सत्यमेव जयते

GOVERNMENT OF INDIA

MINISTRY OF CIVIL AVIATION

COMMISSION OF RAILWAY SAFETY

ANNUAL REPORT FOR 2020-2021

BY

CHIEF COMMISSIONER OF RAILWAY SAFETY

LUCKNOW

FOREWORD

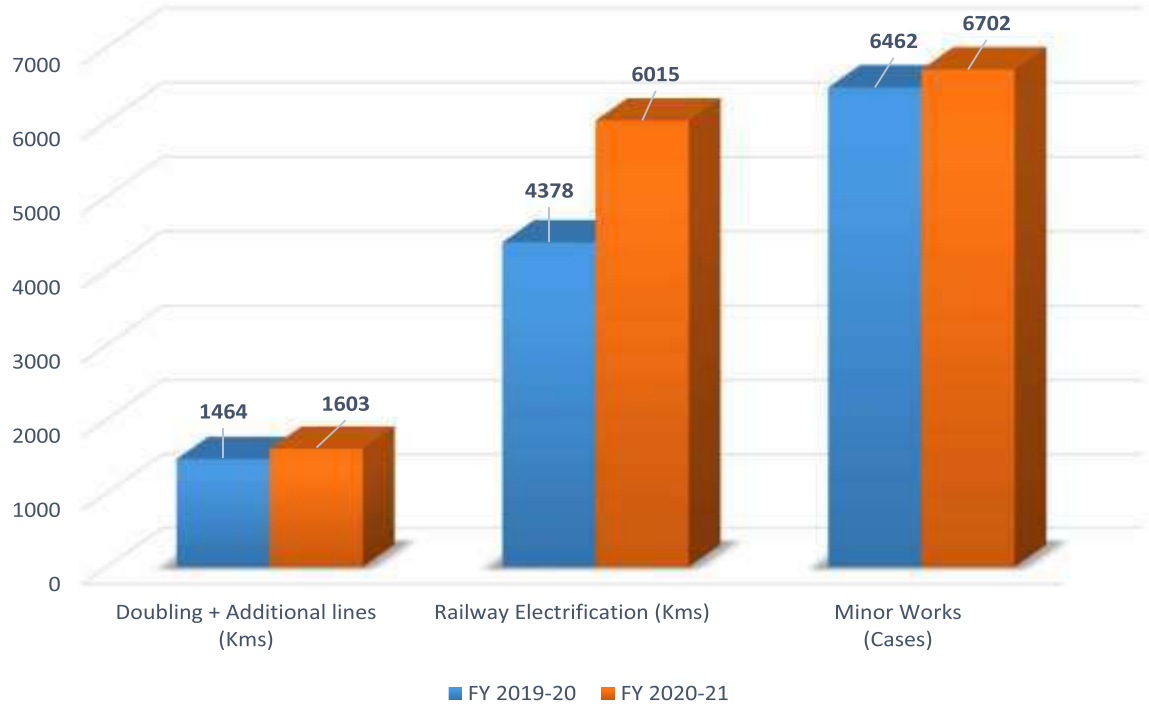
As mandated under Section 10 of The Railways Act, 1989 and Section 12 of Metro Railway (Operation & Maintenance) Act, 2002, the Annual Report for the financial year ended on 31.03.2021 is hereby, presented by the Chief Commissioner of Railway Safety to the Central Government to be laid on the table of 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 and electrification of Railway lines, investigation of serious train accidents, condonation of infringements of schedule of dimensions and sanctions of minor works, movement of over dimensioned consignments, new rolling stock 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.

(S. K. PATHAK)
Chief Commissioner of Railway Safety

PLACE: LUCKNOW
DATE : 15.11.2021

Comparative Performance of the Commission during 2020-21:

Activities	FY 2019-20	FY 2020-21	% variation in FY 2020-21 4=(3-2)*100/2
1	2	3	4
Doubling + Additional lines (Kms)	1464	1603	9%
New Lines (Kms)	360	288	-20%
Gauge Conversion (Kms)	408	565	38%
Total (DL+GC+NL) (Kms)	**2232**	**2456**	**10%**
Railway Electrification (Kms)	**4378**	**6015**	**37%**
Minor Works (Cases)	6462	6702	4%
Rolling Stock Inspected & forwarded (Cases)#	35	34	-3%
Condonation of infringements to SOD	134	134	-
Raising of speed of Rolling Stock	3	12	300%



SUMMARY OF THE ACTIVITIES OF COMMISSIONERS OF RAILWAY SAFETY

	Name of Activity	Details of Activity	Quantity	Reference (Chapter no.)
I.	Statutory inquiries of serious accidents entrusted to the commissioners on	(a)Indian Railways (b)Metro Railways (c) No of recommendations in final inquiry reports made out of (a) above (d)No of recommendations in final inquiry reports made out of (b) above	02 00 14 00	Chapter III and Appendix I
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 (d)Railway Electrification **Metro Railways** **a)** New lines of Kolkata Metro Rail Corporation **b)** New lines of Bangalore Metro Rail Corporation Limited c) New lines of Gujarat Metro Rail Corporation Limited d)New lines of Kochi Metro Rail Corporation Limited	 **288 km** **1603 km** **565 km** **6015 km** **5.79km** **5.79km** **6.12km** **1.33km**	Appendix II
III.	Sanction accorded by the Commissioners/ Proposals recommended for sanction by Central Government for.	**a)** New Minor Works. **b)** Running of new types of Rolling stock	**6702Nos** **34Nos**	Chapter II Para 2.4 Chapter II Para 2.7
IV.	Inspection of Govt. Railways	Periodic inspections	**6885 km**	Chapter II Para 2.8

CONTENTS

Chapter – I

ORGANISATION AND FUNCTIONS

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.

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 circle office of Commissioner of Metro Railway Safety(CMRS) located at different places across the country looking after the works of different Zonal Railways. Their offices are called Circle Offices. Each Circle Office has 9 to 11 office staffs 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) and they are from different disciplines of Indian Railways (IR). In 2020-21, distribution of Dy.CRS posts were as follows:-

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

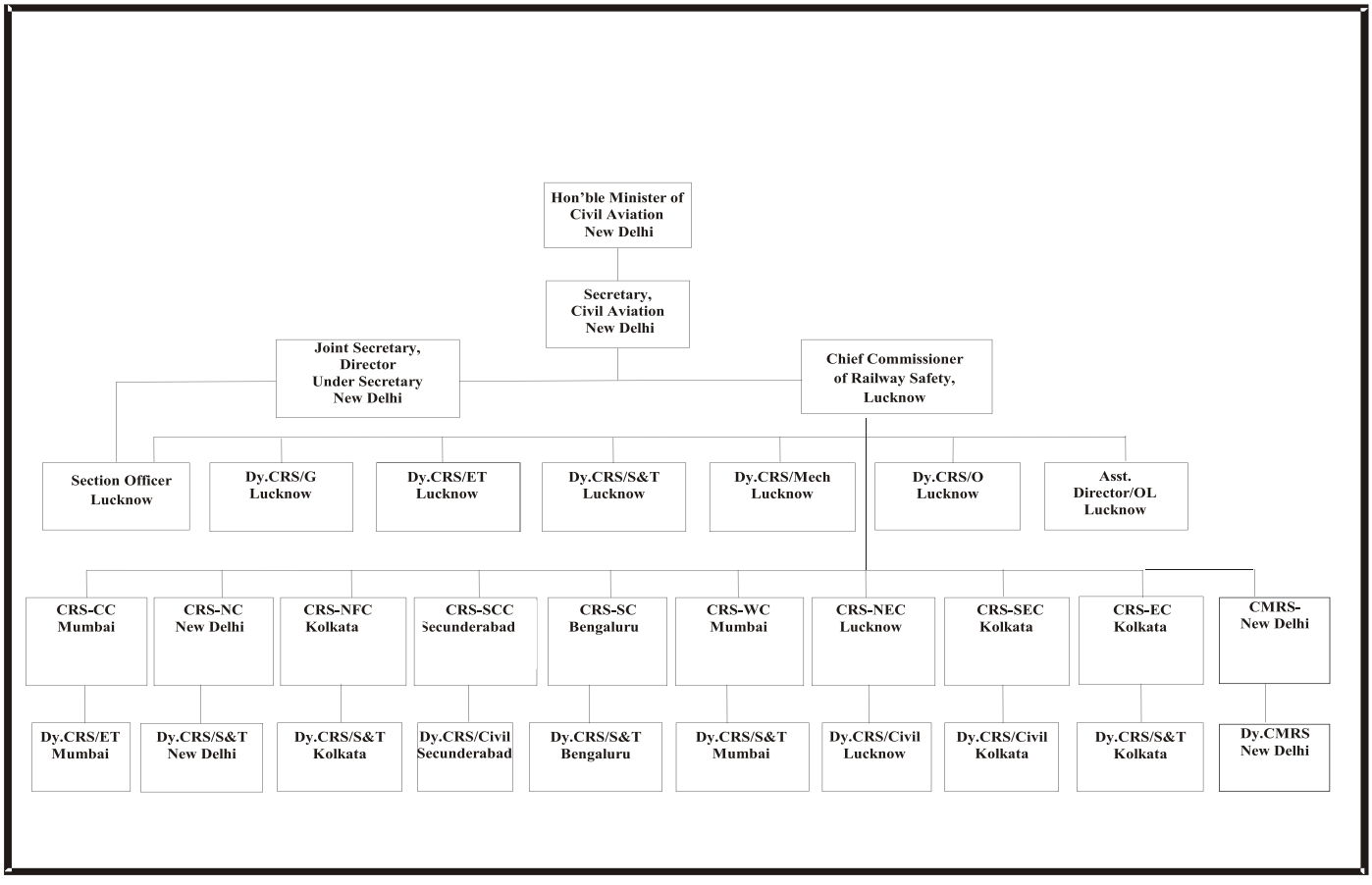
1.2.3 There are two wings in the office of CCRS i.e. Railway Safety Wing and Technical Wing.

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 Sr. Private Secretary (1), Section Officer (1), Assistant 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. 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 are posted such as one Assistant Director (Official Language), Junior Hindi Translator(1), Technical Assistant (2) LDC(2), Stenographer(2), Staff Car Driver (1) and Multi Tasking Staffs (4).

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

1.2.4 Organizational Chart is given below:-



1.3 **VACANCIES IN THE COMMISSION -** As on 31.03.2021, 04 posts of CRS and 05 posts of Dy.CRS/Dy.CMRS are vacant.

