Kolkata-Vijaywada and Mumbai-Chennai routes is

under preparation.

II. Preventing Collisions: Other Assistive Technology for Crew

a) **Vigilance Control Device:** All locomotives have been provided with VCDs that alert the loco pilots in case of inactivity.

b) **Fog-Pass Safety Devices:** These are GPS-based devices that alert the loco pilot regarding approaching signals, gates etc., and are used during foggy weather where visibility is reduced. 19,742 fog pass devices provided until the end of 2022-23.

c) **Retro reflective sigma Board:** These are provided on masts and glow under locomotive headlight alerting the loco pilot of approaching signal in low visibility.

d) **CVVRS:** Crew Voice and Video Recording System in locomotive cabs is planned. Trials are underway.

III. Improvements in Track Structure

a) **Track Upgradation**: Earlier the track structure used to be largely 90R (44.5 Kg/m) or 52 Kg (72/90 UTS) rail. This is being gradually replaced with 60 Kg, 90 UTS rail which has higher strength.

b) **Welded Rails:** Short-welded rails of 39 m length and single rails are being converted into long welded rails. Short-welded rails of 39m length and single rails limited to locations, where welded rails are not permitted on technical grounds.

c) Population of Alumino-Thermit (AT) welds progressively reduced by using Longer Rail Panels with one/two/three Flash Butt Welds from rail manufacturing plant. Flash Butt welds are of higher quality with least chances of internal defects and in turn improve safety.

d) **PSC Sleepers:** Normal/Wide base 60 kg PSC sleepers with elastic fastening on plain track and PSC sleepers on turnouts are used while carrying out primary track renewals

e) **Steel Channel/H-beam Sleepers** Old wooden sleepers on bridges are being replaced with Steel Channel/H-beam Sleepers, while carrying out primary track renewals. H-Beam sleepers are stronger than Steel channel sleepers and have better quality control in fabrication.

f) **Thick Web Switches:** A new design of switches which can handle higher turn-out speed with more life and reliability, as compared to ordinary over-riding

switches.

g) **Weldable Cast Manganese Steel Crossing** improves safety by reducing fracture proneness and elimination of fish plated joints. Planned for routes of higher speed and heavier axle load.

IV. Improvements in Maintenance

a) **Maintenance Block: Zero Based Time Table** initiative taken in Sep-2020, which provides for Corridor Blocks for maintenance. To further reinforce, **Rolling Block Program** introduced from 12.06.2023- integrated maintenance of infrastructure (P. Way, TRD & Signalling); prepared initially for two weeks for each traffic section and each route.

b) **Mechanization: Track Machines:** IR has a fleet of 1548 modern track machines for mechanized maintenance and relaying of track. Further augmentation of the fleet is planned.

c) **Track Recording:** Monitoring of track parameters done through regular runs of Track Recording Cars (TRC). Two additional TRCs added in the year 2022-23 to the earlier fleet of 5 TRCs and one is under commissioning.

d) **Oscillation Monitoring System (OMS) :** Oscillation Monitoring System that identifies bad running locations to ensure safety of trains & riding comfort of passengers. Locations where Vertical or Horizontal acceleration recorded exceeds threshold limit require attention. IR has 116 such systems-approximately 10 lakh Kms track recorded every year by OMS.

e) **Ultra Sonic Flaw Detection (USFD) of Rails:** Rail and Weld defects are identified by using Single Rail Testing (SRT) / Double Rail Testing (DRT) using A-Scan Analog USFD Machines.To further improve digital capturing of data & monitoring, IR is inducting improved technology of B Scan 9 channels USFD testing machines.

