OPTIMIZED PAYLOAD
INCREASED DURABILITY
REDUCED COSTS
POWERFUL EFFICIENCY

Stronger. By Design. We changed our design so you don’t have to. Engineered smart with advanced technology, Timken® AP-2™ Short G bearing can be directly installed or retrofitted on Short G journals - without modification. With more bearing on track than any other manufacturer, Timken knows this innovative technology can help increase productivity and reduce operating costs.

REGIONAL OFFICES

North - New Delhi
Tel: 011 - 46043444
Fax: 011 - 41756851
Email: salesdelhi@timken.com

East - Kolkata
Tel: 033 - 44053300
Fax: 033 - 44004845
Email: saleskolkata@timken.com

West - Pune
Tel: 020 - 41053200
Fax: 020 - 40037709
Email: salespune@timken.com

South - Bangalore
Tel: 080 - 41362000
Fax: 080 - 41362010
Email: salesbangalore@timken.com

Coaches & Trainsets

- Air Conditioners with Microprocessors
- Bio Vacuum Toilet Systems
- FRP Toilet Cubical
- Side Panels and Roof Panels for Coach Interiors
- Seats and other Accessories for Coach Interiors

**Diesel Locomotives**

- Traction Alternators
- Traction Motors
- Radiator Cooling Fans
- Dynamic Brake Grids
- Dynamic Brake Blower Motors
- Auxiliary Generators
- Dustbin Blower & Motor
- Driver Cab Air Conditioners

**Electric Locomotives**

- Traction Motors
- Traction Transformers
- Pantographs
- Harmonic Filters
- Driver Cab Air Conditioners
River Engineering Pvt Ltd is engaged in designing, manufacturing and supplying of top-of-the-line products in the technology arena of electrical, magnetic and electro-mechanical for Mainline Railways, Metro Rail, Aerospace and Defence applications.

An array of products that are manufactured by the company are for electric locomotives, passenger coaches and high-end precision items for aerospace and defence, among others.

The company’s core competencies comprise technology absorption, customisation, modification, design & development, testing, installation and project management.

The state-of-the-art manufacturing facility has been certified for quality management, health and safety, environment protection, military worthiness and quality assurance for aerospace and defence.
Product Range

- CMS Crossings with welded leg extensions, EDH
- Switches /Thick Web Switches
- Diamond Crossings in CMS
- Scissor Crossover in CMS
- Turnout Solutions for MRTS
- Heavy Haul Turnout Solutions
- Castings of different steel grades ranging from 20 KG to 5 MT

voestalpine VAE VKN India Pvt. Ltd., Sonepat (Haryana) is a joint venture, multinational company in collaboration with voestalpine VAE GmbH, Austria, globally renowned and a pioneer company in the field of Railway Track Systems and its affiliate company JEZ Sistemas Ferroviarios S.L., Spain, specialized in manufacture of CMS Crossings for conventional, heavy-haul and high-speed applications.

The Company is managed by competent, well qualified technical, commercial and managerial professionals merging international and local Indian expertise. VAE VKN is well equipped with most modern and state of the art infrastructure and technical back up by VAE and their associates all over the world over to produce and meeting quality requirement of the customers in all respects.

Works:
42 Milestone, GT Road, Bahalgarh
Sonepat (Haryana) – 131 001
INDIA
Tel.: +91 130 2381298 2380369
Fax: +91 130 2381698

Registered Office:
24/5, Sri Ram Road
Civil Lines, Delhi -110 054
INDIA
Tel.: +91 11 23965651
Fax: +91 11 23965653
World's First Satellite Based Real Time Locomotive Tracking Network Operationalized by Indian Railways

**Deployed in over 2600 locomotives** as part of the Real-time Train Information System (RTIS) network, a project commissioned by Centre for Railway Information Systems (CRIS) in collaboration with ISRO

**Improved Punctuality and Operational Efficiency**
- Real time tracking and monitoring of trains helps in better traffic regulation
- Two-way communication between loco pilots and controllers reduces dependency on station masters
- Live tracking data helps identify unscheduled stoppages, remove bottlenecks and improve punctuality of trains

**Enhanced Rail Safety**
- Live train location and speed data helps controllers to prevent potential disasters like collisions
- Real time communication of weather alerts and track damages to loco pilots improves rail safety
- Precise train location data enables speedy response by rescue teams during emergencies, saving precious lives

**Superior User Experience**
- RTIS integration with New Train Enquiry System gives accurate information of train arrival/departure & delays to commuters

www.saankhyalabs.com
RUBBERISED LEVEL CROSSING SYSTEM

Inspired by the Make In India and Atmanirbhar Bharat Abhiyan

Metalastik Rubberised Level Crossing is a proven and time tested product specially engineered for Indian Railways. Metalastik pioneered, indigenously designed and manufactures with 15 years of successful run in Indian Railways since 2005.

Product highlights:
- Guaranteed long service life and highly durable in any Indian application condition.
- Ease of Handling with minimum manpower and no special machineries needed.
- Hassle free Permanent Way work without road or rail block at anytime and any place.
- Metalastik crossings provide high load bearing and shock absorption capacity.
- No possibility of breakage of pad or entanglement of vehicle inside the level crossing.
- Sabotage proof, free from nuts, bolts or rods, and negligible use of steel components.
- Metalastik crossings are designed for superior stability and highest safety.
- Metalastik designed the system to facilitate high speed train movement at 200 kmph.

Metalastik Manufacturing Company Private Limited
An ISO 9001:2015 Certified Organization
89/1 Sarat Chatterjee Road, G3, Kolkata 700 089
Phone: 96813 70622, 86172 09764, 033-2574 0547
Web: www.metalastikindia.in  Email: metalastik@gmail.com, info@metalastikindia.in
Reduce breakdown.

Detect thermal anomalies in time to prevent faults.

- Thermal inspection of sub-stations, overhead traction lines etc
- Automatic detection of hot-spots even from a distance
- Infrared resolution upto 640 X 480 pixels
- Temperature profiling of several mechanical components
- Inspection of electrical motors, generators, panels, insulated pipelines and many more

Condition monitoring for improved output

Sound, RPM & Lux
Electrical Measurement
Temperature Strip & IR gun
VAC measurement
Flue Gas Analysers

Testo India Pvt Ltd
Head Office:
Plot No. 23, Sind Society, Baner Road, Aundh, Pune - 411007, Maharashtra, India
Tel: +91 20 2592 0000 | Fax: +91 20 2585 0080 | Email: info@testo.in

Regional Offices / Representatives:
Ahmedabad | Baroda | Bengaluru | Chennai | Guwahati
Hyderabad | Indore | Kolkata | Mumbai | New Delhi

www.testo.com
Fluid Controls® has over 40 years of experience in engineering connections for Rail & Metro brake piping assemblies. We offer customers complete solutions for locomotive, coach & metro brake piping arrangements – from design & engineering services to supply of high performance connectors and installation services.

Change is constant. And Fluid Controls® has always been at the forefront of innovation. During the COVID-19 pandemic, where digitization of business interactions is increasingly important, Fluid Controls® is proud to participate in VERE 2020, the first digital railway exhibition organized in India.
CONTENTS

EDITORIAL BOARD

Vinod Kumar Yadav  Chairman
Mrs. Manjula Rangarajan  Financial Commissioner (Rlys.)
Sushant Kumar Mishra  Secretary
Rajesh Dutt Bajpai  Executive Director (I&P)
Sudipta Sen  Editor

MESSAGES

Shri Piyush Goyal  Minister of Railways
Shri Suresh Angadi  Minister of State of Railways
Shri Vinod Kumar Yadav  Chairman, Railway Board

ZONAL RAILWAYS

48  CENTRAL RAILWAY – Sanjeev Mittal, General Manager
   A Step Forward

52  EASTERN RAILWAY – Suneet Sharma, General Manager
   On the Track of Customer Satisfaction, Environment Management ...

59  EAST CENTRAL RAILWAY – L. C. Trivedi, General Manager
   Ever Creating Records

73  EAST COAST RAILWAY – Vidya Bhusan, General Manager
   In Pursuit of Excellence

78  NORTH CENTRAL RAILWAY – Rajiv Chaudhry, General Manager
   Mobility is Our Hallmark

83  NORTH EASTERN RAILWAY – L.C. Trivedi, General Manager
   Progressing with Considerable Pace

87  NORTHEAST FRONTIER RAILWAY – Sanjive Roy, General Manager
   Striving to Serve Our Customers Better

91  NORTH WESTERN RAILWAY – Anand Prakash, General Manager
   Setting High Standards in All Parameters - Mobility...

99  SOUTHERN RAILWAY – John Thomas, General Manager
   Catalysing Systemic Change

104  SOUTH CENTRAL RAILWAY – Gajanan Mallya, General Manager
    Catalysing Systemic Change

108  SOUTH EASTERN RAILWAY – Sanjay Kumar Mohanty, General Manager
    On the Track of Growth & Prosperity...

16  CHAIRMAN – Vinod Kumar Yadav
   Indian Railways : On the Path to Modernisation

29  FORMER MEMBER ENGINEERING – Vishwesh Chaube
   New Initiatives for Accelerated Infrastructure Development & Maintenance

34  MEMBER MATERIALS MANAGEMENT – P.C. Sharma
   Digital Transformation : Way to Go

37  DIRECTOR GENERAL, HR – Dr. Anand S. Khati
   Human Resource Management in Indian Railways - In pursuit of new innovations...

42  DIRECTOR GENERAL, RAILWAY HEALTH SERVICE – Dr. Bishnu Prasad Nanda
   Indian Railways Health Services - Working Silently Round the Clock

45  DIRECTOR GENERAL, RAILWAY PROTECTION FORCE – Arun Kumar
   Unearthing the Racket of Touting of Rail Tickets by Use of Illegal Software
SOUTH EAST CENTRAL RAILWAY – Goutam Banerjee, General Manager
In Pursuit of 100 Per Cent Customer Satisfaction

WESTERN RAILWAY – Alok Kansal, General Manager
Setting New Benchmarks

WEST CENTRAL RAILWAY – Shailendra Kumar Singh, General Manager
Excellence through Innovation and Efficiency

METRO RAILWAY, KOLKATA – Manoj Joshi, General Manager
Kolkata's Life Line Extending its Wings

RDSO – Virendra Kumar, Director General
Achievements & Highlights for the Year 2019-20

PRODUCTION UNITS

147 CHITTARANJAN LOCOMOTIVE WORKS – P. K. Mishra, General Manager
CLW: A Global Giant in Electric Locomotive Production

153 CORE – Y.P. Singh, General Manager
More Power to the Lifeline of India

157 DIESEL LOCOMOTIVE WORKS – Y.P. Singh, General Manager
DLW: The Change Management

161 DIESEL LOCO MODERNISATION WORKS – Vivek Kumar, CAO/R
Switched over from Producing Diesel Locos to Electric Locos

165 INTEGRAL COACH FACTORY – Rahul Jain, General Manager
ICF, the Pioneer and the Path Breaker

168 MODERN COACH FACTORY – V.M. Shrivastava, General Manager
Modern Coach Factory on Path of Sustainable Development

170 RAIL COACH FACTORY – Ravinder Gupta, General Manager
Facilitating Life of Every Indian

175 RAIL WHEEL FACTORY – Rajiv Kumar Vyas, General Manager
Moving towards Progressive India

RAILWAY INSTITUTES

181 IRICEN – Santosh Kumar Agrawal, Director General
Towards Excellence in Training

186 IRISET – S.K. Goel, Director General
Tracking the Foot Prints

189 IRITM – Mukesh Nigam, Director General
Marching Ahead with Time

PUBLIC SECTOR UNDERTAKINGS

195 DFCCIL – Anurag Sachan, Managing Director
Dedicated Freight Corridor Corporation of India Ltd

198 IRCON - S.K. Chaudhary, Chairman & Managing Director
Creating Landmarks, Setting Benchmarks Globally

202 RAILTEL – Puneet Chawla, Chairman & Managing Director
Digitalising Indian Railways

207 RITES – Rajeev Mehrotra, Chairman & Managing Director
Enabling Mobility, Accelerating Growth

211 KRCL – Sanjay Gupta, Chairman & Managing Director
Ushering into a New Era

Cover Photo: Train Passing through a Tunnel at Bhor Ghat between Karjat and Lonavala (Central Railway)

Unless specifically mentioned, the articles and statements published in this journal do not necessarily reflect the views and policies of the Ministry of Railways (Railway Board)

Annual Subscription: India: ₹ 100 (₹ 90 for Railwaymen), Foreign: ₹ 500 (Sea Mail) ₹ 1000 (Air Mail), Single Copy: ₹ 10, Special Issue: ₹ 40

Editorial Correspondence: EDITOR, Indian Railways, Room No. 411, Rail Bhawan, New Delhi-110001.
Tel. : 47845374, 23385340, 23385072 43416, 43628 (Rly.),
Email : editorindianrailways@gmail.com

Business Communications: Prashant Kumar Pattnaik
Business Manager Indian Railways, Room No. 310, Rail Bhawan, New Delhi-110001.
Tel : 47845378, 45378 (Rly.).
Email : bmpr310rb@gmail.com

Editorial Assistance: Shri Prashant Kumar Pattnaik
The Year 2019-20 stands out as a landmark year in the annals of Indian Railways in more ways than one. For the first time since its introduction in 1853, Indian Railways have achieved the feat of zero passenger fatality due to train accidents during the year. The tremendous achievement has been made possible through a slew of measures taken by Railways like record amount of track renewals, elimination of Level Crossings and construction of ROBs/RUBs, interlocking of signals, etc. The eventful year has also seen huge infrastructural boost including completion of New Line (360 Km), Doubling (1458 Km), Gauge Conversion (408 Km) and Electrification (5782 RKms) projects which are in addition to completion of a total of 500 RKm of Dedicated Freight Corridor on which more than 1300 freight trains have already run till 31st March 2020.

Every year, usually in the month of April, we publish the Special Annual issue of the magazine. However, this year, due to the abnormal situation prevailing in the country since March 2020, we have been forced to postpone the issue. Now, with normalcy gradually being restored, it is our great pleasure that we are now able to bring out the much-awaited Special Annual issue of the magazine.

Apart from pithy Messages from Hon’ble Minister of Railways, Hon’ble Minister of State for Railways and Chairman/Railway Board, this issue also contains articles contributed by Board Members including Chairman/Railway Board himself. Special articles have also been received from the organisational heads of almost all the Zonal Railways, Production Units and Railway PSUs. This magazine conveys its heartfelt gratitude to all of them for giving their valuable time to the magazine and hopes that like every year, this year also the Special Annual issue will find high appreciation among our esteemed readers.
MESSAGE

Indian Railways has emerged as the growth engine of the country, catering to the growing needs of crores of citizens each day. Under the visionary leadership of Prime Minister Shri Narendra Modi Ji, Indian Railways has become a vehicle of transformation recording tremendous growth and implementing modern techniques to provide global standards of cleanliness, safety and service.

Due to the constant effort of Railways, this year has seen the best safety record alongside an improved punctuality performance. Todays Railways is moving towards modernisation, digitisation, resource mobilisation and cleanliness. With transformational decisions like ramping fitment to bio toilets, ban on single use plastic and the vision of full electrification by 2022, Indian Railways, each day, is contributing actively to the mission of clean and green India.

In this context, I am delighted to learn that Indian Railways Magazine bringing out a Special July Annual Issue, 2020 having the latest developments and achievements of the Indian Railways. I appreciate the efforts of editorial team to put together such an informative annual edition, which would definitely make an interesting reading. I am sure these efforts will realise the visions of a ‘New India’, where all citizens are empowered with knowledge and information, and can participate in the developmental initiatives of the Government.
I am glad to know that the monthly Magazine ‘Indian Railways’ brought out by this Ministry is going to publish its special Annual Issue in July 2020.

The Magazine has always been instrumental in disseminating railway related information and maintaining an important link between us and our esteemed customers all over the country. Rail users as well as public in general find an affordable and informative link for the latest development of Indian Railways through this Magazine. I appreciate the efforts made of late in upgrading the standard of the Magazine.

I convey my best wishes to the Editor and his entire team and hope the Magazine will continue its glorious past legacy of more than 60 years of being a rich source of information about Indian Railways.
I am delighted to learn that the monthly Magazine ‘Indian Railways’ brought out by this Ministry is going to publish its special Annual Issue in July 2020.

The role played by the magazine has been highly valued and appreciated by its readers. The magazine serves as a vehicle for connecting Railways to its valued customers. The magazine is maintaining a high standard of reporting railway related developments to the public. The articles contained in the magazine are interesting as well as informative.

I wish the Editor and his entire team very best and hope that they will continue on their path of disseminating valuable information in a highly effective way and hope the magazine will continue its glorious legacy of more than 60 years of being a rich source information about Indian Railways.
Indian Railways (IR) plays a key role in development of the country. IR acts as the Engine of Economic Growth by providing safe, financially viable and environmentally sustainable mode of transport for freight as well as passengers. IR has played a crucial role in national integration and social binding by providing rail connectivity to the far-flung areas across the country. IR is the third largest Railway in the world under a single management after Chinese and Russian Railways and is in the club of top 4 Railways moving over one billion tonnes of freight on an annual basis viz Railways of USA, China, Russia and India. IR is the number one Railway in the world in terms of Passenger Kilometer moved annually.

Over the years, IR has experienced a steady decline in market share in freight as well as passenger segments. As per Report of National Transport Development Committee (NTDPC) of 2014, rail freight share has declined from 89 per cent in 1951 to 30 per cent in 2008 and rail passenger share has fallen from 74 per cent in 1951 to 13 per cent in 2005. As per other estimates, the modal share has further fallen to ~ 25 per cent in freight segment and ~ 10 per cent in passenger segment in 2018-

Indian Railways (IR) has identified the need for rapid technology driven modernization and capacity creation and is moving ahead to realize its Vision of becoming one of the most Modern Railway Systems in the World. In Freight segment, IR aspires to achieve a modal share of ~ 45 per cent by 2030 through various initiatives including providing superior service to customers at competitive price; doubling the average speed of freight trains; and by providing assured transit time for freight customers. In Passenger segment the Vision is to satisfy the demand and provide high quality travel experience to passengers. I.R aspires to have zero accidents and passenger fatalities and also become an environmentally friendly and totally green Railway. While realizing this Vision, I.R will strive to be caring for its customers and employees.

The Vision

Indian Railways (IR) has identified the need for rapid technology driven modernization and capacity creation and is moving ahead to realize its Vision of becoming one of the most Modern Railway Systems in the World. In Freight segment, IR aspires to achieve a modal share of ~ 45 per cent by 2030 through various initiatives including providing superior service to customers at competitive price; doubling the average speed of freight trains; and by providing assured transit time for freight customers. In Passenger segment the Vision is to satisfy the demand and provide high quality travel experience to passengers. I.R aspires to have zero accidents and passenger fatalities and also become an environmentally friendly and totally green Railway. While realizing this Vision, I.R will strive to be caring for its customers and employees.
19. This is mainly because rail infrastructure and capacity creation have not kept pace with traffic growth and over period of time traffic has moved from rail to road and other modes. From the year 1950-51 to 2018-19, Freight Net Ton Km has increased 18.4 times and Passenger Km has increased 16.3 times but Route Km has increased by only 26 per cent and Track Kilometer by 108 per cent.

This fall in modal share of rail, is not desirable from both economic efficiency as well as environmental sustainability and social considerations. Railways is highly energy efficient mode of transport besides being safe, and requiring very less resources including land, and needs to be a dominant and preferred mode of transport. As per NTDPC report of NITI Aayog, the sub-optimal modal share of rail causes a loss of nearly 4.5 per cent of GDP annually.

Lack of capacity creation commensurate with traffic growth has led to network congestion and reduced speeds of trains. Movement of passenger and freight trains on the same tracks with high speed differential drastically reduces capacity and speeds (average freight train speed is only 23.2 kmph; Ordinary Passenger - 33.8 kmph; Mail/ Express - 50.3 kmph). As per NTDPC Report, out of 1,390 sections on Indian Railways, 480 sections have capacity utilization exceeding 100 per cent and 738 sections have capacity utilization exceeding 80 per cent. 7 routes of High Density Network (HDN) and 11 routes of Highly Utilized Network (HUN) amounting to ~34,000 Route Kilometer (RKM) (~ 51 per cent of network) carry nearly 96 per cent of IR's traffic. 11,295 RKM of HDN comprising 16 per cent of network carries 60 per cent traffic and 22,549 RKM of HUN comprising 34 per cent of network carries 36 per cent of traffic. These networks are highly congested.

This trend needs to be reversed and Railway's modal share in freight needs to be increased to over 45 per cent which is the global norm in comparable economies. This can be achieved through rapid infrastructure creation and technology driven modernization. There is a need to give thrust on expeditious completion of doubling and multi-tracking of track, gauge conversion, port connectivity, coal connectivity and terminal connectivity projects, development of terminal capacity, modernizing signaling, inducting modern and efficient locomotives, wagons and coaches and inducting technologies in all aspects of railway working.

**Safety the top most priority**

With constant focus on safety, IR has achieved the best ever safety performance in FY 2019-20 with zero passenger fatalities in train accidents. Consequential train accidents have reduced from 135 in 2014-15 to 59 in 2018-19 and further to 55 in 2019-20. Signal Passing at Danger cases have also reduced from 64 in 2018-19 to 57 in 2019-20. To improve safety of road and rail users, a record number of 1,274 Manned Level Crossings (MLCs) have been removed in FY 2019 – 20 which is more than double of the 631 MLCs removed in FY 2018-19. Further, construction of 1,315 ROBs and RUBs have been completed during 2019-20 to enhance safety of rail network. IR has also issued a policy for not providing new MLCs except on projects sanctioned on socio-economic considerations duly ensuring safety through interlocking of MLCs.

Rail Renewal of 5,181 Track km (TKM) has been done in FY 2019 - 20, compared to 4,265 TKM in previous year (+21.4 per cent). 1,367 bridges were rehabilitated in FY 2019-20 which is 37 per cent higher than 1,000 bridges rehabilitated last year. Highest ever supply of rails viz 13.8 lakh ton has been received during the year from SAIL. With supply of 6.4 Lakh ton long rails, scope of field welding has decreased drastically leading to better reliability of asset. Indian Railway Institute of Disaster Management has been opened at Bangalore for training of officers and staff to enable them for better understanding of disaster management.

Indian Railways has completely switched over to manufacturing of Link Hofmann Busch (LHB) coaches from January 2018 onwards. Production of Integral Coach Factory (ICF) design coaches has been stopped. LHB coaches are safer than ICF coaches. Further, the production of LHB coaches has been continuously increased. Record number of 6,277 LHB coaches have been manufactured in 2019-20, as compared to 4,429 coaches in 2018-19. LHB Coach production has increased 11 times from 543 in 2013-14. Eleven On-line Monitoring of Rolling Stock System (OMRS) have been installed on IR in FY 2019-20 to bring in a paradigm shift in
maintenance practice for rolling stock from time-based maintenance system to condition based maintenance system. IR is in the process of installing 25 OMRS way-side inspection systems at 20 locations spread over the entire network.

To further improve safety at Level Crossing Gates (LC), 285 LCs have been interlocked with signals in FY 2019-20 (cumulative figure is 11,639). The Old Mechanical Signaling System of the past is being expeditiously replaced with Electrical/Electronic Signaling System which improves safety by removing human error. At 84 stations mechanical signaling was replaced with electronic signaling during 2019-20. To enhance safety indigenous Train Collision Avoidance System (TCAS) is being provided. TCAS is already functional on 250 kms and work on 1,500 kms is in progress. Thrust is also being given to simulator based training of locomotive pilots.

Infrastructure Creation & Modernization

Government has recognized the need for additional investment in rail infrastructure and modernization and progressively scaled up investment in Railways by almost 3 times from ₹ 54,000 crore in 2013-14 to ₹ 1.46 lakh crore in 2019-20. The increase in capital expenditure and improved project management has increased the speed of commissioning of new infrastructure projects.

Total 498 projects (188 New Line, 55 Gauge Conversion, and 255 Multitracking) have been identified as debottlenecking and throughput enhancement projects. Highest ever budgetary expenditure of ₹ 39,863 crore has been incurred during FY 2019-2020 to expedite the commissioning of these projects. Total estimated cost of these projects is ₹ 6,75 lakh crore and total cumulative expenditure has been ₹ 1.86 lakh crore up to 31st March 2020. Indian Railways have drawn a roadmap to complete all Gauge Conversion and executable doubling works by March 2023 and March 2024 respectively.

96 per cent of Indian Railway traffic moves on around 51 per cent route Km of IR network, which needs to be decongested by multi-tracking, so that, bottlenecks in the system can be removed for enhancing safety, punctuality and ensuring faster & heavier movement of freight traffic. For fast pace execution of projects, a paradigm shift has been brought in planning of projects, so that, available resources are utilized judiciously for optimum results.

58 Super Critical (4,082 km), 68 Critical (67 Doubling and 1 Gauge Conversion) [5,818 km] and 130 other throughput enhancement projects (10,597 km) have been identified for prioritized resource allocation for thoroughput enhancement at faster pace. Super critical projects are targeted for completion by Dec’2021. 15 out of 58 super critical projects of around 562 Km length and costing ₹ 5,622 Crore have been completed & commissioned out of which 13 were commissioned in FY 2019-20.

Annual pace of commissioning of new lines, doubling/tripling/quadrupling (multi-tracking) and gauge conversion has increased by nearly 60 per cent from 1,520 km during 2009-14 to 2,400 km during 2014-19. Similarly, annual pace of electrification has been increased over 7.5 times from 610 RKM in 2013-14 to 5,276 RKM in 2018-19. In 2019-20, 2,226 km of network expansion projects were commissioned (New Line-360km, Gauge Conversion-408 km, Doubling-1,458km). In FY 2019-20, Railway Electrification works have been completed on a total of 5,782 RKMs, out of which 4,378 RKMs have been commissioned on electric traction upto 31st March 2020, after due process of authorization by CRS. A Mission has been launched to electrify the complete BG network by Dec 2023. This will help in substantial saving in Indian Railway's fuel bill and contribute towards country's energy security and environmental sustainability.

To expedite the commissioning of projects, various measures have been taken. Assured finance through extra budgetary resources has been arranged for throughput enhancement works. Thrust has been on proper project preparation, advance land acquisition, EPC contracts, E-DAS (Electronic Drawing Approval System), mechanization in construction and intensive project monitoring to increase the pace of commissioning. A thorough exercise has been done to review the ongoing projects and prioritize them based on stage of implementation, importance to the economy and sustainability of railway operations.

