सत्यमेव जयते

GOVERNMENT OF INDIA

MINISTRY OF CIVIL AVIATION

COMMISSION OF RAILWAY SAFETY

ANNUAL REPORT FOR 2019-2020

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 31.03.2020 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

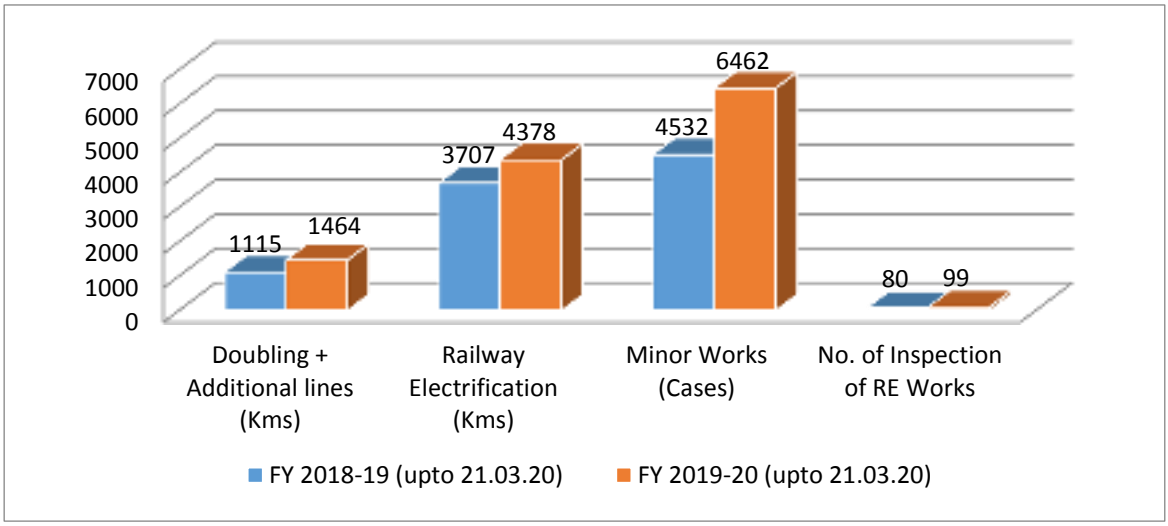
DATE :

Comparative Performance of the Commission during 2019-20:

Activities	FY 2018-19	FY 2018-19 (Upto 21.03.19)*	FY 2019-20 (upto 21.03.20)*	% variation in FY 2018-19 (4)-(3)/(3) in %
1	2	3	4	5
Doubling + Additional lines (Kms)	1286	1115	1464	31%
New Lines (Kms)	475	370	360	-2.7%
Gauge Conversion (Kms)	597	478	408	-14.6%
Total (DL+GC+NL) (Kms)	**2358**	**1963**	**2232**	**13.7%**
Total Inspections of Network Expansion works	**229**	**182**	**215**	**18%**
Railway Electrification (Kms)	**5276**	**3707**	**4378**	**18%**
Nos of Inspections of RE works	**101**	**80**	**99**	**23.7%**
Total Periodic Inspections (Kms)	7660	5696	6637	16.5%
Minor Works (Cases)	4803	4532	6462	42.5%
Rolling Stock Inspected & forwarded (Cases)#	193	192	35	-81.1%

*In FY 2019-20, statutory inspections could not be conducted after 21.03.2020 due to COVID-19 lockdown throughout the country.

#The reduction in no. of inspected/forwarded Rolling stockcases is due to change in procedure by Ministry of Railways w.e.f01.10.2018



SUMMARY OF THE ACTIVITIES OF COMMISSIONERS OF RAILWAY SAFETY

	Functions of the Commission 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	**09** **01** **84** **06**	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) Diversion lines (e) Railway Electrification **Metro Railways** **a)** New lines of Hyderabad Metro Rail Corporation **b)** New lines of Jaipur Metro Rail Corporation Limited c) New lines of Kochi Metro Rail Corporation Limited	**360 km** **1464 km** **408 km** **29 km** **4378 km** **11 km** **2 km** **6 km**	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	**6462Nos** **35Nos**	Chapter II Para 2.4 Chapter II Para 2.6
IV.	Inspection of Govt. Railways	Periodic inspections	**6637km**	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 redesignated 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 back 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). At present, Dy. CRS post in

- 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.

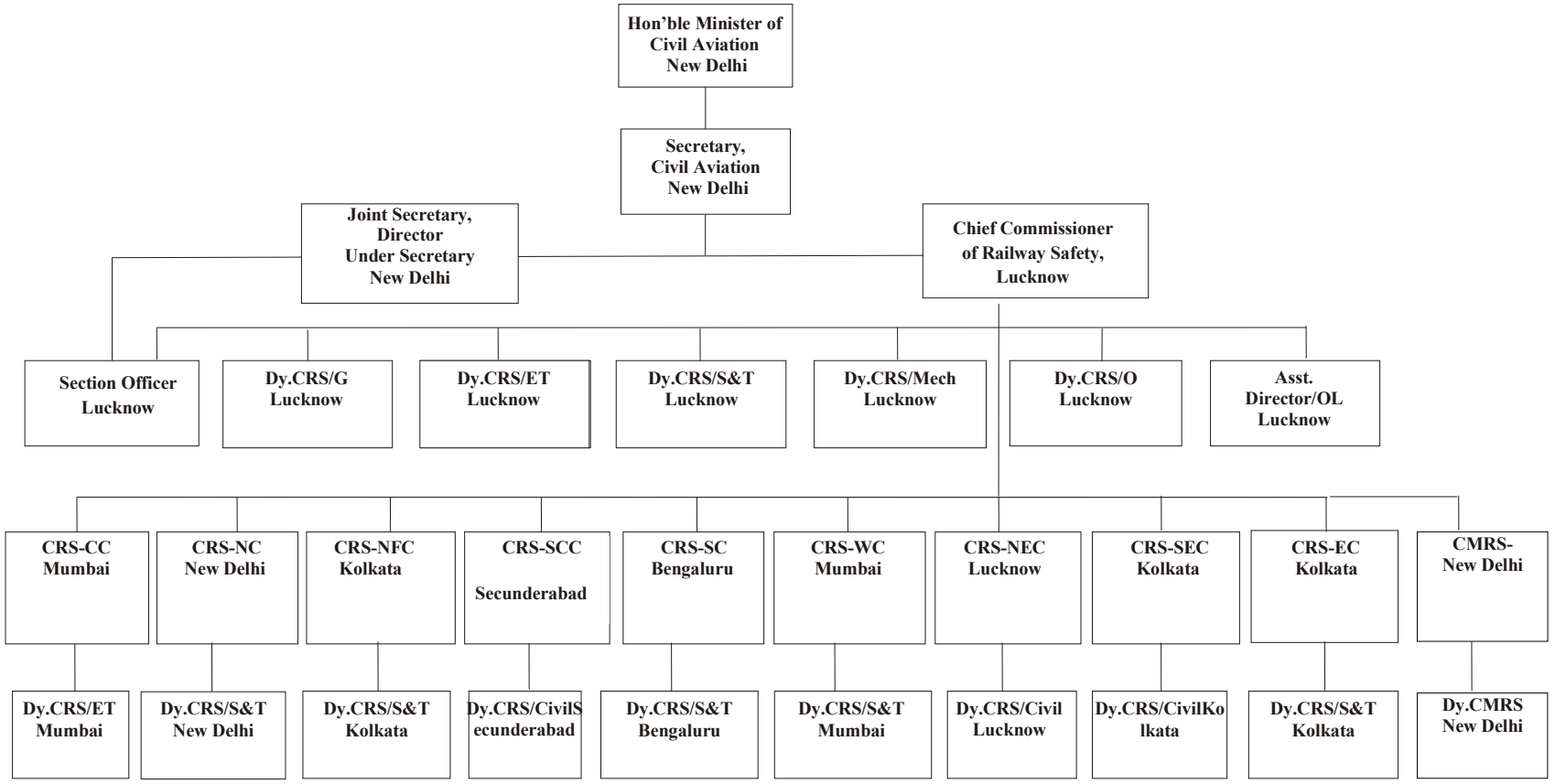
1.2.3 There are two wings in the office of CCRS i.e. Railway Safety Wing and Technical Wings.