V. Bridges :Technological Intervention in Bridge maintenance

a) An IT application -**Bridge Management System (BMS)-** adopted, covering details of all Bridge assets and Inspection modules- visible at all levels.

b) **Instrumentation for Bridge health monitoring** provided at 25 bridges & planned for 64 bridges.

c) Under water inspection by Robotic Vehicle done at 175 bridges & planned for 66 bridges in 2023-24.

d) Continuous **River Bed Profile Management System** adopted at 39 bridges &

planned for 31 bridges in 2023-24.

e) Continuous **Water Level Monitoring System** provided at 311 bridges & planned for 97 bridges in 2023-24.

f) Continuous **Scour Depth Management System** provided at 3 bridges & planned for 16 bridges in 2023-24.

VI. Improvements in Rolling Stock

a) **Replacement of conventional ICF design coaches with superior LHB design coaches:**Production Units of Indian Railways are manufacturing only LHB coaches from 2018-19 onwards. LHB coaches are provided with superior crashworthy, Fire Safety and anti-climbing features.

b) **Maintenance mechanization for timely detection of faults:** Non destructive flaw detection of axles and wheel discs

- Ultrasonic testing of axles
- Eddy current array testing of wheel disc web

c) **Wayside Condition monitoring for trains on the run:** Mechanized systems like Online Monitoring of Rolling Stock (OMRS), Wheel Impact Load Detector (WILD), Hot Box Detection Systems (HBDs) and Hot Axle Hot Wheel systems (HAHWs), to detect any incipient defect in components while coaches / wagons are on run, are being inducted & proliferated. Till now, 25 OMRS devices, 23 WILDs and 231 HBDs have been commissioned and are operational. More such devices are under various stages of procurement and installation.

d) **Fire Safety Features:**

- Use of fire retardant furnishing material in coaches
- Use of heat resistant E-beam cables for coach wiring
- Aerosol- based fire suppression cartridges being provided in all electrical cubicles in LHB/ ICF coaches and EMU/ MEMU Cars
- Provision of fire detection and suppression system in Power Cars and Pantry

Cars and Fire and Smoke detection system in AC coaches besides Fire Extinguishers.

e) **Improved Safety Features in Freight Wagons**

- **Improved design Open Wagons:** Adoption of open wagons **(corrosion-resistant and stronger stainless steel)** for transport of bulk commodities.
- **Upgraded Bearings**: Upgraded bearings having low torque grease seals and polyamide cage being adopted progressively for reducing online bearing failures. 5,00,000 such bearings already introduced
- **Upgraded High Tensile Centre Buffer Coupler (CBC):** Upgraded CBC having better mechanical properties introduced for reducing incidence of train parting. Complete switch over done to this type of CBC since Mar'20 for new procurement.

VII. Level Crossing Gates

Unmanned Level Crossing gates: All UMLCs eliminated from the BG route

Manned Level Crossing Gates:

- Manned Level Crossing gates are being progressively interlocked with signals
- Non-interlocked MLCs being equipped with voice recording system
- With progressive building of ROBs and RUBs, all technically feasible MLCs will also get eliminated
- During the year 2022-23, 880 Nos. of manned level crossings have been eliminated. Indian Railways have provided interlocking with Signals at 11079 Level Crossing Gates as on 31.03.2023, to enhance the safety at Level Crossings. Total Number of level crossings (All Manned)as on 01.04.2023 is 17720.During the year 2022-23, 1067 ROBs and RUBs/subway have been constructed.

VIII. Fencing

It is a critical requirement all along track for speed more than 130 kmph. During the year 2022-23, 1278 Km **RCC Fencing** has been provided. **Metal W-Beam Fencing** has been provided along 471 Km.

APPENDIX-I

DETAILS OF SERIOUS RAILWAY ACCIDENTS INQUIRED INTO BY COMMISSIONERS OF RAILWAY SAFETY DURING THE YEAR 2022-23.

1. Derailment of 12 coaches of Train no. 11061 Dn Lokmanya Tilak Terminus–Jaynagar Pawan Express between Lahavit-Devlali stations on DN line at km. 171/39 in Igatpuri-Bhusaval double line BG electrified section of Bhusaval Division of Central Railway on 03.04.2022.