Connectivity to North East, Jammu & Kashmir and other critical areas

The North-Eastern Region (NER) is surrounded by international borders and serves as India's gateway to the east. Due to its vital importance, in the last five years all the required gauge conversion work of railway lines (972 Kms) has been completed in NER. Now all seven North Eastern States have been connected with rail except for Sikkim where work is in progress. Some of the major achievements in last few years include the followings - (i) Meghalaya connected to railway network in November 2014, (ii) Arunachal Pradesh (Itanagar) connected to railway network in February 2015, (iii) Manipur (Jiribum) connected to railway network in May 2016, (iv) Mizoram (Bhairabi) connected to railway network in March 2016 and (v) Meter Gauge (MG) railway line connecting Agartala (Tripura) converted into Broad gauge (BG) in May 2016. With commissioning of Bogiebeel rail cum road bridge (5.2 Km) in December 2018, travel time between Naharlagun and Dibrugarh was reduced from twenty-four hours to five hours. Further, Agartala–Sabroom (110 Km) New line (National Project) was
commissioned in October 2019. Super Critical Doubling Project from Lumding to Hojai in Assam was also completed and commissioned in FY 2019-20. In order to connect the inaccessible regions with the national network, Indian Railways have decided to complete 6 National projects in North Eastern Region in next 5 years. National New Line projects which are in progress in North Eastern region for providing rail connectivity to capitals of the States and other cities include the following: (i) Jiribam-Imphal (98 Km) project to connect capital of Manipur, (ii) Bhairabab-Saipang (51 Km) project to connect capital of Mizoram, (iii) Sivok-Rangpo (44 Km) project to connect Sikkim, (iv) Dimapur-Kohima (88 Km) project to connect capital of Nagaland, (v) Teteliya-Byrnihat (21.5 Km) and (vi) Byrnihat-Shillong (108 Km) projects to connect capital of Meghalaya. In Byrnihat-Shillong section there is stiff opposition from Khasi Students’ Union to land acquisition.

To rapidly provide rail connectivity to Jammu & Kashmir, big thrust has been given to Udhampur-Quazigund-Srinagar-Baramulla rail line project (USBRL). Out of total length of 272 Km, 161 Km is already commissioned (Udhampur- Katra and Banihal-Baramulla) and work is in full swing in the remaining 111 km section from Katra to Banihal. The project is targeted for commissioning by December, 2022. Funding for the project has been increased from ₹ 854 crore per year in the period 2009-14 to ₹ 1,678 crore per year in the period 2014-19. In FY 2019-20, ₹ 2,631 cr. has been spent on the project. USBRL project has many engineering marvels like,

(a) highest arch bridge project in the world at Chenab (359 meter from river bed);
(b) first cable suspended rail bridge in India (290 meters from river bed); and
(c) longest transportation tunnel of India, Pir Panjal (12.75 Km).

In the hill terrain projects, tunneling work is critical. There has been a quantum jump in tunnel mining from 62 Km in the period 2009-14 (~12 km per year) to 156 Km in 2014-19 (~ 31 Km per year). This indicates the push being given to these projects.

In line with India’s policy of regional cooperation and to further trade and commerce with neighbouring countries, projects of rail connectivity with Nepal & Bangladesh have been taken up and are planned to be completed in next five years. Section from Haldibari to International Border (Bangladesh) was commissioned in January 2020. Projects targeted for completion in the next 5 years include Jogbani (India) – Biratnagar (Nepal) new line (19 km), Gauge conversion work from Jayanagar (India) to Bijalpura (Nepal) including new line extension between Bijalpura - Badhibas (Nepal) (69 km) and Agartala (India) - Akhura (Bangladesh) new line (12km).

**Dedicated Freight Corridors**

As a long-term structural measure for increasing IR’s modal freight share, execution of Eastern Dedicated Freight Corridor (EDFC) and Western Dedicated Freight Corridor (WDFC) is being expedited. Total 500 Route km of DFC, {Rewari - Madar (306 Km) section of WDFC and Khurja – Bhadan (194 km) section of EDFC} have been completed in FY 2019-20. Over 1,300 goods trains have run on the DFC network till 31st March 2020. State of the Art Operation Control Center (OCC) has been built at Prayagraj in FY 2019-20. Additional, 500 km section of DFC is in advance stage of construction and is targeted to be made operational by October 2020. 677 km track laying (cumulative 2,575 km) and 735 km railway electrification (cumulative 1,508 Km) works have been completed in FY 2019-20. To expedite completion of the project, Capital Expenditure of over ₹ 10,000 crores has been made in FY 2019-20 for the second year in succession. Locomotives and wagons are also planned to be included commensurate to the DFC commissioning to move heavy haul trains on the network at speed of 100 kmph. 12,000 HP electric locomotives are being indigenously manufactured at the Madhepura factory set up through PPP in JV with Alstom. Oscillation Trials of 25Ton axle load BOXNS & BLC (Container) wagon at
maximum speed of 110 kmph have also been successfully conducted by RDSO in Phulera - Ateli section (193 km) of Western DFC.

Further, three potential corridors of future DFCs have been identified for preparation of Detailed Project Report (DPR) based on Preliminary Engineering cum Traffic Survey (PETS) Report viz North - South DFC (Itarsi-Vijayawada) (975 KM), East - West DFC (Bhusaval-Wardha-Nagpur- Rajkarswan-Kharagpur-Dankhuni) (1,648 KM), East-West sub corridor (Rajkarswan-Andal) (195 km) and East Coast DFC (Kharagpur – Vijayawada) (1,115 KM).

Mumbai - Ahmedabad High Speed Project

Mumbai - Ahmedabad High Speed Rail (MAHSR) is India’s first High Speed train project. In FY 2019-20, 293 Hectares of (572 Ha cumulative) private land has been acquired. Total Capital expenditure of ₹ 4,803 crores has been incurred in FY 2019-20 (₹ 7,219 crore cumulative). Under utilities shifting work at Vadodara, new RRI building, Cabins, new RPF building & Stabling line (400m) have been commissioned in lieu of the existing structures. Hostel Building at HSR Training Institute, Vadodara has also been completed in FY 2019-20. Under the income restoration/enhancement program, 185 Project affected People (PAPs) were imparted training in Computer Hardware & Networking.

Motive Power and Mobility Enhancement

Indian Railways’ policies have always been aligned with increasing mobility of trains. For this purpose, all the constituents of train operations need to be put together and upgraded in a very co-ordinated way. While the speed potential of rolling stock, both locomotives as well as trailing stocks, need to be stepped up, the associated track and signalling systems also have to be suitably upgraded.

To enhance the mobility of trains, the first much needed step was to increase the manufacturing of Electric Locomotives to match the requirements of train operations in scenario of increasing electrification. IR have manufactured record 784 electric locomotives during 2019-20, which is an increase of 30 per cent over 605 Electric Locomotives produced during 2018-19.

To enhance mobility, number of focused innovations and indigenous initiatives have been taken. In FY 2019-20, with successful development and testing of 12,000 HP WAG12 locomotive, Indian Railways has joined the elite club of Railways in the world which produce High Horse Power locomotive indigenously. Research, Designs and Standards Organization (RDSO) completed the Tests and Trials of the first 12,000 HP Locomotive from December 2019 to January 2020 and the Locomotive was cleared for maximum speed of 100 kmph. So far 19 Locomotives have already joined the fleet of Indian Railways. Further, Indian Railways has developed its first 9000 Horse Power Freight locomotives (WAG-9HH) indigenously at CLW. This is a vital initiative in the direction of right powering of freight trains over Indian Railway, including Dedicated Freight Corridors.

Right powering is key for improving mobility of trains. Accordingly, Indian Railways have taken a policy decision to enhance the Horse Power to Trailing load ratio to 2.0 for freight trains (from existing about 1.3) and to 8-10 for passenger trains (from existing 4-5). To provide
the requisite horsepower to the trains in this long term scenario, it is planned to upscale the manufacturing of electric locomotives at CLW, DLW and DMW.

To speed up the trains another important initiative has been to run trains in push-pull mode. Operation of Twin WAP5/ WAP7 loco in push-pull mode has been done in CSMT- NZM Rajdhani Exp 22221/22 since Feb 2019. This has reduced journey time by over 90 minutes. Trial runs of Mumbai Rajdhani, August Kranti Rajdhani, Kolkata Rajdhani and Sealdah Rajdhani trains in push pull mode have also given very encouraging results of travel time reduction of around 60-90 minutes between NDLS to Mumbai and NDLS to Kolkata.

Action is also underway for faster proliferation of improved signalling system, namely TCAS 2, remove the permanent speed restrictions on tracks and removing the bottlenecks of yards and terminals etc. In addition, concerted efforts are being put in to upgrade the speeds of Delhi-Mumbai and Delhi-Kolkata sections to 160 kmph.

A Satellite based 'Real Time Train Information System' (RTIS) has been developed in collaboration with ISRO and has been installed on 2,700 nos. electric locomotives. Through this project, the real time location and speed of trains is being captured every 30 seconds and is conveyed to Control Office Application (COA) and also to passengers through National Train Enquiry System (NTES). This has resulted in Automatic Charting of trains and thereby relieving the controllers to concentrate on the important operational tasks. In phase-II remaining 600 no. electric locomotives will be provided with RTIS equipment. This will go a long way in improving the operational efficiency on Indian Railways, leading to improved mobility.

Modern Signaling

Modernizing of Railway Signaling has been a major focus area to enhance safety and also line capacity. Indigenously developed Train Collision Avoidance System (TCAS) has been implemented on 250 RKM and work for provision of TCAS on 1,200 Route KM is in progress in South Central Railway.

First ever Communication Based Train Control System (CBTC) to improve headway in suburban section of Kolkata Metro has been commissioned in February, 2020 in East West Metro of Kolkata. CBTC is planned to be provided on 345 Km of Mumbai Suburban and Kolkata Metro. Centralized Traffic Control (CTC) is a computer-based system which facilitates control and management of multiple Signaling installations covering a number of stations from a single location. Centralized Traffic Control (CTC) covering 250 Route km of Double line section with 29 stations on Aligarh - Kanpur Route has been operationalized. It is planned to provide this on 7,000 RKM of IR. In 2019-20, 417 stations have been commissioned with electrical/electronic interlocking to further improve operation and safety at stations. Total 6,018 stations are provided with electronic/electrical interlocking till 31st March 2020. 279 km of Automatic Signaling was commissioned in 2019-20 for improving line capacity in block section (cumulative 3,309 km till 31st March 2020). Work of Automatic Signaling has also been taken up on 5,400 Km.

Initiatives to Increase Freight Loading & Revenue Enhancement

Freight loading is the dominant source of revenue for IR and needs to be enhanced continuously. To increase freight loading and revenue, early commissioning of infrastructure works, induction of modern rolling stock and rationalisation of freight tariff are of key importance. IR has inducted 11,386 wagons during 2019-20, against 9,535 wagons in FY 2018-19. IR has taken several freight rationalization measures like withdrawal of 15 per cent Busy Season Charges, notification of minimum distance slab Round-trip haulage charge for container traffic (for 0-50 km) which is around 35 per cent cheaper per TEU/ round trip, denotification of 90 commodities and bringing under Freight All Kind (FAK) rates and withdrawal of 5 per cent supplementary charge from Mini Rake and Two Point Rake combination to make the rail rates competitive. Radio frequency identification (RFID) tags have been provided on about 21,000 vehicles including both wagons and coaches for automatic identification of rolling stock. Under the policy of proliferation of In-motion Weighbridge and integration with FOIS for proper weighing of load, 250 locations have been configured for integration with FOIS and data of weighment have been captured. Total 71 locations have come online till 31st March 2020. Long term tariff contracts have been entered into with 33 key customers during the year.

29 new routes have been upgraded and notified with enhanced loadability of CC+8 in FY 2019-20. Total 1,268 Freight Customers are now availing e-payment facility since November 2019. Roll on - Roll off (RO-RO) i.e. trucks loaded on wagons for door to door service operation is operating on KRCL and trials have started on SWR.

In order to increase freight loading, thrust has been on completion of crucial port, coal and terminal connectivity, doubling and gauge conversion projects. Commissioning of 49 Km long New Line from Kharsia-Korichhapar in Chhattisgarh and 113 Km long New Line connecting Krishnapatnam port in Andhra Pradesh in 2019-20 will bring coal and port traffic respectively. 19 km coal line project namely Bakhtiarpur-Barh in Bihar will supply coal to NTPC plant at Barh. Commissioning of 320 Kmr long Gauge Conversion Project between Jaipur-
Ringus-Sikar-Churu & Sikar-Loharu in Haryana and Rajasthan will provide alternative route and help in increasing freight movement.

Important doubling projects completed in FY 2019-20 which will *inter alia* augment freight loading include 48 Km doubling between Hajipur - Ramdayalu Nagar in East Central Railway, 43 Km Doubling between Lumding - Hojai in Assam, 34 km fourth line between Tughlakabad - Palwal, 81 km doubling between Mudkhed-Parbhani in Maharashtra, 25 km doubling between Itarsi-Budhni in Madhya Pradesh, 60 km doubling between Alwar-Bandikui in Rajasthan, 8 km doubling between Billi-Chopan in Uttar Pradesh, 41 km doubling between Kaluru-Guntakal in Andhra Pradesh, 51 km doubling between Pirpainti-Bhagalpur in Bihar, 24 Km doubling from Abu Road to Sarotra Road in Rajasthan etc.

Thrust is also on electrification of railway lines to boost freight as well as passenger traffic movement. Electrification has been commissioned on the following major routes during FY 2019-20: Vizianagaram - Rayagada - Titlagarh – Raipur (465 km), Jhansi - Manikpur incl Khairar – Bhimsen (409 km), Mathura-Kasganj-Kalyanpur (338 km), Pagidipalli – Nallapadu (285 km), Utretia - Rae Bareli - Amethi - Janghai (214 km), Chunar-Chopan-Singrauli (165 km), Katihar-New Jalpaiguri (183 km), Guntakal - Bellary - Hospet incl. Tornagallu - Ranjipura Branch Line (138 km), Kaptanganj-Thawe-Khairah-Chhapra Kacheri (206 km) etc.

**Passenger Services Improvement**

Passenger service improvement has been a key focus area of IR. It has been the constant endeavor of IR to offer high reliability and quality services to its passengers. With constant thrust on higher asset reliability and monitoring of the running of trains, the punctuality performance of Mail/Express trains has improved from 69.23 per cent in 2018-19 to 75.69 per cent in 2019-20.

For providing comfort to the customers and improved travel experience, thrust has been on providing high quality passenger amenities at stations and in trains. These amenities include high speed Wi-Fi, Lifts, Escalators, improved illumination at stations, modern waiting lounges and improved station facilities. In FY 2019-20, 80 Escalators, 83 Lifts, 268 FOBs, 61 coach guidance systems and 108 train indication board systems have been provided at stations. Illumination has been improved at 609 Stations. 200 Railway Stations have been certified for implementation of Environment Management System to ISO: 14001 Standard. IR is progressively replacing conventional passenger trains with energy efficient and faster accelerating MEMU trains. 140 such trains were converted to MEMU in FY 2019-20. 7 Air-conditioned EMU rakes with on board propulsion system have also been introduced in Mumbai Suburban Area. Further, 134 New Train services have been introduced and 118 existing train services have been extended during FY 2019-20.

The second Vande Bharat train commenced operation on 2nd October 2019 between New Delhi and Shri Vaishno Devi (SVDK). This train has high acceleration and deceleration characteristics resulting in reduction in journey time. It also has State of the Art passenger amenities like bio vacuum toilet, Wi-Fi, automatic doors, CCTV, GPS based passenger information system etc. 289 trains have been upgraded to Utkrisht standard in FY 2019-20 for better passenger comfort. 4 Antodaya trains and 4 Humsafar trains have also been introduced in this year. Further, one Utkrisht Double Deck Air-conditioned Yatri (UDAY) train was introduced taking the cumulative number to two. 880 Deen Dayalu coaches (general second class coaches for unreserved passengers with additional features) were manufactured in FY 2019-20 (cumulative 2,200). Under Project Swarn, 65 rakes of Rajdhani and Shatabdi have been upgraded for better passenger experience. Of these, 10 rakes have been upgraded this year.

In its endeavour to improve the overall travel experience of rail passengers by providing State of the Art facilities, Indian Railway introduced two ultra-modern premium Tejas trains on New Delhi- Lucknow and Mumbai – Ahmedabad routes in FY 2019-20. After the successful run of the Tejas Express trains, operation of the third corporate passenger train - Kashi Mahakal Express connecting religious places of the states of Madhya Pradesh and Uttar Pradesh was also started between Varanasi and Indore in this year. These trains

![Vistadome Coach running on Visakhapattnam-Araku route: Outside view (left), Inside view (right)](image-url)
Station Redevelopment

Station development projects being taken up on major stations offer improvement in passenger amenities with inter-modal connectivity, segregated arrival and departures, access for the disabled persons, digital interfaces, swipe ticket entry machines, integrated safety and security, hotels, kiosks and recreational facilities. Work is in advance stage and nearing completion at Habibganj & Gandhinagar stations. Further, contracts have been awarded for Gomtinagar, Anand Vihar, Bijwasan, and Chandigarh stations on EPC mode. Bids for redevelopment of Ajni and Safdarjung station have been received. An Empowered Group of Secretaries (EGoS) has been constituted for fast-tracking the various activities involved in redevelopment of stations viz approval of bidding process & bid documents and monitoring of progress of bidding process. Based on EGoS recommendations, RFQs has been invited for Nagpur, Gwalior, Sabarmati, Amritsar, Puducherry, Nellore, Dehradun and Tirupati stations on PPP mode.

Food Hygiene and Quality

It has been the continuous endeavour of Indian Railways to provide quality and hygienic food to passengers in all the trains. Indian Railways have developed a robust mechanism of receiving feedback, suggestions and grievances from the passengers. Appropriate and prompt corrective actions are taken by Railways to address these concerns. During the year, web-based live streaming facility through CCTV of Kitchen units of IRCTC was extended to 46 kitchens units from 18 kitchen units (May, 2019). Facility of Quick Response (QR) codes to be pasted on food casseroles has been provided at 29 Kitchens which enables passengers to get the direct link to CCTV images of the kitchen where food is being prepared and packed. Details of the contents and quantities of the meals and date of packaging can also be seen by the passenger.

The number of POS machines installed on trains for billing and digital payments has been increased from 2,742 in May, 2019 to 5,109 in 624 rakes of 419 pairs of trains. In addition, 2,874 POS machines are operational on 2,699
Static Units (Food Plaza, Fast Food Units, Refreshment Rooms, Catering Stalls etc.). Number of Rail Neer plants has been increased from 9 in May, 2019 to 14, resulting in an increase in the average production from 10.02 lakh litres to 14.08 lakh litres of Rail Neer per day. During the year, E-catering has been increased from 11,826 (in May 2019) to 22,200 meals per day. Mumbai Central Railway Station was conferred with ‘Eat Right Station’ certification with 04 Stars rating by FSSAI on 29th November 2019 and CSMT Mumbai was conferred with “Eat Right Station” certification with 5-star rating in December 2019.

Swachh Bharat Mission

As part of ‘Swachh Bharat Mission’, bio-toilets are being provided in all BG coaches so that no human waste is discharged on the track. 49,487 Bio-toilets were installed in 14,916 coaches in FY 2019 - 20. This takes the cumulative numbers of bio-toilets to 2,45,400 fitted in 68,800 coaches which is nearly 99.3 per cent of the total coaching fleet. First in service Bio-Vacuum toilet has been fitted in Kalka – New Delhi Shatabdi in January 2020. To protect the environment, it was announced to ban use of single use plastic material across its network from 150th Gandhi Jayanti on 2nd October, 2019.

With a view to improve the standard of cleanliness, Mechanized Cleaning of stations and trains is being carried out through professional agencies using heavy duty machines such as high pressure jet cleaners, floor scrubbers, vacuum suction cleaners etc. Integrated mechanized cleaning is now provided at 953 stations. Independent third party Survey of passenger perception on cleanliness standards was carried out at 720 Stations in 2019-20 against 407 stations in 2018-19. More than 1,100 pairs of trains including Rajdhani, Shatabdi, Duronto and other important long distance Mail/Express trains have been provided with On Board House Keeping Service (OBHS) for cleaning of coach toilets, doorways, aisles and passenger compartments during the run of the trains. OBHS service is supported by SMS based on demand ‘Coach-Mitra’ service to cover over 1,060 pairs of trains. Mechanized laundries have been set up for improving quality of washing of linen provided to AC coach passengers. 61 mechanized laundries were set up till 2018-19 and 8 more were added in 2019-20. An initiative to reduce, recycle and dispose plastic waste generated in stations in an ecofriendly manner, around 315 Plastic Bottle Crushing Machines (PBCMs) have been installed at 229 stations including several district headquarters railway stations over Indian Railways. Automatic Coach Washing Plants (ACWP), multistage external cleaning system for coaches/trains, has been installed at 8 locations in FY 2019 -20 (cumulative 20). Quick watering facility has been provided at 29 locations in March 2020 (cumulative 44) to reduce the time taken for filling water in trains. Considering the efforts of Railways, Hon’ble President of India presented an award to Indian Railways for being the best Ministry for implementation of Swachhata activities for 2018-19.

Security of Passengers

To enhance security of passengers CCTV based surveillance system is being provided at all railway stations and all passenger coaches. CCTV has been provided at 585 stations and in 2,136 coaches till 31st March, 2020. Commandos for Railway Security, “CORAS”, a new service has been introduced to deal with the menace of terrorism and naxalism. For improving safety of female passengers, Emergency talkback units are provided in Ladies coaches of all newly manufactured EMU rakes. Integrated Security System (ISS) is being provided at major stations with provision of baggage scanner, metal detector scanner and intelligent CCTVs.

Commitment to Humanity

Indian Railways is committed to its duty towards humanity. Lives of 230 passengers were saved during the year 2019-20 from coming under the wheels of running trains. 10,539 cases of left behind luggage valued at approximately ₹ 17,97,98,134 were retrieved and handed over to their owners during 2019-20. RPF rescued 264 children from Human traffickers during FY 2019-20. Besides this, 11,529 children (Run away, Drug addict,
these units were certified in FY 2018-19 and 08 more have been certified in FY 2019-20. 14 Railway Stations have achieved Green Certification out of which 5 stations were certified in FY 2019-20. 215 Stations have been certified to Environment Management System (EMS)/ISO 14001. 21 more Railway Buildings, Offices, Campuses and other establishments are also Green certified, including 2 Supervisor Training Centre (STC) and 4 Railway Schools. Railway Hospital Ajmer is the first railway hospital to achieve Green rating. Energy efficiency studies have been carried out at all 8 Production Units & 12 workshops under MOU with CII resulting in 15 per cent energy efficiency improvement.

To reap the benefits of electrification, total 328 pair of coaching trains and several freight trains in various newly electrified sections have been taken over on electric traction from diesel traction in 2019-20. 36,500 coaches including EMU/MEMU coaches were installed with energy saving LED lights. Consistent efforts of Ministry of Railways to embrace various energy efficient technologies & energy conservation measures have been recognised and 14 National Energy Conservation Awards have been conferred upon various units of Indian Railways by Ministry of Power in 2019 in 4 categories.

Digital Railway
Thrust has been on digitalization of key processes of IR. RAIL DRISHTI and E-DRISHTI dashboards have been revamped by improving user interface presentation in Dec 2019. In all, it is a new leap forward towards ‘Digital India, Digital Railways’. Artificial Intelligence based PNR confirmation predictor at IRCTC website predicts the probability of waitlisted tickets getting confirmed at the time of booking as well as during Passenger Name Record (PNR) enquiry of waitlisted ticket. Trials of enhanced ETM (Electronic Ticketing Machine) using android mobile phone and Bluetooth printer in connected mode have been approved over Northern Railway during 550th Anniversary Celebrations of Guru Nanak Dev Ji at Sultanpur Lodhi Station. 4,058 Stations were provided with High Speed Wi-Fi during 2019-20 for enhanced passenger experience, taking the cumulative stations with Wi-Fi to 5,661.

RAILMADAD App, a grievance redressal mechanism of Indian Railways has helped in expediting and streamlining passenger grievances redressal. It facilitates passengers to lodge in-train and on-station complaints
Make in India

Under Make in India initiative, 12,000 Horse Power electric locomotives are being manufactured through a Joint Venture company formed between Indian Railways and Alstom at Madhepura. Total 800 locomotives will be manufactured in 10 years' time. It is also planned to roll out 44 new improved 'Make in India' Vande Bharat Express trains and procurement is underway by Integral Coach Factory. The procurement is being done in accordance with extant 'Make in India' policy of DPIIT, Government of India. 100 per cent indigenization has been achieved in manufacturing of around 20-25 per cent of total fleet of the track machines such as Utility vehicles (UTVs), Rail Bound Maintenance Vehicles (RB MVs), Track Laying Equipment (TLE), Rail Thredder & Rail-cum-Road Vehicles (RC RVs). 70 per cent of existing fleet of machines has been manufactured by world's leading manufacturer with a local content in the range of 20 per cent to 50 per cent in India.

One more manufacturing plant by a world's leading manufacturer of track machines has been commissioned at Karjan in Gujarat in the month of November 2019. First machine manufactured in this plant was rolled out in February 2020.

5 out of 8 Production Units have acquired IRIS certification. This opens the doors of the global rolling stock market to our production units.

End-to-end digitalization of procurement process of Indian Railways has also been accomplished. e-Reverse Auction (e-RA) has been made as default mode of tendering for tenders for procurement of goods valuing more than ₹ 5 crores. The process of e-RA has now been further improved to have better competition. Other Digital Initiatives include integration of data loggers with Control Office Application (COA) for automatic reporting of train timings. Computerization of Train Signal Register (TSR) equipment has been supplied on 650 stations. 521 stations have been commissioned and made live by 31st March 2020. Indian Railway Land Management System (IRLAMS) is being developed for management of land related data such as land records and lease license records documented at one place. An e-application IR-Works Contract Management System (WCMS) has been launched as a pilot project in 17 divisions of IR to handle works contracts on e-platform. This IR-WCMS shall be shortly extended to all divisions of IR.

Human Resource Management

Emphasis has been on filling up of safety category vacancies. In recruitment of employees from open market many new technological initiatives have been launched. Computer based test has been successfully organized for open market recruitment for more than 1.4 lakh vacancies involving more than 2.5 crores candidates. There was 6 fold increase in cities with exam centers. Centers were also located in remote, inaccessible, backward areas covering Andaman & Nicobar Islands, Kashmir Valley and North Eastern states. Divyang friendly centres have also been earmarked for Divyang candidates. Other initiatives include bio-metric and photo verification before examination; randomized
seat allocation in examination hall; CCTV surveillance measures to curb any malpractices; important SMS/ Email alerts to candidates at various stage of registration and selection process; and facility for mock practice test before actual examination. Answer Keys have been uploaded to bring transparency.

National Rail & Transportation Institute
Right from its inception in 2018, the National Rail & Transportation Institute (NRTI) has focused on offering world-class education and bringing best-practices in curriculum and pedagogy. Presently the institute is offering 2 undergraduate programs (3 years) on transportation management & technology with 200 students.

Organisational Restructuring
To promote smooth working of Railways, expedite decision making, create a coherent vision for the organization and promote rational decision making, Government has approved a transformational organizational restructuring of the Indian Railways. The reforms include re-organization of Railway Board on functional lines headed by Chairman & Chief Executive Officer (CEO) with 4 Members and some Independent Members and unification of existing eight Group A services into a Central Service called Indian Railway Management Service (IRMS). The modalities for implementation are being worked out.