1.4 **CHANGE IN ORGANISATION -** One circle office of Commissioner of Metro Railway Safety**(CMRS)** in the CRS under the Ministry Of Civil Aviation at New Delhi has been created by competent authority vide notification **No.S.O.138(E) dated 10th January 2018.**

1.5 INCUMBENCY OF OFFICERS –

1.5.1 Chief Commissioner of Railway Safety, Lucknow

S.No.	Designation	Period	Name
(i)	CCRS	Full Duration	Shri S K Pathak

1.5.2 Commissioners of Railway Safety (CRS)

S.No.	Circle office	Period	Name of CRS
(i)	CRS-CC	01.04.20 to 31.03.21	Shri A K Jain
(ii)	CRS-EC	01.04.20 to 06.07.20	Vacant
		07.07.20 to 31.03.21	Sh A M Chowdhary
(iii)	CRS-NC	Full Duration	Vacant*
(iv)	CRS-NEC	Full Duration	Md. Latief Khan
(v)	CRS-NFC	Full Duration	Vacant*
(vi)	CRS-SC	01.04.20 to 30.05.20	Shri K.A. Manoharan
		01.06.20 to 31.03.21	Sh A K Rai
(vii)	CRS-SCC	01.04.20 to 31.01.21	Shri Ram Kripal
		01.02.21 to 31.03.21	Vacant*
(viii)	CRS-SEC	01.04.20 to 30.05.20	Shri A K Rai
		01.06.20 to 31.03.21	Vacant*
(ix)	CRS-WC	Full Duration	Shri R K Sharma
(x)	CMRS-New Delhi	Full Duration	Shri Janak Kumar Garg

*All vacant posts of Commissioners are being looked after under additional charge by other CsRS as per the order of Appointment Committee of cabinet.

1.5.3 Deputy Commissioners of Railway Safety in CCRS office

S.No.	Dy.CRS	Period	Name
Railway Safety Wing			
(i)	Dy.CRS(General)	Full Duration	Shri Rajiv Kumar
Technical Wing			
(i)	Mechanical	01.04.20 to 01.07.20	Shri Uttam Prakash
		02.07.20 to 17.01.21	Vacant
		18.01.21 to 31.03.21	Shri Ahmad Nadeem Siddiqui
(ii)	Operating	01.04.20 to 16.07.20	Smt. Indu Rani Dubey
		16.07.20 to 31.03.21	Vacant (Looked after by OSD/Safety Smt. Indu Rani Dubey)
(iii)	Electric Traction	Full Duration	Shri ShalabhTyagi
(iv)	Signal &Telecom	Full Duration	Shri B S Yadav

1.5.4 Deputy Commissioners in Circle Offices

Deputy Commissioner (Signaling & Telecommunication)			
S.No.	**Circle office**	**Period**	**Name**
(i)	CRS-EC	Full Duration	Shri Sitaram Nandi
(ii)	CRS-WC	Full Duration	Shri Avinash Sangoley
(iii)	CRS-NFC	Full Duration	Shri S. Chattopadhyay
(iv)	CRS-NC	Full Duration	Vacant
(v)	CRS-SC	Full Duration	Vacant
Deputy Commissioner (Civil Engg.)			
(vi)	CRS-SEC	01.04.19 to 24.04.19	Vacant
		25.04.19 to 31.03.20	Shri B S K Subudhi
(vii)	CRS-SCC	Full Duration	Shri G Srinivas Rao
(viii)	CRS-NEC	Full Duration	Vacant
Deputy Commissioner (Electric Traction)			
(ix)	CRS-CC	Full Duration	Shri G P Garg
Deputy Commissioner of Metro Railway Safety			
(ix)	CMRS	Full Duration	Vacant

1.6 JURISDICTIONS OF CIRCLES OFFICES-

1.6.1 As on 31st March, 2021, total Route kilometers (RKM) of Indian Railways under different circles were as under:-

Name of Circle Office	Head Quarter	Route Kms	Railway Administrations
CRS-CC	Mumbai	8183.53	CR, WCR & KR
CRS-EC	Kolkata	7029.89	ER & ECR
CRS-NC	New Delhi	7364.16	NR
CRS-NEC	Lucknow	7025.16	NER & NCR
CRS-NFC	Kolkata	4163.13	NFR & MR
CRS-SC	Bengaluru	9488.12	SR & SWR
CRS-SCC	Secunderabad	6311.97	SCR
CRS-SEC	Kolkata	10586.941	SER, SECR & ECoR
CRS-WC	Mumbai	12177.66	WR & NWR
Total Route Kms		**72324.87**	

1.6.2 As on 31st March, 2021, **total Route Kilometers** of Metro Railways under different circles were as under:-

Name of Circle Office	Head Quarter	Route Kms	Metro Railway Administrations
CMRS-NC	New Delhi	371.96	DMRC
		12.89	RMGL
	Nagpur	17.98	NMRC
	Hyderabad	46.53	HMRL
	Lucknow	23.68	LMRC
CRS/CMRS-SC	Bengaluru	47.79	BMRCL
	Kochi	25.20	KMRCL
	Chennai	56.94	CMRL
CRS/CMRS-WC	Mumbai	11.23	MMRC
	Gujarat	6.12	GMRC
	Jaipur	11.64	JMRC
Total Route Kms		**637.76**	

1.7 DUTIES & FUNCTIONS OF THE COMMISSIONERS OF RAILWAY SAFETY:

1.7.1 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 new railways 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.

1.7.2 Functions of the Commissioner of Railway Safety:-

(a) **Authorization for opening of new railway lines:**
In terms of Railway Act, 1989, under Section 6, Metro Railway 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, electrification of Railway lines etc.
Rules for Opening stipulates 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 authorizes 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.

In terms of above provisions, Zonal Railways submits 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 first sanction, Condonation of 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 rule, the CRS after examining the proposal sent 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.

(d) Railway Board has issued the Schedule of Dimensions (revised 2004), 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 2004) 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.

Before 01st October 2018, the proposal for any infringement to the Schedule of Dimension used to be submitted to CRS. It was then scrutinized by CRS from safety point of view. After examining, CRS was required to send the proposal for condonation of infringement to CCRS. Again in CCRS office the proposal was examined and then forwarded to Railway board. Based on the recommendation of CCRS, Railway Board used to grant sanction for the condonation of infringement.

However, **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 Rule 22A. As per present procedure, proposal for any infringement to the Schedule of Dimension is submitted to CRS which is then scrutinized by CRS from safety point of view. After examining the proposal, if CRS is satisfied that infringement is safe for train operation, he sanctions the condonation of infringement with or without stipulations. If the proposed infringement is beyond the limits defined in the Schedule-II of IRSOD then procedure prior to this amendment of Opening Rules i.e. 1 October 2018, as mentioned in preceding para, is followed.

(e) Any consignment which does not adhere to IRSOD, 2004 is treated as an over dimensioned 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; and

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

1.7.3 Functions of the Chief Commissioner of Railway Safety:

CCRS advises Central Government in all matters relating to Railway Safety, recruitment of officers, postings and promotions, budget and expenditure etc. CCRS deals with:-

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

(b) 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.

(c) 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.

(d) 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.

(e) Similarly any condonation of infringement to IRSOD in case of Rolling stock is also sanctioned by Railway Board on recommendation of CCRS

(f) 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

(g) Preparation of the Annual Report on the activities of Commission of Railway safety.

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

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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.

2.2 ACHEIVEMENTS OF THE COMMISSIONER OF METRO RAILWAY SAFETY:

In 2020-2021, activities of Metro Railway inspections carried out by Commissioners of Metro Railway Safety are summarized below:-

	Metro Railways	**(In Kilometers)**
(a)	Kolkata Metro	5.79
(b)	Bangalore Metro	5.79
(c)	Gujarat Metro	6.12
(d)	Kochi Metro	1.33
	Total	**18.616**

2.3 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.

2.4 NEW MINOR WORKS:

2.4.1 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 can be carried out by Railways only after obtaining the sanction of the CRS. Such works, after being authorized by the Commissioner, are executed by the Railway Administration and opened to traffic under safety certificate signed by concerned railway officers, unless the Commissioner of Railway Safety decides to inspect them before these being brought into use.

During year 2020-21, the Commissioners of Railway Safety have given sanctions for execution of **6702** minor works by Railway Administration.

2.5 WORKS INVOLVING INFRINGEMENTS OF STANDARD DIMENSIONS:

2.5.1 Certain minimum and maximum dimensions, for location of structures near railway lines and in respect of rolling stock have been prescribed and are laid down in "Schedule of Dimensions (SOD)". Railway administrations are required to execute all works confirming to the SOD. In case of any deviation from the S.O.D, as per present procedure, the proposal for any infringement to the Schedule of Dimension is submitted to CRS which is then scrutinized by CRS from safety point of view. After examining the proposal, if CRS is satisfied that infringement is safe for train operation, he sanctions the condonation of infringement with or without stipulations.
If the proposed infringement is beyond the limits defined in the Schedule-II of IRSOD then procedure prior to this amendment of Opening Rules i.e. 01 October 2018, as mentioned in preceding paras, is followed.

2.5.2 In 2020--21, 134 such proposal/application for Condonation of infringements to SOD were recommended by the Commission for sanction by the Central Government or were sanctioned within the powers of Commissioners of Railway Safety, were sanctioned by them.

2.6 MOVEMENT OF OVER-DIMENSIONED CONSIGNMENTS:

2.6.1 Sometimes, Railways have to transport Over-Dimensioned Consignments. These consignments are categorized into different classes for which approval of competent authority is required for movement on Indian Railways. The movement of a category of consignment requiring sanction of CRS is forwarded to the concerned CRS who, after examining the proposal from safety point of view, accords sanction.

2.6.2 In 2020-21, no proposal/application for movement of movements of over-dimensioned consignments was received by the Commissioners of Railway Safety from Railways.

2.7 NEW TYPES OF LOCOMOTIVES AND ROLLING STOCK:

2.7.1 Section 27 of Railways Act, 1989, prescribes that new rolling stock can be introduced only after prior sanction by the Central Government (CG) and before sanctioning, Central Government shall obtain a report from the Commission of Railway Safety.
During 2020-21, **34** numbers of new types of rolling stock were recommended by the Commission for sanction by the Central Government

2.8 INSPECTIONS OF RAILWAY LINES:

During 2020-21, Commissioners carried out inspections of **6885** 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.

2.9 **Activities of Commissioners in respect of inquiries into accidents** are given in Chapter – III.

CHAPTER –III

ACTIVITIES OF 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:

- Collision
- Fire
- Level crossing
- Derailment
- 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 and ballast trains 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 enquiry 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 asked 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 2020-21

3.4.1 During the year 2020-21, only 02 serious accidents (on Indian Railways) were inquired by the Commissioners. However, no passenger casualty occurred in any of these two accidents. Both accidents resulted in death of road users/trespassers.

Brief details of these 02 accident inquiries entrusted to commissioners in 2020-21 is given in Appendix - I. 14 recommendations were made in these 02 inquiry report of the accident of 2020-21. The two accidents are as follows:-

(a) **Para 1 of Appendix-I** Unusual incident of run over of persons by Empty Goods train no. PNV/BTPN at Km.139/8-6 between Badnapur-Karmad Stations of Prabani-Manmad BG single line non-electrified section of Nanded Div.of SCC on **08.05.2020.**
As a result of the incident 16 persons (non passenger) were killed & one person sustained Simple injury.