A)	CAUSE	:	Coach & Track defects – Due to high value of wheel diameter difference of coach No. 20400/C 16th from Loco and difference in track gauge.
B)	CASUALTIES		
	KILLED	:	01
	GRIEVOUS INJURY	:	01
	SIMPLE INJURY	:	01
	TRIVIAL INJURY	:	04
C)	COST OF DAMAGES TO RAILWAY PROPERTY	:	Rs. 23,89,00,000/-
D)	NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER	:	07

2. Dashing of Loco No.22203 WAP/4 with Train no. 22157 DN CSMT-MAS Express at Wadi station on Solapur-Wadi section in Solapur Division of Central Railway on 19.05.2022.

A)	CAUSE	:	Error in train working – Due to carelessness and negligence of the LPs who failed to operate the Locomotive properly and persistently pressed BPP which is used for the progression rather than using BPR for regression.
B)	CASUALTIES		
	KILLED	:	00
	GRIEVOUS INJURY	:	01
	SIMPLE INJURY	:	01
C)	COST OF DAMAGES TO RAILWAY PROPERTY	:	Nil
D)	NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER	:	04

3. Derailment of Goods Train No. UP E-NBOX(E)/CAP on Up line of Korai Station (KRIH) in Khurda Road Division of East Coast Railway on 21.11.2022.

A)	CAUSE	:	Systemic Failure of Indian Railways in ensuring safe operation of freight trains of BOXN wagons. The front-LHS door of 14th wagon bearing no. SE 10070060231 which was vertically hanging down and tied with GI-wire to bogie frame, got free to oscillate when the GI wire broke on run. The hanging and oscillating door had hit the end of the UP platform at Korai (no ramp was provided for the platform) and snapped.
B)	CASUALTIES		
	KILLED	:	03
	GRIEVOUS INJURY	:	00
	SIMPLE INJURY	:	04
C)	COST OF DAMAGES TO RAILWAY PROPERTY	:	Rs. 4,78,64,725/-
D)	NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER	:	09

4. Derailment of 13 coaches of Train No.12480 Suryanagari Superfast Express from Bandra Terminus to Jodhpur between Rajkiawas-Bomadra stations in MarwarJn – Luni Jn Major section in Jodhpur Division of North Western Railway on 02.01.2023.

A)	CAUSE	:	Fracture of the rail – Due to the failure to detect the transverse flaw in the rail (which was in grown up state) during the last USFD of rail on 24/12/2022 is the reason responsible for the accident.
B)	CASUALTIES		
	KILLED	:	00
	GRIEVOUS INJURY	:	03
	SIMPLE INJURY	:	68
C)	COST OF DAMAGES TO RAILWAY PROPERTY	:	4,39,60,000/-
D)	NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER	:	09

APPENDIX-II

DETAILS OF ACTIVITIES OF THE COMMISSION OF RAILWAY SAFETY DURING 2022-23.

(A) NEW LINES :-

SN	Date of Authorization/Inspection	Section/ Line Opened	Circle	KMs
1	18.04.2022	Gadag Bye Pass	SC	3.48
2	07.05.2022	Vangaon-Dahanu Road	WC	3.68
3	28.09.2022	VNGP-KSANG	NFC	43.3
4	07.09.2022	Mahesana-Jagudan	WC	10.39
5	29.11.2022	Nirmali-Saraigarh	EC	0.78
6	11.11.2022	Jhartarbha-Bichhupali	SEC	10.95
7	20.12.2022	Sidhwar-Shanki	EC	26.91
8	13.12.2022	Biyavra Rajgargh - Pachor	CC	6.83
9	22.01.2023	Junakhera-Aklera	CC	27.56
10	15.02.2023	Kadiridevarapalli-Doddahalli	SC	19.55
11	07.02.2023	Krishna-Maganur	SCC	12.69
12	28.02.2023	MandirHasuad-Katni	SEC	18.06
13	13.03.2023	Kharkopur-Uran	CC	27.93
14	22.03.2023	Mohanpur-Harlata	EC	15.98
15	27.03.2023	Koderma-Jharahi	EC	17.03
16	28.03.2023	Hasanpur Road-Bithan	EC	10.38
17	31.03.2023	Harlatanr-Hansdiha	EC	22.13
18	31.03.2023	Sangnal-Hanmapur	SC	13.27
19	31.03.2023	Kodakandla-Duddeda	SCC	21.68
20	03.03.2023	Lalsot-Piplai	WC	26.38
21	30.12.2022	DobhBahali-Meham	NC	30.04
			TOTAL	**369**