Measures Taken by Indian Railways to fight COVID-19
Indian Railways has geared up its entire machinery in a big way to take comprehensive measures to fight the spread of COVID-19 virus which affected the country towards the end of FY 2019-20. Regular Video Conference meetings were held since the first week of March 2020 to review the preparedness and convey priorities and directions. During the lock down period, Video Conference was held with all General Managers (GMs) and key officials regularly to coordinate efforts, give directions, take feedback, review progress of measures and maintain effective communication. GMs have been in turn reviewing preparedness measures with Divisional Railway Managers (DRMs) on regular basis. Following measures have been taken by Indian Railways to fight COVID-19

i) Indian Railways Staff have been working at various good sheds, stations and control offices on 24/7 basis to ensure that the supplies of essential items do not get affected. Locomotive Pilots and guards are efficiently running the trains. Key maintenance staff of Track, Signaling, Overhead equipment, locomotives, coaches and wagons are maintaining the infrastructure in good fettle to ensure smooth running of freight trains. Institutional mechanism has been put in place to escalate issues faced by Zonal Railways in goods train operations to Control Room Set up by Ministry of Home Affairs (MHA) on real time basis through one Railway officer posted in MHA Control Room.

ii) Transportation of essential items like medical supplies, medical equipment, food, etc in small parcel sizes is very important during the lockdown in the wake of COVID19. In order to meet this vital need, Indian Railways has made railway parcel vans available for quick mass transportation by E Commerce entities and other customers including State governments. Railways have decided to run Parcel Express trains on the following identified routes to timings of express trains on nominated days of the week:

- Bandra Terminus - Ludhiana - Bandra Terminus (via Ahmedabad, Jaipur, Delhi)
- Delhi - Howrah - Delhi
- Yeswanthpur - Howrah - Yeswanthpur (via Chennai)
- Secunderabad - Howrah - Secunderabad
- Sankrail - Guwahati - Sankrail
- Chennai - Delhi - Chennai
- Kankariya - Sankrail - Kankariya
- Kalyan - Sankrail-Kalyan (via Nasik, Nagpur, Bilaspur)
- Kalyan - Guwahati - Kalyan (via Nasik, Nagpur, Bilaspur)

Twelve (12) Parcel special trains have been run by Railways since 22.03.2020 till 30.03.2020.

iii) Demurrage and wharfage rules have been relaxed by treating corona virus as a case of natural calamity and invoking the Force Majeure clause.

iv) In order to maintain smooth flow of goods, haulage charge on movement of empty containers and flat containers has been removed from 24.03.2020 to 30.04.2020.

Candidates appearing at Computer Based Test conducted by RRB
v) A Central Control Cell has been established at Railway Board headed by a Director level officer to ensure seamless flow of information and suggestions between Railway administration & general public. The Control Cell is manned round-the-clock to monitor calls received on Rly Helplines – 139 & 138 and emails to railmadad@rb.railnet.gov.in and also to monitor trends on social media to communicate and alleviate any difficulties faced by the customers by taking timely action.

vi) General Managers/CAOs/DRMs have been empowered to engage para medical staff on contract basis to supplement the medical work force to deal with the situation

vii) IRCTC base kitchens are providing free meals to the needy with the help of Railway protection Force (RPF) personnel.

viii) 5000 beds are being provided in 50 Railway hospitals for treatment of patients suffering from Covid-19. Further, 11,000 quarantine beds have been made available across Indian Railways to fight COVID-19.

ix) Availability of sufficient number of Personal Protective Equipment (PPE) would be critical in the fight against COVID-19. Action has been taken by zones and production units to procure sufficient ventilators and PPEs to meet their needs to fight COVID-19. In house development of PPE as per specifications is also underway in zonal railways. This will supplement the supplies of PPEs through market

x) Indian Railway is converting over 5,000 train coaches across to serve as Covid Care Centers. Design has been done, prototype approved and production action has been started by Zonal Railways.

To ensure safety of staff and boost their morale, following is being ensured at all workplaces:

- Masks and hand sanitizers are being made available to all staff coming on duty. These are also being ensured for contract labourers. Railway workshops, coaching depots and hospitals have risen to the occasion and are locally producing sanitizers and masks to supplement supplies.
- Soap, water and washing facilities are being provided at all work places. Local innovations like foot operated washing facilities have been introduced.
- Social distancing is being ensured. Awareness in this regard is being regularly spread amongst all staff like trackmen, locomotive pilots etc

Way Forward
Indian Railways is working steadily to realise its vision of becoming one of the most modern and safe Railway systems in the world. The priorities have been set on safety improvement, capacity augmentation, infrastructure upgradation and technology driven modernization.

Both freight loading and passenger operations received a setback towards the end of the financial year due to the Covid-19. Corona warriors of Indian Railways have geared up to meet this challenge and have resolved to double the speed of freight trains and double the freight loading of Indian Railways by expanding the freight basket in coming times. The train time table of I.R. is being rationalised. The whole organization is working with an unflinching focus to achieve these goals. I am sure, Indian Railways, the great organization will emerge stronger from the Covid crisis.
New Initiatives for Accelerated Infrastructure Development & Maintenance

Vishwesh Chaube, Former Member Engineering

Over last two decades, traffic on Indian Railway tracks has increased out of proportion as compared to addition of new lines and routes; with 96% traffic moving on 51% of track. This has put an unprecedented pressure on existing tracks and track maintainers. Increased traffic on the existing tracks has also reduced available margins resulting in shrinking traffic blocks required for maintenance of track and other engineering assets. This makes it imperative not only to resort to methods of faster construction of railway lines and relaying but also to introduce modern monitoring and maintenance technologies in a big way in the field of Track, Bridges and Tunnel maintenance. Indian Railways have taken a number of new initiatives to expedite infrastructure creation and reduce human dependence in track inspection & monitoring, maintenance and construction methodologies by inducting several new modern technologies.

Policy Initiatives

- Out of all sanctioned projects 58 No. of projects have been identified as supercritical projects and 68 No. as critical projects. The completion of these projects is being monitored regularly at Board’s level. Sufficient funds are made available for these projects. The completion of these identified projects would considerably enhance railway throughput.
- For Project execution EPC tenders are now being called. Standard RFP and MCA for EPC tenders have been issued by Railway Board. Guidelines have also been issued to update Detailed Project Reports. Instructions have also been issued to call EPC tenders only after freezing of ESPs, minimum 90% availability of land and forest clearance.
- CAOs acceptance powers for EPC tenders have been increased to `1000 cr. CAOs have also been empowered to award consultancy contracts each costing up to `5 crore. Instructions have also been issued not to insist for EMD or security deposit for consultancy works to IITs, IISc, and NITs etc. This all would enable CAOs to make EPC a big success and a game changer in the progress of works.
- For settlement of contractors’ disputes arising out during the execution of EPC contracts, the concept of ‘Standing Arbitration Tribunal’ has been introduced in EPC contracts. Railways would find it a step forward in the direction of expeditious settlement of contractors’
disputes and corresponding increase in progress of works.

- Revised General Conditions of Contracts Sept 2019 with a number of good provisions like bonus for early completion of work, additional PG for low quoted contracts, issuance of credentials to subcontractors etc. have been issued. This would help railways in getting good agencies for execution of works.
- Indian Railways Unified Standard Schedule of Rates (IRUSSOR-2019) for P.Way, Bridges and Formation works has been issued by Railway Board. IR P.Way SOR has been issued for the first time. Indian Railways have also decided to adopt CPWD SOR for building works. Necessary instructions have been issued. This will not only help railways in keeping SOR updated but also increase bidders for railway works.
- To expedite finalization of agencies for execution of works mainly maintenance works of Divisions, two member Tender Committee has been allowed for works costing up to ₹5 crore.
- E-module for works contracts management system IRWCMS has also been launched over IR. It would enable Engineers to manage contracts effectively.
- For expeditious approval of engineering drawings, the procedure has already been streamlined and necessary instructions issued. Recently, Chief Engineer/ Construction has been empowered to approve GADs of ROBs/ FOBs/ Rail flyovers also. Further, an e-application e-DAS has been developed and launched over different Zonal Railways for online approval of all drawings. It is expected that the complete transfer to eDAS shall take place by 31.03.2020.
- E-portal for on-line CRS sanction has also been developed and launched for ‘Minor Works’ sanction. Soon, e-module for on-line CRS sanction for increasing the sectional speed, opening of new sections and electrification will be launched. This will not only expedite CRS sanction but would also enable railways to keep tab on compliances to the observations made by CRs.

A number of provisions of IRSOD have been rationalized to ensure expeditious commissioning of projects.

**Infrastructure Development**

- Unlike new lines and gauge conversion projects, the timely execution of doubling project is largely dependent on the support provided to executing agencies by Divisions/Zonal HQs. Timely approval of ESPs, SIPS, identification of affected utilities, reduction in number of crossing stations, pro-active role in planning and availability of traffic blocks reduces the time of commissioning substantially. In addition to the above, the timely completion of project depends mainly on the clear responsibilities brought out in contract document and the quality of contractor engaged for the work. Emphasis is therefore being given to improve the quality of tender documents. All relevant information about the site conditions, utilities to be shifted, existing trees, availability of encumbrance free land, availability of traffic blocks etc. etc. is now being studied and suitably incorporated in the tender documents so as to eliminate or reduce the surprises to a minimum during execution.

A good contract document is being ensured for successful timely completion of project.
- The system of writing of Performance Appraisal Report of contractors which has gone into disuse is now being re-introduced so that there is check on the quality of contractors participating for railway projects. Necessary changes in IREPS module are being done to enable engineer-in-charges of the contract to fill Performance Appraisal Report of contractors.
- Use of prefab construction, latest machinery, standard bridge spans not only reduce the time requirement of speed restriction and traffic blocks, but also expedite commissioning of project. The track linking on service rails and then use of long 10/20 rail long panels for doublings has given fillip to speed and quality of doublings. Similarly, Pre NI and NI working is being planned in close association with Divisions so that projects are completed with minimum disruption to traffic.

**Road Transport Infrastructure Development**

- A new project for doubling works in Ranchi-Bondamunda Section is in progress.

- To economise the cost of construction, rationalisation of blanket layer thickness on Indian Railways have been done for providing stable formation for anticipated traffic needs. This would not only reduce the cost but also expedite the progress of construction projects.
- With impetus on completion of projects, Railways have achieved ever highest progress in commissioning of new line/gauge conversion/doubling this year. The comparative position of progress in year 2019-20 (up to Feb’20) vis-à-vis in 2018-19 is given in the Table below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Apr’18-Feb’19</th>
<th>Apr’19-Feb’20</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Line</td>
<td>km</td>
<td>349</td>
<td>278</td>
</tr>
<tr>
<td>Gauge Conversion</td>
<td>km</td>
<td>376</td>
<td>408</td>
</tr>
<tr>
<td>Doubling including DFC</td>
<td>km</td>
<td>1066</td>
<td>1239</td>
</tr>
<tr>
<td><strong>TOTAL (km)</strong></td>
<td></td>
<td>1791</td>
<td>1925</td>
</tr>
</tbody>
</table>

**Infrastructure Maintenance**

In the recent past, there has been material change in the way track is maintained. Production of long rails at Bhilai has increased from 4.42 lakh MT in year 2018-19 to 5.8 lakh MT in year 2019-20 till Feb 2020 and from next year is likely to increase to 8 lakh MT. Further, from year 2020-21 onwards Railway will be shifting to R260 & R350 grade rails having higher yield strength. Parameters of rolling stock which are critical from Rail Wheel interaction point of view are being given...
due emphasis. Clearance criteria for new rolling stock shall be on the basis of UIC 518 for which necessary equipments and expertise is being created in RDSO. A few of other major developments in maintenance of track are as under:

**Complete Mechanization**

Indian Railways have already drawn a roadmap for complete mechanisation of track maintenance by 2024. Over 1897 No. of large track machines will be added in Indian Railways in next 3-4 year time to the existing fleet of 970 track machines. Action has already been initiated for development of required infrastructure facilities for Intermediate Overhauling (IOH), Periodic Overhauling (POH) of track machines. Construction of stabling sidings for machines at every 30-40 km with all essential amenities like electricity, water supply, working platform etc. is in progress all over Indian Railways.

**Vehicular USFD**

Vehicular USFD testing of Rail has been inducted on Indian Railways in the year 2019 on Rajdhani routes of New Delhi – Ratlam and New Delhi – Mughalsarai. Presently, the speed of testing is 40 km/hr, making the system capable of testing about 100 to 150 km of track every day. Compared to the present system of pedestrian USFD testing of rail, the vehicular system would bring in a substantial improvement in speed and reliability of testing of rail. Indian Railways have planned for extensive proliferation of vehicular USFD testing.

**Rail Grinding**

Rail Grinding Technology is an advance technology and has been introduced on IR sometime back with induction of two 72 stone Rail Grinding Machines (RGM). With encouraging results of this technology in reduction in defect generation rate and rail fractures, additional 12 RGMs with higher capacity (96 stones) along with Switch Rail Grinding Machines (SRGM) are being introduced in the system.

**Test Track**

To carry out different type of trials including oscillation trials of rolling stock as well as field trials of track fittings, so as to expedite trials and absorb new technologies over Indian Railways, there was an urgent need to have Test Track. The construction of the same has been started and soon railway will have its own Test track.

**Switching Over to Predictive Maintenance**

Till now, Track Maintenance was based on track parameters measured on chord lengths of 3.6m and 7.2 m. These chord lengths were relevant when 4-wheelers were running over Indian Railways. However, with introduction of 8-wheelers and high speed trains, there was an urgent need to revise the chord lengths for measurement of track.

Revised chord lengths of 9m and 15/18m have been finalised and track tolerances with these chord lengths have been incorporated in IR PWay Manual for planned maintenance, need based maintenance and urgent maintenance of track. Track tolerances have also be specified for construction of new track. This has enabled railways to switch over to predictive maintenance of track based on TRC results of each 200m block of track. Further, this would also enable railways to switch over to UIC 518 standards for clearance of new rolling stock.

**Mobility Improvement**

In order to increase the mobility and improve the throughput over traffic sections, action on mission mode has been undertaken to increase sectional speed, speed on loop lines and relaxation of permanent speed restrictions over Indian Railways. During the last five years, sectional speed has been raised over 17500 km of track; loop line speed has been raised to 30 km/hr over 11800 km of route. 1515 No. of permanent speed restrictions have also been either removed or relaxed.

**Weldable CMS Crossing**

To improve running over points & crossings, weldable CMS crossings have been planned for all important routes of Indian Railways. First priority is on Delhi – Howrah route, followed by Delhi Mumbai route.

**AT Welding Improvement**

One of the major concerns of Engineers was to improve the quality of AT welding. A number of steps have been taken in this direction to improve the quality of AT Welding; a few of them are as under:

- **Single shot crucible**
  This helps in preventing entrance of impurities into weld chemistry due to re-use of crucible done in past.

- **Auto thimble technology**
  This helps in removing subjectivity of welder to decide when to pour the molten material.

- **Three piece mould**
  This avoids formation of shin at the bottom of weld and thus avoids stress concentration points, thereby improving the quality of weld.
Better monitoring of individual welders & their supervisors has been made possible through an e-module in Track management System (TMS).

Thick Web Switches
Policy decision has been taken to use only Thick Web Switches on IR network. This enhances mobility due to higher permitted speed on loop lines, improves safety due to better geometry & strength and also improves maintainability. More than 3000 No. of Thick Web Switches have already been laid in track on Indian Railways by now. To expedite procurement of thick web switches, Zonal Railways have been empowered to procure the same as per their requirement.

LWR through Point and crossings
Presently, long welded rails (LWR) are being provided in the block sections and yards but excluding point & crossing area. This necessitates provision of switch expansion joints (SEJ) near point & crossing since SEJs are always a weak area and require frequent maintenance; technology has been developed to carry LWRs through point & crossing area also thereby eliminating the need for provision of SEJs. This is expected to bring substantial improvement in running through yards. Standard yard plans have been circulated to all Zonal Railways for carrying out LWR through Point and Crossings through one yard in each division initially and on New Delhi- Howrah and New Delhi- Mumbai routes on priority.

Wider and heavier PSC Sleeper for 25T axle load
Indian Railways have adopted a new design of wider & heavier pre-stressed concrete sleeper (RT 8527) fit for 25 T axle load after successful laboratory testing including fatigue testing and extensive field trails over Zonal Railways. Wider & heavier sleepers have more frame resistance against buckling. This would enable reduction in de-stressing temperature and corresponding reduction in rail or weld failures.

Increased rail seat area of wider sleeper would also increase rubber pad life. Increased sleeper base width is also expected to reduce ballast pulverization.

Safety of Track Maintainers
Provision of VHF based Approaching Train Warning system to pre warn track maintainers for any approaching train on track is being made on golden quadrilateral and diagonal routes over Indian Railways. Further, Utility Veh ides (UTV) and Rail Borne Maintenance Vehicle (RBMV) are being provided to each subdivision so as to progressively shift to 3-tier maintenance system, thereby considerably reducing the manual maintenance of track.

Elimination of Manned Level Crossings (MLCs)
Indian Railways have already eliminated unmanned crossings over its network. To increase safety and
average speed of trains, Ministry has decided to expedite elimination of manned level crossings also in a phased manner.

- Total 631 No. of manned level crossings have been eliminated during 2018-19, 1226 No. during 2019-2020 till Feb 2020, as compared to total 199 No. during 2009 to 2014. Year wise elimination of MLCs is as under:

  ![Elimination of Manned LCs](image)

- **Bridge Rehabilitation**
  A large No. of railway bridges are more than 100 years old. Indian Railways is expediting repair or rehabilitation of such old bridges. During the current year, till February, 2020, total 1307 No. of bridges have been rehabilitated, which is 47% more as compared to the year 2018-2019.

  ![Bridge Rehabilitation](image)

- **Rail Renewal**
  In order to improve safety, renewal of track has been taken up in a mission mode. During last five years, complete track renewal of 15909 track km has been done, which includes 16404 track km of Through Rail Renewal (TRR) (Primary). Indian Railways has achieved progress of 4918 track km of TRR (Primary) in year 2019-2020 till Feb 2020. This is the highest ever progress of TRR in a year over IR. Significant progress has been achieved in other maintenance areas in year 2019-20 as compared to last year; the comparative position is as shown in Table below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Apr’18 –Feb’19</th>
<th>Apr’19 –Feb’20</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRR(P)</td>
<td>Tkm</td>
<td>3877</td>
<td>4918</td>
</tr>
<tr>
<td>Deep Screening of plain track</td>
<td>TKm</td>
<td>7139</td>
<td>7997</td>
</tr>
<tr>
<td>Deep Screening of turnouts</td>
<td>No.</td>
<td>5721 (4291 Tkm)</td>
<td>7433 (5575 Tkm)</td>
</tr>
<tr>
<td>Rail Procurement</td>
<td>lakh MT</td>
<td>9.25</td>
<td>12.83</td>
</tr>
<tr>
<td>Elimination of MLCs</td>
<td>No.</td>
<td>495</td>
<td>1226</td>
</tr>
<tr>
<td>Construction of ROBs/RUBs</td>
<td>No.</td>
<td>1316</td>
<td>1257</td>
</tr>
<tr>
<td>Rehabilitation of Bridges</td>
<td>No.</td>
<td>888</td>
<td>1307</td>
</tr>
<tr>
<td>Construction of FOB</td>
<td>No.</td>
<td>162</td>
<td>248</td>
</tr>
<tr>
<td>Raising of Sectional Speed</td>
<td>Route Km</td>
<td>4986</td>
<td>5182</td>
</tr>
<tr>
<td>Construction of boundary wall</td>
<td>Km</td>
<td>181.28</td>
<td>219</td>
</tr>
</tbody>
</table>

With above initiatives it will be possible for Indian Railways to increase maximum & average speed of Trains and throughput considerably on its network in near future.
In the present scenario, digitization affects almost every business activity, if not directly, then indirectly. The key business priority of almost every industry will find itself in the centre of this upcoming digital era. Hence it is crucial for all organizations to understand the implication of digitization on their businesses. Current scenario emphasises on the importance of management of people and organization issues in digital transformations. The effect of digitization includes varied impacts on economy as a whole; create tremendous opportunities and challenges for businesses. In the current world of globalization, digitization is no longer a choice but a must for all businesses across all industries. Only those organizations will remain efficient who are able to keep up with the technological advancement that this digital transformation has to offer.

Indian Railways, with annual goods procurement of over ₹72,000 Cr., is an organization confronted with increasing global competition, price volatility and cost reduction pressures. Thus, a digital technology-focused procurement strategy becomes critical to business success. Such a strategy reimagines the supply chain to upgrade its role to one that is value-driven and aligned with business goals. Indian Railways in this scenario has not only understood the importance of embracing digitization in its Supply Chain, but has, to a great extent, assimilated these advancements into its working thereby inching closer and closer to its goal of end-to-end digital Supply Chain.

Digitization of Materials Management functions over Indian Railways which humbly started with e-tendering and e-auction on Indian Railway E-Procurement System (IREPS) platform has transformed into digital supply chain with single window solution for all stakeholders. It is developed on the underlying concept of Transparency, Efficiency and Ease of Doing Business. System has paperless process capabilities and all the processes of IR’s Supply Chain as well as scrap disposal are in digital mode.

Business process reengineering is hallmark of the system. Especially for “Ease of Information”, a lot of useful information has been proactively made available in public domain. Information includes Tenders published and supply contracts. Tender decisions are online ensuring efficiency and accountability. Digital documents are online and instantly available to vendors.

IR’s digital transformation is focused on delivering:

- Enhanced control and efficiency across all “source-to-pay” activities
- Real-time visibility into category and supplier performance
- Proactive monitoring and mitigation of supply chain risks
- Granular as well as big picture insights for effective decision-making
- Lower total cost
- Greater procurement agility
- Higher stakeholders’ satisfaction

The biggest advantage of digital technology comes from its ability to optimize the supply chain performance by integrating data from different stakeholders and applications in real-time. Integrated Materials Management System (iMMS) is one such application. IMMS was conceptualized as a single and standardized Materials Management platform, synergizing the efficiencies of supply chain functions spread across various Zones, Production Units and other units of Indian Railways. Mammoth and challenging task of bringing all local and working/running MMIS applications of these units of Indian Railways on the centralized server of CRIS and integrating them has been successfully completed. It has ensured standardization of processes, practices and database over all Railway Units. IMMS, along with IREPS, has made it possible to realize the goal of Indian Railways to completely digitize the supply chain. Today, Digitisation has been done for almost all the processes of the supply chain, such as, stocking proposals, generation of demands, Quantity Working Sheet, Purchase Proposal, NIT creation and publication, payments of EMD, bidding, tender finalization including technical scrutiny, issue and online delivery of LOA/Purchase Orders, Receipted Challan and Receipt Note to vendors.

Furthermore, to achieve end-to-end digitisation of Supply Chain, few gaps such as manual accountal of non-stock items, paper based functioning of Stocking depots other than Stores Depots, etc. have been identified and are also being digitized.

Such a demanding journey cannot be completed without reliable partners. With digitalization becoming a commonplace, it’s important to ensure that your supplier relationships are managed effectively. Indian Railways has ensured that policies and processes remain vendor friendly and more and more vendors/bidders jump on the bandwagon. Assimilation of technology has enabled Indian Railways to establish and maintain a strong supplier base.

The no. of registered vendors/contractors, just 7912 in 2009-10 saw more than three-fold increase in 5 years with 25562 vendors/contractors registered by 2014-15. This further increased six-fold in the next 5 years with more than 1.6 lakh registered vendors/Contractors on IREPS upto Feb’20.

Needless to say that such increase is only possible when suppliers see benefits in associating with Indian Railways. Through digitisation, various benefits have been made available to vendors. Few of them are:

- Online payment and refund process for EMD.
- Online delivery of digital Purchase Orders, Receipted Challan and Receipt Note to vendors.
- Online request for modifications in contract
- Online inspection certificate of RITES and RDSO
- Online bill submission by vendors.
- Online Tracking of vendor’s Bill
- All the documents are digital and instantly available to vendors
- Details of all goods tenders above ₹100 Cr. and all contracts finalized by Railways available in public domain

In addition, following initiatives are also being implemented for the benefits of vendors:

- Centralized vendor approval (technical) module-
  Vendor approval by RDSO and other agencies through a standardized approval process on a centralized portal
- Centralized vendor registration (commercial) module-
  Vendor registered in any of the Railways is considered as registered on pan India basis for providing various benefits.

---

**Year-wise Registered Vendors on IREPS**

<table>
<thead>
<tr>
<th>Year</th>
<th>Vendors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-10</td>
<td>2953</td>
</tr>
<tr>
<td>2010</td>
<td>7912</td>
</tr>
<tr>
<td>2011</td>
<td>11361</td>
</tr>
<tr>
<td>2012</td>
<td>13626</td>
</tr>
<tr>
<td>2013</td>
<td>16459</td>
</tr>
<tr>
<td>2014</td>
<td>19869</td>
</tr>
<tr>
<td>2015</td>
<td>25562</td>
</tr>
<tr>
<td>2016</td>
<td>34222</td>
</tr>
<tr>
<td>2017</td>
<td>58007</td>
</tr>
<tr>
<td>2018</td>
<td>82800</td>
</tr>
<tr>
<td>2019</td>
<td>115239</td>
</tr>
<tr>
<td>2020</td>
<td>168440</td>
</tr>
</tbody>
</table>

---
Being an early adopter of business intelligence and other cutting-edge technologies, Indian Railways has moved away from traditional procurement operations to strategic sourcing. Digital technologies help modernizing the otherwise traditional methods of procurement. However, this modernization is not just limited to simply taking the manual steps onto the digital platform and making processes and sub-processes computer based, but Stores Department of Indian Railways has also decided to modernize its Stores Depots. One depot is being remodeled by each Zonal Railway as ‘Model Depot’. Successful remodeling of these depots will provide us with a launch pad to replicate these efforts in the remaining depots of Indian Railways in a phased manner.

Digitization of supply chain has made it possible for us to move towards Smart Warehousing. With the help of Smart Warehousing, material is being stored and handled in a better way, space is being utilized more efficiently with the help of vertical stacking which not only frees up floor space but also improves material traceability and reduces time in material handling.

Similarly, recently Stores Department has taken over and modernized Procurement, Receipt, Issue and Stock Management of Medical Stores in many Railway units. With this, apart from Medical Procurement process becoming more efficient with reduced procurement cycle times, following benefits have been achieved:

- Automatic Capture of receipt details of medicines
- Accuracy of Data & ease of Traceability.
- Issue of Medicines based on Expiry Date.
- Visibility of stock of Medicines of all the hospitals & health units on “IREPS-अम्ल” mobile application.
- Improved stock management.
- Online inter-hospital request and transfer of medicines.
- Emergency procurement based on stock position of medicine.

**Big Data : As Good As Getting Gold as the by-product**

Digital transformation goes beyond automation or processes moving from paper to online transactions. With lakhs of tenders being floated every year and millions of transactions being done on IREPS and iMMS, a lot of data is being generated and captured at each step of Railways’ mammoth Supply Chain. ‘Big Data Analytics’ examines large amounts of data to uncover hidden patterns, correlations and other insights. With today’s technology, it’s possible to analyze Railways’ ‘Big Data’ and get answers from it almost immediately.