(b) **Para 2 of Appendix-I** Dashing of Road Vehicle with Engine of train No.01463 (SMNH-JBP Spl) at manned LC No.39/C(Km.43/9-44/0)in Gondal-Virpur Single line Block section (Broad Gauge) of Bhavnagar Division of Western railway occurred at 12.29 hours on **22.11.2020.**
As a result of the accident 1 person (road user) was killed.

*****

Accident of Train no 01463 Somnath-Jabalpur Special in Bhavnagar Division of Western Railway on 22.11.2020

CHAPTER-IV
ANALYSIS OF TRENDS OF ACCIDENTS

4.1 ACCIDENTS:

The term 'accident' means an accident for which a notice is required to be issued by Railway administration under section 113 of The Railways Act, 1989. 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, 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 crore 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.

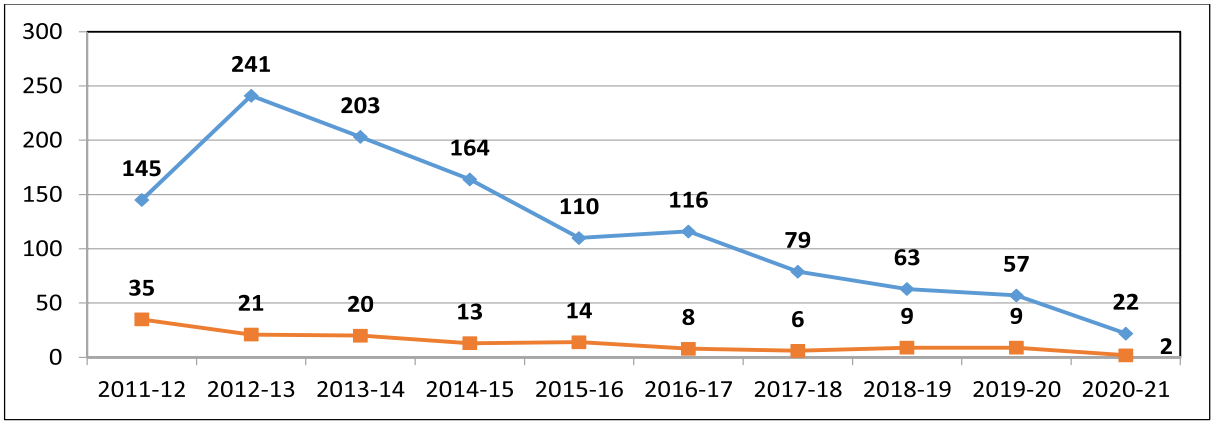
(2) If for any reason, the Commissioner is not able to hold any inquiry as soon as may be after the occurrence of the accident, he shall notify the railway administration accordingly."

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

Figure-1 No. of Accidents



The year 2020-21 is also unique due to complete suspension of all passenger carrying trains from 22nd March 2020 due to lockdown imposed because of COVID-19 pandemic. The train services resumed from May-2020 with only partial resumption of some 230 pairs of trains.

Appreciation of the above indicates that:-

- total number of train accidents had decreased significantly to 22 in the year 2020-21 as against 57 during the year 2019-20.
- number of serious train accidents had also reduced to 02 in 2020-21 from 09 for the year 2019-20.
- the percentage of total accidents inquired by CRS is around 9% except for 2011-12 when it had increased to around 24% of the total.
- After in initial increasing trend in the accidents till 2012-13, the total number of accidents had shown a declining trend since then with 2016-17 being exception when it increased slightly.

4.3.2 The Commission vide its letter no. S.13011/1/2020-RS dated 02.08.2021 sent the statistics of train accidents reported under section 113 for the year 2020-21 to the Railway Board for reconciliation of the figures.

4.3.3 Breakup of passenger and goods train accidents in 2019-20 and 2020-21 is shown in Table 1.

TABLE 1

SN	Description	2019-20	2020-21
1.	No. of Train Accidents	57	22
2.	No. of Passenger train Accidents	50	13
3.	No. of Goods Train Accidents	07	09
4.	No. of accidents Per million train-Kilometers (Million train-Kilometers as per Ministry of Railways Annual Statistical report for 2019-20)	0.01	0.01

4.4 RAILWAY-WISE TREND OF ACCIDENTS

Number of accidents, which occurred in each zonal railway in the years 2019-20 and 2020-21, are shown in Table 2 below:

TABLE 2

SN	Railway	Total number of Train Accidents					
		2019-20			2020-21		
		Passenger	Goods	Total	Passenger	Goods	Total
1.	Central	5	2	7	3	1	4
2.	Eastern	4	1	5	0	0	0
3.	East Central	5	0	5	1	0	1
4.	East Coast	2	0	2	0	1	1
5.	Northern	9	0	9	3	0	3
6.	North Central	7	0	7	0	2	2
7.	North Eastern	0	0	0	0	0	0
8.	Northeast Frontier	1	1	2	1	0	1
9.	North Western	2	1	3	0	1	1
10.	Southern	1	0	1	1	0	1
11.	South Central	5	1	6	0	1	1
12.	South East Central	0	0	0	0	0	0
13.	South Eastern	1	0	1	0	1	1
14.	South Western	2	0	2	1	0	1
15.	Western	4	0	4	2	1	3
16.	West Central	1	1	2	1	0	1
17.	Konkan Railway	1	0	1	0	1	1
TOTAL		50	07	57	13	09	22

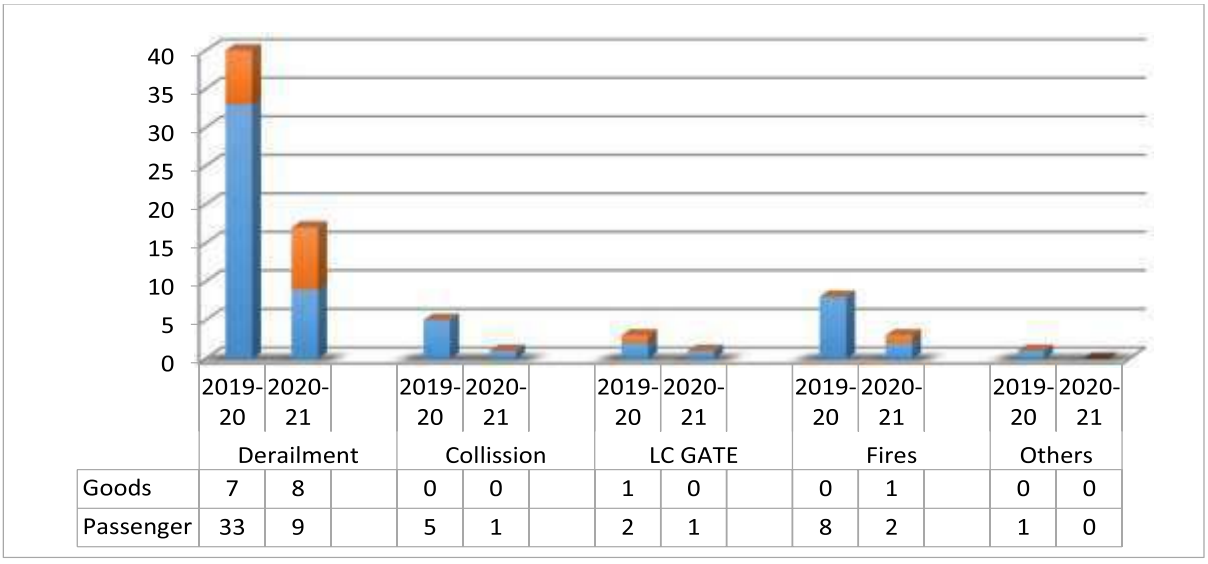
Appreciation of above reveals that:-

- Number of accidents were either **reduced or remained same in all 16 railway zones**
- Number of passenger train accidents has reduced to 13 in 2020-21 as against 50 in last year i.e. 2019-20. However, the goods train accidents has increased from 07 in 2019-20 to 09 in 2020-21.

4.5 ANALYSIS OF TRAIN ACCIDENTS

Various types of accidents (on account of derailment, level crossings, collision, fire, other causes) for passenger trains and goods trains for the year 2019-20 and 2020-21 is shown in the form of Bar Chart in Figure-2.

Figure-2.



	Derailment			Collission			LC GATE			Fires			Others	
	2019-20	2020-21		2019-20	2020-21		2019-20	2020-21		2019-20	2020-21		2019-20	2020-21
Goods	7	8		0	0		1	0		0	1		0	0
Passenger	33	9		5	1		2	1		8	2		1	0

Derailments continued to be biggest chunk of train accidents, 77.27% (17 accidents) in the year 2020-21 against 70.17% in the year 2019-20. Fire accidents were next, accounting for 13.6% (3 accidents) of total accidents compared to 14.03% in 2019-20.

Collision & Level Crossing were each 4.54% (i.e. 1 accident in each category)for the year 2020-21 against 8.77% (Collision), 5.26% (Level Crossing) respectively, for the year 2019-20. No other accidents (Miscellaneous Accidents) occurred in 2020-21 as compared to 1.75% (Others) in 2019-20.

4.6 CAUSE-WISE ANALYSIS OF VARIOUS TYPES OF TRAIN ACCIDENTS

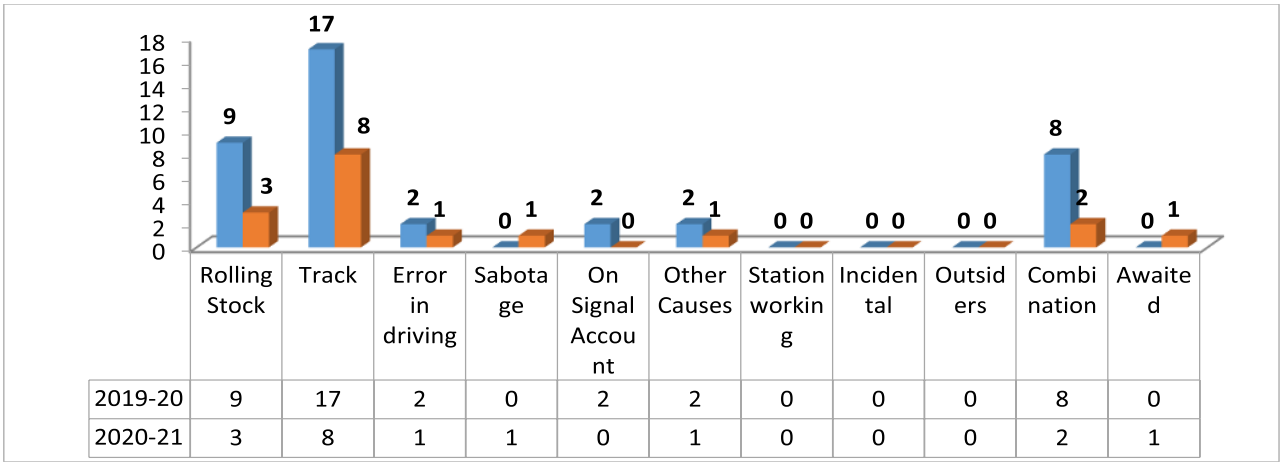
4.6.1 DERAILMENTS

Numbers of derailments were as follows:-

2020-2021 17 (Passenger-09, Goods-08)
2019-2020 40 (Passenger-33, Goods-07)

Cause-wise analysis of derailments in the years 2020-21 & 2019-20 is shown in Fig.3

Figure-3



	Rolling Stock	Track	Error in driving	Sabotage	On Signal Account	Other Causes	Station working	Incidental	Outsiders	Combination	Awaited
2019-20	9	17	2	0	2	2	0	0	0	8	0
2020-21	3	8	1	1	0	1	0	0	0	2	1

There were total 17 derailments, in notified train accidents. The cause wise analysis/break up of derailments is as follows:

- 8 derailments occurred due to Track/P. Way defects.
- 3 derailment was due to Rolling stock defects.
- 2 derailments were due to combination of errors.
- 1 derailment, each occurred due to error in driving, Sabotage & other reasons.
- Cause of 1 derailment is yet to be established/awaited.