(B) ADDITIONAL LINES (DOUBLE AND MULTIPLE LINES):-

SN	Date of Authorization/ Inspection	Section/Line Opened	Circle	KMs
1	13.04.2022	Dhulianganga-New Farakka	EC	14.716
2	12.04.2022	Mirchadhuri-Magardaha	EC	16.29
3	02.04.2022	Amethi-Antu	NC	14.28
4	11.04.2022	Neri-SPC	NC	30.1
5	20.04.2022	Panki-Bhaupur	NEC	10.245
6	24.04.2022	Gwalior-Banmore	NEC	19.011
7	11.04.2022	Parsendi-Bishwa	NEC	18.18
8	04.04.2022	Phephna-Karrimuddinpur	NEC	20.581
9	23.04.2022	Dobhi-Muftiganj	NEC	20.385
10	29.04.2022	Aralvaymoli-Valliyur	SC	18.29
11	08.04.2022	Diyodar-Radhanpur	WC	38.84
12	29.04.2022	Digsar-Mull Road	WC	7.7
13	04.05.2022	Saugor – Makronia	CC	7.058
14	12.05.2022	Ratanpur-Jamalpur	EC	6.35
15	31.05.2022	Bandel-Mogra	EC	6.99
16	17.05.2022	Lalitpur-Bijrotha	NE	29.541
17	04.05.2022	Desur-Belagavi	SC	10.83
18	27.05.2022	Ettumanur-Chingavanam	SC	17.921
19	01.06.2022	Salagaon-Rajathagarh	SEC	45.512
20	27.05.2022	Hatia-Balsiring	SEC	5.984
21	27.05.2022	Kharagpur-Jijli	SEC	3.773
22	26.06.2022	Narkher-Kalambha	CC	15.06
23	28.06.2022	AnkaiKilla-Manmad	CC	8.63
24	30.06.2022	ChaabraGugor-MotipuraChowki	CC	21.529
25	29.06.2022	Chamua-Harinagar	EC	8.326
26	28.06.2022	Belagavi-Suldhal	SC	27.143
27	19.06.2022	Aravalli-Nidadavolu	SCC	39.468
28	10.06.2022	Panposh-Kalunga	SEC	8.569
29	21.06.2022	Bangurkela-Bondamunda	SEC	2.235
30	30.06.2022	Budhapank-Taicher	SEC	17.809
31	09.06.2022	Wankaner-Sindhavadar	WC	14.37
32	21.06.2022	Kharia-Khangarh-Pipar Road	WC	30.46
33	29.07.2022	Rajevadi-Jejuri-Daundag	CC	20.01
34	12.07.2022	Bokaro-Thermal-Gomia	EC	5.645
35	26.07.2022	Bazarsau-Tenya	EC	6.98
36	18.07.2022	Mahgawan-Khetasarai	NC	18.42
37	31.07.2022	Karimmuddin-Yusufpur	NEC	14.141
38	30.07.2022	HandiKhas-Ramnathpur	NEC	18.394