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), 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. 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 31.03.2020, 03 posts of CRS and 03 posts of Dy.CRS/Dy.CMRSare 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	Full Duration	Shri A K Jain
(ii)	CRS-EC	Full Duration	Vacant
(iii)	CRS-NC	Full Duration	Vacant
(iv)	CRS-NEC	Full Duration	Md. Latief Khan
(v)	CRS-NFC	Full Duration	Vacant
(vi)	CRS-SC	Full Duration	Shri K.A. Manoharan
(vii)	CRS-SCC	Full Duration	Shri Ram Kripal
(viii)	CRS-SEC	01.04.19 to 31.03.20	Shri A K Rai
(ix)	CRS-WC	Full Duration	Shri R K Sharma
(x)	CMRS-New Delhi	01.04.19 to 15.05.19	Vacant
		16.05.19 to 31.03.20	Shri Janak Kumar Garg

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	Full Duration	Shri Uttam Prakash
(ii)	Operating	Full Duration	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	Shri E. Srinivas
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	Vacant
(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, 2020, 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	8169.80	CR, WCR & KR
CRS-EC	Kolkata	6939.67	ER & ECR
CRS-NC	New Delhi	7359.31	NR
CRS-NEC	Lucknow	7025.16	NER & NCR
CRS-NFC	Kolkata	4153.62	NFR & MR
CRS-SC	Bengaluru	9461.23	SR & SWR
CRS-SCC	Secunderabad	6268.13	SCR
CRS-SEC	Kolkata	10523.591	SER, SECR &ECoR
CRS-WC	Mumbai	12136.04	WR & NWR
	Total Route Kms	**72036.551**	

1.6.2 As on 31st March, 2020, **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	17.988	NMRC
	Hyderabad	46.53	HMRL
	Lucknow	23.684	LMRC
CRS/CMRS-SC	Bengaluru	42.00	BMRCL
	Kochi	23.87	KMRCL
	Chennai	56.94	CMRL
CRS/CMRS-WC	Mumbai	11.230	MMRC
	Jaipur	11.64	JMRC
	Total Route Kms	**618.73**	

1.7 FUNCTIONS OF THE COMMISSION 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. After the deficiencies have been attended, it is discretion of the

CRS to re-inspect the section himself or to authorize the central government to do so prior to opening the section for public carriage of passenger.

(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:**
Railway Design & Standardization Organization (RDSO) applies to CCRS for following items;
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.

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 serious 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 proposalsregarding 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 2019-2020, activities of Metro Railway inspections carried out by Commissioners of Metro Railway Safety are summarized below:-

	Metro Railways	(In Kilometers)
(a)	Hyderabad Metro	10.956
(b)	Jaipur Metro	2.01
(c)	Kochi Metro	5.65
	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 2019-20, the Commissioners of Railway Safety have given sanctions for execution of **6462** 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, 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 2019-20, 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.

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 2019-20, no proposal/application for movement of movements ofover-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 2019-20, **35** 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 2019-20, Commissioners carried out inspections of 6637 Km. ofGovt. 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.

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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 orCommissioner 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 2019-20

3.4.1 During the year 2019-20, 09 serious accidents (on Indian Railways) were inquired by the Commissioners. In these accidents, 06 accidents had resulted in passenger (or crew) fatalities while 03accidents resulted in grievous injury to the passenger. No passenger fatalities was observed in the year.Out of 09 accidents inquired by the Commissioners, 04 were Collision, 03 were accident at Level Crossing, 01 was derailment and 01 wasUnusual Incident.

Brief details of 09 accident inquiries entrusted to commissioners in 2019-20 is given in Appendix - I. 84 recommendations were made in these09 inquiry report of the accident of 2019-20.

3.4.2 Two accidents of Indian Railways mentioned below attracted considerable attention

(a) **Para 2 of Appendix-I** -Derailment of 12303 UP Poorva Exp. at Rooma station of Allahabad Division of North Central Railway at km 1004/13 on **20.04.2019.**

As a result of the accident thoughno one was killed, 02person sustained grievous injury &03personsustained simple injuries.

(b) **Para7 of Appendix-I**: -Collision of MMTS train no. 47178 with train no. 17028 at Kacheguda station of Secunderabad-Dhone Section of Hyderabad division of South Central Railway on **11.11.2019**

As a result of the accident, the motorman of EMU(railway crew) was killed,08personsustained grievous injury &12personsustained simple injuries.

3.5 ACCIDENT ON METRO RAILWAYS

3.5.1 In the year 2019-20, for the first time one accident occurred in Metro Railway (Hyderabad Metro Railways).

3.5.2 The accident occurred in Hyderabad Metro Rail Project at Ameerpet station ARM-B of Corridor-III due to falling of concrete piece on the head of a person standing at street level on **22.09.19.** As a result of the accident one person died. The cause of accident as established by CMRS was failure of equipment (civil construction) and 06 recommendations were made by him

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Collision of MMTS train no. 47178 with train no. 17028 at Kacheguda station of Hyderabad division of South Central Railway on 11.11.2019.

Collision of MMTS train no. 47178 with train no. 17028 at Kacheguda station of Hyderabad division of South Central Railway on 11.11.2019.

CHAPTER-IV

ANALYSIS OFTRENDS 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.

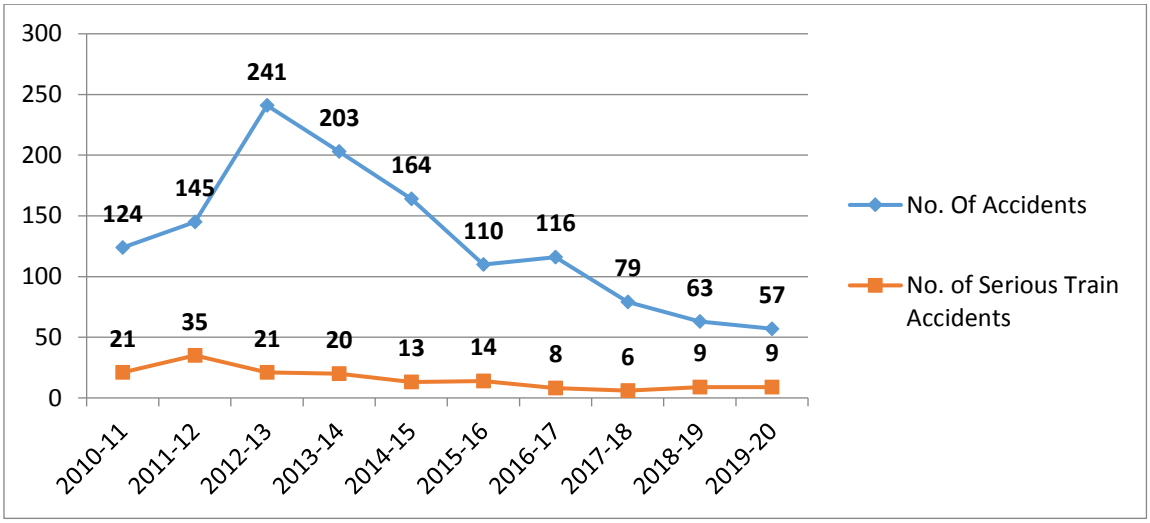
(2) If for any reason, the Commissioner is not able to hold any inquiry as soon as may be after the occurrence of the accident, he shall notify the railway administration accordingly."

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-1Nos. of Accidents



Appreciation of the above indicates that:-

- total number of train accidents had decreased slightly to 57 in the year 2019-20 as against 63 during the year 2018-19.
- number of serious train accidents has remained same i.e. 09for the year 2019-20& 2018-19.
- the percentage of total accidents inquired by CRS was around 12% 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 15.07.2020 sent the statistics of train accidents reported under section 113 for the year 2019-20 to the Railway Board for reconciliation of the figures.

Ministry of Railways has reported the total number of accidents as 55 which is at variance with the number of 57 accidents compiled by the Commission. It is important to mention the difference of 02 accidents which is on account of 02 accidents inquired by CRS viz., one in Western Railway in siding line at Unmanned Level Crossing and one in East Central Railway on Manned Level Crossing. Although these accidents did not appear in Section 113 accident reportable accidents but was considered important by the Commissioners to merit an inquiry.