Harnessing of this ‘Big Data’ can help Railways rediscover its working and uncover loopholes and areas of opportunity which are hidden in the otherwise satisfactorily working Supply Chain.

It also enables decision-makers to achieve operational efficiency and monitor performance to improve productivity.

“Less than 1% of data in businesses is analyzed and turned into benefits.”

- Systems, Applications, Products (SAP)
Manpower Planning
Assess Manpower Needs and Rationalize Employee Strength based on Activities, Projects and New Initiative

Recruitment
Mobilize human resources for filling up vacancies through recruitment, transfers and promotions

Learning and Development
Training, skilling and reskilling of employees for new induction and career progression

New initiatives taken
Develop and implement Human Resource Management System and set up the National Rail and Transportation Institute - initiative of national importance

Harmonious Industrial Relations and Employee Engagement
Continuous negotiations with trade unions, employee associations to maintain harmonious Industrial relations and engage employees with management

Staff Welfare and Social obligations
Administer schemes related to staff welfare and implement other organizational social obligations.

We must know that ‘HR works from sign in to sign off’

Manpower in Indian Railways
With more than 12 lakh on roll manpower, Indian Railways is one of the largest public enterprises under single management in the world. Human resource management of such a large manpower, especially deployed in 24x7 operational activities is a challenge in itself. The broad details of the manpower as on 1.04.2020 and also trend of manpower during the last 10 years is given in the attached table/graph.

<table>
<thead>
<tr>
<th></th>
<th>Sanctioned</th>
<th>On Roll</th>
<th>Vacancy</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zonal Rlys</td>
<td>14,40,123</td>
<td>11,61,917</td>
<td>2,78,206</td>
<td>19.32</td>
</tr>
<tr>
<td>PUs</td>
<td>48,295</td>
<td>40,586</td>
<td>7,709</td>
<td>19.21</td>
</tr>
<tr>
<td>Other Units</td>
<td>20,882</td>
<td>15,832</td>
<td>5,050</td>
<td>24.18</td>
</tr>
<tr>
<td>Total</td>
<td>15,09,300</td>
<td>12,18,335</td>
<td>2,90,965</td>
<td>19.28</td>
</tr>
</tbody>
</table>
Learning/Training and Development

Improvement of employee productivity has a direct correlation with training and skill development of employees. From the table, it is observed that in Indian Railways, we train more than 36% employees every year. In absolute number, the figure of employees trained in initial, promotional, refresher and specialized courses is more than 4.20 lakh during the year 2019-20.

<table>
<thead>
<tr>
<th>Year</th>
<th>Initial</th>
<th>Promotion</th>
<th>Refresher</th>
<th>Specialised</th>
<th>Total</th>
<th>% Trained</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-15</td>
<td>70,178</td>
<td>41,106</td>
<td>1,06,849</td>
<td>1,05,872</td>
<td>3,24,005</td>
<td>24.8</td>
</tr>
<tr>
<td>2015-16</td>
<td>75,756</td>
<td>28,828</td>
<td>1,32,399</td>
<td>1,24,246</td>
<td>3,61,229</td>
<td>27.5</td>
</tr>
<tr>
<td>2016-17</td>
<td>69,774</td>
<td>29,301</td>
<td>1,25,945</td>
<td>1,19,424</td>
<td>3,44,444</td>
<td>26.5</td>
</tr>
<tr>
<td>2017-18</td>
<td>77,667</td>
<td>37,595</td>
<td>1,37,005</td>
<td>1,39,264</td>
<td>3,91,531</td>
<td>31.4</td>
</tr>
<tr>
<td>2018-19</td>
<td>36,215</td>
<td>34,915</td>
<td>1,55,491</td>
<td>1,99,273</td>
<td>4,57,353</td>
<td>38.0</td>
</tr>
<tr>
<td>2019-20</td>
<td>91,737</td>
<td>27,695</td>
<td>1,69,061</td>
<td>1,35,497</td>
<td>4,23,990</td>
<td>36.5</td>
</tr>
</tbody>
</table>

Department-wise Manpower - Zonal Railways (as on 01.04.2020)
Staff Training mandays (year wise)

New Initiatives in Training
- In the recent years Railways has transformed its training environment and its work in progress.
- Existing Training Modules and period of training revised in 2019 to incorporate technological change and changes in working scenario.
- All updated training modules uploaded on Railnet for easy accessibility to Railway employees even from remote corners.
- Creating a Knowledge website with pool/bank of updated rules/regulations and manuals accessible easily at website from remotest corner
- Instructions to Railways issued to conduct all feasible trainings in online mode except on the job training and field training.
- Online training is gaining importance in view of the COVID-19 pandemic. It will lead to reduced travel and other expenditure and improve staff availability for training.

Project Saksham - New Initiatives in training of employees
- Mission to incorporate lifelong and on the job learning in the organizational culture
- 5-days programme for all Railway staff – first phase completed in 10 months in 2018: 12,46,762 (99%) trained.
- II\textsuperscript{nd} phase launched w.e.f. 01.04.2019; 11,42,716 (94%) Railway employees trained.
- Implementation monitored on a real time basis through a web-based portal

Human Resource Management System
- It is a game changing initiative of Indian Railways to digitize its employee records and computerize processing of its HR functions through various modules under HRMS.
- HRMS will provide complete digital solution for all HR matters. Once developed fully, it will be a comprehensive repository of personnel information of more than 12 lakh employees. In fact, the HRMS will be a game changing initiative which will integrate the existing similar packages - IPAS, REIS, e-Office and AIMS into one system.

Mobile App for Employees in HRMS
- Android version is developed and released
- iOS version to be released soon
- Downloaded by more than 3.2 lakhs employees today
- Employee Profile can be viewed
- Electronic Service Record (e-SR) can be viewed
- Scanned image of manual Service Record can be viewed

Mobile HR App
- In a unique development, Railways has launched a Mobile App for its employees who can view their profile and service record through this Application.

RECRUITMENT
Introduction of a transparent, fair and efficient Recruitment System in Indian Railways
- In an endeavour to bring efficiency and enhancing the objectivity, transparency and credibility of Railway Recruitment Boards (RRBs) further, IT-based recruitment system as a path-breaking exercise was initiated. The effective measures undertaken to make the recruitment process of Railway Recruitment Boards (RRBs) fair, efficient and transparent are worth special mention.

Pre Examination stage
Simplified submission of applications by candidates – assured and error free
- As an environmental measure, age old system of paper application got replaced by Online Application System.
- Candidates assured of error free and timely submission of application, which helped in elimination of anxieties.
- It also has inherent advantages like handling of large volume of applications, saving time in scrutiny of applications, weeding out of duplicate/multiple applications etc.

SMS/Email alerts to candidates
- SMS/ Email alerts are being sent to the candidates at every stage of recruitment.
- Candidates are assured and aware of the status of their applications and further stages of recruitment.

Multiple Options for submitting Application Fees
- For submitting examination fees candidates can use:-
  - Bank Challans, internet banking, Debit and Credit Cards.

Mock Test before actual examination
- Provision of mock test before actual examination on the websites of all RRBs provides the candidates an opportunity of familiarizing themselves with Computer Based Testing

Bringing Examination to the doorstep of Candidates
- Earlier RRB examinations were confined to 50-60 major cities only. Now a six fold increase in the number
of examination cities spread over to remote areas like North East, Andaman & Nicobar Islands, Kashmir Valley, etc. has saved large scale crisscross movement of lakhs of candidates.

- Provision of Google Map Links in Admit Card
- To facilitate in locating the examination centers, Google Map links are provided on all the Admit Card. The Admit Card also provides the nearest landmark to the examination centre.

**Landmark Green Initiative**
- Replacement of Paper Applications, duplicate OMR sheets and bulky multilingual Question Booklets with Online Applications and Computer Based Exams has led to tremendous contribution towards betterment of environment. It has saved crores of A4 size sheets and resulted in savings of lakhs of trees from cutting.

**Landmark Initiatives towards Transparency**
- An extremely transparent and candidate friendly system of uploading the question paper, candidates own responses and correct answer keys on RRB websites has been initiated.
- Going a step further, candidates have been given an opportunity to raise the objections regarding correctness of questions/answer keys, if any. The result is prepared after consideration of such objections by the team of subject matter experts.

Recruitment during last 6 years done by Indian Railways

- As a hub for research, set up a Centre of Excellence with University of Birmingham in December 2019
- Initiated research project on Signalling simulation with University of Birmingham.
- Initiated process to seek Cabinet approval for conversion of NRTI into a Central University and Institute of National Importance (INI)
- Finalised master plan for 47-acre campus of NAIR and awarded its construction to RVNL
- Issued notification for launching 2 new undergraduate and 6 new master’s programs to admit about 300 students this year
- Prepared academic plan which envisages NRTI growth to 5000 students within 5 years

**National Rail and Transport University**

Indian Railways has moved into new areas of launching a University of international repute dedicated for transportation and railways.

- NRTI is operational since 2018, with 200 students in 2 residential BBA/BSc programmes
- Held virtual classes and online courses for Trimesters 3 & 6 for 1st year and 2nd year BBA/BSc students
- Organised 6 weeks online industry internships for 2nd year students
- National Rail and Transportation Institute at Vadodara

**Industrial Relations**

- There are 2 staff Federations at Board level- AIRF and NFIR
- Out of 17 zones, there are 2 Unions recognised in 11 Zones and 6 Zones have single Union.
- Permanent Negotiating Machinery (PNM)
  - Since 1951 at 3 levels -
    - Board (6-monthly), Zones (Qtrly) & Divisions (Bi-monthly) meetings are held.
    - Production Units have Staff Councils. (except RCF, Kapurthala)
    - Union representatives participate in Quarter, SBF, Hospital and other Committees.

**Staff welfare Measures**

Indian Railways has ensured multi pronged measures to ensure staff welfare and motivation which are broadly as under:

1. Introduction of Staff Benefit Fund
2. Personalized interaction for ensuring the welfare of staff
3. Other Welfare measures like Schools, Hospitals, recreation facilities, Holiday Homes etc.

**Railway Staff Benefit Fund - Purpose & Utilization**

- Present per capita contribution is ₹ 800 per annum.
- Ayurvedic & Homeopathic Dispensaries are run for medical treatment of Railway Employees.
- AYUSH system of medicine introduced on five Railway hospitals in 2016 (New Delhi, Mumbai, Chennai, Kolkata & Guwahati).
- At present total number of 196 dispensaries functioning over Indian Railways.
- Out of this, 44 Ayurvedic, 139 Homeopathic and remaining 13 functioning under Unani/ Siddha, Yoga and Naturopathy (AYUSH)
Canteens
Railway has set up Canteens - Statutory Canteens (for workers covered under Factories Act) & non-statutory Canteens to provide wholesome and subsidized meals to its employees at their workplace. Total Number of Canteens on IR is 263, out of which approx. 93 are Statutory and 170 are non-statutory canteens.

Creches
Child Care Centers with a safe and stimulating surrounding are also provided to female Railway Employees. A total No. of 45 Creches are functioning on different zones of IR.

Education of Children of Railway Employees Working in Remote Areas
There are 182 schools run by Railways in which more than 2,200 teachers are employed and more than 1.30 lakh children are studying. The schools mostly provide schooling for children of railway employees who are serving in remote parts of the country.

Cultural Activities & Recreational Facilities

Cultural Programs
- Inter-Railway/Divisional Cultural competitions in dance, drama and music are organized by Zonal Railways.
- A Running Shield is awarded to the best performing Railway in all these three items.
- Every year, ₹3 lakhs for Music & Dance & ₹ 4 lakhs for Drama Competition is sanctioned by Railway Board.

Holiday Homes
Indian Railways has a network of 98 Holiday Homes at Hill Stations, Sea side resorts & other important places to enable its employees to spend Holidays inexpensively with their families.

Recreational Activities
For this purpose, Indian Railways has established rent-free Institutes/Clubs with sports and library facilities under statutory provisions to encourage its employees to participate in healthy physical exercises and inculcate reading habits.

Community Service - Scouts & Guides
A Railway Scouts & Guides Board (RSGB), operational under the Chairmanship of AM/Staff, distributes annual grant from Staff Benefit Fund and monitors its utilization.

The Scouts and Guides are deputed in conducting various relief activities during accidents, natural calamities etc in addition to undertaking social and environmental measures such as tree-plantation, blood donation, maintaining cleanliness, managing crowd during large gatherings such as Kumbh Mela etc.

Role of Indian Railways in Sports and Future of Sports in India

Apart from its social obligation towards traffic transportation, Indian Railways has also been contributing in the field of Sports as a part of its CSR initiatives since 1928. Railway Sports Promotion Board (RSPB), the Sports-Arm of Indian Railways has been working tirelessly for making available an eco-system of sports within Indian Railways to the young, talented sportspersons and also for providing opportunities and exposure to them to exhibit and brush up their talent and skills so as to produce high-achievers for the nation at the international platforms. Presently, RSPB is affiliated as an associate member of 28 National Sports Federations and member of International Sports Union for Railways (USIC). With approximately 8,000 sportspersons and officials on its rolls, Railway Sports Promotion Board with the help of its 33 Zonal Railways and other associated Units, has been consistently working on promotion of various sports activities.

We have 23 Padamshree, 166 Arjuna Awardees, 11 Dhyanchand, 9 Dronacharya and 6 Rajiv Gandhi Khel Ratna Awardees on Indian Railways, which is a rare feat for any Sports entity. In 2019, Ms. Bombayla Devi Laishram, Archer was awarded with Padmashree; Shri Bajrang Punia, Wrestler with Rajiv Gandhi Khel Ratna Award. Arjuna Awards were conferred to Shri S. Baskaran, Weightlifting player; Ms. Sonia Lather, Boxer; Shri Chinglensana Singh Kangujam, Hockey player, and Ms. Poonam Yadav, Cricket player. Shri Nitten Kirrthane, Tennis player was conferred with Dhyanchand Award.

Ms. Bombayla Devi Laishram - Archer receives Padma Shri award from Hon'ble President
Health services on Railways began in the year 1853 with the appointment of three doctors. Before independence, there were forty two Railway systems, each following a separate health policy. Post-independence it was integrated into one dedicated Indian Railway Health Service (IRHS), erstwhile (IRMS), providing modern allopathic treatment. Today IRHS is providing comprehensive health care to its nearly 1 crore beneficiaries, using the latest technology, treatment protocol, implants, surgical techniques, medicine etc at par with any world class health service provider.

Healthy workforce is the most important asset of any organization. Keeping the same in view apart from Periodic Medical Examination (PME), Annual Health Check-up of all Railway employees is being ensured by IRHS. As envisaged in mission statement ‘Total Patient Satisfaction’ has been the hallmark of these services. There are a host of other activities in addition to preventive, promotive and curative care provided to Railway beneficiaries like first aid to travelling passengers, attending accidents, colony sanitation, implementation of Food Safety Standards Act (FSSA), various national health programmes and providing post-graduation, which study programmes are being provided by IRHS. Our health services inspire great confidence amongst the beneficiaries.

**Manpower, Infrastructure and No. of Beneficiaries all over Indian Railways**

<table>
<thead>
<tr>
<th>Infrastructure and Manpower</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Hospitals</td>
<td>128</td>
</tr>
<tr>
<td>No. of Indoor Beds</td>
<td>14,000</td>
</tr>
<tr>
<td>No. of Health Units/Polyclinics</td>
<td>586</td>
</tr>
<tr>
<td>No of Doctors</td>
<td>2592</td>
</tr>
<tr>
<td>No of Paramedical and other staff</td>
<td>41,000</td>
</tr>
<tr>
<td>No of total Beneficiaries</td>
<td>Approximately 1 cr.</td>
</tr>
</tbody>
</table>

**Work load OPD & IPD**
Open heart surgeries, Complex Vascular Surgeries, All Cardiology Procedures, Onco Surgeries, Laparoscopic Surgeries, Spine Surgery, Joint Replacement Surgery,
Retinal Surgery, Cochlear Implant etc are being done in major railway hospitals. Private hospitals are also empaneled for providing specialised care to our beneficiaries.

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of patients treated in OPD</td>
<td>2,03,99,556</td>
</tr>
<tr>
<td>No. of patients treated as Inpatient</td>
<td>5,26,273</td>
</tr>
<tr>
<td>Major Surgeries performed (including Cardiac, complex Onco surgeries etc)</td>
<td>1,79,235</td>
</tr>
</tbody>
</table>


As part of Industrial health, Pre-employment Medical examinations, Periodic medical Examination for Railway employees are being routinely done.

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candidates pre placement Medical Examination</td>
<td>1,70,599</td>
</tr>
<tr>
<td>No. of Employees who underwent Periodical Medical Examinations</td>
<td>1,20,211</td>
</tr>
<tr>
<td>No of Railway staff who underwent annual health check up</td>
<td>9,72,446</td>
</tr>
</tbody>
</table>

**Health & Family Welfare**

Preventive health care is given due importance. Quality of food and water are monitored very closely. Health awareness camps are regularly organized. All the National Health Programmes are being run successfully within the Railway Health infrastructure.

With decline in incidence of infectious diseases, lifestyle diseases are gaining importance as public health indicator. IRHS has already taken due cognizance of the same and is actively promoting good lifestyle practices among our beneficiaries.

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of water samples tested for Bacteriological examination</td>
<td>82,692</td>
</tr>
<tr>
<td>No. of water samples tested for Residual Chlorine level</td>
<td>12,00,389</td>
</tr>
<tr>
<td>No. of Food samples collected for testing under FSSA</td>
<td>3,670</td>
</tr>
<tr>
<td>No of Multiple Health drives conducted</td>
<td>26,030</td>
</tr>
</tbody>
</table>

**Railway Accidents & First Aid to passengers**

Railway Health services perform a very vital duty at the time of Railway accidents and other such untoward incidents. The medical aid to the passengers travelling is provided as a matter of courtesy.

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Railway passengers attended by Railway doctors</td>
<td>67,231</td>
</tr>
</tbody>
</table>

**Mock Drills of Disaster Management being done regularly**

**Other Highlights**

- IRHS has played a major role in making India a “Polio Free Country”.
- AYUSH facility has been started in five zonal hospitals at New Delhi, Kolkata, Mumbai, Chennai and Guwahati. MoU has been signed between Ministry of AYUSH and Railways.
- As a part of Swachhta Abhiyan, regular drives are conducted for cleaning of Railway colonies and hospitals.
- Online system for issuing food license to food business operator is being developed in coordination with Food Safety and Standards Authority of India.
- Initiative to start Eat Right Stations certified by FSSAI started – this will make availability of healthy, nutritious and quality food to railway passengers.
- Academic achievement – At present, ten railway hospitals are functioning as institutions for training and teaching of Post Graduate & Super Speciality DNB program. 324 students are enrolled in various post graduate courses. Railway Medical Officers are regular contributors to International Journals & conferences in the field of Medical Science.
- Reservation of 50% seats in Post Graduation (PG) courses provided by DNB in Railways for In service Railway doctors.
- Continuous Medical Education being done routinely both for doctors and paramedical staff (both for doctors and paramedicals).
- Annual Wellness Assurance Check-up (AWAC) for Railway employees is conducted every year and twice a year for Railway Police Force (RPF)
- 91 railway hospitals are empanelled by National Health Agency for providing medical treatment to beneficiaries of Pradhan Mantri Jan Arogya Yojana (PMJAY) – Ayushman Bharat scheme

A special reference goes for Indian Railway Health Service fighting the current COVID-19 pandemic
- Railway hospitals are working as a team with Central and State governments for providing COVID treatment facility.
- 50 Railway hospitals are offering medical treatment to COVID patients and few Railway hospitals have been taken by State authorities as Designated COVID Centres for providing treatment to COVID patients.
- 5,232 Rail coaches were converted to COVID isolation coaches.
- A special mention goes to Southern Railway where new under construction building was converted to

![Inauguration of COVID ward by DGRHS](image)

![New COVID ward with oxygen supply](image)

100 bedded COVID hospital with central oxygen and suction supply in a matter of 75 days.
- Instructions for reimbursement of medicines procured by Railway beneficiaries during COVID pandemic to avoid multiple visits to hospital have been issued.
- RT-PCR test for COVID started in NRCH and also in process in other Railways.
- Telemedicine consultation started in NRCH by Railtel.

![New Railway Hospital building at Perambur, Southern Railway](image)

The established fact is that by taking simple steps like maintaining Physical distance, wearing masks, washing hands regularly and avoiding touching face area one can stay safe from COVID-19 infection.

‘Stay Safe, Stay Healthy’
Catering to a nation with population exceeding 1.3 billions, the passenger transport of Indian Railways faces very high demand of seats and berths. The demand supply gap has widened over the years despite capacity augmentation by Indian Railways. Out of 23 million passengers travelling everyday, 93% are unreserved passengers as IR is able to provide reserved accommodation to only 7 percent of the travelling public. Therefore, the reserved seats on sale are only about 16 Lakhs every day. Out of these 16 lakhs reserved seats provided, the share of IRCTC online ticketing is about 72%, i.e. about 11.7 Lakhs confirmed reserved tickets are sold through IRCTC website. Only a small fraction of these tickets are available in the tatkal segment and therefore, the demand supply gap is even more pronounced in the tatkal tickets. This demand supply gap has led to mushrooming of many touts who use different means to corner reserved seats and then sell them to the needy on premium.

When the online ticketing had not captured the market, the touts used to frequent the PRS counters physically across the country many times, during the day to get as many confirmed tickets as possible and then sell them by charging hefty commission. This forced them or their foot soldiers to be physically present in the PRS and now with provision of CCTVs and Biometric coupon systems in many of the PRS, the risk of getting caught increased. However, with more and more people taking the online route to procure tickets and the demand in tatkal segment being very high, the touting from counters seemed less rewarding and more risky. Therefore, the touts shifted from PRS counters and indulged in a big way in cornering tickets online and then selling them to the needy on huge premium. It became so rampant that the tatkal tickets used to get sold within about 2 minutes of opening.

Railway Protection Force used to take action against touts in the past based on data from their sources called HUMINT (human intelligence). This involved getting information through sources, sending decoy checks to book tickets and then launching legal action at the time of delivery of tickets. However, HUMINT could not provide substantial inputs to launch a substantial pan India operation and railway could only take action against foot soldiers who are insignificant in the whole racket and can be easily replaced by other foot soldiers due to their large supply. They are more like drones working at someone else’s command and their loss does not dent the existing
structure of illegal ticketing business.

A consensus, therefore, emerged that unless RPF got TECHINT (technological intelligence) based on PRS data, it would not be possible to take action on big players running large travel companies and operators cornering large number of reserved seats.

In the age of Internet with no physical barriers in place, there was a need to have a top-down based surveillance to identify suspects. During the investigation of various cases against E-Ticketing based touts across the country, few patterns of crime were identified. There was an imminent need to work on the patterns so that effective round-the-clock surveillance could be made on the suspects. It was flagged by RPF that the data from CRIS/IRCTC might provide the suspected user IDs, financial transactions, mobile numbers, email addresses and physical addresses of suspected touts. It would then be identified by analysis of the first 15 minute booking of confirmed tatkal tickets and first few hours of booking of confirmed normal reservation tickets. The booking information about user ID, IP address, PNR number, Booking date, journey data, Quota details, email address, registered name, booking and profile mobile numbers, registered address, payment/bank transaction details and passenger details were flagged as needed to analyze the same.

Eventually, a mechanism called “PRABAL” (Passenger Record Analysis for action against Burglary, touting and loss of articles) was formulated for extending access ofPRS data to RPF on the basis of report of a committee consisting of representative officers of RPF, Commercial Directorate, IRCTC and CRIS. Intensive drives against touts were launched based on the PRS data made available to RPF with effect from 28th October 2019.

In course of this massive operation, many illegal softwares like Red Mirchi, Red Bull, I-Ball and ANMS were found to be used by touts for cornering e-tickets in big way across the country. I-ball and Red Bull crashed after their developers were arrested by RPF. It was found that ANMS had captured 85-90% of illegal software market. RPF, therefore, launched efforts on war footing against ANMS.

The illegal software like ANMS auto reads log-in Captcha, Booking Captcha and bypasses bank OTP. It simultaneous logs in the IRCTC server through several user IDs with pre-filled data. Due to its capacity of auto read Captchas and bypass OTP, it allows the user to jump queue. Owing to many logins simultaneously by the software, the person booking manually (without the help of software) is left far behind in the queue. This gives the user of illegal software an illegal and unfair advantage and by using this advantage, these users corner most of the confirmed tickets.

Ghulam Mustafa, one key operative of ANMS, was arrested from Bhubaneswar by RPF Bangalore based on electronic surveillance and social media analysis. Various Pakistani hacking softwares, job applications to important organizations in India and unusual digital footprints of surveillance over govt websites, highly encrypted data, communication using fake foreign numbers, using Virtual Private network, proxy softwares to mask his location etc were found in 2 laptops and 3 mobile phones seized from his possession. During joint interrogation by IB, R&AW, ED and Internal Security Division of Karnataka Police, leads of suspected money laundering angle have come to light and is being probed further. The data extracted from digital device also contained part information about 3000 bank accounts all over India.

On further enquiry, an all India Racket was unearthed with 20000 agents of illegal software where crores worth of black money was estimated to have generated in cash, converted into cryptocurrency and moved out of India to its mastermind Hamid Ashraf suspected to be in Dubai through Hawala Channels. The bottom rung of the ladder are agents (about 20000) who contact customers, they report to panel sellers (about 200-500) and panel sellers report to lead sellers (8-10 in number).

Based on interrogation, RPF has launched nationwide manhunt against ANMS operators. Due to nation-wide action by RPF, The illegal software ANMS stopped operation w.e.f. 23.01.2020. In course of further investigation, we apprehended several lead sellers of ANMS and found their links with hawala operators, cattle smugglers, FICN operators, fake passport/aadhaar makers etc and in one case one arrested person has found to have links with a known cadre of HUJB, a Bangladesh based terror outfit.

When ANMS stopped operation, other illegal softwares like MAC, Cycle, Jaguar, N-GET etc started capturing market. Based on technical input from analysis of digital data and social media, a person called Satyawan@Baba was arrested in Mumbai who was a Master Admin of MAC software. Based on his interrogation and analysis of digital data from his mobiles/laptop, a person named Amit Prajapati was picked up from Surat who was found to be the Technical Brain/System Administrator behind the MAC software. With his arrest, we could reach the owner of the MAC....
software, one Amin Qagzi who was also arrested from Surat. With arrest of few more super sellers and admins of MAC software, we were able to access its server and download ticket details worth crores of rupees. The future or live tickets worth about ₹9.92 crores where journey was yet to be performed was got blocked. Due to nationwide hunt of illegal software operators, the MAC software shut shop w.e.f 8th Feb 2020. In course of RPF hunt against illegal software operators, violation of other provisions of law were also noticed and therefore, Bangalore, Delhi and Basti (UP) police registered criminal cases too against these criminals.