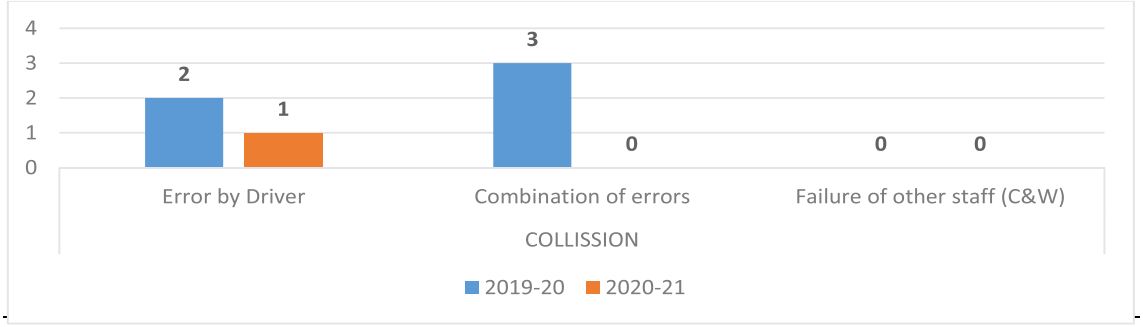
4.6.2 COLLISIONS

Numbers of collisions was as follows:-

2020-2021 01 (Passenger-01, Goods-00)
2019-2020 05 (Passenger-04, Goods-00)

Figure 4 shows cause-wise analysis of collisions during 2019-20 and 2020-21

Figure-4



Only one collision accident occurred in the year which was due to error by driver

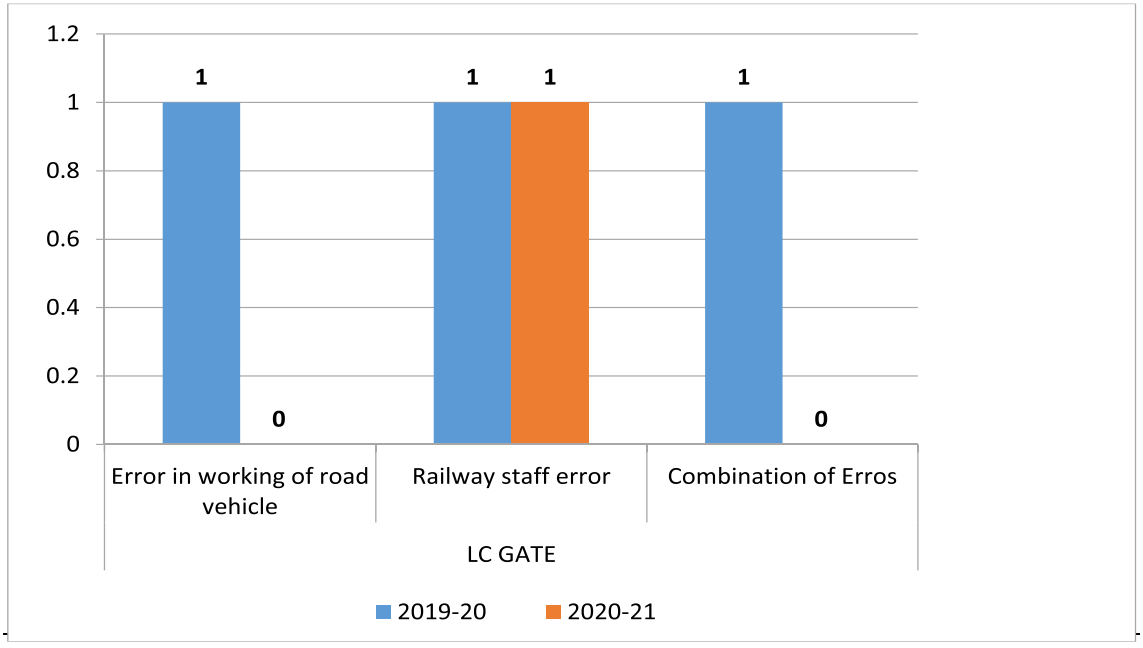
4.6.3 ACCIDENTS AT LEVEL CROSSINGS

Numbers of level crossing accidents were as follows:-

2020-2021	**01 (Passenger-01, Goods-00)**
2019-2020	**03 (Passenger-02, Goods-01)**

Cause-wise analysis of train accidents at level crossings in the years 2019-20 and 2020-21 is shown below.

Figure 5



Only 01 Level Crossing Accidents was notified during the year which occurred on manned LCs, where right of way conflict has to be resolved by road vehicle driver and trains have first right of way.

In this case the accident occurred due to error in working at manned railway crossing.

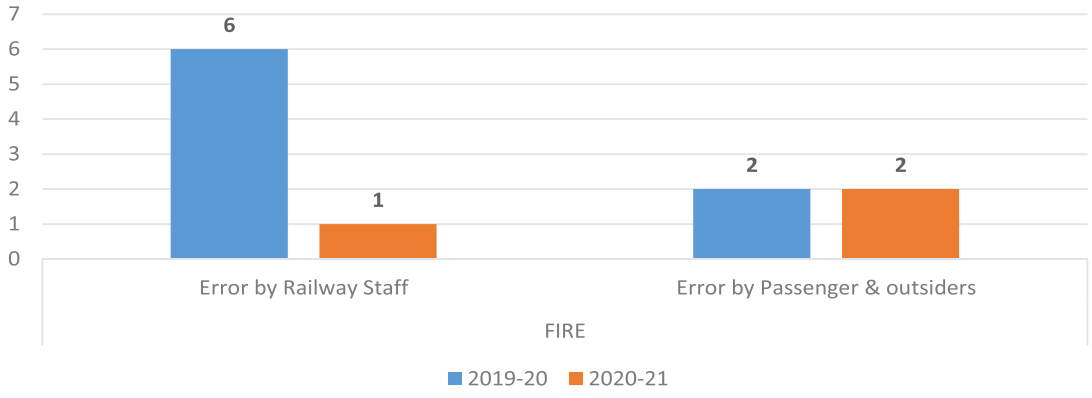
4.6.4 FIRES IN TRAINS

Numbers of Fire cases are as follows:-

2020-2021	**03 (Passenger-02, Goods-01)**
2019-2020	**08 (Passenger-08, Goods-00)**

Figure 6 shows cause-wise analysis of fire accidents in trains during 2019-20 and 2020-21

Figure 6



This year 03 accidents of fire occurred in the train in which 02 were due to Error by Passenger & outsiders while 01 was due to Error by Railway staff.

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 2020-21 & 2019-20 is shown in Table 4:-

TABLE – 4

SN	Item	2019-20	2020-21
1.	No. of train accidents	57	22
2.	No. of train accidents due to error in working of Railway Staff.	37	13
3.	No. of train accidents due to error in working by persons other than Railway Staff.	09	03
4.	No. of train accidents due to error in working by persons (2+3)	46	16
5.	% of train accidents due to error in working of Railway Staff (2÷1)	64.91%	59.09%
6.	% of train accidents due to human error (Both Railway and other than Railway Staff) (4÷1)	80.7%	72.72%

4.7.2 Percentage of train accidents, attributable to error in working by Railway Staff is 59.09% in the year 2020-21 against 64.91% in the year 2019-20. 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 72.72% of train accidents for the year 2020-21 against 80.7% of train accidents in the year 2019-20.

4.8 TREND OF SERIOUS TRAIN ACCIDENTS.

4.8.1 Total number of train accidents, serious train 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 5 below:

TABLE 5

SN	Year	No. of accidents	No. of serious accidents	No. of accidents resulting in passenger fatalities	No. of fatalities including railway crew & outsiders
1.	2016-17	116	08	05	246
2.	2017-18	79	06	03	26
3.	2018-19	63	09	08	25
4.	2019-20	57	10	00	12
5.	2020-21	22	2	00	4
Average for 5 years		**67.4**	**7**	**3.2**	**62.6**

4.8.2 Number of accidents resulting in passenger (& other) fatalities has come down in this period of five years from 2016-17 when there were high passenger fatalities. 2020-21 witnessed zero passenger fatalities. 04 person who died were either railway crew/employee or outsiders etc.

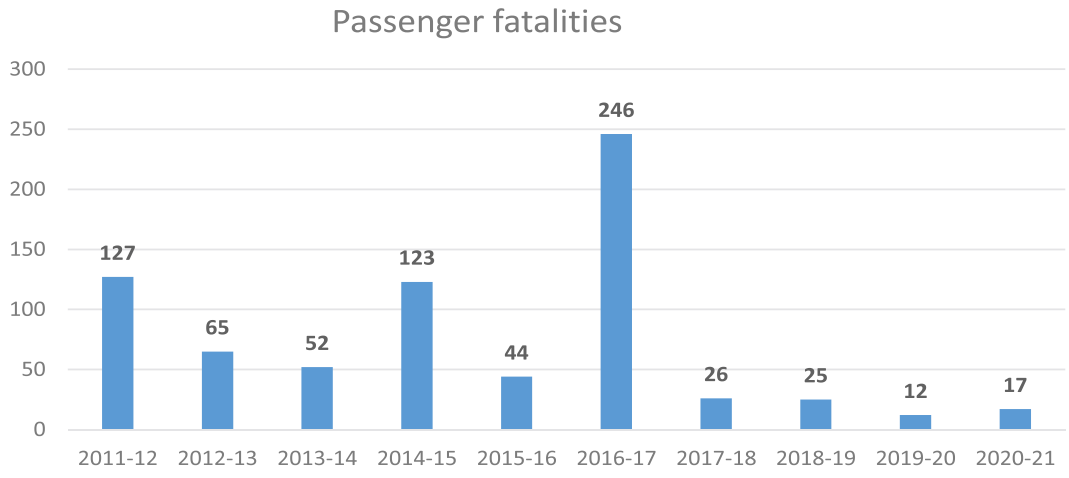
4.8.3 Total numbers of serious train accidents inquired by the Commission were 02 in 2020-21 as compared to 10 (09 on Indian Railways & one on Metro Railway) in 2019-20. Numbers of train accidents resulting in passenger fatalities were zero in 2020-21 & 2019-20. All the 17 fatalities were of either railway crew/employees or outsiders/road users.