4.3.3 Breakup of passenger and goods train accidents in 2018-19 and 2019-20 is shown in Table 1.

TABLE 1

SN	Description	**2018-19**	**2019-20**
1.	No. of Train Accidents	63	57
2.	No. of Passenger train Accidents	55	50
3.	No. of Goods Train Accidents	22	07
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

(a) Number of accidents, which occurred in each zonal railway in the years 2018-19 & 2019-20, are shown in Table 2 below:

TABLE 2

SN	Railway	Total number of Train Accidents					
		2018-19			**2019-20**		
		Passenger	Goods	Total	Passenger	Goods	Total
1.	Central	8	3	11	5	2	7
2.	Eastern	0	0	0	4	1	5
3.	East Central	7	2	9	5	0	5
4.	East Coast	2	0	2	2	0	2
5.	Northern	8	0	8	9	0	9
6.	North Central	2	1	3	7	0	7
7.	North Eastern	5	0	5	0	0	0
8.	Northeast Frontier	3	2	6	1	1	2
9.	North Western	3	0	3	2	1	3
10.	Southern	5	0	5	1	0	1
11.	South Central	2	0	2	5	1	6
12.	South East Central	0	0	0	0	0	0
13.	South Eastern	2	0	2	1	0	1
14.	South Western	2	0	2	2	0	2
15.	Western	4	0	4	4	0	4
16.	West Central	1	0	1	1	1	2
17.	Konkan Railway	0	0	0	1	0	1
	Total=	**55**	**8**	**63**	**50**	**7**	**57**

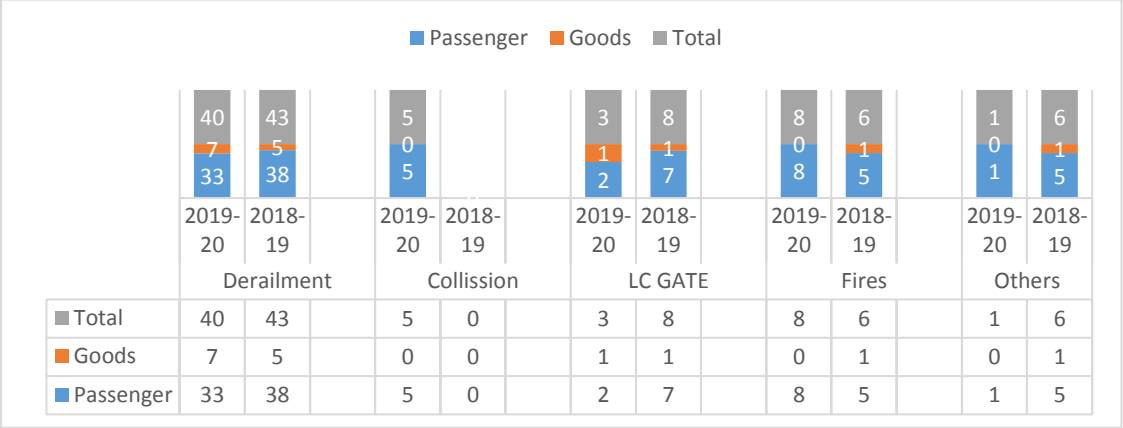
Appreciation of above reveals that:-

- Number of accidents **reduced or remained same** on, Central, East Central, East Coast,North Eastern, Northeast Frontier, North Western, Southern, South East Central, South Eastern, South Western & Western Railway.
- Number of accidents has **increased** in 06 railway zone namely Eastern, Northern, North Central, South Central, West Central &Konkan Railway.
- There is a clear trend of higher number of passenger trains meeting with accident in comparison to freight trains.
- Number of passenger train accidents has reduced to 50 in 2019-20 as against 55 last year i.e. 2018-19. Similarly the goods train accidents has also reduced from 08 to 07.

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 2018-19 & 2019-20 is shown in the form of Bar Chart in Figure-2.

Figure-2.



	Derailment		Collission		LC GATE		Fires		Others	
	2019-20	2018-19	2019-20	2018-19	2019-20	2018-19	2019-20	2018-19	2019-20	2018-19
Total	40	43	5	0	3	8	8	6	1	6
Goods	7	5	0	0	1	1	0	1	0	1
Passenger	33	38	5	0	2	7	8	5	1	5

Derailments continued to be biggest chunk of train accidents, 70.17% in the year 2019-20 against 68.25% in the year 2018-19. Fire accidents were next, accounting for 14.03% of total accidents compared to 9.52% in 2018-19. This year, Collision accounted for 8.77% of total accidents against zero collision accidents in the year 2018-19.

Level Crossing & other accidents (Miscellaneous Accidents) were 5.26% & 1.75% for the year 2019-20 against 12.69% & 9.52%, respectively during the year 2018-19.

4.6 CAUSE-WISE ANALYSIS OF VARIOUS TYPES OF TRAIN ACCIDENTS

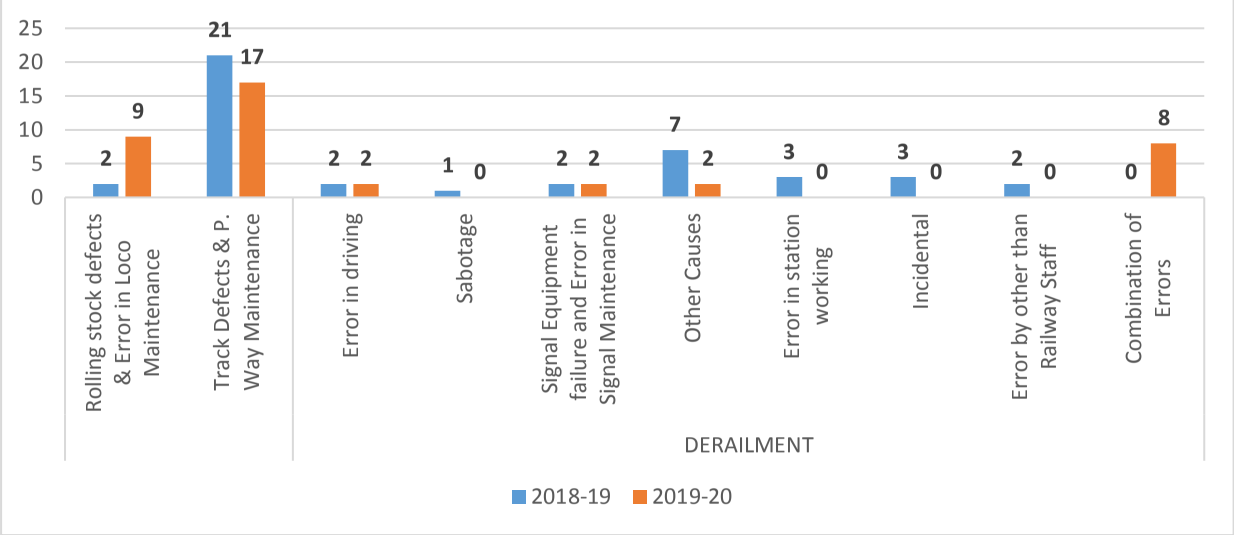
4.6.1 DERAILMENTS

Numbers of derailments were as follows:-

2019-2020	**40 (Passenger-33, Goods-07)**
2018-2019	**43 (Passenger-38, Goods-05)**

Cause-wise analysis of derailments in the years 2019-20 & 2018-19 is shown in Fig.3

Figure-3



There were total 40 derailments, in notified train accidents. The cause wise analysis/break up of derailments is as follows:

- 17 derailments occurred due to P. Way defects.
- 9 derailments were due to Rolling stock defects.
- 8 were due to combination of errors
- 2 derailments occurred due to error in driving
- 2 derailments occurred due to Signal Equipment Failure
- 2 derailments were due to others (Miscellaneous) causes.

4.6.2 COLLISIONS

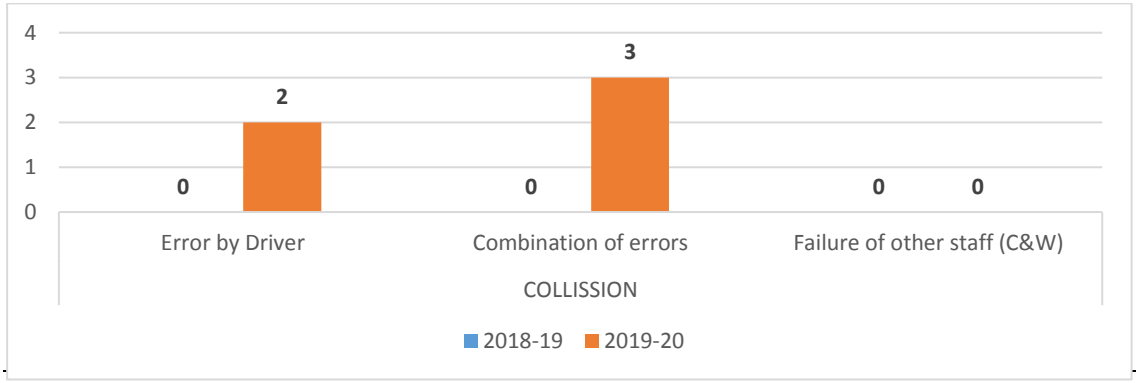
Numbers of collisions was as follows:-

2019-2020 **05 (Passenger-05, Goods-00)**

2018-2019 **00 (NIL)**

Figure 4 shows cause-wise analysis of collisions during 2019-20 & 2018-19.

Figure-4



There were 05 collision accidents during this year. The details are as under:-

- In 2 cases of collision occurred due to error by Driver.
- In 3 case occurred due to combination of errors.