Meanwhile, we could get source code of the illegal software and supplied it to CRIS for further action at their end. Based on inputs gathered during investigation of RPF and based on their own initiative, CRIS started strengthening security feature in their system. Due to enhanced security features, the capacity of illegal softwares to auto read Captcha has been severely compromised and therefore, as on date most of the illegal softwares are facing disruption. Some softwares are working like extension of Google chrome and using its features of auto fill to pre-feed data, but are not able to auto read Captcha and bypass OTP.

This has given long overdue relief to the common passengers and has extended the access of confirmed tickets of tatkal segment as well as normal reserved tickets to them. A comparison of accessibility may be gauged from the table shown below indicating the time of availability of confirmed tatkal tickets then and now.

<table>
<thead>
<tr>
<th>Train</th>
<th>Coach</th>
<th>Date</th>
<th>Closing time (Hrs)</th>
<th>Date</th>
<th>Closing time (Hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magadh Express 20802</td>
<td>3rd AC</td>
<td>26.10.2019</td>
<td>10:02.18</td>
<td>09.02.2020</td>
<td>20:21.16</td>
</tr>
<tr>
<td>Sampoorna Kranti Exp 12393</td>
<td>AC (all)</td>
<td>16.11.2019</td>
<td>10:04.11</td>
<td>08.02.2020</td>
<td>10:17.26</td>
</tr>
<tr>
<td>Svatntrata Senani Exp 12565</td>
<td>AC (all)</td>
<td>16.11.2019</td>
<td>10:02.21</td>
<td>08.02.2020</td>
<td>11:23.44</td>
</tr>
</tbody>
</table>

**Conclusion**

In the preceding paragraphs, a comparison of action taken against touts then and now has been made and an overview of the action taken by RPF against illegal software operators has been given. The effectiveness of the action has been felt by the common man as they have now been getting confirmed tickets while it was not accessible to them before. It is a small step, though, in the long journey of passenger facilitation and we need to realise that the illegal software operators will make every effort to re-establish their dominance by finding solutions to the security features introduced by CRIS and rebuild their network torn asunder by RPF. This is a constant war that needs to be waged against criminals in the cyber world as well as in the physical world simultaneously to ensure that the confirmed tickets remain accessible to the common man.

---

OUTLET FOR PURCHASE / SUBSCRIPTION

of Magazines Published by Ministry of Railways

The monthly magazines viz. ‘Bhartiya Rail’ in Hindi and ‘Indian Railways’ in English are now available for purchase/subscription at Souvenir Shop of National Rail Museum, Chanakyapuri, New Delhi.

**ANNUAL SUBSCRIPTION**

- India: ₹ 100 (₹90 for Railwaymen), Foreign: ₹ 500 (Sea Mail), ₹ 1000, (Air Mail), Single Copy: ₹ 10, Special Issue: ₹ 40
The Pioneer Railway

Central Railway is proud to be the pioneers in the history of Indian Railways. It was the “Great Indian Peninsula Railway” the precursor of Central Railway that ran the first train on the Indian sub-continent on 16th April 1853 from “Boree Bunder” (now Chhatrapati Shivaji Maharaj Terminus) to “Tannah” (now Thane).

Central Railway has come a long way since then and now it has a vast network traversing through the states of Maharashtra, Madhya Pradesh and Karnataka. It’s the motto of Central Railway to provide safe, efficient, affordable, customer-friendly and environmentally sustainable transportation solutions. To maintain its glory, Central Railway has taken several initiatives, strengthened processes and executed various measures to make the journey of its passengers safe and pleasant.

Suburban Network “The Lifeline of Mumbai”

It was on 3rd February, 1925, that Indian Railway took another big leap forward from the steam era to electric traction when the first DC EMU rake was flagged off by the then governor of Mumbai Sir Leslie Wilson, from the then Victoria Terminus to Kurla on Harbour line of Central Railway. In more than nine decades of its dedicated service to the nation, Central Railway suburban railway network has played an important role in socio-economic growth of the city of Mumbai and also heralded the advent of mass rapid transit system in India. Mumbai Suburban Network of Central Railway is one of the largest networks in the world carrying approx. 4.4 million passengers every day by running 1774 services daily on its all 4 suburban corridors i.e. Main Line, Harbour Line, Trans Harbour Line and Fourth corridor.
MR Flagging Off Rajdhani Express

The AC local made by Integral Coach Factory, Chennai provided with many features of comfort like Air spring suspension to sustain super dense crush loads of suburban traffic, in-coach and head code display for passenger guidance, wide and large double glass sealed windows for panoramic view outside, vestibule design for 6 coaches each, LED lighting for better illumination and energy conservation etc. Also provided safety features like Electrically operated Automatic Door closure
system, Passenger Alarm system, Emergency Talk Back for communication between passenger, Guard and Motorman in emergencies etc.

CR Rajdhani Express gets theme based WAP-7 locomotives on completion of one year of push-pull technology

Central Railway has come with a unique initiative to promote new, improved and latest Push-Pull technology by sketching various world heritage sites on the electric locomotives of 22221/22222 Chhatrapati Shivaji Maharaj Terminus Mumbai – Hazrat Nizamuddin Rajdhani express. Central Railway started running of CR Rajdhani Express with one electric engine in the front and another in the rear a year ago in February 2019 to provide better service to its passengers.

The electrical department came out with the unique idea which not only increased the speed of the train thereby saving precious time of passengers. This revolutionary step eliminated the need for attachment & detachment of bankers in Kasara-Igatpuri Ghat section thereby increasing speed and saving precious time in the process.

Two locomotives of Ajni and Kalyan Loco Sheds are beautifully sketched with historical sites en-route of Rajdhani Express. These include Chhatrapati Shivaji Maharaj Terminus, Iconic Taj Mahal and Red Fort. The sketches are painted on the loco with eco-friendly eco-vinyl 3M sheets which is free of any environment hazards and also with matt finish lamination which provides crystal clear shiny look and is long lasting. The work is done in-house by Kalyan Electric Loco Shed staff. This is the first pair of sketched locos which was attached to Rajdhani express on 14.2.2020 on the occasion of 1st anniversary of Push-Pull train technology.

Central Railway's Rajdhani Express is India's first train running on push-pull technology which empowers the Government of India's “Mission Raftaar”.

Infrastructure Enhancement

Infrastructure development is focus area of Railways. Major works of New lines, Electrification and doubling /3rd line works are in progress on Central Railway. During the year 2019-20, the works of railway electrification in Pune-Shindavane, Kopargaon-Yeola, Miraj-Kolhapur, Butibori-Sindi and Miraj-Dahalgaon sections has been completed. Important works of doubling / third line in Kopargaon-Yeola, Sindi-Butibori, Shenoli-Takari, Kalaburagi-Savalgi, Wadsinghe-Bhalwaniand & Daund-Mamnad chord line section are completed. A new line of Lonand –Phaltan (26 kms) was also opened for passenger traffic.

Passenger Amenities

Railways committed to provide passenger amenities to their esteemed customers. Central Railway strives hard to provide upgraded / State of the Art amenities to its valued customers.

- RailNeer Plant has been commissioned at Butibori station.
- Rakes under project ‘Utkrisht’ are being upgraded.
- Mumbai division has installed big screen indicators showing departure time of 30 upcoming local trains at Chhatrapati Shivaji Maharaj Terminus station.
- Free Wi-Fi facility has been provided at different stations on CR.
- Escalators, foot over bridges and lifts work are in progress.

Ticketing Facilities

Purchasing of ticket, especially at crowded stations on Mumbai suburban area was always a cause of concern during peak hours and several initiatives have been taken from time to time like provision of ATVMs, now Mobile ticketing, in addition to provision of JTBS etc. wherever possible. Till now we have provided -

One Touch ATVMs – This year one-touch ATVMs have been installed at different suburban stations on Mumbai suburban to facilitate fast ticketing.

UTS Mobile App – Unreserved Ticketing System Mobile App This mobile app developed by CRIS (Centre for Railway Information system) has become more popular among the commuters. The Commercial
Department of Central Railway, Mumbai division is at the forefront in initiating several campaigns to popularise the UTS Mobile app. Several drives have been conducted at various stations to educate passengers about the features of the UTS app, the procedure to download it and how to use the same. In addition to this, UTS app promotion is also done by advertising on ticket rolls, animated videos and radio jingles etc.

**Chhatrapati Shivaji Maharaj Terminus station conferred “Eat Right Station” with FIVE-STAR rating by Food Safety and Standards Authority of India**

Eat Right Station is a part of the ‘Eat Right India’ movement launched by Food Safety and Standards Authority of India (FSSAI) and Hindustan Unilever Limited (HUL) aimed at promoting food safety and hygiene at the static catering units at Railway Stations. The food quality regulator of FSSAI and HUL along with Officers of Central Railways and Indian Railways and Tourism Corporation (IRCTC) and food auditors inspected Food Plaza, Jan – Ahaar, Base Kitchen, Retail Catering stalls and other catering establishments at the Chhatrapati Shivaji Maharaj Terminus station (CSMT) and certified & rated the standard of food. CSMT has been judged on the basis of compliance of food safety and hygiene, availability of healthy diet, food handling at preparation, transhipment and retail/ serving point, food waste management, promotion of local & seasonal food and creating awareness on food safety and healthy diet. After the final audit the FSSAI awarded five-star rating with 88% scope to CSMT Station.

**Security**

It is the motto of Central Railway to provide safe and comfort travel to its passengers in Railways premises and on trains. To ensure the same, concerted efforts were made by Central Railway during the year with new and innovative operations.

- **My Left Is My Right – Awareness Campaign**
  
  Mumbai is one of the most crowded cities in the country. Everyone is in a hurry especially in the morning and evening peak hours. It’s a mammoth task of security personnel to control the crowd at suburban stations. To counter the menace, Railway Protection Force of Mumbai Division has launched the biggest ever Public Awareness Campaign “My Left Is My Right – Please Keep Left” to create awareness among railway commuters about maintaining the lane discipline of “Keep Left” and travel safely. This Campaign aims to urge the passengers to follow the sign “Please Keep Left” and be in line to avoid stampede, pick-pocketing, theft etc. It also helped to discourage passengers from boarding / alighting running trains thereby minimizing accidental injuries and deaths.

- **Cyber Crime Cell**

  It remains the highest priority to the security of Railway passengers. First of its kind, state of the art, Central Railway Cyber Crime Cell established at Pune is making valuable contribution towards controlling crime and illegal business of ticketing etc.

- **Installation of CCTVs**

  Continuous monitoring of CCTVs helped reduce the crimes in Railway premises considerably.

**Sports**

Sportspersons have also brought laurels to Central Railway by winning Gold Medal in the All India Railway Cue Sports Championship 2019-20. Shri Nagraj Bhanudas Khursane, Nagpur won Gold Medal in 3000 mtrs. running race in the 85th All India Railway Athletics Championship held at Pune. Shri Siddarth Parikh and Shri Malkeet Singh both from Mumbai won Gold Medal in Billiards in All India Railway Championship. Central Railway School, Kalyan became the champions in All India Railway Schools Athletic Meet held recently at Bilaspur and won 14 Gold, 6 Silver and 3 Bronze medals. Our Cultural Team won first prize in Group Dance in the All India Inter Railway Cultural Competition held recently at Bilaspur.
Passenger services were started between Howrah & Hooghly on 15th August, 1854. East Indian Railway, over the decades, catered to the transport needs of Eastern Region. Later, rechristened as Eastern Railway, the prime mover not only carried men and materials to different parts of the country but also took an active part in the socio-economic development of Eastern Region as well as the country. With the passage of time, after several reorganisations, Eastern Railway network presently consists of four divisions viz., Howrah, Sealdah, Asansol & Malda and three major workshops at Kanchrapara, Liluah & Jamalpur. Ensuring comfortable and secured travel in clean environment, Eastern Railway has been exploring new opportunities & possibilities to increase freight loading in the midst of competitive atmosphere. At the same time, this Railway has also taken a good number of steps to improve infrastructure and operations.

**Passenger & Freight**
- **Freight Loading & Earnings**
  Eastern Railway has succeeded in overcoming stiff competition from other modes of bulk transport and has increased the volume of its freight traffic.
  Total loading of freight over Eastern Railway during the period from April, 2019 to March, 2020 was 65.42 MT. The freight earnings of Eastern Railway during the same period was ₹4210.70 crores.
  Apart from our traditional commodities like coal, cement and steel, in the field of freight loading we paid special attention to the loading of foodgrains and fertilisers. During the period April, 2019 to March, 2020, the loading of food grains and fertilizers have improved remarkably by 25% and 111.11% respectively over the corresponding period of previous year. Loading of steel has also increased by 5.19% over previous year.
  ER is exploring new avenues to boost Coal loading from WBPDCL siding at Pakur, PFPD Pvt. Siding at Durgapur and stone loading from Harinsingha. The loading at Pakur and PFPD have been started and stone loading from Harinsingha has also been started. These new options are likely to increase loading by 2MT (approx.) and earning by ₹87.5 crores.
  In order to improve “Ease of doing business with the Railway”, customer satisfaction, regular meetings are being organised with existing and prospective customers. Accordingly, in recent times, a meeting was held with Cement companies about “Loading and Transportation by Rail” over the Eastern zone and with Coal India to improve Coal loading on ER.
- **Passenger Traffic & Earnings**
  Eastern Railway carried a total of 125.66 crores of passengers during the financial year 2019-2020. Total earning of this Railway in this sector from April 2019 to March 2020 was ₹2738.82 crores. In Non-Suburban Non PRS Section, the growth in passengers booked is 2.5% more than the previous year. In terms of Earning in Other Coaching segment, up to March, 2020 (cumulative), the growth is 15.53% more than the corresponding period of the last year. The total revenue of ER was ₹7565.57 crores during the year 2019-2020.

- **Parcel Business**
  Leasing of Parcel traffic has been increased in ER during the period from April, 2019 to March, 2020. Total loading of Parcel traffic leased (through SLRs, Parcel Vans) during the period was 147.76T whereas it was 120.34T during the corresponding period of previous year thereby registered an increase of 22.79%. Earnings from leasing was ₹65.44 crores during the period whereas it was ₹63.76 crores during the corresponding period of previous year, thereby registered a growth of 2.63%. Upto the end of the financial year, this railway has earned ₹132.26 crores from total Parcel & Luggage traffic.
  
  As a pioneering step, an agreement was signed between e-commerce company (Amazon) & Eastern Railway for transporting parcel service from Sealdah to Dankuni through EMUs.

- **New Trains**
  With a view to carry more passengers with extensive amenities and for the convenience of the passengers, Eastern Railway has taken the following steps:

  - **Introduction of new trains**

  - **Increase of frequency:** Frequency of 63011/63012 Barddhaman- Rampurhat DEMU, 63021/63022 Azimganj- Rampurhat DEMU, 73449/73450 Banka-Bhagalpur Passenger and 73443/73444 Hansdiha- Bhagalpur Passenger have been increased from 6 days-a-week to daily.

  - **Extension of journey**
    Mail/Express train: 12376/12375 Asansol- Chennai Weekly Express has been extended to Tambaram and renumbered as 13576/13575 Jasidih- Tambaram Express.
    Passenger trains: 63545/63546 Asansol-Dhanbad MEMU passenger has been extended to Gaya.
    EMU local: Five pairs of Barddhaman- Balgona locals have been extended to Katwa, one Sealdah- Sonarpur local to Lakshmikantapur, one Hasnabad-Prinsepghat local to Majerhat and one B.B.D Bag- Sealdah local to Baruipur.

  - **New stoppages**
    Mail/Express train: 14004/14003 New Delhi-Malta Town Express has been provided stoppage at Sutanganj and 13429/13430 Malda Town- Anand Vihar Express at Barbarwa.
    EMU local: A total of 76 EMU locals have been provided stoppages at different stations.

- **Ticket Checking**
  Ticket checking drive has been intensified in all divisions over its jurisdiction. Fortress Checks, Magisterial Checks, Checks with special train have been conducted at regular intervals. At the same time, massive awareness campaign is also being organized with an appeal to passengers to purchase proper tickets and travel with dignity. As a result, ticket checking earning has registered a growth of 24.45% upto March, 2020 over the same period of previous year.

- **Passengers’ Safety**
  Passengers’ safety is given top priority in Eastern Railway Officers and staff of this railway are always at vigil round-the-clock to ensure safe running of trains. For elimination of all un-manned level crossings over its jurisdiction, Eastern Railway played a pivotal role and ER has eliminated all un-manned level crossings over its jurisdiction. Now, it is in process to eliminate Manned Level crossings by constructing Limited Height Subways and RUBs. This Railway has surpassed Railway Board’s target (17 no.s) of interlocking L.C.Gates. Till March, 2020, 27 L.C. Gates have been interlocked. Also various alert systems related to safety aspects viz., LC Gateman Alert System, ASM-LC Communication system for alertness of ASM and Gatemen, Height Gauge protection system etc. have been started as pilot projects.

**Ticket checking in Shatabdi Express with Hand Held Terminal**
For creating awareness among people on safety aspects to be followed at Level Crossings, this railway organized intensive awareness campaign through road shows, Nukkad Natak involving NGOs/Students/Panchayats and also distributed educative awareness pamphlets etc. Besides, Safety Seminars were organized at Divisions & Headquarters to update the knowledge of staff and officers on safety rules required to be followed. Inspections by officers & supervisors of Headquarters and Divisions are made, as a regular measure, to ensure safe journey of passengers as well as freight movements by following the safety rules scrupulously & avoiding short-cut methods.

**Passengers’ Security**

Eastern Railway serves the densely populated area of the country. With the motto of providing uninterrupted and protected train services to the commuters in this thickly populated area, IRPFS, Eastern Railway launches relentless drive against the offenders interrupting the railway system. As a part of its relentless effort towards controlling crime, ER IRPFS also succeeded to rescue children, handing over of left behind luggage/articles to the passengers, recovery of foreign liquor from trains etc. Some of the performance of ER IRPFS during the year 2019 are appended below:

- In order to ensure security in trains, stations and other railway premises, ER's Security Department performed very well and acting briskly under 'Operation Thunder' and 'Prabal' prosecuted 372 touts by registering 325 cases and seized 5239 journey tickets worth ₹1.08 crore.
- ER IRPFS recovered 729 cases of Left behind luggage valued ₹1.85 crore and handed these to the owners after proper documentation.
- Saved life of 42 persons from accidents and untoward incidents.
- 10 cases of drug peddlers arrested and seized drugs worth ₹11.30 lakhs (approx.).
- Arrested 2566 nos. of persons against Alarm Chain Pulling.
- Arrested 8 persons in 11 cases of illegal trading of wildlife.
- Rescued 595 destitutes or runaway children from different stations of ER and handed them over to NGOs or their respective parents.
- 182 Anti-encroachment drives conducted and 1036 locations freed from encroachment.
- 242 persons arrested in detection of 164 IPC related crimes.
- 8407 nos. of Ticket Checking drives conducted, arrested 5.31 lakhs persons with realization of ₹28.05 crore as fine.
- 628 nos. of complaints received and redressed through Security Helpline no. 182.
- 1199 nos. of complaints attended on Twitter.
- To facilitate safe and comfortable journey of women passengers besides regular drive, special drive launched to restrict entrance of male passengers in coaches reserved for ladies and 1407 persons arrested with realization of ₹39,900 as fine.
- Conducted drive on a regular basis against unauthorized entry in the compartment reserved for persons with disabilities. On ‘International Day of persons with Disabilities”, during a special drive, 1004 persons were arrested with realization of ₹40,100 as fine.
- During ‘Operation Thirst”, a special drive to eliminate sale of substandard drinking water over Railways, 256 persons apprehended with recovery of 6930 unauthorized water bottles.
- Conducted awareness campaign, ‘Operation Saathi’ over the vulnerable residential area alongside the railway track against pelting of stones on running trains. 22 cases of stone pelting registered with arrest of 15 persons.
- Conducted awareness campaign ‘Operation Shashakt Divyang’ to curb unauthorised travel in the train compartment marked for differently abled/ Divyang passengers.
- Escorting all important trains everyday.

**Passenger Amenities**

In passenger amenities, performance of Eastern Railway is notable. ‘Digital India’ concept has been wildly adopted in this Railway. Introduction of POS machines in different PRS & UTS Centres, enabling
Cleanliness

One of the thrust area in this railway is to maintain cleanliness in trains, stations and at other railway establishments and it is an ongoing process. In line with the ‘Swachh Bharat Mission’, Eastern Railway has taken an active part to fulfill the mission. This Railway has made a mark by conducting intensive cleanliness drive at major as well as small stations with the whole hearted participation of its employees and active co-operation of benevolent organizations. Cleanliness initiatives in Eastern Railway includes cleaning of platforms, On Board House Keeping Service (OBHS), Pest and Rodent Control, Clean Train Station (CTS) system, Provision of Dust-bins in non-AC coaches, efficient linen management technique, provision of mechanized washing of linens, fitment of Bio toilets, SMS/Web based monitoring of cleanliness, Mechanized Coach Cleaning, Dry cleaning of EMU/MEMU trains on every day basis, Wet cleaning of EMU/MEMU at an interval of 10 days has been made. For supply of mechanically cleaned linen to the passengers, ER has at present 4(four) mechanized laundries in its jurisdiction at Tikiapara, Sealdah, Malda and Bhagalpur. Two more such laundries are coming up, one at Tikiapara and other at Chitpur.

To ensure maintenance of high standard of cleanliness in the station area, drives on cleanliness are conducted on a regular manner. Only on Mach, 2020, a total of 2884 persons were penalized and an amount of ₹ 2.88 lakhs was realized as penalty during cleanliness drive.
Complaints on cleanliness are redressed on immediate basis. Penalty imposed on complaint against OBHS upto March, 2020 was ₹ 46.35 lakhs. CCTV monitoring of cleanliness are being done at 5 stations viz., Howrah, Sealdah, Asansol, Malda and Bhagalpur.

**New Lines and Projects**

In order to provide faster & safer train journey and increase throughput, Eastern Railway is working on a number of new projects. These new projects include construction of new lines, doubling, electrification etc. During the Financial Year 2019-2020, we have added 15.50 kms of new lines and 67.01 kms of doubling. Also during the financial year, about 169 route kms has been electrified and 296.19 kms of Track Renewal has been done. Recent achievements are -

- New Line between Hansdiha & Poreyhat (15.50 km) on Hansdiha-Godda project (32.0km) commissioned on 30.8.2019.
- 2nd passenger line between New Alipore to Mile-5B (Lake Garden)-1.67 km commissioned on 01.09.2019
- Double line between Kahalgaon & Lailakhmamalkhu-16.06 km commissioned on 14.05.2019
- Double line between Sujnipara & Nimtita-6.72 km commissioned on 31.07.2019.
- Double line between Nimtita & Dhulianganga-11.38 km commissioned on 31.07.2019.
- Double line between Azimganj & Lalbagh Court -7.20 km commissioned on 22.04.2019.

**Environment Management & Energy Conservation**

All out efforts are being made by Eastern Railway towards efficient utilization of energy, use of alternative and environment friendly power sources, planning of waste management, use of state-of-the-art effluent treatment mechanism, use of bio-toilets etc.

All ICF coaches are fitted with bio-toilets and a total of 6858 numbers of Bio-Tanks have been provided. Generation of Bio-Gas, a green source of energy, is already in operation from food waste product in Running Room of Bradhaman. Locomotives equipped with ‘Head On Generation’ (HOG) are working in HOG compliant LHB rakes and a total of 38 Power Cars have been converted to HOG compliant cars which will save ₹17.5 crore per year. About 5210 KWp energy capacity Solar Plants/ Modules have been installed over ER in 9 stations. Solar Panels in 42 stations and at 128 Level Crossing gates have been set up over ER for emergency light. Solar Panel of 3 MW has been installed at the rooftop of Howrah station platform which is the biggest solar plant on rooftop of any stations and is expected to save ₹1.9 crore annually. Among other initiative for energy conservation, Regenerative Braking yields savings of 79.68 KWH and ₹5.62 crore this year. Besides, afforestation alongside the railway tracks and planting of saplings at stations area is going on. So far, more than 13 lakhs tree plantation has been done during recent period. Plastic Bottle Crashing Machine are installed at 21 stations including Howrah, Sealdah, Malda, Jasidih, Deoghar, Madhubpur.

**Human Resource Management**

To keep pace with the evolving technologies, Eastern Railway has embarked upon modernization of Human Resource practices in a big way. This railway has streamlined its routine activities like recruitment and selection, promotions, training and development, payments, redressal of grievances, welfare activities etc. for job satisfaction of its employees.

Special emphasis has been given for training of employees to update their knowledge and to strengthen
the workplace skills. Eastern Railway has successfully completed the Project ‘Saksham’ for its non-gazetted employees. “Mission Satyanishtha” – Programme on ethics in Public Governance for Officers and employees are meticulously observed at headquarters, Divisions and Workshops. “Knowledge sharing cum discussion” programme are being organized among the employees of different departments. Training regarding data entry procedure in Employee Master and e-SR modules of HRMS has been conducted wherein representatives from Divisions, Workshops and other units participated. In HRMS, data entry for 1,03,821 Employee Master and 1,03,637 e-SR entries have already been done. This railway is leader in both Employee Master and e-SR in terms of number of data entry. Overall, 98.24% registration has been done so far for serving employees in UMID portal. In UMID Eastern Railway holds 1st position among the zones. For online communication and sharing of data on various parameters of Personnel Department, MIS with all Divisions and Workshops has been introduced. Online service Record and Leave statement viewing system, named SRMS is currently functioning. Workshops on ‘Meditation’, “Yoga, Mind and Breath Training”, “Stress Management through Clapping” - the essential parameters for healthy mind & soul and increase of working efficiency are being organised at ER on a regular manner. “World Yoga Day” was observed on 21st June, 2019 by organising Yoga Camp at ER HQ in association with “Art of Living”. A fresh air camp for employees above 50 years of age was organised, under the aegis of CSBF at Nepal recently. Speedy redressal of grievances has been priority of ER. Grievances being received through NIVARAN, CPGRAMs and other means are closely monitored and redressed within the stipulated time. In CPGRAM out of 517 grievances received during 2019, 515 grievances (99%) have been disposed with average disposal time of 5 days. Special Grievance Redressal Camps are being held in ER. Online Grievance Redressal System, involving SMS and E-Mail alerts, has also been introduced in this Railway. It is ER’s endeavour to recruit and maintain dedicated and motivated manpower who work relentlessly for achieving the targets and objectives of this great organization.

Medical Facility

Eastern Railway is dedicatedly providing promotive, preventive, curative & rehabilitative health care service to an approximate beneficiary strength of five lakhs eighty thousand of this Zone through hospitals- Central Hospital (B.R Singh Hospital, Sealdah), 03 Divisional Hospitals: (Howrah, Asansol, Malda), 03 Workshop Hospitals (Liluah, Kanchrapara & Jamalpur), Sub-divisional Hospital (Andal) and 47 Health Units, located at important locations (Stations). The total indoor bed strength is 1530.

B R Singh Hospital, Sealdah: It is the Central Hospital of Eastern Railway having a bed strength of 525 and is the referral Hospital of this Zone. It is a Multi–speciality hospital having facilities of almost all broad Specialties & some Super specialties like Cardiology, Urology, Endocrinology and Nephrology, Gastroenterology. This Hospital has got a well-equipped Cardiac Cath Laboratory. Open-Heart Surgeries are also done in this Hospital. This Hospital has got well equipped Investigation facilities in Pathology & Radiology. It is the only Railway Hospital in India having in-house CT Scan facility. Screening coverage in this Hospital complex is provided by installation of 64 nos. of CCTV Cameras.