4.8.4 Number of accidents has decreased to 22 in the year 2020-21 as against 57 during the year 2019-20. The number of serious train accidents has also reduced to 02 in the year 2020-21. The reduction is primarily due to decrease in number of train operation owing to lockdown imposed due to COVID-19 pandemic

4.9 FATALITIES IN TRAIN ACCIDENTS

Number of fatalities in train accidents in last ten years are shown in figure-7.

Figure – 7
Passenger fatalities, including Railway Crew, outsiders etc. in Train Accidents

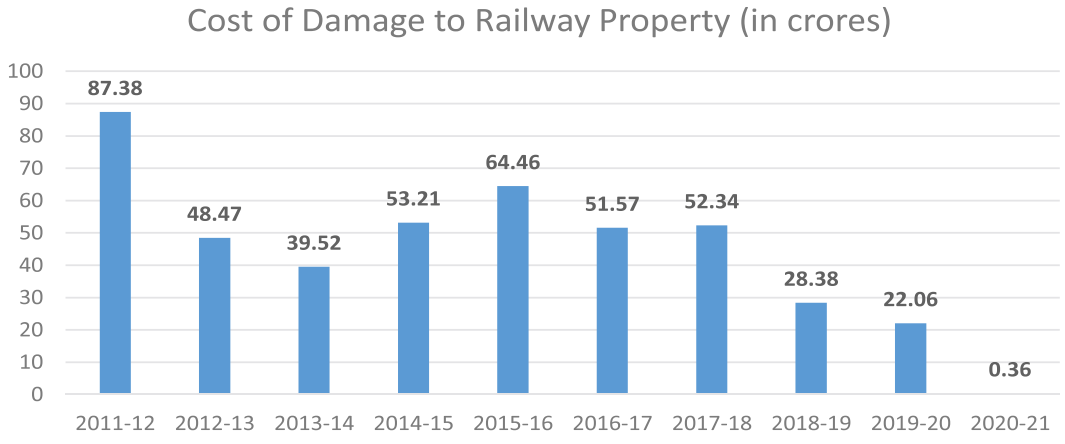


In 2020-21, the number of fatalities in train accidents were 17

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-8.

Figure – 8
Loss of Railway Property in train accidents during last 10 years



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CHAPTER – V
STATUS OF RAILWAYS' RESPONSE ON ACCIDENT INQUIRY REPORTS

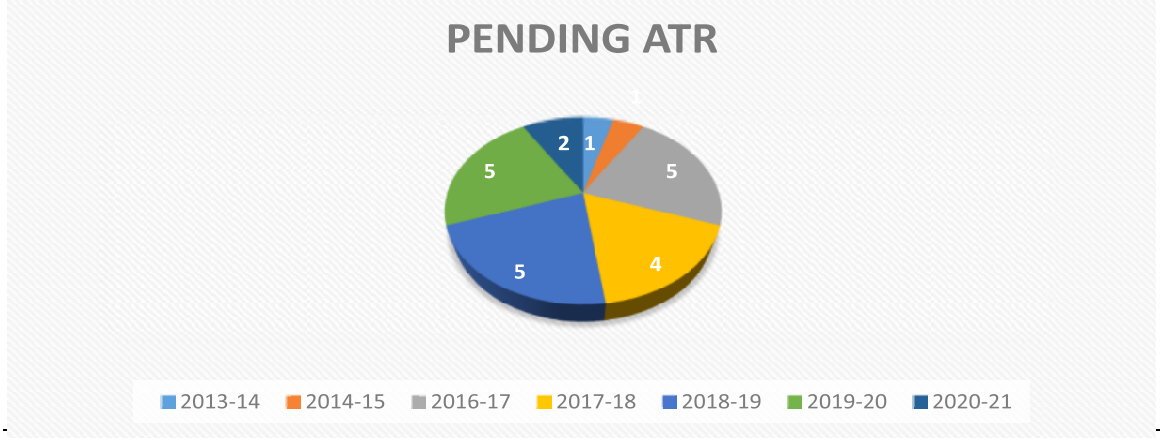
5.1 At the end of year 2020-21, 14 Action Taken Report from Ministry of Railway was received and response was awaited on balance **twenty three** reports. The oldest such inquiry report is of an accident which occurred in the year 2013-14 which is long overdue. The breakup of these reports (from year 2013-14 and till the end of 2020-21)are as follows:

Table 6

Accident occurring in the Year	No. of Accident Inquiry reports whose ATR* is received from Railway Board		No. of Accident Inquiry reports whose ATR is Pending
	Received	No. of Recommendations	
2013-14	Nil	Nil	1
2014-15	Nil	Nil	1
2015-16	2	11	Nil
2016-17	3	42	5
2017-18	1	12	4
2018-19	4	41	5
2019-20	4	37	5
2020-21	Nil	Nil	2
		Total	**23**

*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 recommendation made by CRS in their inquiry reports. The report of the oldest accident of 2013-14 was submitted to Railway Board in December-2014. However, the same is still pending. The year wise details of pending ATRs are as follows:-.



5.1.1 Based on their inquiry into various aspects of the accidents, the CsRS have made a total of 245 recommendations in their final Accident Inquiry Reports which are still pending with the Railway Board.

5.2 During the year 2020-21, two (02) accident enquiries were entrusted to the Commissioners out of which one (01) was finalized during that year. Apart from that, 04 accident inquiry reports of the year 2019-20 including two accident of Kolkata Metro were also forwarded to Railway Board in the year 2020-21. Total fifty eight (58) recommendations were made in these inquiry reports. 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.

5.3 Some of the important recommendation made and the action taken by railways in the ATRs received in the year 2020-21 are as follows:-

5.3.1 **Recommendation-** Safety department of Railway should do surprise audit of work done in pit line and measurement of bogie clearances and spring height lo be recorded during these cheeks to bring about improvement in working of POH workshop and attention at pit lines.
Action taken- Railways has accepted the recommendation.

5.3.2 **Recommendation-** All pit line inspections and attentions should be digitized and entered electronically using web application and available for viewing at apex level i.e. DRM and GM.
Action taken- Railways has accepted the recommendation for implementation in a Phased manner.

5.3.3 **Recommendation-** CCTV with recording facility should he provided in the locomotives.
Action taken- Railways has accepted the recommendation.

5.3.4 **Recommendation-** Instantaneous automatic detection & indication system of derailed wheel to loco pilot & immediate automatic application of emergency brakes to bring train to halt.
Action taken- Railways has accepted the recommendation.

5.3.5 **Recommendation-** To reduce dependency on visual inspection, software supported technology should be developed to ensure improved inspection methodology for Bogie and under gear system of coaches and Locomotives.
Action taken- Railways has accepted the recommendation.

5.3.6 Recommendation- Inspection platforms should be provided in all future ROBs as provided for water way girder bridges. Wherever space permits in Suburban section, such platforms should be provided on existing ROBs as special safety work in phased manner.
Action taken- The work of provision of Inspection platforms on ROB have been taken up and it will be completed in a time bound manner

5.3.7 Recommendation- Railway administration must take immediate action to ensure proper quality of CBC couplers being used on coaches. During metallurgical investigations, the broken couplers were found to be of substandard quality. As seen in this case (Derailment of train no 12225 Kaifiyat express on 23.08.2017), the breakage of couplers has aggravated the consequences of derailment. This needs to be examined by Railway administration for corrective and preventive action.
Action taken- Railways has accepted the recommendation.

5.3.8 Recommendation- Railway should devise a system of monitoring safety at work sites and the safety inspections of work sites done by Railway officials shall be included in daily positions put Up to DRM. In the report, date of last safety inspection including name and designation of officials shall be mentioned. Also officers from safety organization shall be drafted to audit the safety at work sites periodically.
Action taken- Railway has revised Para 2 of PCE/NCR's Safety Circular No. 103 on 20.11.2019 and circulated it to all concerned stakeholders

5.3.9 Recommendation- Metro should provide convex mirrors at suitable location of all station platforms to observe that no person is trapped in the closed train doors before starting of train.
Action taken- Kolkata Metro has accepted the recommendation

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CHAPTER VI

SOME ISSUE CONCERNING SAFETY ON INDIAN RAILWAY

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 substantial reduction in reported accidents during last five. **This is for the second consecutive year in history of Indian Railways, that no passenger fatalities were reported in the entire year.**

6.1 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 derailment 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:

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

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

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

MEASURES TO IMPROVE SAFETY AND RELIABILITY IN TUNNELS:-

During expansion of Railway Network, long tunnels are required to be made for laying of track. As now all lines will be electrified railway line, required tunnel size is more due to provision of OHE (over head equipment) for electric traction. Commission has suggested that feasibility of provided Rigid

Overhead Catenary system (ROCS) as provided in the tunnels of DMRC and other underground metros may be studied. Advantage of ROCS over conventional flexible OHE are as under –

- Lesser tunnel diameter as there is no separate catenary and no need for encumbrance.
- Less manpower requirement for maintenance as almost maintenance free system
- More contact wire wear permitted without risk of breaking-off as mechanical stress in the contact line is almost nil
- Higher current carrying capacity
- Much Higher reliability
- Less commissioning time
- Side pathway for passenger evacuation and maintenance staff
- Designs are available for speeds upto 140 kmph

Some of the photograph of ROCS are shown below:-

Although initial cost of ROCS is higher than the conventional Flexible OHE system, but saving in construction of tunnel and maintenance substantially higher than the initial cost.

OTHER MEASURES TO IMPROVE SAFETY AT TRACKS AND BRIDGES:-

(a) 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.

(b) 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

(c) 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 center track distance etc., Gantry type signalling as per GR must be designed and provided as more and more number of 3rd and 4th lines will be commissioned in near future.

(d) Construction of new bridge during Doubling:

During inspection it was noticed that single line bridge is constructed for new double line. It results in reverse curves & extra earth work due to large track centre. Many existing bridges are also not suitable for higher axle load. Railways should plan temporary diversion (fit for 75kmph) for existing bridge location. Thereafter, double line bridge should be constructed suitable for 25T axle load at same place after dismantle existing bridge.

Cost of double line bridge is 40-50% less than two single line bridges. With such arrangement, alignment of the track will remain same without any reverse curves and less earth work will be required as track center remain same throughout.