4.6.3 ACCIDENTS AT LEVEL CROSSINGS

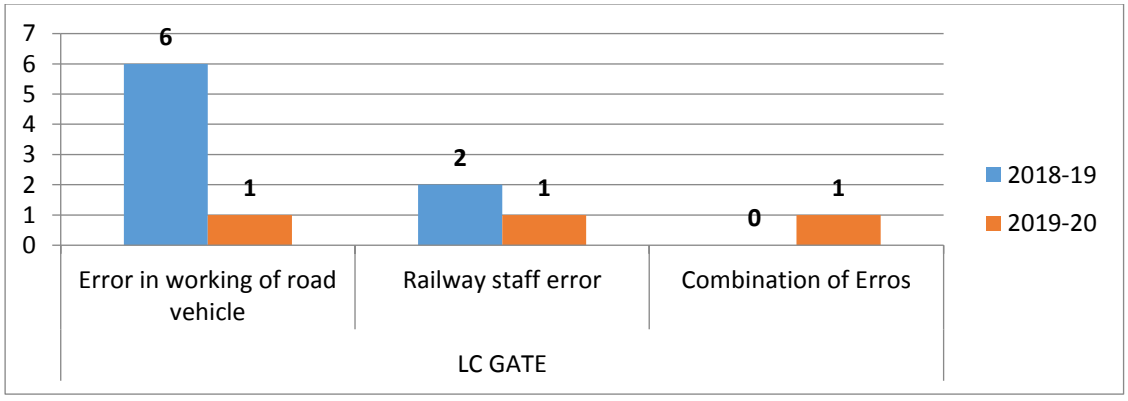
Numbers of level crossing accidents were as follows:-

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

2018-2019 **08 (Passenger-07, Goods-01)**

Cause-wise analysis of train accidents at level crossings in the years 2019-20 & 2018-19 is shown below.

Figure 5



03 Level Crossing Accidents were notified during the year. Out of these 01 was on unmanned LCs, where right of way conflict has to be resolved by

road vehicle driver and trains have first right of way. It was error in working of road vehicles, due to which these accidents occurred.

Such accidents can be reduced by either providing gates or guard or by providing grade crossings in lieu of level crossing. These can also be reduced if road user is warned by some active device about approaching train.

In 01 case accident occurred due to Road User's failure while in 01 case the accident occurred due to failure of Railway staff.

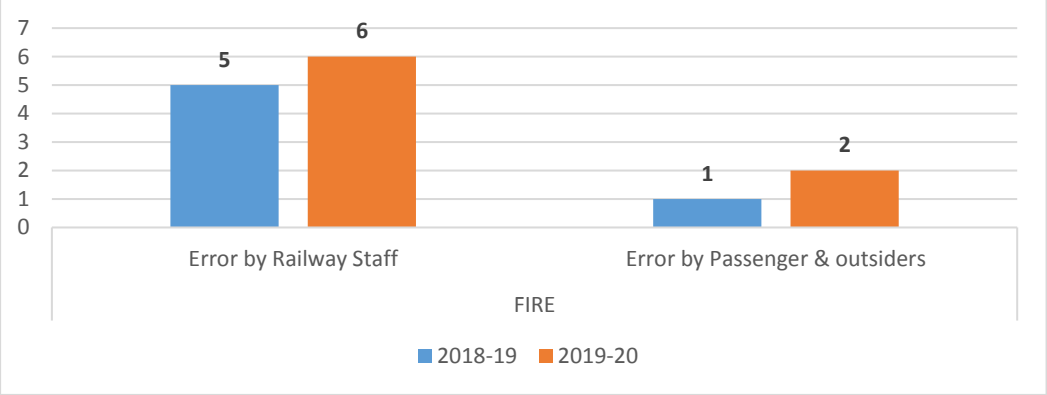
4.6.4 FIRES IN TRAINS

Numbers of Fire cases are as follows:-

2019-2020	**08 (Passenger-08, Goods-00)**
2018-2019	**06 (Passenger-05, Goods-01)**

Figure 6 shows cause-wise analysis of fire accidents in trains during 2018-19 & 2019-20.

Figure 6



This year 08 accident of fire in the trains whose details are as follows:-

- 06 were due to Error by Railway Staff.
- 02 were due to Error by Passenger & 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 2019-20 & 2018-19 is shown in Table 4:-

TABLE – 4

SN	Item	**2018-19**	**2019-20**
1.	No. of train accidents	63	57
2.	No. of train accidents due to error in working of Railway Staff.	39	37
3.	No. of train accidents due to error in working by persons other than Railway Staff.	17	09
4.	No. of train accidents due to error in working by persons (2+3)	56	46
5.	% of train accidents due to error in working of Railway Staff (2÷1)	61.90%	64.91%
6.	% of train accidents due to human error (Both Railway and other than Railway Staff) (4÷1)	88.89%	80.7%

4.7.2 Percentage of train accidents, attributable to error in working by Railway Staff is 64.91% in the year 2019-20 against 61.90% during the year 2018-19. 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 80.7% of train accidents in the year 2019-20 against 88.89% during the year 2018-19.

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 Passenger fatalities including railway crew
1.	2015-16	110	14	08	44
2.	2016-17	116	08	05	246
3.	2017-18	79	06	03	26
4.	2018-19	63	09	08	25
5.	2019-20	57	10	00	12
Average for 5 years		**85**	**9.4**	**4.8**	**70.6**

4.8.2 Number of accidents resulting in passenger fatalities has come down in this period of five years, with 2016-17being the exception when there was a significant increment in passenger fatalities. 2019-20 witnessed zero passenger fatalities. 12 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 10 (09 on Indian Railways& one on Metro Railway) in 2019-20 as compared to 09 in 2018-19. Numbers of train accidents resulting in fatalities were 03 in 2019-20 as against 08 in 2018-19. In 2019-20, number of fatalities continued to decline and was 12 against 25 in the year 2018-19, but passenger fatalities were zero in the year. All the 12 fatalities were of either railway crew/employees or outsiders/road users.

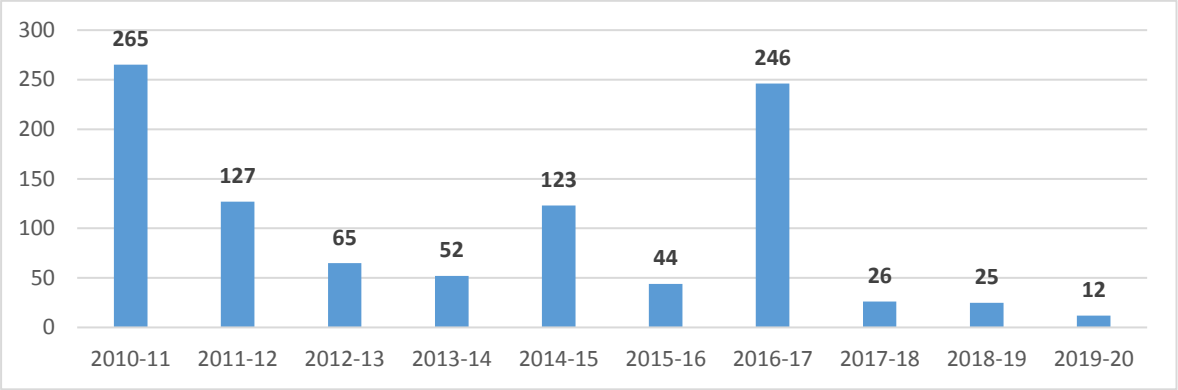
4.8.4 Number of accidents has decreased to 57 in the year 2019-20 as against 63 during the year 2018-19. Although number of serious train accidents has increased by 01 to 10 in the year 2019-20.

4.9 PASSENGER FATALITIES IN TRAIN ACCIDENTS

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

Figure – 7

Passenger fatalities, including Railway Crew in Serious Train Accidents



In 2019-20, the number of fatalities in train accidents reduced to almost half of the fatalities during the year 2018-19.