Divisional Hospital (Orthopaedic), Howrah: It has got facilities of almost all Broad Specialties & is also providing wide range of services in Orthopedics. Joint replacement Surgeries are done here regularly. In Disaster Management front, there are 08 numbers of Accident Relief Medical Vans (Scale-I) stabled at Sealdah, Ranagaht, Bamungachi, Rampurhat, Malda, Sahibgunj, Asansol & Jamalpur to provide on-site Medical service during accidents. 15 numbers of ARME Scale-II are stationed at Sonarpur, Naihati, Shantipur, Barasat, Krishnapur, Bandel, Bardhman, Katwa, Azimganj, Kamarkundu, Bhagalpur, Madhupur, Sitarampur, Andal & Panagarh. Some of the key parameters for the financial year 2019-20:

- **Curative Health Care**
  - No. of special surgeries- 3181
  - No. of major surgeries- 6049
  - Cataract operation: 2555
  - No. of Radiological investigations done in-house-1,07,924
  - No. of Angiography done in-house- 1121
  - No. of passengers provided Medical Aid during journey / at stations/ Yards- 2578
  - For Promotive Health Care, Annual Wellness Assurance Camp (Health Check-up all Employees) organised for all employees. RPF staff periodic health check-up is also carried out.

PRADEEP, fully Air-conditioned Rail Mobile Medical Van, was dedicated for rendering Medical services to the Railway Employees & their families on way-side stations of Sealdah Division. This has got all the facilities of that
of a Health Unit. It is manned by a full Medical Team comprising of Doctor, Pharmacist, Nurse etc. Preventive Health Checkup of Employees (AWAC) is also done simultaneously. It moves on a pre-notified schedule in this section and has already got popularity amongst employees.

- **Other Activities**
  - *AB PM JAY (Ayushman Bharat Pradhan Mantri Jan Arogya Yojana)* – All 08 Hospitals of Eastern Railway have been empanelled.
  - **Mechanized cleaning of stations:** On 20 Stations it is done by Medical Department.
  - **Provision of safe food and drinking water to travelling**

Within the jurisdiction of Eastern Railway, there are several tourists’ spots and pilgrimage centres which are well connected by Railway network. These includes Kamarpukur, Jayrambati, Tarapith, Dakshineswar, Gangasagar, Deoghar, Sultanganj, Tarakeswar, Nalhati, Nabadvipdham, Belur Math, Kalighat, Ghutiari Shariff, Furfura Shariff, Bandel Church, Sunderbans, Shantiniketan, Murshidabad, Gour Malda, Chandannagar etc. Some of these stations are having the facilities of Retiring Rooms/Dormitories for the bonafide visiting passengers.

Eastern Railway also runs special or additional trains on special occasions at these tourists’ spots/pilgrimage centres.

Managing the rush of lakhs of pilgrims bound for Gangasagar at ‘Makar Sankranti’, every year, is one of the biggest challenges for this railway. This year also, for the convenience of the pilgrims of ‘Makar Sankranti’ mela, Eastern Railway has made all arrangements including running of special trains, special security arrangements through CCTV, opening of additional booking counters and opening of ‘May I Help You Booth’ at various points etc.

Prioritising safety, security, punctuality, cleanliness and amenities, Eastern Railway serves its valued passengers with smile to ensure that travelling is a pleasant experience.
Ever since its formation on 1st October, 2002, East Central Railway has become the hallmark of progress. Administratively, it is divided into 5 Divisions - Dhanbad, Danapur, Pt. Deen Dayal Upadhyaya (old name Mughal Sarai) Divisions of erstwhile Eastern Railway and Sonpur & Samastipur Divisions of erstwhile North Eastern Railway. In the 18th year, the new born child, crossing the period of adolescence is now entering the adulthood, creating records and achieving many firsts.

A vast Rail network comprising 5,915 Track Kilometres (TKM) and 4,148 Route Kilometres (RKM) of which 3,063 Route Kilometres (RKM) is electrified; this Zone serves the major parts of Bihar & Jharkhand and minor parts of Uttar Pradesh and Madhya Pradesh. Our major challenge is to ensure uninterrupted supply of coal to the power houses located far & wide and at the same time meet the transportation needs of our large population.

Output in 2019-20
Year 2019-20 has been the year of achievements. Our growth rate in Gross Earnings on Originating Basis during the period 1st April, 2019 to 31st March, 2020 is 9.37%, the third highest in Indian Railway. The growth in earnings have been possible on account of our major achievements of this year enumerated below:

a) This year we have completed Railway Electrification (RE) of 429 RKM. All routes of ECR are expected to be electrified by the end of the financial year 2020-21.

b) Pt. Deen Dayal Upadhyaya Division became the first 100% electrified Division of Indian Railways. Three of our divisions namely-Pt. Deen Dayal Upadhyaya Division, Sonpur Division and Danapur Division are 100% electrified.

c) ECR commissioned 252 KM of New Lines, Doubling & Gauge Conversion in this year.

d) We commissioned 62 new Route Relay Interlocking/Panel Interlocking/Electronic Interlocking (RRI/PI/ EI) along with 13 major alterations in the year 2019-20. This is the highest ever for ECR and perhaps for all of Indian Railways.

e) The high point of the year was the commissioning of three long pending major yard remodelling projects of Danapur (506 routes), Patratu (416 routes) and Kiul-Lakhisarai (306 routes) replacing obsolete, overdue & aged mechanical lever frame systems with modern
state-of-the-art RRLs. Apart from operational advantage by way of saving of 3–4 minutes per train, it has also enhanced safety of train operations.

f) The survey of New Line Project connecting Raxaul (India) to Kathmandu, capital city of Nepal is complete. The 135.886 km long railway line will provide rail connectivity to important cities of Birgunj, Nigad, Shikharpur, Sisneri and Kathmandu.

g) Rail connectivity across Kosi Bridge from Sarayagarh side (i.e. east approach) is nearing completion and Kosi Bridge is likely to be commissioned between Sarayagarh to Asanpur Kupaha by July, 2020. Rail link across River Kosi, disrupted since 1934 earthquake, will get established once again.

h) The Jaynagar-Bardibas (69 KM) Rail Line Project entirely funded by “Ministry of External Affairs, Govt. of India” to further enhance the relation with our neighbouring country Nepal is partly complete up to Kurtha. ECR will come on the international rail map as soon as the train services on this section starts.

i) Introduction of 15 rakes of MEMU/DEMU trains has considerably improved punctuality of passenger train services.

j) Electric Loco Shed, Gomoh of Dhanbad Division has commissioned this year’s 97th WAG-9HC three phase IGBT based locomotive on 13.02.2020. This is the highest ever loco commissioned by any loco shed in a year in Indian Railways. With this, the holding of Electric Loco Shed, Gomoh has gone up to 300, making it the shed with highest Electric Loco Holding of Indian Railways.

k) Nineteen pairs of Mail/Express trains were converted into LHB in 2019-20. We standardised the rake composition of four pairs of trains for optimum rake utilisation.

l) Coach Indication Board (CIB) has been integrated with Control Office Application (COA) resulting into correct display of marshalling order of trains for information of passengers waiting on the platform. Danapur Division has installed LED TV based CIB at all the 10 platforms of Patna Jn. on pilot basis. These screens not only display coach position but also the time duration of schedule stoppage. Additionally, these screens can also be used for information & publicity of various initiatives of Ministry of Railways and Government of India like Swachh Bharat Abhiyan, Ek Bharat Shrestha Bharat, Safety Awareness, Social messages etc. It has been installed through publicity route earning ₹ 50 crores as Non-Fare Revenue. Hitherto, we used to incur expenditure for installing CIBs.

m) ECR is 1st amongst all zonal railway to achieve 100% fitment of Bio-Toilets in all its coaches.

n) ECR is the 1st railway to achieve 100% Head-on-Generation (HOG) conversion of all LHB coaches. So far, forty-two pairs of trains have been converted from End-on-Generation (EOG) to Head-on-Generation (HOG) resulting into savings of about 1500 KL of High-Speed Diesel (HSD) per month.

Capital Expenditure
It is essential that we expand the rail network to meet the growing demands of freight traffic as well as passenger traffic. We have made significant progress in capacity building by constructing new lines, gauge
conversion, doubling and electrification during the year 2019-20. The details of CAPEX of major Plan Head and their percent utilization are depicted above:

### Sundry Earnings

Indian Railways possesses various resources that can be utilized with an aim to augment earnings. Railway land lying unutilized and not required for railways own developmental/operational needs in near future is one such resource. This surplus land is given to a party for a specified time period keeping the ownership of railway land intact in toto. In this financial year 2019-20, ECR has achieved total earnings of `351.36 Crores which is 50.84% higher than B.E. and 91.82% of R.E. Major part of the sundry earnings comprises of earnings from land lease i.e. `171.83 Crores in the financial year 2019-20.

### FREIGHT BUSINESS

**Freight Loading: Reaching New Heights**

ECR is the proud member of prestigious club of 5 Railways loading more than 100 MT for the last Five years. In the financial year 2019-20, loading target for ECR was 145 MT and ECR achieved loading of 149.49 MT, which is 9.01% more than the loading of the previous year and 3.42% more than the target. Today, we are the 4th highest loading Railway.

Coal is the main commodity loaded from different sidings owned by BCCL, CCL, NCL and other sidings of Dhanbad Division. There are 63 coal sidings (BCCL-13, CCL-38, NCL-08 and others-04) and 122 goods shed for handling outward and inward rakes. Goods earning in financial year 2019-20 is `16,777.34 Crores which is more than 10.17% of the corresponding period of last year.

### PASSENGER BUSINESS

**Passenger Traffic**

ECR serves the densely populated areas of Gangetic plain. Hence, passenger business is of great importance to us. We have carried 238.82 million passengers in the current financial year 2019-20. The originating passenger earnings up to this period is `2755.18 Crores.

**Passenger Services**

To meet the ever-increasing demand of our passengers, we have introduced new trains, extended the run of trains, run special trains, provided additional stoppages and augmented trains temporarily as well as permanently. The details are listed below-

- **Introduction of trains: 09 pairs**
  - (i) Train no. 55579/55580 Darbhanga-Madan Mishra Halt Passenger.
  - (ii) Train no. 58663/58664 Hatia-Sanki Passenger.
  - (iii) Train no. 58665/58666 Hatia-Sanki Passenger.
  - (iv) Train no. 18635/18636 Ranchi- Dehri-on-Sone Express, 5 days in a week.
  - (v) Train no. 22465/22466 Anand Vihar Terminal-Madhupur Superfast Weekly Express.
  - (vi) Train no. 22459/22460 Anand Vihar Terminal-Madhupur Hamsafar Weekly Express.

As per the Rail Drishti portal, the total Capital Expenditure of ECR in the current financial year (upto January, 2020) is `7364.46 crores, the 2nd highest among 17 Zonal Railways.
(vii) Train no. 55503/55504 Saharsa-Supaul Passenger
(viii) Train no. 75265/75266 Barhara Kothi-Banmankhi DEMU Passenger.
(ix) Train no. 20975/20976 Howrah-Agra Cantt Tri-weekly Express.
• Extension of Trains: 08 pairs
  (i) 14618/14617 Amritsar-Saharsa Express up to Banmankhi.
  (ii) 53131/53132 Sealdah-Muzaffarpur Express up to Sitamarhi.
  (iii) 18635/18636 Ranchi-Dehro-on-Sone Express up to Sasaram.
  (iv) 11651/11652 Singrauli-Jabalpur Express up to Madan Mahal.
  (v) 55501/55502 Saharsa-Garh Baruari Passenger up to Supaul.
  (vi) 55579/55580 Darbhanga-Mandan Mishra Halt Passenger up to Jhanjharpur.
  (vii) 15077/15078 (old no. 14371/14372) Barwadih-Chopan Express up to Tanakpur.
  (viii) 15205/15206 Lucknow-Jabalpur Express up to Madan Mahal.
• Provision of stoppages : 03 pairs
• Running of Special train : 43 pairs + 46 one-way (Total 2794 trips)
• Permanent Augmentation : Total 228 coaches
• Temporary Augmentation : Total 413 coaches

Ticketing Network
A front-runner in the area of providing passenger amenities, ECR has a network of 122 PRS, 79 UTS cum PRS and 393 UTS centers. With an aim to make tickets available at nearby places, ECR has opened 173 STBA, 87 JTBS and 08 Yatri Ticket Suvidha Kendra (YTSK) at appropriate locations.

Out of the 258 Halts identified, sale of UTS Tickets has started at 139 Halts. In Phase-I, 80 numbers of cards based Automatic Ticket Vending Machines (ATVMs) shall be installed at 24 A-I & A category stations shortly.

Introduction of Mobile Ticketing
The facility of sale of unreserved tickets through UTS on Mobile App was started on 24.09.18. ECR was the first Railway to roll out this facility over entire Zone at one go. Extensive publicity and awareness campaign launched to make “UTS on Mobile” App popular among the passengers is now showing results as we find that percentage share of passengers buying unreserved tickets by use of this mobile App and earnings is gradually increasing.

Non-Fare Revenue
The Non-Fare Revenue of ECR in the financial year 2019-20 stands at ₹ 350.92 crore, an increase of 106.30% over the last year.

Progress of Passenger Amenity Works
Development of Adarsh station
Total 54 stations have already been developed to“Adarsh Station” and work is in progress at remaining 4 stations for their upgradation to“Adarsh stations”.

Ticket Checking
In the field of ticket checking this Railway has performed very well. The Penalty cases and earnings have increased by 6.86% and 11.23% respectively.
Improving Illumination at Stations

Railway Board identified 55 stations to improve the illumination level at par with airport standards. We have completed the improvement work in 54 stations out of these 55 stations. The only station that remains is Bihariganj which will be illuminated after completion of Gauge Conversion works. Additionally, we have also illuminated 15 more stations at par with airport standards.

Cleanliness and Catering: The focus area of Passenger services

Providing a clean and pleasant atmosphere to passengers has always been the motto of East Central Railway. Concerted efforts have been made in this direction.

Steps taken to improve Cleanliness & Sanitation:

i) Daily monitoring of complaints regarding cleanliness and bed rolls.

ii) Creating awareness among passengers through posters/banners/PA system.

iii) Frequent inspection by officers and supervisors.

iv) SIGs inspection at three tiers involving supervisors at stations, JA grade/Branch Officers at Divisional level and SAG officers at HQ level.

v) Persons found littering/committing nuisance in railway premises are being penalized. Total 8,524 passengers were penalized in between April, 2019 to March, 2020 and an amount of ₹20,18,000 realised as penalty.

vi) Mechanized cleaning equipments suitable for the surface of the stations have been deployed.

vii) Innovative measures like CCTV surveillance at Patna station for monitoring cleanliness. Effort is on to include other major stations also.

viii) Adequate number of dustbins has been provided at stations.

ix) 24 Nos. of Plastic Bottle Crushing Machines (PBCM) are installed at major stations.

x) All the primary trains are being provided with mechanized coach cleaning at the washing pit during maintenance.

xi) Pest and rodent control treatment are being done in all ECR bound trains as per directives of Railway Board.

xii) Garbage generated from running trains from pantry is collected at nominated stations and disposed off through existing contract at the station. Small stations are cleaned departmentally.

Indian Railway’s Largest Waiting Hall at Patna Jn.

Indian Railway’s largest AC waiting hall spread across 7500 square feet and equipped with several modern passenger-friendly amenities was opened at Patna Junction. It can accommodate as many as over 500 passengers at a time. Any passenger, irrespective of the class of train ticket, can avail the facilities of this waiting hall.

Its entire power requirement is fulfilled by use of solar energy, making it an environment-friendly & Green Waiting Hall.

Escalators & Lifts

We have commissioned 24 Escalators and 18 Lifts at important stations of ECR for the convenience of general passengers, Divyangjan and elderly people. In the next fiscal, we plan to install 29 new Escalators and 40 new Lifts.

Airport Standard Lighting at DDU station

Night View of Patna Jn. Station

Indian Railway’s largest AC Waiting hall at Patna Jn.

Escalator at Muzaffarpur Station

Escalator at Patna Jn. Station

Indian Railway's Largest Waiting Hall at Patna Jn.
E-Catering

The e-catering facility can be availed either online or by making a phone call. This service has been christened as “Food Track”. This facility is provided in all trains that do not have pantry car. This facility is available at 16 major stations of ECR.

Catering services Monitoring Cell (CSMC)

In order to redress catering complaints, Ministry of Railway in January 2013, had set up a cell in Railway Board named as Catering Services Monitoring Cell (CSMC). CSMC has also been set up in Headquarter and Divisional offices. This complaint redressing cell has since redressed thousands of complaints on the spot often with the help of zonal CSMC. If complaints, due to any reason, are not redressed on spot, they are escalated to Headquarter where they are taken up seriously and action is taken accordingly. Action taken is then forwarded to CSMC/Board and record is maintained at Headquarter and also Rail Madad Portal.

Food Plaza and Fast Food Units: Source of Good Quality

Easy availability of ‘quality full meals’ at affordable rate has been our focus area. Over ECR, 12 nos. of Food Plaza and 28 nos. of Fast Food unit and 01 nos. of Janahar and 19 nos. of Refreshment Rooms have been serving food to the passengers.

Base Kitchen

Base kitchen of IRCTC is functional at Rajendra Nagar Coaching Complex. Space has been allocated for setting up of Base kitchen at Barauni Jn. It is also proposed to establish Base kitchen at Gaya, Pt. Deen Dayal Upadhyaya Jn., Darbhanga and Samastipur.

Route Relay Interlocking/Panel Interlocking/Electronic Interlocking (RRI/PI/EI)

- We commissioned 62 new Route Relay Interlocking/Panel Interlocking/Electronic Interlocking (RRI/PI/EI) along with 13 major alterations in the year 2019-20. This is the highest ever for ECR and perhaps for all of Indian Railways. We plan to commission 6 to 10 stations within the next two months.

- The high point of the year was the commissioning of three long pending major yard remodelling projects of Danapur (506 routes), Patratu (416 routes) and Kiul-Lakhisarai (306 routes) replacing obsolete, overdue & aged mechanical lever frame systems with modern state-of-the-art RRs. Apart from operational advantage by way of saving of 3-4 minutes per train, it has also enhanced safety of train operations.

- Commissioning of Athmalgola has facilitated Manpur and Bakhtiyarpur bypass. Now, reversal of engine at Manpur and Bakhtiyarpur is no longer required, saving up to at least 4 hours for goods train going to Barh Thermal Power Plant.

- 3 EI/PI commissioned to restore full signal movement in Tilaiya- Rajgir section further facilitating goods trains to Barh Thermal Power Plant.

- 24 EI commissioned in connection with doubling.

- 7 EI commissioned which includes 5 new EI and 2 alterations in Tori and Mahuamian respectively, to complete doubling of Tori-Shivpur section. This section is now loading average 15 rakes of coal per day and with this Dhanbad division of ECR has become the highest and number one loading division in IR.

- 7 EI commissioned for new line projects.

- 5 EI commissioned to facilitate DFC work by removing infringements.

- 10 EI/PI stations commissioned for replacement of mechanical signalling.

- Total expenditure of `168.41 Crore has been achieved till 31.03.2020.

Safety

Year 2019-20 has been the safest year of ECR in terms of Consequential Accidents. There has been NO passenger casualty. There has been no incidence of Collision or Manned Level Crossing accidents over ECR. In order to spread safety awareness, “Nukkad Natak” were organized amongst the rail users/railway men. This Railway distributed Safety Posters / Flexi Posters and Safety Pamphlets/Hand Bills under its jurisdiction. A large number Safety SMSs were sent to the stake-holders and Cinema Slides were shown in the cinema halls. 2,719 ambush checks were conducted.

Security

ECR serves the area rich in minerals, agriculture and industries. Some of the locations within the jurisdiction of this Railway are sensitive & crime prone including Left Wing Extremism and other miscreant activities. Thus, RPF/ECR faces most challenging task of Crime control apart from ensuring smooth train operations, assisting Commercial Department in ticket checking drives, curb touting activities etc. and co-ordinate with the Government Railway Police (GRP) to maintain Law and Order within Railway premises.

In pursuance to the additional responsibilities, escorting of important trains have been taken up by Railway Protection Force. With the amendment in RP (UP) Act in 2012, the scope for investigation has
been widened and theft, misappropriation, abetment, conspiracy or connivance has been included in its ambit.

There has been remarkable decrease in crime reported over East Central Railway during the year 2019-20. Total 6,127 offenders have been arrested and prosecuted under different sections of the Railways Act. In order to prevent drugging of passengers inside trains, anti-drugging teams have been formed in the divisions of ECR besides formation of Task Teams to check the incidents of Theft of Passenger Belongings (TOPB).

To create awareness among passengers, posters having pictorial messages are displayed in trains and stations, advertisements are published in major newspapers and staging of Nukkad Natak are being carried out regularly.

In order to ensure security to the travelling lady passengers, committees have been formed at Zonal and Divisional level to monitor the implementation of action plan in this respect. Train escort parties are being regularly briefed in this respect. Decoy checks on the trains are being conducted. Security Helpline number 182 has been upgraded and now passengers receive complaint ticket number on their mobile as SMS. The complaint is duly forwarded to the RPF personnel concerned for taking swift action. Wide publicity of Helpline No. 182 has been done by putting up banners, posters at appropriate locations & print media.

Performance under the Railways Act
Total 6,127 persons have been arrested and prosecuted under the different sections of the Railways Act during the year 2019-20. Out of which, 1,324 persons have been arrested u/s 162 (Action against entry of male passengers in Ladies Compartment), 1,246 persons u/s 141 (Action against Alarm Chain Pulling), 87 persons u/s 143 (Action against Touts), 1,687 persons u/s 144 (Action against unauthorized Hawkers/Vendors/ Eunuchs/Beggars), 2,552 persons u/s 155 (Action against unauthorized entry in reserved compartment), 30 persons u/s 160 (Action against opening/breaking of Level Crossing Gate).

Performance under RP (UP) Act
Total 101 persons have been arrested under RP (UP) Act with recovery of stolen Railway Property valued ₹8,51,170 during the year 2019-20.

Measures taken to control Crime against Passengers
117 trains are being escorted by RPF/RPSF. 69 Lady RPF personnel were deployed over East Central Railway for protection of female passengers. 188 cases of contraband items were detected and property valued ₹ 1.12 Crore were recovered with the arrest of 30 criminals. Total 122 children (91 Boys & 31 Girls) were rescued with arrest of one trafficker in this regard. 20 numbers of criminals including Theft of Passenger Belongings, luggage lifters, and pick-pockets were arrested by and handed over to GRP for legal action.

Assistance to Railway Passengers
- 166 calls were attended over Toll Free Security Helpline No. 182 from passengers in need and all were promptly attended. Modified Community Policing is being initiated in which meeting with Gram Panchayats, local Schools/Colleges is being done.
  - Medical assistance provided to nine passengers.
  - Left behind luggage of 83 passengers were recovered and handed over to them.

Modernization of the Force
CCTV Surveillance Systems are being installed at total seven Railway Stations under ISS and fifty-two Railway Stations under Nirbhaya Fund over ECR. CCTV Cameras have been installed at all the seven identified Railway Stations i.e. Patna, Rajendra Nagar Terminal, Dhanbad, Pt. Deen Dayal Upadhaya Jn, Muzaffarpur, Samastipur & Raxaul under Integrated Security System. In the remaining 52 stations to be covered under Nirbhaya Fund, CCTV cameras have been installed at 37 Stations and as per Railway Board’s order installation of CCTV cameras at balance 15 Railway Stations is to be done by RailTel.

Security with special emphasis on Women & Child Safety
RPF is one of the most important stakeholders for providing security to women & children travelling in Railways. Women & Children are rescued by RPF and handed over to NGOs/Police/Parents. Following actions have been taken for safety of Women & Children:-
  - CCTV cameras have been installed at important Railway Stations for fool proof security.
  - Sequencing of CCTV cameras has been done to cover complete premises of Railway Stations including coaches reserved for ladies.
  - Exterior of coaches marked for women passengers has been painted with different colour.
  - Quota for women passengers has been increased from existing 6 to 12 berths in 76 trains in ECR.
  - Out of proposed 14 Child Help Desks/Kiosks, 10 have been made functional and rest Help Desks are under process of setting up at remaining four Railway Stations over ECR.
  - Lady RPF personnel are deployed at RPF Assistance Booths for women security functioning at four stations viz. Patna, Gaya Muzaffarpur and Dhanbad. Assistance Booth shall be opened shortly at Samastipur.
  - Survey among female passengers about “how they feel safe during journey over ECR” is being implemented.
  - Women passengers are being sensitised to come forward fearlessly and unhesitatingly report incidents of misbehaviour with them to RPF personnel on duty. Campaigns are also being organised for sensitization of general public/passengers to help women in distress.
  - Railway Training Institutes have introduced module of Gender Sensitization and enhancing soft skills in their syllabus of training to sensitize frontline railway staff to be helpful and always be courteous in behaviour while dealing with women & children travelling in trains.

Our efforts towards safety & security of women
passengers & Children have shown results and 122 Children (91 Boys & 31 Girls) and 8 women passengers have been rescued and handed over to their guardians/Police/NGOs during 2019-20.

**Electrification**

This year we have completed Railway Electrification (RE) of 429 RKM. Further, all routes of ECR will be electrified by the end of the 2020-21.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Section</th>
<th>Length (in RKM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bukru-Phullbasia-Shivpur</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>Samastipur - Khagaria</td>
<td>85</td>
</tr>
<tr>
<td>3</td>
<td>Maheshpur - Rama-Maheshmunda</td>
<td>88</td>
</tr>
<tr>
<td>4</td>
<td>Salaibawan-Obra Dam-Karalia Road</td>
<td>45</td>
</tr>
<tr>
<td>5</td>
<td>Samastipur-Darbanga</td>
<td>37</td>
</tr>
<tr>
<td>6</td>
<td>Sanki-Tatisilwai</td>
<td>30</td>
</tr>
<tr>
<td>7</td>
<td>Munger-Sabipur Kamal-Umesh Nagar</td>
<td>14</td>
</tr>
<tr>
<td>8</td>
<td>Karalia Road-Singrauli-Mahadiya</td>
<td>23</td>
</tr>
<tr>
<td>9</td>
<td>Darbhanga-Jaynagar</td>
<td>69</td>
</tr>
<tr>
<td>10</td>
<td>Darbhanga-Kamtaul</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>429 RKM</strong></td>
</tr>
</tbody>
</table>

**Bridges in ECR**

River Ganga flows midway bisecting the territory of ECR into two equal parts. Many other major rivers namely- Sone, Gandak and Kosi flow in our territory, making Bridges a critical asset of ECR. Among 7,519 bridges we have 5 Mega Bridges. The Digha Rail cum Road Bridge connecting Patna-Sonepur, popularly known as J.P. Setu, is 4.56 km long. It's ECR's longest and the second longest bridge of IR after the Bogibeel Bridge.