39	14.07.2022	Paman-Bhimsen	NEC	17.238
40	28.07.2022	Abhayapuri-Pancharatna	NFC	26.369
41	13.07.2022	Bisugirsharif-Uppal	SCC	19.996
42	12.07.2022	Padua-Bheja-Machkund Road	SEC	21.428
43	07.07.2022	Varahi-Chhansara	WC	16.22
44	09.08.2022	Bhigvan-Washimbe	CC	28.48
45	12.08.2022	Sakariya-HinautaRamban	CC	7.682
46	13.08.2022	Marwasgram-Niwas Road	CC	16.929
47	20.08.2022	Wardha-Chitoda	CC	4.05
48	26.08.2022	Pachora-Jalgaon	CC	47.59
49	24.08.2022	Kishanpur-Rambhadrapur	EC	11.305
50	17.08.2022	Arigada-Barkakana	EC	4.899
51	05.08.2022	Akbarpur-Goshianganj	NC	24.71
52	08.08.2022	Bathinda-Bhatinda Cantt	NC	9.69
53	29.08.2022	Dabra-Antri	NEC	19.115
54	26.08.2022	Zangallapalle-Taticherla	SCC	18.845
55	11.08.2022	Amlai-Singhpur	SEC	22.4
56	05.08.2022	Maneswar-Hatibari-Jujumura	SEC	25.878
57	30.09.2022	Isarawara-Nariaoli	CC	7.451
58	02.09.2022	Tilaya-Waringanj	EC	14.909
59	14.09.2022	Mahwal-Chakia	EC	16.36
60	16.09.2022	Rasulpur-Saktigarh	EC	6.539
61	28.09.2022	Akshayawatrai Nagar-SahdeiBurzure	EC	13.473
62	15.09.2022	Yousufpur-Ghazipur	NEC	17.899
63	27.09.2022	Valliyur-Nanguneri	SC	14.04
64	28.09.2022	Khanapur-Desur	SC	15.021
65	30.09.2022	Nellore-Talamanchi	SCC	16.065
66	03.09.2022	Belpahar-Himgir	SEC	13.319
67	05.09.2022	Govindpur-Bakashpur	SEC	13.05
68	09.09.2022	Kaklur-Kawargaon-Dabpal	SEC	21.074
69	11.09.2022	Sheopra- Sad Nagar	SEC	1.908
70	19.09.2022	Lakholi-Raipur	SEC	25.495
71	23.09.2022	Kachewani-Tumsar Road	SEC	27.575
72	20.09.2022	Chakulia-Kokpara-Dalbhumgarh	SEC	30.7
73	29.09.2022	Brajrajnagar-IB	SEC	11.509
74	30.09.2022	Deobahal-Bargar Road-Barpali	SEC	30.89
75	13.09.2022	Nimach-Bisalwas Kalan	WC	9.403
76	18.10.2022	Kashti-Belwandi	CC	24.88
77	19.10.2022	Valha-Nira	CC	10.17
78	29.03.2023	RTR-JI	NEC	10.67
79	21.10.2022	Phephna-Parsa	NEC	22.41
80	19.10.2022	Gajjelakonda-Tarlupadu	SCC	25.428