Accidents resulting in high fatalities were:

i) Accident occurred at LC gate No. 2-C/E between Nayanagar-Hasanpur Road, while passing of Train No. 63348 Samastipur - Saharsa Passenger in Samastipur section of East Central Railway on **16.01.2020.**

As a result of the accident, 05persons (railway crew/outsiders)were killed, 02 were grievously injured and no one sustained simple injuries.

ii) Head on collision of Train No. 18005 (Howrah- JagdalpurSamaleshwari Exp.) with 8-W OHE Tower Wagon No. ECoR 190001 between Singapur Road A Cabin-Keutguda stations of Waltair Division of East Coast Railway on **25.06.2019.**

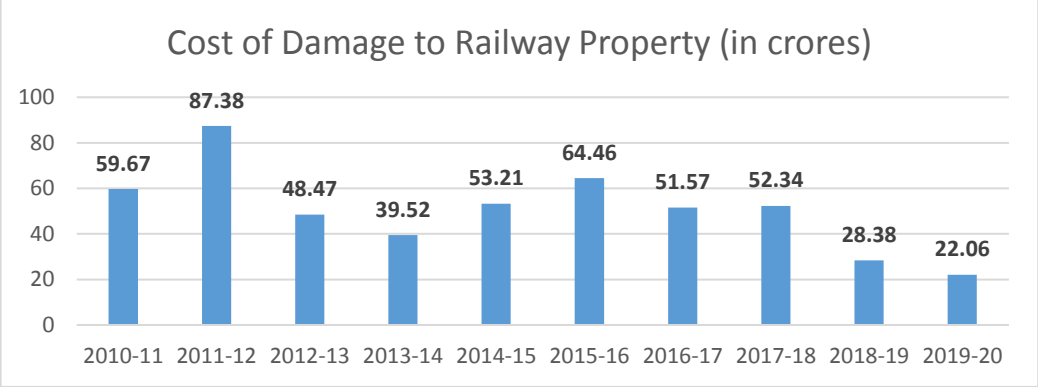
As a result of this accident, 03 persons (railway crew) were killed, 01persons was grievously injured while 03 sustained simple injuries.

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

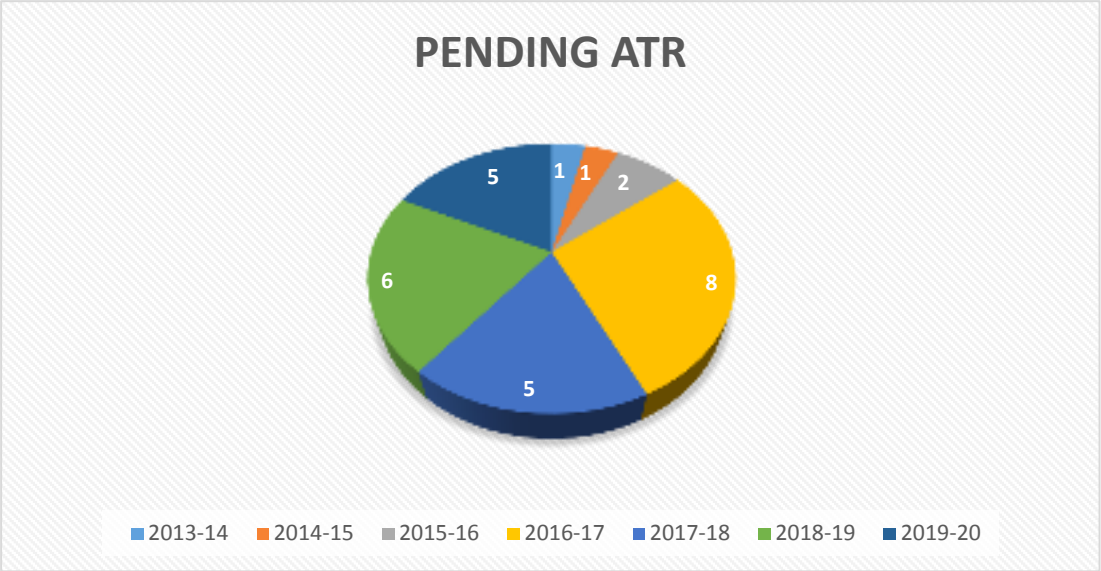
5.1 At the end of year 2019-20, no Action Taken Report from Ministry of Railway was received and response was awaited on balance **twenty eight** reports. The oldest such inquiry report is of the accident which occurred in the year 2013-14. The breakup of these reports (from year 2013-14 and onwards)are as follows:

Table 6

Year	Action Taken Report (ATR*) received from Railway Board		No. of Pending ATRs
	Received	No. of Recommendations	
2013-14	Nil	Nil	1
2014-15	Nil	Nil	1
2015-16	Nil	Nil	2
2016-17	Nil	Nil	8
2017-18	Nil	Nil	5
2018-19	Nil	Nil	6
2019-20	Nil	Nil	5
Total	**Nil**	**Nil**	**28**

*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. In the year 2018-19 & 2019-20, no ATRs has been received from Railway Board.



5.1.1 Based on their inquiry into various aspects of the accidents, the CsRS have made a total of 307 recommendations in their final Accident Inquiry Reports which are still pending with the Railway Board.

5.2 During the year 2019-20, nine (09) accident inquiries were entrusted to the Commissioners out of which five (05) were finalized during that year. All these 05 inquiry reports finalized by the Commissioners during the year 2019-20 were submitted to Railway Board and Railway Board was advised to communicate Action Taken Report on all these inquiry reports. Total forty five (45) 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 Apart from 09 accidents occurred on the Indian Railways, one accident on Metro Railways was also inquired by CRS during the 2019-20. There were 06 recommendations in that accident.

5.4 In the accident inquiry reports received during the year 2019-20, some of the important recommendations made to the Ministry of Railways are given below:-

5.4.1 To reduce dependency on visual inspection of Rolling stock, software supported technology should be developed to ensure improved inspection methodology for bogie and under gear system of coaches and locomotives.

5.4.2 Automatic detection and indication system of bent axle to loco pilot and immediate automatic reduction of speed of train to safe limit to avoid possibility of accident.

5.4.3 The distance between the Home Signal and Distant Signal should be not less than 1 Km as per GR 3.07(5) and IRSEM Part-I Para 7.30.4, wherever it is not feasible the Yellow aspect of the signal should be repeated backward.

5.4.4 Railway should ensure that clearance of 2.36m is available in suburban section as per SOD item 8 ,Chapter I Schedule I (Note 2) of SOD , unless condonation were obtained authority competent to do so and conditions if any laid down while according sanctions are complied.

5.4.5 In the Head on collision of Train No. 18005 (Howrah- Jagdalpur Samaleshwari Exp.) with 8-Wheeler OHE Tower Wagon No. ECoR 190001 of Waltair Division of East Coast Railway occurred on 25.06.19, the Station Working Rule of KTGA station was having provision of LVCD (Last Vehicle Checking Device) whereas at site , there was no LVCD , thus creating a mis-match in the provisions made in approved SWR and provisions existing in field at this particular station. A special drive should be launched to ensure matching of SWRs with field conditions over railway so as to avoid recurrence of such safety lapse again in future.

5.4.6 In addition to the above, 06 recommendations were made in the accident in Hyderabad Metro Rail Project at Ameerpet station ARM-B of Corridor-III in which person died due to falling of concrete piece on her head at street level on **22.09.2019**. Some recommendations are as follows:-

a) Ultrasonic Sonic Pulse Velocity test under supervision of reputed institute should be conducted at all locations where the viaduct segments and station structural beam are touching to identify soundness of concrete and taking immediate corrective action to remove loose concrete.

b) Provision of additional external drainage pipes at viaduct piers where existing pipes are chocked or water flow is more. Attention to station leakages caused by damaged expansion joints and ponding of water.

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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 first time 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 unmanned 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

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

RASHTRIYA RAIL SANRAKSHA KOSH (RRSK)

'Rashtriya Rail SanrakshaKosh (RRSK)' has been introduced in 2017-18 for replacement/renewal/upgradation of critical safety assets, with a corpus of Rs.1 lakh crore for five years, having annual outlay of Rs.20,000 crore. Since its inception, expenditure of Rs.16091 crore in 2017-18, Rs. 18015 crore in 2018-19 and Rs. 15,024 crore in 2019-20 (Prov.) has been made out of the Fund for safety works. In 2020-21 also, a provision of Rs.20,000 crore has been made under RRSK.

The Funds under RRSK are utilised for safety works relating to Traffic Facilities, Rolling Stock, Level Crossings Road Over/Under Bridges, Track Renewal, Bridge Works, Signal and Telecommunication Works, other Electrical Works, TRD Works, Machinery and Plant, Workshops, Training/HRD, Passenger Amenities and Other Specified Works.

Ministry of Finance has issued 'Guidelines for Operation of Rashtriya Rail SanrakshaKosh (RRSK)',which also lays down that the progress will be reviewed annually by Cabinet Committee on Economic Affairs headed by Hon'ble Prime Minister.

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.
- **Periodical Safety Audits** – Periodical Safety Audits of different Divisions by multi-disciplinary teams of Zonal Railways as well as Inter-Railway Safety Inspections were conducted on regular basis. During the year 2019-20, 85 Internal Safety Audits and 31 Inter-Railway Safety Inspections were carried out.
- **Training facilities** – Refresher training imparted to Non-Gazetted staff during 2019-20 is 1,69,061.
- 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 6018 stations (covering about 96 % 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. During 2019-20, 12 Major Stations namely, have been provided with **Route Relay Interlocking (RRI)/ Electronic Interlocking (EI). Panel Interlocking** has been provided at 55 stations and **Electronic Interlocking** at 350 stations, have been provided during the financial year 2019-20.