Some of the measures adopted by Indian Railways to bring about overall improvement in safety are as follows:

MEASURES TO IMPROVE SAFETY:-

- **Safety Focus** - to reduce accidents caused by human errors, a multi-pronged approach with focus on introduction of newer technologies, mechanization of maintenance, early detection of flaws, etc. to reduce human dependence in the first place, alongwith upgrading the skills of the human resources were the prime drivers for accident prevention.
- To enhance efficiency and to enhance safety in train operations, **Modern Signaling Systems** comprising of Panel Interlocking/Route Relay interlocking/Electronic Interlocking (PI/RRI/EI) with Multi Aspect Colour Light Signals are being progressively provided. So for 6200 stations (covering about 99 % of interlocked Broad Gauge stations) on Indian Railways have been provided with such systems, replacing the obsolete Multi Cabin Mechanical Signaling System, thus optimising operational cost involved in its operation as well as enhancing safety by reducing human intervention. Total 99 EI/PI/RRI have been provided during the financial year 2020-21.

MEASURES TO AVOID COLLISIONS:-

- **Complete Track Circuiting: -**To ensure track occupation verification, Track Circuiting has been completed at about 34572 locations up to 31.03.2021 covering 'A', 'B', 'C', D Special' and 'E Special' route. Total 6203 stations have been provided with complete track circuiting.
- **Block Proving Axle Counter (BPAC):-** To enhance safety, automatic verification of complete arrival of train at a station, Block Proving by Axle Counter (BPAC) is being provided at stations having centralized operation of points and signals. As on 31.03.2021, Block Proving by Axle Counters (BPAC) has been provided on 5805 block sections.
- **Intermediate Block Signaling**: - Provision of Intermediate Block Signaling (IBS) has proved very useful in enhancing line capacity without extra recurring revenue expenditure in form of operating manpower and amenities required while developing and operating a block station. As on 31.03.2021, Intermediate Block Signaling has been provided in 628 block sections on Indian Railways.
- **Automatic Block Signaling**:- For augmenting Line Capacity and reducing headway on existing High Density Routes on Indian Railways, Signaling provides a low cost solution by provision of Automatic Block Signaling. As on 31.03.2021, Automatic Block Signaling has been provided on 3447 Route Km.
- **Train Collision Avoidance System (TCAS):-** Indigenous technology has been developed by RDSO and three Indian manufacturers. Successful trials have been completed on 250 Route Km. Works are in progress on 1200 Route km of section on South Central Railway. It has now been decided to adopt TCAS as National ATP for implementation on Indian Railways. It shall be provided on High Density Network (HDN) & freight dense Highly Utilized Network (HUN) routes on priority in next 4-5 years. TCAS has been approved for speed upto 160 kmph. TCAS is also being upgraded to work with Automatic Signalling and Central Traffic Control (CTC) System, thus objectives of line capacity enhancement can also be met.

MEASURES TO IMPROVE SAFETY AT LEVEL CROSSING GATES:-

Level crossings are meant to facilitate the smooth running of traffic in regulated manner governed by specific rules & conditions, Status of level crossings on IR as on 01.04.2021 is as under:

Total Number of level crossings (All Manned) : 20170

Indian Railway has decided to progressively eliminate the level crossings for the safety of Road users and train passengers. During the year 2020-21, 1382 Nos. of manned level crossings have been eliminated.

All unmanned Level Crossings on Broad Gauge have already been eliminated on 31.01.2019.

Various measures taken by Indian Railways to prevent accidents at level crossings are as under:

- **Interlocking of Level Crossing Gates: -**Indian Railways have provided interlocking with Signals at 11710 Level Crossing Gates as on 31.03.2021, to enhance the safety at Level Crossings.
- **Sliding Boom at LC Gate:** - Provision of Interlocked Sliding Boom has become very effective in minimizing disruption to train services when Level Crossing Gates get damaged by road vehicles especially in suburban areas. With provision of Sliding Boom Interlocking, Signalling System continues to function normally with minimum effect on train operation. 5897 Nos. of busy interlocked gates have been provided with Sliding Booms as on 31.03.2021 in addition to lifting barriers and further busy gates are also being progressively covered.
- **Removal of Level Crossing Gates by Road Over/Under Bridges:**

  To improve safety of train operations and reduce inconvenience to road users, level crossings are being replaced by Road Over/Under Bridges/Subways (ROBs/RUBs) in a phased manner based on the quantum of traffic.

  During the year 2020-21, 95 ROBs and 715 RUBs/subway have been constructed under cost sharing, railway cost/accommodation works, Deposit/BOT term and by NHAI over Indian Railway.

BRIDGES – INSPECTION AND MANAGEMENT SYSTEM:-

Modern Bridge Inspection techniques have been adopted, which includes testing by non-destructive testing equipments, under water inspections, monitoring the water level with the help of water level system etc.

As on 01.04.2021, Indian Railway has a total number of 155278 Bridges, out of which 729 bridges are important, 12493 bridges are major and 142056 bridges are minor.

During the year 2020-21, a total number of 1114 Bridges are strengthened/Rehabilitated/Rebuilt.

MEASURES TO REDUCE DERAILMENTS:-

- Modern track structure consisting of 60kg, 90 Ultimate Tensile Strength (UTS) rails, Pre-stressed Concrete Sleeper (PSC) Normal/Wide base sleepers with elastic fastening, fan-shaped layout turnout on PSC sleepers, Steel Channel/H-beam Sleepers on girder bridges is used, while carrying out primary track renewals.
- Long rail panels of 260 M/130M length are being manufactured at the steel plant to minimize number of Alumino-Thermit joints in the track.
- Provision of Thick Web Switches (TWS) is planned for all important routes of IR. To expedite provision of TWS, procurement of Thick Web Switches has been decentralized to zonal railways.
- Ultrasonic Flaw Detection (USFD) testing of rails to detect flaws and timely removal of defective rails. Vehicular USFD system has been

introduced on Northern Railway, North Central Railway, West Central Railway and Western Railway.

- GPS trackers are being provided on keyman & patrolmen to monitor their movement & to report any unsafe condition noticed by them instantaneously.
- Track management system has been introduced on Indian Railways for development of database and decision support system and to decide rationalize maintenance requirement and optimize inputs.

MEASURES TO IMPROVE SAFETY OF COACHES:-

Indian Railways is taking following steps to further strengthen the safety and reliability of Railway Coaches.

- **Introduction of Automatic Fire and Smoke Detection system in AC Coaches:-**

  To improve fire safety in running trains, Automatic Fire and Smoke Detection System are being provided in AC coaches. The specifications have been upgraded integrating the air brake system in the coaches with the fire and smoke detection system. At present in nearly 4950 AC coaches, this system has been fitted.

- **Fire detection suppression system in Pantry cars and Power cars:-**

  Automatic Fire Detection and Suppression system are being provided in Power cars and Pantry cars. At present 1250 Power cars and 278 Pantry cars are fitted with this system. The work of retro fitment is being carried out progressively. Further, instructions have been issued that the system should be provided in all newly manufactured LHB Power cars and LHB Pantry cars by the Production Units (PUs).

- **Improving fire Retardancy in Coaches:-**

  Coaches are being provided with fire retardant furnishing materials such as Fire retardant curtains, partition paneling, roof ceiling, flooring, seat and berths along with cushioning material and seat covers, Windows and UIC Vestibules etc. The specifications of these items are being upgraded from time to time as a part of continual improvement. In the specification of major furnishing items, now a new parameter related to fire retardancy (i.e. heat release rate) has been introduced as per international norms.

- **Provision of Fire Extinguishers:-**

  Dry chemical powder type fire extinguishers are provided in all Air-conditioned coaches, Second class- cum-guard and luggage van and Pantry cars. Instructions have been issued to Production Units to provide fire extinguishers in all newly manufactured non-AC coaches as well. Provision in existing coaches is also being carried out by Zonal Railways.

- **Large scale proliferation of LHB coaches:-**
  Ministry of Railways has decided for large scale proliferation of LHB coaches which are technologically superior with features like Anti climbing arrangement, Air Suspension (Secondary) with failure indication system and less corrosive shell. These coaches have better riding and aesthetics as compared to the conventional ICF coaches. The Production units of Indian Railways are now producing only LHB coaches from April 2018 onwards. The production of LHB coaches are continually increased during the years. 1469 coaches in 2016-17, 2480 coaches in 2017-18, 4429 coaches in 2018-19, 6277 coaches in 2019-20 & 2871 in 2020-21.

- **Progressive use of Air Springs:-**
  For enhancing safety and reliability of passenger coaches, the suspension systems are being redesigned with air springs at secondary stage capable to maintain constant height at variable loads. Air springs have been developed and are being fitted on all the newly built EMUs & DMUs coaches for sub-urban trains. Air springs have now been developed for mainline coaches as well and have been fitted in large scale in newly manufactured coaches. Production Units have been advised to use Air springs in all newly manufacture LHB coaches.

- **Provision of Automatic door closure mechanism in coaches:-**
  Provision of Automatic door closure mechanism has been planned on coaches to prevent accidental falling of passengers from running trains.

- **Provision of Double Acting doors in coaches:-**
  Double Acting door in coaches are two way swing AC compartment doors for easy evacuation of passengers. Such doors need to be provided in the AC coaches so as to improve the fire worthiness and enable passengers to quickly evacuate from the coach in the event of fire.Sanction under the Rolling Stock Programme (RSP) exists for the provision of Double Acting doors in 6500 coaches and the work is being carried out in a phased manner in 4231 nos. Of coaches it has been provided. In addition to this instructions have been issued to Production Units that all newly manufactured AC coaches shall be provided with Double Acting doors

OTHER ADMINISTRATIVE MEASURES:-

- **Constant Review of Safety Performance at Board's apex level** - Safety performance is invariably reviewed as a first item on Agenda of Board Meeting at the apex level. All accidents are analyzed in detail so that remedial measures can be initiated.
- **Safety Review meeting with Zonal Railways –** Chairman and Board members have conducted Safety Review Meetings with General Managers and PHODs of zonal railways during their visits as well as through video conference.

- **Intensive Footplate Night Inspections -** Intensive Footplate Inspections including night inspections have been conducted at the level of SAG, branch officers and supervisors in the field.
- **Regular Safety Drives & awareness campaigns –** Safety drives and awareness campaigns have been launched from time to time, covering the lessons learnt from recent train accidents so as to prevent similar accidents in future.

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APPENDIX-I

DETAILS OF SERIOUS RAILWAY ACCIDENTS INQUIRED INTO BY COMMISSIONERS OF RAILWAY SAFETY DURING THE YEAR 2019-20

1. Unusual incident of run over of persons by Empty Goods train no. PNV/BTPN at Km.139/8-6 between Badnapur-Karmad Stations of Prabani-Manmad BG single line non-electrified section of Nanded Div.of SCC on **08.05.2020.**

A) CAUSE : Due to negligence of persons reportedly sleeping on the railway track

B) CASUALTIES

KILLED	:	16
GRIEVOUS INJURY	:	00
SIMPLE INJURY	:	01

C) COST OF DAMAGES TO RAILWAY PROPERTY : NIL

D) NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER : 5

2**.** Dashing of Road Vehicle with Engine of train No.01463 (SMNH-JBP Spl) at manned LC No.39/C(Km.43/9-44/0)in Gondal-Virpur Single line Block section (Broad Gauge) of Bhavnagar Division of Western railway occurred at 12.29 hours on **22.11.2020**

A) CAUSE : Error in working at manned rail crossing..