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Bridge Type</th>
<th>No. of Bridge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Mega</td>
<td>5</td>
</tr>
<tr>
<td>2.</td>
<td>Important</td>
<td>37</td>
</tr>
<tr>
<td>3.</td>
<td>Major</td>
<td>814</td>
</tr>
<tr>
<td>4.</td>
<td>Minor</td>
<td>6663</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>7519</strong></td>
</tr>
</tbody>
</table>

**Capacity enhancement works**

East Central Railway, as said earlier, is an earning zone of Indian Railways. Passenger as well as freight business are very important for this zone. In order to enhance the carrying capacity major infrastructural

<table>
<thead>
<tr>
<th>PH</th>
<th>Name of Project</th>
<th>Section Commissioned</th>
<th>Length (in km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doubling</td>
<td>Samastipur-Darbanga</td>
<td>Samastipur-Kishanpur</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Hajipur-Ramdayalu Nagar</td>
<td>Bhagwanpur-Ghoswar</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Hajipur-Bachhwar</td>
<td>Bachhwar-Mohudindia Nagar</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Mohudindia Nagar-Shahpur Patoree</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ramna - Singrauli</td>
<td>Dudhinagar-Jharokhas</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Garwha Road - Ramna</td>
<td>Ramna-Meralgram</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Jarangild-Danea</td>
<td>Gomia-Dumri Bihar</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Ranchi Road-Patrota</td>
<td>Bhurkunda-Patrota</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Billi - Chopan</td>
<td>Billi-Chopan</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>KIul-Gaya</td>
<td>Manpar-Wazirganj</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Bakhtiyarpur flyover</td>
<td>Barb-Bakhtiyarpur link-Karnauti</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Tori ROR</td>
<td>Ratoli-Mahuarinagar</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Tori-Birati ROR</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>156 KM</strong></td>
<td></td>
</tr>
</tbody>
</table>

**New Line**

<table>
<thead>
<tr>
<th>PH</th>
<th>Name of Project</th>
<th>Section Commissioned</th>
<th>Length (in km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rajgir-Tilaiya</td>
<td>Islampur-Natesar</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Hajipur-Sagauli</td>
<td>Ghoswari-Vaishali</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>51 KM</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Gauge Conversion**

<table>
<thead>
<tr>
<th>PH</th>
<th>Name of Project</th>
<th>Section Commissioned</th>
<th>Length (in km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sakri-Nirmali-Jhanjharpur-Laukaha Bazar &amp; Saharsa-Forbesganj</td>
<td>Mandan Mishra Halt-Jhanjharpur</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Garh Baruari-Supaul</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supaul-Sarayagarh</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>45</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Environment & Housekeeping Developments over ECR**

Newly created activity of Environment & Housekeeping (EnHM) has been taken as a challenge by ECR in the year 2019-20 and major milestones were achieved during the year. These achievements not only reflect synergetic working of various departments but also our commitment towards Passenger Services as well as Environmental protection.
Achieving 3rd Rank in QCI Survey over Indian Railway

ECR has secured 3rd position amongst all Zonal Railways, taking a leap of 12 places in the ranking as compared to 15th in 2018 and 16th in 2017. Rajendra Nagar Terminal has been declared 1st on IR in the category of Green Stations, scoring (95.5%), far ahead of next station in the category.

*ECR accolade is a real achievement in terms of passenger footfall which is much higher as compared to other zonal railways figuring in the top 05 list.

Mission Water Recycling

1st time over IR, a pond rejuvenation project has been successfully executed by ECR and pond at Pt. Deen Dayal Upadhyaya station has been rejuvenated using the Aeration Technology similar to Naini lake project. Water Recycling Plant of 0.5 MLD is successfully operational at Danapur and similar projects of about 04 MLD is under advance stages which includes major depots like Rajendra Nagar Terminal, Patna, Rajgir, Dhanbad, Darbhanga, Pt. Deen Dayal Upadhyaya, Munafarpur & Barauni.

Mission Solid Waste Management

United Nation Environmental Program Mission of 2018-19- ‘Beat the Plastic Pollution’ has been taken as challenge by ECR. 48 Reverse Vending Machines/ Bottle Crushers were provided at 39 major stations with its own resources. These projects not only recycle plastic waste in to useful products but are also encouraging users not to litter plastic waste in the railway premises by incentivizing them by suitable rewards.

Mission Afforestation

Taking afforestation as social responsibility, ECR planted a total of 1,53,611 trees during the year.

Mission Green Energy

ECR is the 1st railway over IR to achieve 100% HOG conversion of all LHB coaches. So far, 33 pairs of trains (60 rakes) have been converted from EOG to HOG which has led to saving of about 1500 KL of HSD per month. Total capacity of about 06 MW of Solar Plants has been commissioned by ECR not only to save energy but also to earn revenue. Energy Efficient fittings have been fitted at 526 Stations leading saving of 88.34 lakh units annually (₹6.62 cr.), 32,116 staff quarter-annual saving 52.12 lakh units (₹3.91 cr), 2972 Service building-43.49 lakh units (₹2.77 cr).

Vinyl wrapped train on Gandhi Jayanti & Sardar Vallabhbhai Patel Jayanti

On the occasion of 150th birth anniversary of Mahatma Gandhi, thematic vinyl wrapping was done on Sapta Kranti Express. Similarly, the matic vinyl wrapping was done on the occasion of Sardar Vallabhbhai Patel Jayanti on Muzaffarpur-Ahmedabad Jansadharan Express. Memorable life events and teachings of ‘Bapu’ and ‘Sardar Patel’ were depicted on these trains. The idea was to promote and pass on the teachings of these great men to the next generation in the form of a mobile exhibition.

Raising of Sectional Speed

With a view to increase throughput, speed and improve punctuality of trains sectional speed has been raised in 12 important and critical sections. This
has resulted into considerable saving of time and improvement in punctuality. We also increased the speed on loop lines from 15 Kmph to 30 Kmph at 13 stations of Sonnagar–Garhwa Road section of Pt. Deen Dayal Upadhyaya Division.

<table>
<thead>
<tr>
<th>Section</th>
<th>Direction</th>
<th>Speed Raised by (in km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hajipur-Ghoswar-H DL</td>
<td>DN</td>
<td>75 100</td>
</tr>
<tr>
<td>Kurhani-Ramdayalu Nagar DL</td>
<td>DN</td>
<td>70 100</td>
</tr>
<tr>
<td>Chaura Danu-Raxaul SL</td>
<td>50/80</td>
<td>100</td>
</tr>
<tr>
<td>Goraal-Bhagwanpur DL</td>
<td>DN</td>
<td>75 100</td>
</tr>
<tr>
<td>Ramdayalu Nagar-Kurhani DL</td>
<td>UP</td>
<td>70 100</td>
</tr>
<tr>
<td>Danman Madhepura-Purnia SL</td>
<td>50/100</td>
<td>100</td>
</tr>
<tr>
<td>Bhagwanpur-Sarai DL</td>
<td>DN</td>
<td>75 100</td>
</tr>
<tr>
<td>Samastipur-Kishampanj DL</td>
<td>UP</td>
<td>80 100</td>
</tr>
<tr>
<td>Manis-Saharsa SL</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Koderma-Hazaribagh SL</td>
<td>60</td>
<td>100</td>
</tr>
<tr>
<td>Mohulaldin Nagar-Bachhwara DL</td>
<td>DN</td>
<td>75 90</td>
</tr>
<tr>
<td>Bachhwara-Vidyapati Dham DL</td>
<td>UP</td>
<td>75 90</td>
</tr>
<tr>
<td>Sakri-Jaynagar SL</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Mohulaldin Nagar-Bachhwara DL</td>
<td>DN</td>
<td>90 105</td>
</tr>
<tr>
<td>Bachhwara-Vidyapati Dham DL</td>
<td>UP</td>
<td>90 105</td>
</tr>
<tr>
<td>Raxaul-Narkatanganj SL</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Baugamia-Chaura Danu SL</td>
<td>80</td>
<td>100</td>
</tr>
</tbody>
</table>

DL=Double Line, SL=Single Line

In addition to above we have also increased the speed on loop line from 15 Kmph to 30 Kmph at 18 stations on Hajipur-Bachhwara-Barauni-Katihar, Barauni-Rajendra Pul and Paramanandpur-Patliputra of Sonpur division.

Raising of Platform

The work of raising of platform has been completed at 05 stations namely; Barkakana, Paharpur, Darbhanga, Rusera Ghat and Garhpura.

Electric Loco Utilization, HOG operation and review of DG sets

- **Average utilization of Electric Loco**
  - Goods - 399.81 & Coaching - 459.28

- **Provision of HOG on ECR Based Trains**
  
  A total of 33 pair of trains (60 rakes) originating from ECR are running on Head-on-Generation (HOG).

- **Replacement of Loco hauled conventional trains by MEMU**
  
  To improve the punctuality of Loco hauled conventional passenger trains, in the current year, 03 pairs with ECR rakes of Loco hauled conventional passenger trains have been converted into MEMU rakes and 15 Pairs ECR rakes of Diesel Hauled DEMU Passenger trains converted in to MEMU Rakes.

- **Conversion and Extension of Diesel Traction in to Electric Traction**
  
  To minimize the Diesel underwire and increase the punctuality of passenger trains, 01 No of New Train & 48 pairs of Mail/Express trains have been converted to Electric Traction. Further, 35 pairs of Mail/Express trains were also extended on Electric Traction in ECR territory resulting in reduction in HSD fuel consumption and saving time due to change of traction en-route.

- **Holding of Electric Locomotives**
  
  The total holding of Electric Locomotives on ECR as on 31.03.2020 is 619.

  GPS based Real Time Train Information System (RTIS) has been installed in 199 Electric Locomotives of ECR during the year 2019-20.

- **Review of DG Sets at Stations - reduction in HSD consumption**
  
  To reduce consumption of HSD oil to the bare minimum, following steps were taken:
  1. Extensive audit of all DG sets installed at 52 stations were carried out. Only bare minimum quantity to maintain the essential services were kept.
  2. All DG Sets whose codal life was over and the HSD consumption was on the higher side were condemned.
  3. Proper maintenance and AMC of running DG Sets was ensured.

  Above steps have caused reduction in HSD consumption from 1012.69 kL to 911.42 kL in the financial year 2019-20. As such, an overall reduction of 101.27 kL (10%) has been achieved.

- **Action taken to minimize HSD oil consumption for traction purposes consumption for traction purposes**

  1. Till January 2020 the total saving of HSD oil is approx 35,266 KL i.e. ₹243.00 cr (approx) by (a) Conversion of Traction from Diesel to Electric and (b) Fuel Rationing.
  2. Sonpur division is the 1st Division of ECR which has successfully installed Bio Gas plant in Rail premises at Barauni. The waste food product and other biodegradable wastages are used for production of Bio Gas which is supplied for cooking purpose in running room.
  3. With the homing of 34 Electric Locomotives, we started maintenance of Electric locomotives in DDU Diesel Loco Shed.
• **Green Field Electric Locomotive Factory, Madhepura**
  M/s Greenfield Electric Locomotive Pvt. Ltd.
  Madhepura has been set up under PPP (Public-Private Partnership) agreement at the estimated cost of ₹1293 Crores. It is a joint venture between Ministry of Railway with equity share of 26% and a leading international Electric Locomotive Manufacture i.e. M/s Alstom India Pvt. Ltd. who will bring into State of the art technology. The Electric Locomotive availability and Energy Efficiency standards will also be comparable to the world’s standards. M/s GELF, Madhepura will turn out 800 numbers of 12,000 HP, 8 Axle, Bo-Bo type Electric Locomotive, based on IGBT technology, in a span of 11 years to cater the need for hauling heavy Goods traffic preferably on dedicated Freight Corridor (DFC).

  As per the agreement, 275 Acre land required for setting up the factory has been handed over to the company. Further, the 33KV power supply, Road connectivity with NH-107, Rail connectivity & electrified traction lines have also been provided by Railways. A 15 Km 132 KV transmission line from Singheswar Grid Substation and 132/33/25 KV substation at Madhepura has been constructed by Railway for power supply to the factory as well as traction supply to the newly electrified Mansi - Madhepura section.

  The factory was dedicated to the nation and the prototype locomotive was flagged off by Hon’ble Prime Minister on 10th April, 2018. The construction of factory and township has been completed. The factory had further handed over two locomotives with revised design of bogies and shell to RDSO. RDSO have completed all the tests on these locomotives and regular supply of locomotives is likely to commence in March, 2020.

  As per the agreement M/s MELPL have to construct two maintenance depots at Saharanpur and Nagpur. The depot at Saharanpur has also been completed along with training facilities for Loco pilots.

• **General Electric Diesel Locomotive Pvt. Ltd., Marhaura**
  Marhaura Diesel Locomotive Factory has been set up under PPP (Public-Private Partnership) agreement at the estimated cost of ₹2052 Crores. It is a joint venture between Ministry of Railways with equity share of 26% and a leading International Diesel Locomotive Manufacture i.e. M/s General Electric, USA who will bring into State-of-the-art technology. The Diesel Locomotive energy efficiency and pollution standards will be comparable to the world standards. M/s GEDLPL, Marhaura will turn out 700 numbers of 4500 HP and 300 numbers of 6000 HP, 6 Axle, Co-Co type Diesel Locomotive, based on IGBT technology, in a span of 11 years, to cater the need for hauling heavy Goods traffic on important rail links.

  As per the agreement, 200-acre land required for the factory, has been handed over to the company. Further, the power supply arrangement of 33 KV, road connectivity and rail connectivity with Pateri station of North Eastern Railway have also been provided by Railways. A 25 Km 132 KV transmission line from Masrak grid substation and 132/33KV substation at Marhaura has been constructed by Railways for power supply to the factory. The construction of factory was started on 6th Jun 2016. The two prototype of 4500 HP fully assembled and imported locomotives were handed over to Indian Railways on 22nd February, 2018. After conducting the performance and oscillation tests the locomotives have been cleared for traffic use. The construction of factory at Marhaura has been completed and manufacture of locomotives has also been started in the factory since December, 2018. Since then, 183 locomotives have also been supplied by M/s GEDLPL to Indian Railways which are being used on nominated traffic routes of Western, North Western, West Central, Northern, North Central, East Central and North Eastern Railways.

  Further, the prototype of two 6000 HP fully assembled locomotive has also been imported. These
locomotives have been cleared by RDSO after performance and oscillation tests and till now more than 7 locomotives have been supplied to Indian Railways.

As per the agreement M/s GEDLPL have to construct two maintenance depots at Roza and Ahmedabad. The depot at Roza has been completed along with training facilities for locomotives.

- **Samstipur Workshop**
  Samstipur Workshop was established in the year 1881 for overhauling of Steam locomotives, Periodic Over Hauling (POH) of coaches and wagon. It was re-modeled in the year 1962 for manufacturing of special design MG wagons for transportation of heavy defense equipments in particular and other variants of MG wagons of various designs in general.

In 1993, manufacturing of BOXN wagons started @1 wagon per month in addition to already existing activity of Periodic Over Hauling (POH) of coaches and wagon. Periodic Over Hauling (POH) activity of Meter Gauge wagons was discontinued in June 1996. Since then, this workshop is primarily engaged in production of BOXN wagons @ 25 wagons per month. The manufacturing of BOXN-HS wagons started in June 2002. As per policy of Railway Board the workshop has received order to manufacture latest design BOXNLH wagons @ 150 wagons per year under RSP 2007-08. The RSP (Rolling Stock Programme) orders up to 2013-14 have been completed and production of RSP (Rolling Stock Programme) 2016-17 has been started in October, 2017.

- **DEMU maintenance depot at Sonepur**
  One new depot for repair and maintenance of DEMU rakes has been set up at Sonepur. The depot has a holding capacity of 20 DEMU rakes of 8 coach length each. The work was sanctioned under Works Programme 06-07 at a cost of ₹21.75 crore.

- **Carriage Repair Workshop, Harnaut**
  Workshop for overhauling of 50 coaches per month has been set up at Harnaut on Bakhtiyarpur – Rajgir section of Danapur division of ECR. The work was sanctioned under works programme 2003-04 and its latest sanctioned cost is ₹324 crore. The workshop is spread over 75 acres of land and there is scope for future expansion also. Carriage Repair Workshop, Harnaut was taken over by ECR on 15.06.2012. It has so far carried out Periodic Over Hauling (POH) of 2773 Non AC Integral Coach Factory (ICF) coaches, 02 AC Linke Hofmann Busch (LHB) & 03 AC Integral Coach Factory (ICF) coaches. Railway Board target for POH is 50 coaches/month.

- **Mainline Electric Multiple Unit Car Shed Gaya**
  The work of setting up of MEMU Car Shed Gaya has been sanctioned in 2016-17 for maintaining 30 rakes of sixteen coaches each under Plan Head-42. The project is being executed by Rail Vikas Nigam Limited (RVNL). The cost of the entire project is ₹97.85 crore. Work has commenced and 30% of physical progress & 25% of financial progress has been achieved. The project is targeted for completion by November, 2020.

- **Setting up of Workshops in East Central Railway**
  \begin{itemize}
  \item **Wagon POH workshop at Dalmianagar**
    The work of setting up of wagon POH workshop at Dalmianagar has been sanctioned by Railway Board under works programme 2015-16 at an estimated cost of ₹89.20 crore. The work is awarded to M/s RITES as turnkey project by Railway Board. Memorandum of Understanding (MOU) has been signed by ECR and M/s RITES. The cost of this project is ₹403.19 crore for POH (Periodic Over Hauling) of 250 Wagon per month.
  \item **Mainline Electric Multiple Unit Car Shed Gaya**
    The work of setting up of MEMU Car Shed Gaya has been sanctioned in 2016-17 for maintaining 30 rakes of sixteen coaches each under Plan Head-42. The project is being executed by Rail Vikas Nigam Limited (RVNL). The cost of the entire project is ₹97.85 crore. Work has commenced and 30% of physical progress & 25% of financial progress has been achieved. The project is targeted for completion by November, 2020.
  \end{itemize}
Harnessing of Solar Energy

To reduce energy consumption and dependency on fossil fuel (Electricity & HSD oil) 5.579 MWp capacity solar energy has been harnessed by installing solar panels at rooftop of various stations & service buildings, to provide for solar lights at manned Level Crossing gates, solar street lights and solar geyser in Running Rooms.

Further, work for provision of 1.44 MWp capacity solar power plants at rooftops of various Railway buildings over ECR are under execution in Public Private Partnership (PPP) model. Work is likely to be completed by March-2020.

6.86 MWp capacity solar power plants at rooftops of various Railway buildings over ECR has been awarded by REMCL on 25.10.19 in Public Private Partnership (PPP) model. Signing of Power Purchase Agreement (PPA) is under process.

ROB/RUBs

During the year, 07 ROBs and 71 RUBs have so far been constructed under different projects of East Central Railway. Further, 58 Level Crossings have also been eliminated during the year by means of constructing ROBs/RUBs and other means like Diversion of Road traffic, closure on account of low TVU etc.

List of stations where FOB provided during the year

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Station</th>
<th>S.No.</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bermo</td>
<td>16</td>
<td>Lalganj</td>
</tr>
<tr>
<td>2</td>
<td>Dhanbad (2)</td>
<td>17</td>
<td>Mansi</td>
</tr>
<tr>
<td>3</td>
<td>Danea</td>
<td>18</td>
<td>Ruseraghat</td>
</tr>
<tr>
<td>4</td>
<td>Bhurkunda</td>
<td>19</td>
<td>Motihari</td>
</tr>
<tr>
<td>5</td>
<td>Taregana</td>
<td>20</td>
<td>Pasratha</td>
</tr>
<tr>
<td>6</td>
<td>Jehanabad Court</td>
<td>21</td>
<td>Chhauradano</td>
</tr>
<tr>
<td>7</td>
<td>Bena</td>
<td>22</td>
<td>Raja Nagar</td>
</tr>
<tr>
<td>8</td>
<td>Ghorasahan</td>
<td>23</td>
<td>Garpura</td>
</tr>
<tr>
<td>9</td>
<td>Bapudham</td>
<td>24</td>
<td>Bairgana</td>
</tr>
<tr>
<td>10</td>
<td>Narainpur</td>
<td>25</td>
<td>Kundwa Chainpur</td>
</tr>
<tr>
<td>11</td>
<td>Islampur</td>
<td>26</td>
<td>Madhubani</td>
</tr>
<tr>
<td>12</td>
<td>Khudaganj</td>
<td>27</td>
<td>Adapur</td>
</tr>
<tr>
<td>13</td>
<td>Katari</td>
<td>28</td>
<td>Mehsi</td>
</tr>
<tr>
<td>14</td>
<td>Goraul</td>
<td>29</td>
<td>Sikta</td>
</tr>
<tr>
<td>15</td>
<td>Ghoswar</td>
<td>30</td>
<td>Dhamara Ghat</td>
</tr>
</tbody>
</table>

Foot Over Bridge

Foot Over Bridges (FOBs) are provided at stations for easy and safe passage of passengers from one side to another side of the stations as well as from one platform to another platform of the stations. Accordingly, during the year this facility has been provided/enhanced by commissioning 30 Nos. of foot over bridges.

Innovation in Signal & Telecom

- Provision of Automatic Power SMS Alert System at IBH9 and IBH10: Automatic Power SMS Alert System has been commissioned at IBH9 and IBH10 in GC section of Dhanbad division. A GSM based system to send SMS alerts corresponding to the Mains Voltage, AC/DC output voltages and battery voltage in addition to the faults occurring has been set up. The system shall have facility for Automatic serial data transfer to a Central Monitoring Unit through data logger.
- VoIP based Train Control Communication System has been commissioned in the Grand Chord-2 control section from Sonnagar to Manpur. This is the first in Indian Railways when complete control board communication has been VoIP enabled.
- Wireless Radio in license free band has been provided between Danapur-Patna, Sonpur-Patna and KBKJ-NOKHA (Ara-Sasaram section for providing backup for control communication with auto patching.
- Alarm & Counter provided for non-reversal of point within 03 minutes of arrival of trains.
E-office has been implemented in ECR/HQ and all 05 Divisions.
- Multiple online Trainings by OEMs of several Signal & Telecom equipment to enhance Technical knowledge of Signal & Telecom staffs and officers.
- Use of Video conference to conduct meeting with all Sr. DSTEs, Dy. CSTEs and HQ/Officers on different issues.

**Monumental Flag**

We have installed 15 Monumental flags at Dhanbad, Patna, Patliputra, Danapur, Ara, Buxar, Rajendra Nagar, Pt. Deen Dayal Upadhyaya Jn., Gaya, Hajipur, Khagaria, Begusarai, Muzafarpur, Darbhanga and Bapudham Motihari stations.

**e-DAS**

IDs and workflows of all users of Open line, Construction and all PSU’s under East Central Railway have been created on e-DAS portal. The e-DAS portal under ECR is fully operative. The online approval of drawings of various units has started. Kusunda SIP is the first SIP processed on e-DAS platform.

**Staff Welfare**

Sonepur Division of ECR is the 1st Division of Indian Railway to have uploaded 100% data of all employees on HRMS portal. ECR has uploaded overall 99.7% employees’ data on HRMS Portal. Taking forward the vision of Digital India and concept of Employee Charter, Facilitation Centres have been opened in all Divisions. “Karmchari Darshan Shivir” was organised at all major stations over ECR, to show Service Book to our employees. PAN, AADHAR and PF Nomination forms etc., were collected for updating the records. Staff grievances, if any, were also collected during the Shivir.

We have recruited 10,623 employees through RRB/RRC/Act Apprentice/Cultural & Scout Quota. Welcome kits have been distributed to all new recruits as well as 4,055 ex-servicemen who were engaged for manning of UMLC Gates. Appointments on Compassionate Ground have been given to wards of 282 employees. ECR set a unique record when in one case Compassionate Ground Appointment and settlement dues were paid to the widow of the deceased within 24 hours of the death of the employee. We have promoted 10,540 Staff through selection/MACP by close monitoring at each level. We have promoted 61 Group ‘C’ employees to Group ‘B’ during 2019-20. Pension of all the 66,456 (100%) retired employees have been revised within time limit.

**UMID Cards**

Unique Medical Identity (UMID) Cards has been generated & provided to all the working and retired railway employees of ECR.

**Old and abandoned coach now a canteen for railway staff**

In yet another innovation, ECR converted an old and abandoned railway coach as a canteen for its staff. Railways had declared this 1994 Integral Coach Factory built coach (EC 94504) “ unfit” for running on tracks. The canteen can accommodate 40 people at a time, is likely to serve the needs of around 400 railway employees, who work round the clock in Danapur Coaching Depot. A team was formed that gave a facelift to the coach at the Danapur depot yard and made all kinds of facilities available without any additional expenditure.

**Women Empowerment**

- Ladies Common Room and Crèches have been opened in ECR/HQ and all Divisions. This has provided better working environment to the female employees at work place. Sanitary pad vending machines & incinerators have been installed at selected stations and offices.
- International Women’s Day is celebrated in ECR/HQ as well as Divisions on the 8th of March every year. Last year, an interactive session with 500 female employees of ECR was organised wherein their views and grievances were discussed. Subsequently, a WhatsApp Group “Pahal” (for female employees) has been started for interaction and redressal of any grievances pertaining to them.
- Charter for privileges and rights of Woman Employees has been prepared in ECR highlighting the benefits admissible to them and displayed all over ECR.
East Coast Railway, the blue chip Zone of Indian Railways, is growing from strength to strength with each passing year. Into its 17th year of functioning as a zonal Railway, East Coast Railway has also been able to make a mark for itself as the highest freight loading Railway and the Zone will surely touch new frontiers of success through collective endeavours in the days to come. Performance of East Coast Railway continues to be a matter of pride. It has loaded historical & unprecedented 200.95 Million Tonnes of freight, which is more than 4.79% higher compared to last year and carried 97.37 Million passengers which is again higher than those of the last year. Earnings of this zone is 10.56% higher than that of last year at Rs.19,588.07 crores.

Operating Ratio, is the best amongst all zones despite the massive setbacks imposed by Cyclones Fani and Bulbul. It is pertinent to remember that this zone has overcome impediments and setbacks of cyclones, floods, breaches, law & order disturbances and agitations to achieve this stellar performance. The target of loading 202 MT is imposing and challenging. History has always been created with assertions of unprecedented grit, determination, will and a do or die attitude. ECoR has to create history by being the first zone to reach the 200 MT barrier in loading performance. ECoR introduced a unique Double Decker Uday Express from Visakhapatnam to Vijaywada and a Sewa Express from Bhubaneswar to Nayagarh Town. Khurda Road-Nayagarh Town passenger train has been extended up to Mahipur through a new line. To fulfil the needs of the public, the zone ran 22 special trains during peak travel seasons and augmented berth capacity by adding 2090 coaches to existing trains till Jan’20. On popular public demand, 12 new stoppages have been introduced in existing trains.