MEASURES TO AVOID COLLISIONS: -

- **Complete Track Circuiting: -**To ensure track occupation verification, Track Circuiting has been completed at about 34597 locations up to 31.03.2020 covering 'A', 'B', 'C', D Special' and 'E Special' route. Total 6147 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 31.03.2020, Block Proving by Axle Counters (BPAC) has been provided on 5663 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 31.03.2020, Intermediate Block Signaling has been provided in 602 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 31.03.2020, Automatic Block Signaling has been provided on 3309 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 01.04.2020 is as under:

Total Number of level crossings (All Manned) : 21323

Indian Railway has decided to progressively eliminate the level crossings for the safety of Road users and train passengers. During the year 2019-20, 1273 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 11639 Level Crossing Gates as on 31.03.2020, 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. 5092 Nos. of busy interlocked gates have been provided with Sliding Booms as on 31.03.2020 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 2019-20, 145 ROBs and 1170 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 01.04.2020, Indian Railway has a total number of 150390 Bridges, out of which 702 bridges are important, 12256 bridges are major and 137432 bridges are minor.

During the year 2019-20, a total number of 1367 Bridges are strengthened/Rehabilitated/Rebuilt.

MEASURES TO REDUCE DERAILMENTS:-

- Modern track structure consisting of 60kg, 90 Ultimate Tensile Strength (UTS) rails, Prestressed Concrete Sleeper (PSC) Normal/Wide base sleepers with elastic fastening, fanshaped 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 2063 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 1128 Power cars and 278 Pantry cars are fitted with this system. The work of retrofitment 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 and 6277 coaches in 2019-20.

- **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 3124 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 infuture.

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

1. Collision of EMU Train No. 37057 UP with OHE Tower car ER 861 (4 wheeler) at Shrirampur station in Howrah-Bandel section of Howrah Division, Eastern Railway on 06.04.2019

A)	CAUSE	:	Train No.37057 passed signal No. S-14 at on aspect.
B)	CASUALTIES		
	KILLED	:	Nil
	GRIEVOUS INJURY	:	04
	SIMPLE INJURY	:	03
C)	COST OF DAMAGES TO RAILWAY PROPERTY	:	Rs.22,08,000/-
D)	NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER	:	07

2. Derailment of 12303 UP Poorva Exp. at Rooma station of Allahabad Division of North Central Railway at km 1004/13 on 20.04.2019

A)	CAUSE	:	Due to bent of 4.5 mm in the leading axle of trailing trolley of coach No. ER 15276 (S-8) 11th from loco.
B)	CASUALTIES		
	KILLED	:	NIL
	GRIEVOUS INJURY	:	02
	SIMPLE INJURY	:	03
C)	COST OF DAMAGES TO RAILWAY PROPERTY	:	Rs. 10,81,00,000/-
D)	NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER	:	05

3. Head on collision of Train No. 18005 (Howrah- JagdalpurSamaleshwari Exp.) with 8-W OHE Tower Wagon No. ECoR 190001 between Singapur Road A Cabin-Keutguda stations of Waltair Division of East Coast Railway on 25.06.2019

A)	CAUSE	:	Error in train operation due to failures of multiple Railway Staff.
B)	CASUALTIES		
	KILLED	:	03 (Road user/Railway Crew)
	GRIEVOUS INJURY	:	01
	SIMPLE INJURY	:	03
C)	COST OF DAMAGES TO RAILWAY PROPERTY	:	Rs. 5,09,49,778.60/-
D)	NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER	:	11

4. Unusual Occurence at Metro Railway, Kolkata by train no. DK-184 with passenger clinged on outside door resulting in death by falling inside the tunnel between Park street and Maidan station on 13.07.2019

A)	CAUSE	:	Due to carelessness of the passenger.
B)	CASUALTIES		
	KILLED	:	01
	GRIEVOUS INJURY	:	NIL
	SIMPLE INJURY	:	NIL
C)	COST OF DAMAGES TO RAILWAY PROPERTY*	:	NIL
D)	NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER	:	16

5. The accident in Hyderabad Metro Rail Project at Ameerpet station ARM-B of Corridor-III in which one person died due to falling of concrete piece on her head at street level on 22.09.2019

A)	CAUSE*	:	Due to failure of equipment (civil construction)
B)	CASUALTIES		
	KILLED	:	01 (Road user/Railway Crew)
	GRIEVOUS INJURY	:	NIL
	SIMPLE INJURY	:	NIL
C)	COST OF DAMAGES TO RAILWAY PROPERTY	:	NIL
D)	NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER*	:	06

6. Dashing of train no. 22181 DN (Jabalpur-HazratNizamuddinExp) with empty truck no. AP 07 TH 7569 between Birlanagar - Rayaru station of Jhansi – Dholpursection of Jhansi Division of North Central Railway on 01.10.2019

A)	CAUSE*	:	Tress by truck No. AP 07 TH 7569 on third line formation under construction by RVNL.
B)	CASUALTIES		
	KILLED	:	NIL
	GRIEVOUS INJURY	:	06
	SIMPLE INJURY	:	01
C)	COST OF DAMAGES TO* RAILWAY PROPERTY	:	12,000/-
D)	NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER*	:	09

7. Collision of MMTS train no. 47178 with train no. 17028 at Kacheguda station of Secunderabad-Dhone Section of Hyderabad division of South Central Railway on 11.11.2019

A)	CAUSE	:	MMTS Train no. 47178 passed single at danger. Giving bell code by Guard.
B)	CASUALTIES		
	KILLED	:	01 (Road user/Railway Crew)
	GRIEVOUS INJURY	:	08
	SIMPLE INJURY	:	12
C)	COST OF DAMAGES TO RAILWAY PROPERTY	:	Rs. 7,46,97,000/-
D)	NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER*	:	12

8. Accident occurred at LC gate No. 2-C/E between Nayanagar-Hasanpur Road, while passing of Train No. 63348 Samastipur - Saharsa Passenger in Samastipur section of East Central Railway on 16.01.2020

A)	CAUSE	:	
B)	CASUALTIES		
	KILLED	:	05 (Road user/Railway Crew)
	GRIEVOUS INJURY	:	02
	SIMPLE INJURY	:	NIL
C)	COST OF DAMAGES TO* RAILWAY PROPERTY	:	
D)	NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER*	:	

9. Rear Collision of Train No.12879 Exp., (LTT-0BBS Exp.) with the brake van of Goods Train no, E/NTECL-28 between SQQ & BRG station on 16.01.2020

A) CAUSE :

B) CASUALTIES

KILLED	:	NIL
GRIEVOUS INJURY	:	NIL
SIMPLE INJURY	:	41

C) COST OF DAMAGES TO* RAILWAY PROPERTY : 13,64,730/-

D) NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER : 14

10. Dashing of Road vehicle with Engine of BTPNE/NELM Goods Train at Unmanned LC No.11 (Km.8/7-8) in single line BG section from MDPR to NELM/Private siding of Rajkot Division of Western Railway at 12:38 hrs on 19.01.2020

A) CAUSE : Error in working near railway line/at railway crossing.

B) CASUALTIES

KILLED	:	01 (Road user/Railway Crew)
GRIEVOUS INJURY	:	01
SIMPLE INJURY	:	01

C) COST OF DAMAGES TO RAILWAY PROPERTY : NIL

D) NO. OF RECOMMENDATIONS MADE BY THE COMMISSIONER : 10

DETAILS OF SOME ACTIVITIES OF THE COMMISSION OF RAILWAY SAFETY DURING 2019-20

A- NEW LINES

SN	Date of Authorization/Inspection	Section/Line Opened	Circle/Railway	KMs
1.	20.04.19	Sholaka - Hodal	NEC/NR	10.452
2.	30.03.19	Alamganj-Bilasipara	NF	26.146
3.	09.07.19	Habaipur-Lumding	NF/NF	25.5
4.	25.07.19	Nayagarh Town-Mahipur	SEC/ECoR	11.925
5.	27.08.19	Hansdiha-Poraiyahat	EC/ER	15.32
6.	31.08.19	Sheikhpura-Sarsa-Jamalpur	EC/ER	12.5
7.	27.08.19	Belonia-Sabroom section	NF/NFR	39.12
8.	23.10.19	Bhagwanpur-Ghoswar	ECR	14.45
9.	28.10.19	Alnawar-Ambewadi	NCR	25.5
10.	26.11.19	Savalgi-Kalaburgi	CC	13
11.	29.12.19	Talcher-Charmal	SECR	17.63
12.	06.03.20	Jhnjharpur-Tamuria	ECR	8.36
13.	07.03.20	Billi-Chopan	ECR	6.27
14.	30.03.20	ShahpurPatoree-Mohiuddin Nagar	ECR	12.94
15.	10.04.20	Ghoswar-Vaishali	ECR	30.22
16.	20.03.20	New Piduguralla-Savalyapuram	SCR	45.85
			TOTAL	**359.953**