B) CASUALTIES

KILLED	:	01(Road user)
GRIEVOUS INJURY	:	00
SIMPLE INJURY	:	00

C) COST OF DAMAGES TO RAILWAY PROPERTY : NIL

D) NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER : 09

APPENDIX-II

DETAILS OF ACTIVITIES OF THE COMMISSION OF RAILWAY SAFETY DURING 2020-21

A- NEW LINES

SN	Date of Authorization/ Inspection	Section/Line Opened	Circle/ Railway	KMs
1.	31.05.2020	Gangavathi-Karatgai	SWR	26.89
2.	05.06.2020	Makthal-Jaklair	SCR	11.97
3.	19.06.2020	Manoharabad-Gajwel	SCR	31.87
4.	01.07.2020	Alirajpur-Khandala	WR	9.72
5.	18.08.2020	Saraigarh-Asanpur	ECR	12.62
6.	28.08.2020	Islampur-Natesar	ECR	21.80
7.	26.08.2020	Keoti-Antagarh	SECR	16.95
8.	02.09.2020	Magra-Khanyan	ER	8.90
9.	31.10.2020	Samnarpur-Lamta	SECR	23.73
10.	30.10.2020	Chiraidongri-Mandla Fort	SECR	22.97
11.	01.12.2020	Jhalarapatan-Junakhera	CC/WCR	13.73
12.	05.01.2021	Haldibari-Bangaladesh Border	NFR	3.72
13.	15.01.2021	Chandod-Kevadiya	WR	31.90
14.	25.02.2021	Nagaruntari-Wyndhamganj	ECR	11.81
15.	25.02.2021	Garhwa-Meralgram	ECR	11.52
16.	08.03.2021	Prayahat-Godda	ECR	16.76
17.	24.03.2021	Pharprakund-Magardaha	ECR	6.81
			TOTAL	**288.32**

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

SN	Date of Authorization/ Inspection	Section/Line Opened	Circle/ Railway	KMs
1.	28.05.2020	Lachyan-Hotgi	SWR	30.9
2.	29.06.2020	Danea-Jogeshwar Bihar	ECR	8.19
3.	29.06.2020	Karmahat-Ranchi Road	ECR	6.4
4.	15.06.2020	Kachhwa Road-Madhosing	NER	16

5.	22.06.2020	Chigicherla-Zangalapalle	SCR	10.69
6.	27.07.2020	Jeypore-Charmalakusumi	SER	20.7
7.	27.07.2020	Paliba-Machkund	ECoR	12.56
8.	27.07.2020	Jarapada-Kerejanga	ECoR	9.99
9.	30.07.2020	Bamra-Dhutra	SER	27.6
10.	26.08.2020	Pendra Road-Nigaura	SECR	26
11.	26.08.2020	Rajkharswan-Rajkharswan West	SECR	2.18
12.	07.08.2020	Sadla-Jatpipli	WR	18.2
13.	14.09.2020	Yeola-Ankai	CR	15.13
14.	16.09.2020	Satna-Kaima	WCR	5.9
15.	15.09.2020	Mandideep-Habibganj	WCR	16.41
16.	24.09.2020	Prayag-Phaphamau	NR	8.60
17.	29.09.2020	Mecheri Road-Mettur Dam	SR	16.30
18.	16.09.2020	Shadnagar-Gollapalli	SCR	30.23
19.	19.09.2020	Kidiyanagar-Lakadiya	WR	25
20.	19.09.2020	Jethi-Karjoda	WR	10.00
21.	22.10.2020	Daundaj-Vatha	CR	8.05
22.	16.10.2020	Gauriganj-Bani-Jais	NR	17.34
23.	15.10.2020	Aurihar-Taraon	NER	13.34
24.	13.10.2020	Digaru-Hojai	NFR	23.62
25.	16.10.2020	Unkal-Dharwad	SWR	16.62
26.	14.10.2020	Gudivada - Machilipatnam	SCR	36.74
27.	17.10.2020	Raghavapuram-Kolanur	SCR	22.80
28.	22.10.2020	Uppalur-Moturu	SCR	32.57
29.	12.10.2020	Lakhna-Harishankar Road-Turekela road	ECoR	25.09
30.	12.10.2020	Loisingha-Balangir	ECoR	18.61
31.	31.10.2020	Brajrajnagar-Jharsuguda	SECR	11.55
32.	16.10.2020	Gambhiri Bridge	WR	1.83
33.	12.11.2020	Kulali-Savalgi	CC	26.99
34.	25.11.2020	Habibganj-Bhopal	CC	5.93
35.	25.11.2020	Makronia-Lidhora Khurd	CC	7.16
36.	13.11.2020	Ramna-Nagaruntari	EC	11.27
37.	16.11.2020	Kundanganj-Harchandpur-Gangaganj	NC	14.04
38.	16.11.2020	Taraon-Nandganj	NEC	9.34
39.	28.11.2020	Majgaon-Abhayapuri	NEC	8.52
40.	26.11.2020	Chikodi Road-Rayabag	SC	13.94
41.	06.11.2020	Taticherla-Garladinne	SCC	9.08
42.	30.11.2020	Sodra-Kaklur	SEC	12.24
43.	30.11.2020	Dhutra-Jharsuguda	SEC	6.40
44.	09.11.2020	Vatva-Ahmedabad	WC	5.03

45.	27.12.2020	Alandi-Shindawane	CR	8.45
46.	27.12.2020	Sindi-Butibori	CR	19.32
47.	28.12.2020	Chichonda-Teegaon	CR	16.53
48.	29.12.2020	Pilighat-Guna	WCR	19.49
49.	30.12.2020	Barkhera-Mandideep	WCR	25.01
50.	23.12.2020	Deoband-Tapri	NR	27.96
51.	28.12.2020	Kerejanga-Angul	ECoR	13.51
52.	16.11.2020	Taraon-Nandganj	NECR	9.34
53.	28.12.2020	Harihar-Devargudda	SWR	31.21
54.	31.12.2020	Gubbi-Nittur	SWR	9.26
55.	01.12.2020	Nallapadu-Perecherla	SCR	7.78
56.	29.12.2020	Ujjain-Karchha	WR	15.32
57.	07.01.2021	Ikkar-Haridwar	NR	8.1
58.	15.01.2021	Yelahanka-Makalidurga	SWR	35.97
59.	09.01.2021	Pendekallu-Edduadoddi	SCR	8.58
60.	30.01.2021	Potkapalli-Kolanur	SCR	7.75
61.	10.01.2021	Kerejanga-Angul	ECoR	13.51
62.	26.02.2021	Utraitia-Transport Nagar	NR	9.49
63.	03.02.2021	Ballia-Phepna	NER	10.12
64.	25.02.2021	Madhosingh-Gyanpur	NER	13.05
65.	26.02.2021	Kampur-Hojal	NFR	27.5
66.	02.03.2021	Omalur-Mecheri Road	SR	12.63
67.	27.02.2021	Gangaikondan-Tirunelveli	SR	14.51
68.	26.02.2021	Kovilpatti-Kadampur	SR	17.29
69.	15.02.2021	Kalaikunda-Jhargram	SER	30.99
70.	13.01.2021	Sambalpur-Hirakud	ECoR	7.25
71.	17.02.2021	Turekela Road-Kantabanji	ECoR	14.33
72.	12.02.2021	Radhanpur-Varahi	WR	19.52
73.	27.03.2021	Jarangdih-Bokaro	ER	16.18
74.	17.05.2021	Katwa-Gangatikuri	ER	10.32
75.	17.05.2021	Chowrigacha-Karnasubarna	ER	9.37
76.	25.03.2021	Amritsar-Chheharta	NR	5.59
77.	08.03.2021	Chhata-Hodle	NCR	15.5
78.	20.03.2021	Bhua-Sarsoki	NCR	17.21
79.	24.03.2021	Nandganj-Gazipur City	NER	18
80.	11.03.2021	Mandhana – Bhramavart	NER	8
81.	06.03.2021	Tambaram-Chengalpattu	SR	8.36
82.	18.03.2021	Raybag – Kudachi	SWR	16.93
83.	17.03.2021	Tolahunse – Davangere	SWR	9.45
84.	22.03.2021	Tirumangalam-Tulukapatti	SR	41.18
85.	31.03.2021	Kudgi-Hotgi	SWR	125.11
86.	26.03.2021	Falaknuma – Umdanagar	SCR	13.98

87.	27.03.2021	Kavali-Ulavapadu	SCR	29.85
88.	28.03.2021	Gajjelakonda-Donakonda	SCR	11.4
89.	12.03.2021	Rajnandgaon-Dangargarh	SECR	31.2
90.	10.03.2021	Madar-Daurai	NWR	8.14
91.	10.03.2021	Madar-Adarshnagar	NWR	6.26
92.	10.03.2021	Ajmer-Daurai	NWR	4.92
93.	11.03.2021	Sendra-Haripur	NWR	18.03
94.	15.03.2021	Sukhpur-Dhanala	WR	17.58
95.	24.03.2021	Maliya-Miyana-Surbari	WR	10.38
96.	24.03.2021	Dhanala-Wadharwa	WR	26
			Total	**1603.69**

C- <u>GAUGE CONVERSION:-</u>

SN	Date of Authorization/ Inspection	Section/Line Opened	Circle/ Railway	KMs
1.	28.06.2020	Samastipur-Darbhanga	ECR	9.00
2.	24.07.2020	Akola-Akot section	SCR	44.16
3.	18.08.2020	Saraigarh-Raghopur	ECR	10.13
4.	28.08.2020	Bhandarkund-Bimalgondi	SECR	16.29
5.	06.11.2020	Bisalpur-Shahhazpur	NEC	42
6.	11.11.2020	Vadnagar-Varetha	WR	21.00
7.	06.11.2020	Bisalpur-Shahbazpur	NER	42.00
8.	16.11.2020	Taraon-Nandganj	NER	9.14
9.	21.12.2020	Usilamaptti-Andipatti	SR	20.15
10.	15.12.2020	Dabhoi-Chandod	WR	18.26
11.	23.12.2020	Dungarpur-Raighadh Road	NWR	70.19
12.	15.12.2020	Dabhoi-Chandod	WR	18.26
13.	12.02.2021	Fatehabad-Chandrawatiganj	WR	50.14
14.	25.02.2021	Kalol-Dangarwa	WR	18.01
15.	11.03.2021	Naninpur-Bhoma	SER	55.6
16.	21.03.2021	Chhindwara-Chourai	SER	30.29
17.	31.03.2021	Sanawad-Nimarkheri	WR	11.09
18.	Not Yet issued	Lothal Bhurkhi-Botad	WR	80.18
			TOTAL	**565.61**