81	20.10.2022	Rupra Road-Noria Road	SEC	18.007
82	21.10.2022	Kapilas Road-Nergundi	SEC	4.188
83	18.10.2022	Muli Road-Vagadiya	WC	16.667
84	19.10.2022	Adesar-Kidiyanagar	WC	25.185
85	14.11.2022	Katol-Kalambha	CC	10.05
86	17.11.2022	Saraigram-Gajarabahra-Deoragram	CC	20.699
87	18.11.2022	Malkhedi-Mahadevkhedi	CC	5.181
88	30.11.2022	Usargaon-Chaunrah	NE	13.99
89	24.11.2022	Dudhnai-Dhupdhara	NFC	29.598
90	01.12.2022	Hole Alur-Badami	SC	19.098
91	30.11.2022	Gunji-Khanapur	SC	11.909
92	18.11.2022	Cheruvumadh-Avaram-Kondapalli	SCR	8.923
93	26.11.2022	Karavadi-Chinnaganjam	SCR	22.7
94	11.11.2022	Badmal-Sikir	SEC	9.891
95	25.11.2022	Rajgangpur-Tangarmunda	SEC	26.215
96	07.12.2022	Bhilwadi-Nandre	CC	6.94
97	12.12.2022	Salpura-ChabraGugor	CC	16.185
98	27.12.2022	Jalgaon-Bhadli	CC	11.51
99	30.12.2022	Salaiaya-Rithi	CC	18.613
100	02.12.2022	Baruipara-Chandanpur	EC	14.14
101	27.12.2022	Sagauli-Majhowlia	EC	12.822
102	03.12.2022	Ushargaon-Chaunrai	NEC	13.99
103	01.01.2023	Lalitpur-Jhakhalam	NEC	16.403
104	28.12.2022	Biswan-Sarayan	NEC	13.38
105	06.12.2022	Cheekateegalapalem-Gundlakamma	SCC	6.835
106	26.12.2022	Potkapalli-Bisugirsharif	SCC	8.834
107	30.12.2022	Dummuriput-Damanjodi	SEC	8.32
108	29.12.2022	Koraput-Dummuriput	SEC	10.775
109	12.12.2022	Angul-Talcher Road	SEC	12
110	20.01.2023	Kanjiya-Pipraigaon	CC	26.337
111	23.01.2023	Khanna-Banjari-Mahroi	CC	11.858
112	28.01.2023	Kanhegaon-Kopargaon	CC	15.27
113	11.01.2023	Rajuhara-Garhwa Road	EC	15.53
114	11.01.2023	Garhwa Road-Sigsigi	EC	5.8
115	19.01.2023	Mirchadhuri-Anpara	EC	20.67
116	10.01.2023	Sathiaon-Azamgarh	NEC	29.82
117	17.01.2023	GautamAsthan-Manjhi	NEC	4.95
118	21.01.2023	BAO-MRA	NEC	16.955

119	10.01.2023	Devargudda – Haveri	SC	24.576
120	11.01.2023	Kovilpatti - Kadambur	SC	22.31
121	02.02.2023	Salem-Omalur	SC	12.39
122	28.01.2023	BRD-TAR	SEC	24.526
123	30.01.2023	JLW-NKJ	SEC	3.588
124	07.01.2023	Piprala-Adesar	WC	16.945
125	16.01.2023	Vagadiya-Daladi	WC	24.11
126	03.02.2023	Kota-Sogaria	CC	1.32
127	09.02.2023	Palsi-Jarandeshwar	CC	8.95
128	21.02.2023	Khurai-Sumreri	CC	8.641
129	28.02.2023	Satara-Koregaon	CC	10.9
130	01.02.2023	Bazarsau-Chowrigachha	EC	7.38
131	21.02.2023	Kiul-Sheikhpura	EC	24.414
132	28.02.2023	Salaibanwa-Obra Dam	EC	11.148
133	04.02.2023	Muftiganj-Jaunpur	NEC	14.165
134	28.02.2023	Bakulaha-Sahatwar	NEC	25.49
135	28.02.2023	Malasa-Paman	NEC	17.963
136	10.02.2023	Suldhal-Ghatbrabha	SC	30.673
137	15.02.2023	Badami-Guledagudda	SC	13.08
138	15.02.2023	Madurai-Tirumangalam	SC	17.32
139	20.02.2023	Heelalige-Karmelaram	SC	10.278
140	26.02.2023	Londa-Gunji	SC	13.39
141	22.02.2023	Dharmavaram-Chigicherla	SCC	10.552
142	24.02.2023	Wirur-Makudi	SCC	15.779
143	28.02.2023	Munumaka-Savalyapuram	SCC	21.578
144	15.02.2023	Talgoria-Chas	SEC	13.25
145	28.02.2023	Tharsa-Salva	SEC	13.252
146	11.02.2023	Bileshwar-Rajkot	WC	9.148
147	16.02.2023	Pipar Road- Rai KaBagh	WC	44.266
148	23.02.2023	Karchha-Barlai	WC	36.38
149	24.02.2023	Chhansara-Piprala	WC	23.808
150	27.03.2023	Niwas Road-Saraigram	CC	28.651
151	29.03.2023	Belapur-Puntamba	CC	19.98
152	30.03.2023	Bhadli-Bhusawal	CC	12.62
153	02.03.2023	Ahiran-Jangipur	EC	6.033
154	16.03.2023	Nabinagar Road-Ankorah	EC	16.497
155	21.03.2023	Naihati-Kallyani	EC	10.37
156	29.03.2023	Chakia-Jiwdhara	EC	23.05
157	03.03.2023	DAL-ML	NEC	12.13
158	30.03.2023	Ramnathpur-Jhusi	NEC	10.68
159	30.07.2022	JHS-BAB	NEC	24.186
160	30.03.2023	IAA-KER	NEC	14.7