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

SN	Date of Authorization/Inspection	Section/Line Opened	Railway	KMs
1.	26.04.19	Majhauli - Gondawall	W.Central	13.785
2.	18.04.19	Itarsi and Bundi	W.Central	24.91
3.	31.03.19	New Maynaguri to Betagar section	NF	10.713
4.	06.05.19	Chitoda- Sonegaonstns	Central	13.11
5.	27.05.19	Khatauli to Muzaffarnagar	NR	22.462
6.	29.05.19	Nariaoli-Saugor section	WR	18.483
7.	29.05.19	Chennai Beach-Korukkupet	SR	4.18
8.	14.05.19	Devarayi - Alnavar	SWR	20.729
9.	27.06.19	Shenoli-Takan station	CR	13.68
10.		Sujnipara - Dhulian Ganga	ER	18.059
11.	01.07.19	Karnauti - Barh	ECR/CR	17.733
12.		Samastipur - Kishanpur	ECR/CR	10.555
13.	21.06.19	Khariar Road and Lakhana station	ECoR	26.939
14.	21.06.19	Kottavalasa and Kirandul station	ECoR	7.42
15.	19.07.19	Debipur - Rasulpur	ER	13.961
16.	25.07.19	Dudhinagar -Jharokhas	ECRly	6.85
17.	22.08.19	Wadsinge-Bhalwani station	CR	34.72
18.	07.08.19	Allahabad to Prayag	NR	3.735
19.	20.08.19	New delhi to Tilak Bridge	NR	5.724
20.	24.09.19	KatangiKhurd-Salhana	WC	17.493
21.	13.09.19	Hardarpur - Kachhward	NER	21.928
22.	20.09.19	Maltekdi-Mugat section	SCC	10.508
23.	30.09.19	Kalluru-Khaderpet	SCC	7.59
24.	30.09.19	Garladinne-Kalluru	SCC	12.65
25.	28.09.19	Kirodimal Nagar- Bilaspur	SECR	18.199
26.	29.09.19	Khaliapali- Sambalpur - Titlagarh	ECoR	11.151
27.	30.09.19	Paliba - Suku	ECoR	7.589
28.	15.10.19	Kopargaon-Yeola station	CR	13.613
29.	11.10.19	Gomia-Dumari Bihar	ECR	6.835
30.	25.10.19	Laksar to Ikkar	NR	16.679
31.	22.10.19	MulvadSta-JumnalStn.	SWR	11.955

32.	22.10.19	Ghataprabha-Chikkodi Station	SWR	15.141
33.	15.10.19	Jasali-Diyodar	WR	17.32
34.	18.11.19	Meralgram-Ramna	ECR	11.62
35.	28.11.19	Daural-Mangllyawas	WR	18.55
36.	03.12.19	Ashok Nagar-Pilighat section	WC	25.676
37.	24.12.19	Sindi-Butibori section	CR	19.322
38.	22.12.19	Wazirganj-Manpur	ER	20.38
39.	26.12.19	Khagraghat Road-Lalbagh Court Road	ER	7.55
40.	31.12.19	Dankuni Jn.-Baruipara	ER	11.27
41.	06.12.19	Hardatpur-Manduadih	NER	6.145
42.	under process	Andul-Baltikuri of Kharagpur Division	SECR	1.33
43.	23.01.20	Bhurkunda-Patratu	ER	8.3
44.	29.01.20	Srirajnagar-Bachharawan-Kundanganj	ER	15.243
45.	13.01.20	Parichha-Nankhas	NCR	19.079
46.	21.01.20	New Bongaigaon-Goalpara-Kamakhya	NFR	8.529
47.	20.01.20	Binkadakatti-Harlalpur	SWR	23.166
48.	27.01.20	Bhimana-Maval	NWR	26.28
49.	30.01.20	Jasali-Bhildi	WR	11.1
50.	03.02.20	Pune-Alandi	CR	20.72
51.	20.02.20	Sonatalai-Bagratawa	WR	6.785
52.	19.02.20	Sagoria-Bhonra	WR	28.287
53.	25.02.20	Boroti-Kulali	CR	23.49
54.	15.02.20	Naihati-Kankinara	ER	2.6
55.	23.02.20	Banasandra-Kardi	SWR	10.41
56.	Under process	Haripad-Ambalapuzha	SR	16.694
57.	02.02.20	Akividu-Bhimavaram	SCR	16.841
58.	04.02.20	Perecherla-Satulur	SCR	24.04
59.	14.02.20	Mirkhal-Limbgaon	SCR	30.754
60.	25.02.20	Deogaon Road-Badmal	ECoR	26.114
61.	04.02.20	Bhildi-Jasali	WR	11.1
62.	20.02.20	Chamraj-Digsar	WR	7.86
63.	25.02.20	Bangurgram-Sendra	NWR	19.2
64.	27.02.20	Bandikui-Dhigwara	NWR	32.7
65.	29.02.20	Shambhupura-Nimbahera	WR	14.68

66.	08.03.20	Majholi-Mahdeiya	WR	7.81
67.	_	Gauriganj-Amethi	NR	15
68.	_	Muzzafarnagar-Deoband	NR	25
69.	_	TKD-Ballabhgarh	NR	13
70.	_	Virbhadra-Rishikesh	NR	5
71.	05.03.20	Sarsopi-Ushargaon	NER	17.85
72.	14.03.20	VanchiManyachi-Kadampur	SR	44.38
73.	09.03.20	Dhone-Pendakallu	SCR	27.44
74.	11.03.20	C cabin-ghatkesar	SCR	23.86
75.	06.03.20	Jamga-Belpahar	SECR	32.65
76.	17.03.20	Kesinga-Rupra Road	ECoR	16.17
77.	20.03.20	Komakhan-Khariar road	ECoR	9.28
78.	23.03.20	Karra-Govindpur road	SER	14.15
79.	23.03.20	Chakradhapur-Sanua	SER	19.2
80.	02.03.20	Lakadiya-Samakhiali	WR	10.44
			TOTAL	**1463.444**

C- GAUGE CONVERSION:-

SN	Date of Authorization/ Inspection	Section/Line Opened	Railway	KMs
1.	30.04.19	Jaipur - Ringus	NWR	56.5
2.	30.05.19	Raighadh-Himmatnagar	NWR	23.7
3.	28.06.19	Mehsana -Vadnagar	WR	34.43
4.	23.06.19	Nimarkheri - Mathela	WR	45.61
5.	25.08.19	Jaipur Yard	NWR	1.75
6.	25.09.19	Hosapete- Kotturu	SWR	70.93
7.	23.11.19	Lakhimpur-Mailani	NER	60.46
8.	26.10.19	Kalol-Sabarmati	WR	19.26
9.	25.11.19	Garhbaruari-Supaul	ECR	11.49
10.	25.11.19	Madan Mishra Halt-Jhanjharpur	ECR	8.9
11.	20.12.19	Lamta-Nainpur in Nagpur Division	SECR	35.47
12.	24.01.19	Madurai Jn.-Usilampatti	SWR	36.756
13.	17.01.20	Udaipur City-KharwaChanda	NWR	25.35
14.	23.02.20	Supaul-Saraigarh	ER	24.47
15.	11.02.20	Pilibhit-Farrukhabad	NER	37.181
			TOTAL	**408.257**

D- DIVERSIONS:-

SN	Date of Authorization/Inspection	Section/Line Opened	Railway	KMs
1.	23.04.19	Jarapada	ECoR	3.861
2.	23.06.19	Unjha - Kamli	WR	2.944
3.	22.11.19	Balia-Basandi	NER	3.257
4.	11.12.19	Hardatpur-Lohita	NER	1.336
5.	11.12.19	ChapraGramin-Khaira	NER	8.29
6.	30.12.19	Jujomura-Charmal	SECR	4.32
7.	16.01.20	Deogaon Road-Saintala	ECoR	5.05
			TOTAL	**29.058**