D- DIVERSIONS:-

SN	Date of Authorization/ Inspection	Section/Line Opened	Circle/Rail way	KMs
1	26.03.2021	Rohtak-Makroli	NR	4.85
			TOTAL	**4.85**

E- ELECTRIFICATION OF RAILWAY LINES:-

SN	Date of Authorization/ Inspection	Section/Line Opened	Circle/ Railway	KMs
1.	29.05.2020	Tiruvarur-Karaikkal	SR	41.0
2.	26.02.2020	Gurla-Srinagar	WCR	44.0
3.	28.06.2020	Pachor Road-Maksi	WCR	88.0
4.	29.06.2020	Katni-Satna	WCR	96
5.	29.06.2020	Rewa-Turkey Road	WCR	9.6
6.	30.06.2020	Shivanarayanpur-Bhagalpur	ECR	39.0
7.	01.07.2020	Rayadurga-Thalaku	SWR	48.8
8.	15.07.202020	Dhuri to Jhkhal	NR	62.5
9.	15.07.2020	Dhuri-Lehra-Muhabat	NR	68.6
10.	24.07.202020	Goda-Subhagpur	NER	6
11.	20.07.2020	Bankura-Sonamukhi	SER	40.1
12.	27.07.2020	Nimarkheri-Khandwa	WR	46.2
13.	10.08.2020	Mazaffarpur-Sitamarhi	ECR	66.6
14.	10.08.2020	Karaila Road-Shaktinagar	ECR	33.4
15.	14.08.2020	Dildarnagar-Tarighat	ECR	0
16.	21.08.2020	BC-DMY-KSJ	NER	105.1
17.	14.08.2020	Bhatni-ARJ	NER	125.6
18.	26.08.2020	Lamta-Nainpur	SECR	35.2
19.	28.08.2020	Bhandarkund-Bimalgondi	SECR	17.3
20.	04.08.2020	Nimarkheri-Khandwa	WR	46.2
21.	16.09.2020	Majholi-Mahdiya	WCR	20.97
22.	11.08.2020	Aonla-Bareilly	NR	27.50
23.	21.09.2020	Prayag-PrayagGhat	NR	2.30
24.	21.08.2020	BC-BMY-KSJ	NEC	105.50
25.	14.08.2020	Bhatni-ARJ	NEC	125.62
26.	25.09.2020	Kariganuru-Harlapur	SWR	71.81
27.	22.09.2020	Nimach-Chanderiya	WR	64.58
28.	22.10.2020	Pune-Phursungi	CR	11.31

29.	16.10.2020	Madhupur-Giridih & Maheshmunda-New Giridhin	ER	41.52
30.	16.10.2020	New Jalpaiguri-Raninagar	NFR	28.44
31.	07.10.2020	Manoharbad-Medchal	SCR	13.07
32.	31.10.2020	Samnarpur-Lamta	SECR	24.50
33.	13.11.20	Savalgi-Kalaburgi-TajSultanpur	CR	25.80
34.	13.11.20	Bhigvan-Washimbe	CR	31.00
35.	13.11.20	Washimbe-Kurduwadi	CR	50.00
36.	24.11.20	Ghatigaon-Shivpuri	WCR	86.74
37.	24.11.20	Gatigaon-Gwalior	WCR	34.71
38.	30.11.20	Jhalawar City-Jhalarapatn	WCR	7.84
39.	10.11.20	Anekal Road-Periyanagathunal	SWR	37.89
40.	13.11.20	Mayiladuturai-Thanjavur	SCR	67.99
41.	28.11.20	Dhigawara-Bandikui	NWR	33.20
42.	28.11.20	Bassi-Kanakpura	NWR	41.90
43.	31.12.2020	Shindawane-Jejuri	CR	27.00
44.	31.12.2020	Phursungi-Alandi	CR	10.07
45.	14.12.2020	Rampurhat-Harinsingh	ER	36.53
46.	16.12.2020	Manigram-Nimtita	ER	33.98
47.	24.12.2020	Sitapur-Lakhimpur	NER	45.38
48.	25.12.2020	Bhuteshwar-Palwal	NCR	6.51
49.	09.02.2021	Dhola-Dhasa-Savarkundla	WR	83.90
50.	19.12.2020	Det-Udaipur	NWR	114.82
51.	07.10.2021	Chittorgarh-Nimbahera-Shambhupura	WR	3.62
52.	11.02.2021	Darbhanga-Sitamarhi	ER	63.14
53.	01.02.2021	Janghai-Zafrabad	NR	47.79
54.	01.02.2021	Phaphamau-Pratapgarh-Chibila-Sultanpur	NR	81.91
55.	21.01.2021	DDA-MAC	NER	42.00
56.	23.01.2021	Raninagar-Jalpaiguri	NFR	97.17
57.	19.01.2021	Vijayawada-Bhimavaram	SCR	106.61
58.	28.01.2021	Gudivada-Machilipatnam	SCR	36.18
59.	15.01.2021	Chandod-Kevadiya	WR	31.90
60.	04.02.2021	Jalindri-Chanderiya	WCR	90.79
61.	24.02.2021	Harinsingh-Dumka	ER	37.04
62.	04.02.2021	Patel Nagar-Delhi Cantt.	NR	4.00
63.	23.02.2021	Savarkundla-Pipavav	NR	61.78
64.	25.02.2021	PBE-BC	NER	54.97
65.	15.02.2021	Sonamukhi-Masagram	SER	80.76
66.	09.02.2021	Dhola-Dhasa-Savarkunda	WR	83.90
67.	09.02.2021	Hapa-Rajkot	WR	71.67

68.	23.02.2021	Swarupganj-Abu Road-Maval	NWR	37.50
69.	12.02.2021	Fatehabad-Chandrawatiganj	WR	51.54
70.	09.03.2021	Kurduwadi-Mohol	CR	47.78
71.	09.03.2021	Kurduwadi-Pandharpur	CR	51
72.	09.03.2021	Pandharpur-Dhalgaon	CR	74.3
73.	09.03.2021	Savalgi-Dudhani	CR	37.49
74.	26.03.2021	Bijoor-Karwar	KRCL	131.80
75.	26.03.2021	Shenoli-Takari	CR	63.29
76.	31.03.2021	Srinagar-Jalindri	WR	21.9
77.	01.04.2021	Roha-Ratnagiri	KRCL	204.7
78.	19.03.2021	Bhagalpur-Barahat-Banka	ER	74
79.	17.03.2021	Bartara-Jung BahadurGanj	NR	17.27
80.	16.03.2021	Unnao-Balamou-Sitapur	NR	159.55
81.	22.03.2021	Noli-Shamli	NR	79
82.	23.03.2021	GarhiHarsaru-Farukh Nagar	NR	11.32
83.	24.03.2021	Dalmau-Daryapur	NR	21.43
84.	24.03.2021	Rai Bareilly-Unchahar	NR	35.56
85.	25.03.2021	Amritsar-Chheharta	NR	8
86.	25.03.2021	Batala-Qadian	NR	19
87.	27.03.2021	Ama Andaura- Daulatpur Chowk	NR	15.2
88.	27.03.2021	Pandu Pindara-Gohana	NR	37.4
89.	30.03.2021	Najibabad-Kotdwar	NR	24
90.	20.03.2021	Bhandai-Etawah	NCR	125.7
91.	11.03.2021	Mandhana-Bramavart	NER	8
92.	10.03.2021	Salempur-Barhaj Bazar	NER	20.25
93.	15.03.2021	Pilibhit-Tanakpur	NER	62.17
94.	27.03.2021	Gorakhapur-Anand Nagar	NER	41
95.	06.03.2021	Bongaigaon-Rangiya	NFR	108.53
96.	16.09.2021	Kamkha-Rangiya	NFR	41.9
97.	18.10.2021	Coochbihar-Srirampur	NFR	57
98.	10.03.2021	Nidamangalam-Mannargudi	SR	13.4
99.	10.03.2021	Cuddalore Port -Vriddhachalam	SR	57.3
100.	14.03.2021	Periyangathurai-Palakkodu	SR	47
101.	14.03.2021	Hubli-Alnavar	SR	65
102.	14.03.2021	Thalaku-Chitradurga	SWR	50.44
103.	Not yet issued	Chikkabanavara-Hirehalli	SWR	44.1
104.	12.03.2021	LPJL-Mortad	SCR	50.5
105.	13.032021	Dharmavar-Kadiri	SCR	67.23
106.	23.03.2021	Vikarabad-Kohir	SCR	44.82
107.	24.03.2021	Akola-Lohagad	SCR	34.58
108.	26.03.2021	FM-UR	SCR	13.57
109.	28.03.2021	Tenali-Repalle	SCR	33.16

110.	03.03.2021	Chiraidongri-Mandla fort	SER	25.26
111.	21.03.2021	Tumsar Road-Tirodi	SECR	49.6
112.	18.03.2021	Marauda-Balod	SECR	51.6
113.	31.03.2021	Rupsa-Bhojpur	SECR	56
114.	31.03.2021	Khurda Road-Nayagarh	ECoR	66.14
115.	31.03.2021	Tata-Gumi	SECR	65
116.	30.04.2021	Piplai-Gangapur City	NWR	24.74
117.	20.03.2021	Hapa-Bhatiya	NWR	109
118.	20.03.2021	Jethi-Karjoda	NWR	9.11
119.	30.03.2021	Dabhoi-Bodeli	WR	36.45
120.	08.06.2021	Anand-Khambhat	WR	52.05
121.	28.03.2021	Jaipur-Ringas	NWR	58.47
122.	28.03.2021	Sheodaspura-Padampura-Jaipur	NWR	23.5
123.	29.03.2021	Sadulpur-Churu	NWR	58.18
124.	30.03.2021	Sadulpur-Gogameri	NWR	80.09
125.	30.03.2021	Gogameri-Nohar	NWR	25.94
126.	31.03.2021	Madar-Beawar	NWR	60.22
			TOTAL	**6015.85**

METRO PROJECTS:-

F- Kolkata Metro:-

SN	Date of Authorization/ Inspection	Section	Metro Railway	KMs
1.	10.02.2021	Noapara-Dakshinewar	Kolkata Metro	4.13
2.	17.06.2020	Saltlake Stadium-Phoolbagan	Kolkata Metro	1.66
			TOTAL	**5.79**

G- Bangalore Metro Rail Corporation Ltd. (BMRCL):-

SN	Date of Authorization	Section	Metro Railway	KMs
1.	23.11.20	Yelachenahalli-Anjanapura	BMRCL	5.79
			TOTAL	**5.79**

H- Gujarat Metro Rail Corporation (GMRC):-

SN	Date of Authorization	Section	Metro Railway	KMs
1.	31.12.2020	Rabari Colony-Vastral	GMRC	6.12
			TOTAL	**6.12**

I- Kochi Metro Rail Limited (KMRL):-

SN	Date of Authorization	Section	Metro Railway	KMs
1.	28.05.2020	Thykoodm-Petta	KMRL	1.33
			TOTAL	**1.33**

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