161	16/17.03.2023	Babina-Bijrotha	NEC	33.697
162	23.03.2023	Baad-Kitham-Far	NEC	24.196
163	25.03.2023	Dadri-Maripat	NEC	4.005
164	24.03.2023	Nanguneri-Melapplayam	SC	24.49
165	27.03.2023	Saunshi-Hubli	SC	20.337
166	19.03.2023	Nellore-Manubolu	SCC	29.37
167	22.03.2023	Cheruvumadhavaram-Yerrupalem	SCC	16.647
168	26.03.2023	Betamcherla-Malkapuram	SCC	25.285
169	28.03.2023	Ulavapadu-Singarayakonda	SCC	10.68
170	29.03.2023	Chinnaganjam-Chiral	SCC	21.86
171	03.03.2023	Sagadapata-Tangiriapal	SEC	17.799
172	19.03.2023	Bakaspur-Pakra	SEC	13.745
173	22.03.2023	Maligura-Chatariput	SEC	6.945
174	23.03.2023	Shrungavarapukota-Boddavara	SEC	7.295
175	29.03.2023	Gangajhari-Kachewani	SEC	7.624
176	01.10.2022	Sindhavadar-kachewani	WC	19.452
177	31.03.2023	Latia Block-Jairamnagar Gatora	SEC	19.04
178	25.03.2023	Maliya Miyana A cabin-Maliya Miyana B Cabin	WC	8.391
179	06.05.22	Battanagar-Baltikuri	EC	2.7
180	07.06.22	Singur-Nalikul	EC	0.445
181	12.04.2022	Hajipur-Aksyhaihat Rai Nagar	EC	10.897
182	06.04.2022	Sathi-Narkatiyaganj	EC	10.723
183	17.06.2022	Tilaiya-Warzirganj	EC	1.966
184	14.10.2022	Karishanshila-Shaktinagar	EC	11.039
185	20.09.2022	Cheruvumadh-NEW WEST HUT	SCR	16.723
186	18.07.2022	Titlagarh-Kesinga	SEC	12.957
187	21.07.20222	Sikri-Titlagar	SEC	5.208
188	14.10.2022	Andul Yard	SEC	0.647
189	28.01.2023	Nabha-Kaulseri	NC	20.817
190	27.02.2023	Mehgawan-Jaunpur	NC	4.586
191	27.02.2023	Khetasarai-Sahganj	NC	10.279
192	02.03.2023	Antu-Pratapgarh	NC	18.54
193	24.03.2023	LehraMuhabbat-Bathinda Cantt.	NC	16.135
194	26.03.2023	Goshainganj-Darshannagar	NC	26.978
195	07.09.2022	NBQ-AGT	NFC	18.82
196	30.05.2022	Sirhind-Govindgarh	NC	3.763
197	26.11.2022	BG Bye-pass line	SCC	3.172
198	07.12.22	Singur-Nalikul	EC	0.36
199	01.02.2023	Bakulha-Suraimanpur	NEC	2.43
			Total	**3163**