E- ELECTRIFICATION OF RAILWAY LINES:-

SN	Date of Authorization/ Inspection	Section/Line Opened	Railway	KMs
1.	11.03.19	Mukuria - Gunjaria	NF	82.002
2.	30.03.19	Tinpahar and Bondanaga	ER	25.99
3.	-	Lakholi to Raipur and RSD to RVH	ECoR	28.655
4.	27.05.19	ChachauraBinaganj to Pachor Road	W.Central	60.03
5.	28.05.19	Vijayapur to ChachauraBinaganj	W.Central	39.386
6.	30.05.19	Sagma-Satna	W.Central	7.48
7.	29.05.19	Khanna banjari to Beohari section	W.Central	61.98
8.	31.05.19	Koderma-Rema	ECRly	55.781
9.	16.05.19	Raja KaSahaspur to Chandausi	NR	18.75
10.	31.05.19	Shri Rajnagar to Utratia	NR	29.89
11.	20.05.19	Mendu-Daryaoganj	NER	109
12.	20.05.19	MandawarMahua Road-Bandikui	NCR	28.84
13.	Yet to be issued	Kukkadam to Vishnupuram	SCRly	28.6
14.	07.06.19	Dayaoganj -Farrukhabad Section	NER	51
15.	07.06.19	Khairar -Badausa Section	NCR	52.7
16.	29.05.19	Ratlam-Jaora	RTM/WR	27.65
17.	29.05.19	Chandiodiya- Sanad	ADI/WR	7.02
18.	29.05.19	Sanad-Viramgam	ADI/WR	37.38
19.	31.05.19	Suratgarh - Biradhwal	BKN/WR	22

20.	14.06.19	Badarwas and Shivpuri	WCR	52.596
21.	18.06.19	Jabalpur - Thawe	NER	19.1
22.	07.06.19	Daryaoganj - farrukhabad	NER	51
23.	07.06.19	Badausa -Khairar	NCR	52.7
24.	20.05.19	Mendu-Kasganj	NER	109
25.	07.06.19	Kasganj-Daryaoganj	NER	51
26.	08.07.19	Medchal to Bolarum	SCR	13.95
27.	25.07.19	Gangadhara to LingampetJagityal	SCR	26.3
28.	29.07.19	Fatehabad to Laxmibainagar	RTM/WR	33.24
29.	23.08.19	Pune - Shindawane section	CR	30
30.	30.08.19	Samastipur - Khagaria	ER	84.84
31.		Hansdiha - Poraiyahat	ER	15.325
32.	30.08.19	Mankapur to Ayodhya	NER	36.133
33.	30.08.19	Kalyanpur to kannoj	NER	68
34.	07.08.19	Alwar - Bandkui	JP/NWR	62.25
35.	08.08.19	Rani - Bhinwallya	All/NWR	30.567
36.	20.08.19	Jakhvada - Viramgam	ADI/WR	17.76
37.	20.08.19	Palanpur Yard	ADI/WR	5.6
38.	27.09.19	Beohan-Joba	WC	38.16
39.	13.09.19	Rema -Maheshmenda	ER	51.53
40.	09.09.19	Tinpahar-Sahebganj	Erly	38.315
41.	11.09.19	Dhuri to Patiala	NR	53.77
42.	26.09.19	Amritsar to Bharoli	NR	103.91
43.	13.09.19	Churk - Chunar	NER	80.758
44.	30.09.19	Badausa-|Manikpur	NC	61.366
45.	26.09.19	Ballari (Incl.)-Toranagallu	SWR	34.62
46.	05.09.19	Nadikude-Macherla .	SCC	34.3
47.	04.09.19	Rani -JawaiNandh	AII/NWR	31.4
48.	07.09.19	SWM - ChauthKaBarwara	JP/NWR	23.3
49.	09.09.19	Jaora - Mandsor	RTM/WR	51.24
50.	24.10.19	Chandausi to Aonla	NR	45
51.	26.10.19	Kalol-Sabarmati	WR	19.26
52.	17.11.19	Jamalpur-Munger	ER	9.9
53.	17.11.19	Tinpahar-Rajmahal	ECR	13.55
54.	03.11.19	Ratlam-Jaora	WR	32.97
55.	03.11.19	Mandsor-Nimach	WR	49.241
56.	06.11.19	Rewari-Mahendragarh	WR	50.09
57.	27.11.19	Kanakpura-Phulera	WR	48.622

58.	27.11.19	Phulera-Madar	WR	68.859
59.	27.11.19	Maval-Jethi&Karjoda- Palanpur	WR	30.524
60.	29.11.19	ChauthKaBarwara SP-Sheodaspura	WR	83.241
61.	11.12.19	Miraj to Kolhapur section	CR	50
62.	24.12.19	Satna-Rewa Section	WC	48.93
63.	11.11.19	Salaibanwa-Karaila Road	ER	44.61
64.	24.12.19	Thawe-Rajapatti	BSB	54.115
65.	04.12.19	Chopan-Churk	NCR	18.7
66.	26.12.19	Gunjuria-New Jalpaiguri	NFR	67.15
67.	31.12.19	BAY-RDG section	SWR	52.64
68.	under preparation	Mangalore-Jokatte section	SCR	23.42
69.	16.12.19	Kelod to Bhimalgondi	SECR	44.86
70.	06.01.20	Miraj-Dhalgaon Section	CR	61.8
71.	Under process	Sahebpur Kamal-Sabdalpur-Munger-Umeshnagar	ER	14.55
72.	06.01.20	Unnao to Unchahar Section	NR	109.8
73.	31.01.20	Amritsar-Tarn Taran-Beas	NR	72
74.	22.01.20	GTL-GPL & KDT-KLR, GTL	SCR	18.038
75.	10.01.20	Komakhan-Belsonda	ECoR	50.586
76.	09.01.20	Khariar Road-Lakhana	ECoR	27.05
77.	11.01.20	Mehasana-Viramgam	WR	66.81
78.	27.01.20	Madar-Adarsh Nagar	NWR	12.81
79.	11.02.20	Wani-Pimpalkhuti	CR	66
80.	18.02.20	Joba-Saraigram	WR	52.952
81.	27.02.20	Sanki-Tatisilwai	ER	29.696
82.	27.02.20	Karaila Road-Mahdeiya	ER	18.587
83.	06.03.20	KJN-FBD	NER	60
84.	29.02.20	Daliganj-Sitapur	NER	82.159
85.	13.02.20	Cuddalore Port-Mayiladuturai-Thiruvarur	SR	113.04
86.	23.02.20	Hosapete-Tornagallu	SWR	32.06
87.	Under process	Baiyyappanahalli-Anekal	SWR	34.05
88.	04.02.20	Mahesana-Vadnagar	WR	34.25
89.	19.02.20	Surendranagar-Dhrangdhra	WR	31
90.	19.02.20	Surendranagar-Dhola	WR	118.95
91.	22.02.20	Swarupganj-Jawaibandh	WR	54.42
92.	17.03.20	Saraigram-Majholi	WR	29
93.	18.03.20	Bijoor-Thokur	KRCL	108.858

94.	18.03.20	Shebpur Kamal-Munger	ER	14.55
95.	10.03.20	Sahibganj-Shivvanarayanpur	ECR	35.41
96.	26.05.20	Samastipur-Darbhanga-SakariJaynagar	ECR	107.12
97.	10.04.20	Ahmadpur-Katwa	ECR	51.31
98.	08.03.20	Rajapatti-ChapraKachehari	NER	60.64
100.	17.03.20	Lanjigarh Road-Junagarh Road	ECoR	52.37
101.	17.03.20	Naupada-Gunupur	ECoR	89.63
102.	06.03.20	Mahendragarh-Sadulpur	NWR	88.59
103.	11.03.20	Surendranagar-Viramgam	WR	67.98
104.	21.03.20	Bandikui-Bassi	NWR	56.1
			TOTAL	**4378.112**

METRO PROJECTS:-

A) Hyderabad Metro Rail Ltd. (HMRL):-

SN	Date of Authorization	Section	Metro Railway	KMs
1.	27.11.19	Hitech City to Raidurg	HMRL	1.342
2.	11.01.20	JBS Parade Ground & MGBS Corridor II	HMRL	9.614
			Total	**10.956**

B) Jaipur Metro Rail Corporation Ltd. (JMRCL):-

SN	Date of Authorization	Section	Metro Railway	KMs
1.	21.03.20	Chandpole-BadiChaupar	JP Metro	2.01

C) C- Kochi Metro rail Corporation(KMRC)- NIL

SN	Date of Authorization	Section	Metro Railway	KMs
1.	07.10.19	Maharaja College- Thykoodam	KMRL	5.65

D) Delhi Metro Rail Corporation Ltd. (DMRCL) - NIL

E) Chennai Metro Rail Limited(CMRL)-NIL

F) Mumbai Metro Rail Corporation Ltd.(MMRCL) - NIL

G) Lucknow Metro rail Corporation(LMRC)- NIL

H) Nagpur Metro Rail Project (NMRP) - NIL