(C) GAUGE CONVERSION:-

SN	Date of Authorization/ Inspection	Section/Line Opened	Circle	KMs
1	30.05.2022	Jagudan-Dangarwa	WC	15.97
2	13.06.2022	Lalitgram-Narpatganj	EC	12.7
3	09.07.2022	Kharwa-Chanda-Jay Samand Road	WC	37.26
4	27.10.2022	Tiruturaipundi-Agastiyampalli	SC	37.26
5	22.10.2022	Lunidhar-Jetalsar	WC	58.04
6	02.01.2023	Teni-Bodinayakkanur	SC	14.96
7	11.01.2023	Narpatganj-Bathnaha	EC	15.06
8	20.01.2023	Narkatiaganj-Amolwa	EC	12.73
9	09.01.2023	Khandwa Byepass-Khandwa	WC	5.92
10	22.02.2023	Jhanjharpur-Mahrail	EC	7.6
11	31.03.2023	IAA-DIT	NEC	34.8
12	01.03.2023	Mahesana-Jagudan	WC	10.40
13	31.03.2023	Miyagam Karjan-Dabhoi	WC	32.3
			TOTAL	**295**

METRO PROJECTS:-

(a) Mumbai Metro:-

SN	Date of Authorization/Inspection	Section	Metro Railway	KMs
1.	22.08.2022	Apparel Park-Thaltej	GMRC	13.30
2.	04.09.2022	APMC-Motera	GMRC	18.83
3.	12.01.2023	Valnai-Andheri West	MMRDA	08.76
4.	12.01.2023	Aarey-Gundavali	MMRDA	05.22
			TOTAL	**46.11**

(b) Bangalore Metro:- -

SN	Date of Authorization	Section	Metro Railway	KMs
1.	27.02.2023	KR Puram-Whitefiled	BMRCL	13.28
			TOTAL	**13.28**

(c) Kochi Metro:-

SN	Date of Authorization/Inspection	Section	Metro Railway	KMs
1.	14.06.2022	Petta- S.N. Jn.	KMRL	01.81
			TOTAL	**01.81**

(d) Kolkata Metro:-

SN	Date of Authorization	Section	Metro Railway	KMs
1.	16.11.22	Joka-Taratala	NFC	06.50
2.	30.01.23	KKSO-HMD	NFC	05.40
			TOTAL	**11.90**

(e) MAHA - Metro (Nagpur Metro):-

SN	Date of Authorization/Inspection	Section	Metro Railway	KMs
1.	30.04.2022	Kasturchand Park-Automotive Square	Maha Metro	05.70
			TOTAL	**05.70**

(f) Delhi Metro :-

SN	Date of Authorization	Section	Metro Railway	KMs
1.	25.10.2022	Dwarka Sec-21 to IICC & Dwarka Sec-25 to Airport Line	DMRC	02.01
2.	22.11.2022	Dhansa Bus Metro Stn.- Rear End of Line No. 90	DMRC	00.29
			Total	**02.30**

STATUTORY INSPECTIONS OF ROLLING STOCK :-

SN	Date of Statutory Inspection	Name OF Rolling Stock
1	10.05.2022	BOBSNS/Wagon/22.9
2	10.05.2022	LWCBACDQ/Coach/16.25
3	29.05.2022	Muck Disposal Unit Model WMDU-65
4	08.07.2022	Muck Disposal Unit Model MFS 120
5	12.07.2022	SRGM Model RGI Series 20 Rail Stone Grinder
6	06.09.2022	Vande Bharat Trainset
7	22.09.2022	AC EMU with underslung propulsion system
8	27.09.2022	BRM Model USP 2000 SWS
9	02.10.2022	BLSS with single stack ISO container/Wagon/22.9
10	02.10.2022	BLSS with Double stack ISO container/Wagon/22.9
11	02.10.2022	BCPVN/Wagon/15.25
12	25.11.2022	RGM Model RGH10C2-67
13	29.11.2022	MEMU stock fitted with under-slung propulsion system
14	17.12.2022	NMR coaches
15	27.12.2022	Points & Crossing Tamping Machine (PCT), Model-UNIMAT08-4X4/4S
16	29.12.2022	Kolkata Metro Dalian stock