Comfort and convenience of passengers were enhanced by introducing Station Ticket Booking Sevak (STBS) Scheme at 8 stations. PRS was extended to Jujomura in Sambalpur Division, 12 nos. Lifts (at Rayagada, Visakhapatnam, Vizianagaram, Bhubaneswar, Bhadrak & Brahmmapur) and 4 nos. Escalators (2 nos. at Bhubaneswar and 2 nos. at Khurda Road) have been provided. Additional Platform Sheds and FOBs have been provided at 11 stations, Waiting halls have been upgraded at 29 stations and circulating area has been spruced up at 41 stations.

To enhance safety of the passengers, 35 nos. manned level crossings have been closed and 21 nos. Limited Height Subways have been made. Intensive preventive and preemptive efforts by Security Department led to arrest and prosecution of 30,968 offenders. A ‘Subhadra Vahini’ has been created in Khurda Road and Waltair divisions comprising of female RPF personnel to enhance safety of women on Railway premises and trains.

Under the Prime Minister’s Swachh Bharat Mission, East Coast Railway has succeeded in making the stations, circulating areas, trains and work premises cleaner. East Coast Railway has taken lead towards energy efficiency coupled with green initiatives. 23 trains comprising 35 rakes have been converted to Head on Generation (HOG) leading to a saving of ₹46 crores per year.
**Comparative Performance**

**Freight Loading Performance**

**Passenger Earnings Performance**

**COMMODITY WISE ANALYSIS**

**Fani Cyclone - Damage & Restoration Work of Bhubaneswar station**
pairs of coaching trains and many goods trains are now operated with electric traction in Sambalpur-Angul and Sambalpur-Titlagarh sections leading to savings of ₹22.3 crores per month. High efficiency LED light fittings have been provided in all Railway quarters, stations and service buildings to reduce electricity bills. Mancheswar Workshop has commissioned as IR’s first ‘Scrap to Energy’ plant based on ‘Polycrack’ technology. This will convert all non-metallic garbage and waste into Diesel oil and organic manure.

In pursuit of transparency in public offices, ECoR now does 100% e-tendering, e-auction, e-bill submission and e-payment. Contractors’ billing and labour deployment details are now being uploaded on public portal to enhance transparency in dealings and simultaneously ensure contract labour welfare.

ECoR has approx. ₹33,084 crores worth of development projects on hand comprising of new lines, multiple lines, maintenance infrastructure, Railway stations, etc. We have in hand approx. ₹4,000 crores to invest in these projects in the current year. Despite the best efforts and interventions of the Govt. of Odisha and ECoR, we are not able to display significant progress due to hurdles in land acquisition. I exhort the citizens of ECoR territory to come forward to enable us to enhance Railway’s footprint in this area by taking a positive view at land requirements. ECoR is keen to
create new Railway links to serve the citizens of Odisha, Chhattisgarh and Andhra Pradesh more and better through completion of these projects.

This year, a New line from Nayagarh Town to Mahipur (12.00 Kms.) has been completed. Talcher to Sunakhani (20.00 Km.) has also been completed. Doubling of lines in Ambagaon-Kotpar Road (7.61 Kms.) and Kotpar Road-Charamulakusumi (11.71 Km) sections has been commissioned. Kapilas Road-Salegaon (4.30 Km), Mallividu-L.Kota (7.42 Km) and Suku-Paliba (7.59 Km) sections have also been commissioned.

ECoR is continuously striving to enhance the wellbeing of our workforce to enable them to work with more productive energy for IR and the country. 96.5% of our staff & their dependents have been issued Smart Health Card called UMID Card till March, 2020, 46,857 nos. employees have been covered under Annual Wellness Assurance Check-up (AWAC).

The saga of this zone’s achievements continues. East Coast Railway Cultural Team got the first prize in Inter-Railway Drama Competition at Kharagpur. East Coast Railway Women's Welfare Organization (ECoRWWO) continues to improve the social atmosphere in ECoR as well as the welfare of women members of ECoR family. Our sports persons have excelled in international and national events. Miss Jhili Dalbehera secured 3rd position in Asian Weight Lifting Championship held in South Korea and also the 1st position in South Asian Federation Games in Nepal.
ECORWWO WELFARE ACTIVITIES

Inter-Railway Drama Competition

Miss Jhili Dalbehera receiving award in SAF Games

World Environment Day

ASSETS AND FACILITIES ADDED

Food Plaza at Sambalpur Railway Station

Game Zone at Visakhapatnam Railway Station
North Central Railway, since its inception on 1st April, 2003, has emerged as an important constituent of Indian Railways. Importance of this zone can be easily gauged by the fact that NCR carry 10 percent of total traffic of Indian Railways with just 05 percent of its assets and serve strategically most crucial Indian Railway routes i.e. 58% of New Delhi-Howrah and 24% of New Delhi-Chennai trunk routes. Mobility of trains on North Central Railways plays the key role in transportation of passengers and freight from North to East, West and South. Despite super saturated trunk routes with utilization close to 160% we are running fastest train of India “Gatimaan express-160 kmph”, train with highest average speed on Indian Railways “Vande Bharat-104 Kmph” express besides 100+ trains operating at 130 kmph which is a record in itself.

On 17th Feb 2020 North central Railway celebrated successful one year of commercial operation of First Vande Bharat Express. With more than 80% of its run on NCR territory, operating discipline on this Railway has been the key in popularity of this train which served 6,72 Lakhs passengers and earned ₹92.30 Crores over the last one year. Though NCR is primarily a passing through Railway, however, significant steps were taken to increase originating earning which is reflected in performance with an increase of 14.74 percent in other coaching earning and close to 2 percent increase in sundry earnings in 2019-20 over the last financial year despite onset of lockdown from 22.03.2020.

Food-grain and fertilizer loading on NCR have increased by 48.48 and 14.52 percent respectively in the current year. Regular drives against social evil of ticketless travel fetched ₹111.04 crores till Mar.-20 registering an improvement of 1.68 percent over the last year while additional revenue of ₹224.48 Crores has been generated through scrap sale till March, 2020 which is 5.23% higher than the corresponding period of the last year.

Customer Satisfaction is one of the most important indicators of our success. In order to achieve it, services are being upgraded continuously. For the convenience of passengers, 6 stations have been developed as Adarsh stations during this year, 30 escalators and 19 lifts have been provided on different stations while 36 additional escalators and 30 lifts are planned for installation. 3 new Foot Over Bridges have already been commissioned on Fatehpur Sikri, Bindki Road and Bamhrauli stations and 06 more are planned for completion within the Financial year 2019-20. To ensure easy availability of tickets to passengers, 147 Automatic Ticket Vending Machines have been installed so far on various stations of NCR. In addition to conventional methods of ticket sale, UTS on Mobile app is implemented in all three divisions and innovative Mobile UTS (MUTS) with Bluetooth printer was deployed for ease of ticketing to pilgrims at Prayagraj in Magh Mela 2020.

Covering large numbers of districts of Uttar Pradesh through its 3 divisions, a need was being felt since long for Dedicated Railway Claims tribunal bench at Prayagraj. This reasoned demand of NCR fructified and
Vrindaban section has been restored for the convenience of passengers. Efforts made by NCR led to introduction of sleeper coaches in Humsafar express for the first time in Indian Railway.

In order to provide quality catering services Train side vending has been started in 31 trains of Jhansi-Kanpur & 23 trains in Agra-Jaipur section along with E-catering in 28 pairs of trains. Water Vending machines have been provided at 149 locations for providing affordable and clean drinking water facility to passengers on various Railway Stations.

With commissioning of Wi-fi at more than 200 stations during financial year 2019-20, this facility is now available at 231 stations of NCR. Public address systems have been installed at 66 more stations.

New Coach guidance system along with Integrated Passenger Information System has been commissioned on 5 stations. Urgent medical aid during journey was provided to more than 10,000 passengers in this financial year till March 2020.

To ease passenger rush, 3412 trips of special trains were run over North Central Railway. In addition to prestigious Vande Bharat Express introduced from 15th February, 2019, three additional new trains, Lucknow-New Delhi Tejas Exp., Anand Vihar-Madhupur & Kota-Etawah Exp. have also been started and 04 pairs of trains extended over North Central Railway. 3893 additional Coaches were attached in various trains to meet temporary requirements while 7 trains are augmented on permanent basis. The Rail Bus Service on Mathura-Vrindavan

To provide clean travel environment to our valued passengers, On-board housekeeping services have been provided in all 28 qualifying trains of NCR. For ensuring good quality linen in AC coaches, mechanized laundries are in operation at Prayagraj Jn. and Gwalior.

The process of setting a 14 Ton BOOT Laundry at Prayagraj Jn. is in advanced stages. All passenger coaches of NCR have been fitted with Bio-toilets & 124 NSG stations have been provided with Divyang toilets.

As our commitment for service in eco-friendly manner, 30 stations are ISO-14001:2015 certified while all our workshops are Green rating compliant. To create awareness on ill-effect of Air pollution, Air Quality index monitors have been provided at Prayagraj Jn., Agra Cantt, Jhansi stations and NCR's HQ office.
Similarly, Work of Govindpuri which for provision of additional loops and attached yard remodeling has been completed, makes this 2nd biggest EI on Indian Railways with 655 routes. This will substantially improve operations at Kanpur.

Bhimsen-Govindpuri doubling and Non-Interlocking work related to Parichha-Nandk Doubling has also been completed in the FY 2019-20. Average speeds on various sections like Birla Nagar-Soni, Jhansi-Parichha, Parauna-Bhua sections of NCR have been increased. 21 permanent speed restrictions have also been relaxed or removed this year.

In connection with the DFC routes, yard remodeling at Maitha and Bhaupur has been completed. NCR started running goods trains on DFC from Bhadan and Khurja Jn and till March 2020 more than 1000 goods trains have been run. This has helped the Railway in better operation of passenger carrying trains between Ghaziabad and Kanpur. With active assistance in connectivity and other related works EDFC is expected to be commissioned upto Pt. Deen Dayal Upadhyay Jn. in the next one year time.

Adopting latest technology and methods to upgrade safety, security and reliability in train operations has always been a thrust area on NCR. A comprehensive safety grid of automated wayside rolling stock monitoring systems is being developed over NCR. This comprehensive safety grid covers all major defects of rolling stock like Hot Axle, Brake Binding, Hanging Parts etc.

North Central Railway serves the busiest routes of Indian Railways and has very fast growing requirement to run more trains. To cater this, additional capacity is being created through adding new infrastructure and strengthening the existing ones.

Two new stations “Gazika & Usargaon” have been constructed this year. Automatic signaling in Maripat-Dankaur 3rd line and Rooma-Chakeri sections of Prayagraj division and Electronic Interlocking at 18 Stations have been commissioned. This includes Tundla which with 613 routes which is third biggest in such yards in India. With this all mechanical lever frames on Delhi-Howrah route have been eliminated, which is a big step in safety.

NCR’s loco pilots have done commendable job in saving of energy worth over ₹75 Crores through electricity regeneration in 3-phase electric locomotives. As a part of Green Initiative and efforts to reduce capacity crunch over the zone, Khairar-Manikpur, Bharatpur-Bandikui & Chunar-Chopan sections have been electrified this year and 46 pairs of trains switched over from diesel to electric traction.

To further strengthen the noble initiative 16 primary LHB rakes of NCR have been converted to HOG. 13.50 Lakh saplings have been planted in the current financial year. With sustained efforts, NCR retained its position as leader in solar energy generation in Indian Railways.

With commissioning of packed type sewage treatment plant of 50 KL/Day capacity, HQ office complex of NCR achieved mission “Net Zero Discharge” by recycling 100% waste water.
Maintenance inputs to most important Railway asset i.e. P-way have been increased through 32% higher TRR, 18% CTR and 10% more deep screening work over the last year. 42 Bridges have been rehabilitated during ongoing financial year. In order to strengthen communication, 352 KM OFC network laid over North Central Railway & Mobile Train Radio Communication in Ghaziabad-Pt. Deen Dayal Upadhyay Jn. route of 750Km have also been commissioned.

In the current financial year NCR achieved a rare feat of punctuality improvement of over 16.8 percent till March 2020 while giving 26 percent more traffic blocks over the corresponding period of last year till March 2020. Safety in train operation has always remained prime focus area on NCR. In a significant step towards improving safety of road users, 91 manned level crossings have been closed this year and 4 ROBs and 60 RUBs have been constructed on various routes of NCR till March 2020.

Regular safety campaigns through Mobile Video Van, Radio, SMS, social Media etc. are being run to create large scale awareness.

Vigilance wing on NCR has been active in curbing corruption. They have issued 06 system improvement guidelines including contractual work and employee provident fund for effecting fair and transparent work culture. During the Financial year 2019-20 total 736 preventive checks were done while 788 complaints were investigated and disposed off.

Security of passengers is always accorded highest priority on NCR. To curb ACP, 6920 offenders caught and fine of ₹ 43,04,668 has been realized. Besides, 8818 persons indulged in unauthorized vending and 14963 illegal entrants in Divyang or ladies coach were also arrested. Our alert and vigilant staff received around 3177 calls from passengers and their security related needs were addressed on real-time basis. In addition,
showing humane face, our security personnel have rescued 1391 kids separated from their families.

Outstanding sportspersons have always kept NCR’s flag high at various sports arenas. Ms. Poonam Yadav, cricketer from Agra division and part of Indian women cricket squad was conferred with prestigious Arjun Award for her outstanding contribution to women’s cricket. She was the key in India’s emphatic win over host Australia in ICC women’s T-20 world cup opening match by scalping 04 wickets for just 19 runs. Hockey players Ms. Gurjit Kaur and Ms. Nisha of NCR will be representing the Nation in Olympic Games to be organized in Japan in 2020. Wrestler Shri Pawan won Gold medal & athlete Ms. Kavita Yadav won silver medal in South Asian Games-2019 held in Kathmandu. Agra division of NCR successfully organized Inter Railway Wrestling Championship in Oct.-2019.

Staff welfare has always been a priority on NCR and facilities provided to them are being upgraded continuously for improved employee satisfaction. For better healthcare facilities like High Dependency Unit, Critical care Ambulance, computerized radiography system, molecular lab for advanced diagnosis, seamless operation theatre etc are added in central hospital Prayagraj during the year 2019-20.

During the year 2019-20 annual health checkup camps covering entire work force were organized besides organizing specialized camps on Cardiac & Renal check, Oncology & Cervical cancer, student health checkup, eye check up, vitamin D3 etc. 57371 employees have been registered on UMID Portal for issue of the countrywide smart medical card and more than 46000 such cards for improved medical facilities are already issued on NCR. This will allow railway men to get medical attention at any Railway hospital in the country. Similarly data entry of more than 57000 employees of total 62500 work force has been done on HRMS and more than 51500 e-SR have been generated with provision of link to employees for viewing their service particulars. Realizing the importance of mid career training, 100% employees have been covered under training program Project Saksham-II to equip them with requisite knowledge on their assigned job and to sharpen their skills. A two day workshop on Emotional Intelligence was organized covering 40 JAG/SG officers in June-2019.

Rajbhasha wing of NCR has done exceptionally well towards fulfillment of statutory responsibility towards promotion of Hindi in official work. An officer of NCR got prestigious Railway Minister Rajbhasha Medal and several employees have also won prizes at all India level Railway Rajbhasha competitions.

Recognized unions, federations and associations on NCR have played a very constructive role in maintaining peaceful and cordial industrial relations over the Railway. It was only possible with whole hearted support and hard work of dedicated workforce in NCR that biggest event on the earth - Kumbh-2019 was successfully organized which was recognized at highest level during National Railway Week function, 2019 organized at Ambala.

NCRWWO has done exemplary and selfless service to help needy Railway families through various welfare schemes run by them. This organization has done commendable works towards environmental awareness by planting saplings and organizing competitions etc. On world environment day, Drawing & painting competition was organized by NCRWWO for students and pictures made by them were compiled in the form of a coffee table book and distributed among participants to create long term awareness on environmental issues. Scouts & Guides, Civil Defence and St. Johns Ambulance brigade personnel have made valuable contributions to the society by serving the passengers during Mela and other rush periods.

Summing up, North central Railway is playing a key role in improving mobility on Indian Railways so that the National Transporter can further contribute in the nation building.
While looking back into history one finds that the inception of North Eastern Railway dates back to 1875—when a 61 km long railway line was laid between Darbhanga and Dalsingsarai (via Samastipur) for transporting relief materials during a major famine in North Bihar. It was with the commissioning of a 109 km railway line between Nawabganj and Bahraich via Mankapur-Gonda in April 1884, that North Eastern Railway came on the map of Uttar Pradesh. With the passage of time this rail network spread over far flung areas of Uttar Pradesh and Bihar.

North Eastern Railway was formed on 14th April, 1952 when two private railway systems viz. Oudh Tirhut Railway & Assam Railway and Fatehgarh District of Bombay Baroda & Central India (BB&CI) Railway were merged into one system with its headquarters at Gorakhpur. It spread from Ledo in the Far East to Achnera in the West. It was one of the original 06 zones reorganized under Indian Railways and was inaugurated by the first Prime Minister of India Pt. Jawahar Lal Nehru. North Eastern Railway lost its territory with the creation of NFR in 1958 and of ECR in 2002.

Presently, North Eastern Railway has 03 divisions with headquarters at Varanasi, Lucknow & Izatnagar and serves the states of Uttar Pradesh, Bihar & Uttrakhand with a total of 3477.05 route kms and 505 stations.

NER has the privilege of serving major religious, historical and tourist centers such as Varanasi, Sarnath, Lucknow, Prayagraj, Kushinagar, Lumbini, Gorakhpur, Ayodhya, Mathura and Shravasti etc. It also provides rail connectivity to the tourists visiting hill stations of Kumayun like Nainital, Almorah & Ranikhet and Jim Corbett & Dudwa National Parks. NER also serves as a gateway for transportation needs of the neighboring country Nepal.

North Eastern Railway, once popularly known as “Chhoti line” railway, is now on the verge of total transformation and is ushering in an era of development, progress, electrification and modernization. TEAM NER is committed to meet the challenges of day to day
transportation of freight & passengers and come up to the expectations of countrymen. No stone is being left unturned by NER to contribute its might to the nation building. As an important zone of Indian Railways, NER is playing a pivotal role in the challenging transportation scenario of the country.

Remarkable Achievements

Safety

To ensure safe, secured and hassle free rail travel is prime priority of this railway. Accidents at unmanned

Kauwabagh RUB at Gorakhpur
level crossing have been a cause of serious concern on this railway. To meet this challenge, unmanned level crossings have been completely eliminated on BG lines. Now manned level crossings are also being eliminated by provision of L.H.S. During 2019-20, 66 manned level crossings have been eliminated by provision of limited Height Subways (LHS) as compared to 53 during the previous year. All level crossings having TVU more than 50,000 have been interlocked. OTP based relay room, access authorization & monitoring system (ORAAAMS) has been launched in Varanasi Division for safe opening and closing of relay rooms.

The year 2019-20 has been witnessing Zero consequential accidents & many other remarkable achievements for North Eastern Railway.

Financial Performance
Owing to concerted efforts and team work, the earning of North Eastern Railway has shown up going trend. Various steps have been taken for reducing expenditure and plugging leakages of railway revenue. During the year 2019-20 total earning of N.E.R. has improved by 3.44% as compared to the last year. Passenger earning has gone up by 2.01% in comparison with the previous year. Freight loading has also registered a remarkable increase of 25.71%.

<table>
<thead>
<tr>
<th>Freight Loading (Million Tonne)</th>
<th>Target 2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2</td>
<td>1.75</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Commitment for Promising Future
NER as team has set high goals and trying to achieve it with all its might. A hall mark of this commitment is the successful running of the first corporate train i.e. Tejas between Lucknow Jn and New Delhi, being maintained by NER. To match the needs of fast changing transport scenario in the days to come NER would certainly be able to provide seamless, convenient and fast mode of affordable transportation to the people of most populous area of UP, Bihar & Uttrakhand. NER is shedding its trappings of the meter gauge system and is evolving into a modern star of the Indian Railways.

### Development of Infrastructure
Capacity development through doubling, gauge conversion and electrification is a major motto of North Eastern Railway. The railway has already electrified almost 60% of its system. Large swathes of MG route have either been converted into BG or are under conversion.

### Under Electrification Work

<table>
<thead>
<tr>
<th>Works Completed in 2019-20</th>
<th>Works Targeted for 2020-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathura-Kalyanpur</td>
<td>Kachhwa Road-Jhunsi (2nd Line)</td>
</tr>
<tr>
<td>Mankapur-Katra-Ayodhya</td>
<td>Burlwa-Sitapur (2nd Line)</td>
</tr>
<tr>
<td>Manduadih-Hardattpur-Kachhwaroad</td>
<td>Chhapra-Ballia-Ghaizipur-Aurnihar (2nd Line)</td>
</tr>
<tr>
<td>Kathkuiyan-Jalalpur-Thawe</td>
<td>Mau-Shahganj</td>
</tr>
<tr>
<td>Thawe-Rajapatti</td>
<td>Phephna-Indara</td>
</tr>
<tr>
<td>Rajapatti-Chhapra Kacheri</td>
<td>Bareilly-Blujipura-Pilibhit</td>
</tr>
<tr>
<td>Khaira-Chhapra Gramin (By Pass)</td>
<td>Sitapur-Mailani</td>
</tr>
<tr>
<td>Daliganj-Sitapur</td>
<td>Mandhana-Brahmavart</td>
</tr>
<tr>
<td></td>
<td>Duraundha-Maharajganj-Masrakh</td>
</tr>
<tr>
<td></td>
<td>Salempur-Barhaj Bazar</td>
</tr>
<tr>
<td></td>
<td>Gonda-Gonda Kachahri (3rd line)</td>
</tr>
</tbody>
</table>

### Details of Projects

<table>
<thead>
<tr>
<th>Works completed under infrastructure development in 2019-20</th>
<th>Projects targeted for 2020-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilibhit-Bisalpur (Guage conversion)</td>
<td>Bisalpur-Shahjahanpur</td>
</tr>
<tr>
<td>Sitapur-Lakhimpur-Mailani (Guage conversion)</td>
<td>Kachhwa Road-Jhunsi (Doubling)</td>
</tr>
<tr>
<td>Chhapra-Ballia-Ghaizipur-Aurnihar (Doubling)</td>
<td>Aurihar-Mufifganj (Doubling)</td>
</tr>
<tr>
<td>Manduadih-Kachhwa Road (Doubling)</td>
<td>Burlwa-Munda Gopal Ashram (Doubling)</td>
</tr>
<tr>
<td>Manduadih-Lobha (Chord Line)</td>
<td>Gorakhpur-Nakaha Jungle (Doubling)</td>
</tr>
<tr>
<td>Chhapra Gramin-Khaira (By Pass)</td>
<td>Gorakhpur Cantt-Kusmahi (3rd Line)</td>
</tr>
</tbody>
</table>
NER is toiling hard to achieve the cherished goal of complete passenger satisfaction by providing state of arts amenities to its valued passengers. So far 268 stations have been equipped with Wi-Fi facility for passengers. Illumination level at 40 stations has been improved as per Airport standard. OBHS facilities are available in all the 59 eligible trains. Blankets provided to AC passengers are being dry-cleaned monthly. 3409 coaches have been provided with eco-friendly bio toilets. 17 lifts have been installed and 10 are under installation during the year. Similarly 24 escalators have been installed and 2 are under installation. In 44 trains train side vending has been started between Varanasi - Gorakhpur, Chhapra - Gorakhpur-Lucknow Jn. and Lucknow Jn - Moradabad Health ATM facility has been provided at Lucknow Jn. This facility is being further extended to Gorakhpur, Gonda and Manduadih stations. Rail Display Network (RDN) has been provided at Gorakhpur and Lucknow Jn. stations. Efforts are also on to improve and modernize station buildings and provide infrastructure to match the facilities available at Airports. In this perspective Gorakhpur Jn. & Manduadih stations need special mention.

NER’s first hanging waiting hall has been opened at Gorakhpur Jn. station. Modernized retiring rooms have been opened at this station. Gorakhpur Jn station is unique in that it has cab-way at both sides of entry. A huge size waiting hall having area about 11000 sq. ft. with improved amenities has also been provided. A beautiful garden has been developed at the main entry of this station. Manduadih station has also been upgraded with modern facilities. Besides the passenger amenities, the station has been provided an entry also to an airport-wide expansive approach, landscaped green islands, water body and a façade which matches the architectural theme of Varanasi. The culture theme has been further highlighted through murals across the station.
Striving to Serve Our Customers Better

Sanjive Roy, General Manager

As Indian Railway is discovering itself in a new era of renewed commitment for providing better feel and experience to travellers, Northeast Frontier Railway is also continuously thriving in providing better, more efficient and ever expanding amenities to its users. N.F. Railway is one of the biggest zones serving an area spread over eight North-eastern States and parts of Bihar & West Bengal. With 4200 route km (as on 31st March 2019) including 87 km of Narrow Gauge tracks in Darjeeling Himalayan Railway, N. F. Railway has been serving one of the most varied and difficult terrains in the country. The region experiences vagaries of nature like floods, landslides, wash-away of bridges, breaches on tracks on regular basis during the Monsoon period making the responsibility of maintaining rail communication with the rest of the country a daunting and challenging task. Despite the odds, we have always been committed to provide our customers the best of services. Our stations experience mass footfall and are the face of the organization. A better looking station with adequate and quality amenities goes a long way in instilling a sense of satisfaction and pride in our customers. With this in mind, over the last few years, we have given added emphasis on improving our stations and providing better passenger amenities. As many as 253 works related to passenger amenities at an estimated cost of ₹1320 crore are being implemented in the Zonal jurisdiction which are crucial for the desired face-lift of the Railways.

Station Redevelopment

We have improved standards of amenities in our stations and have already acquired ISO certification for 22 stations for providing passenger amenities in clean and green environment. Four of our stations - Guwahati, Rangiya, Alipurduar Junction and New Tinsukia - have already been provided new look and feel with several measures for improving passenger comfort and convenience for enhanced and richer passenger experience under soft upgradation schemes. Similar works are under progress in Siliguri Junction station. Fifteen other small stations have been provided with passenger amenities work like raising of platforms, provision of new platforms, and extension of existing platforms. Apart from these, several other stations have been provided with new façade, LED lighting, improved drinking water facilities etc. Lifts and escalators which were unheard of even a few years ago are being provided in important stations. 39 lifts and 31 escalators are in different stages of construction over N.F. Railway. As of now, 17 lifts and 17 escalators have already been provided.

During last one year we have constructed 361 toilets for Divyangjans and implemented mechanized cleaning at 371 stations. In other small stations imprest cash for ensuring cleanliness have been provided. Some stations have also been provided with CCTV for monitoring cleanliness. The overall cleanliness in stations has
Continuous scour monitoring instrument installed at major bridges recorded remarkable improvement, which is also acknowledged by our passengers through feedbacks received via traditional channels and social media platforms.

A total of 14,620 km of track has been covered by USFD testing and Tinsukia division of the zone actually achieved the distinction of being the first division in Indian Railway with zero overdue of USFD testing of AT welds.

To ensure safety of bridges and timely intervention in the event of any natural vagaries, Continuous Scour Monitoring Instrument using Solar Echo Range Technology has been installed at three major bridges. We are the first zonal railway to use such technology.

Safety & Security of Customers

Concerns for safety and security of rail users remain at the core of all our efforts and one of the major safety concerns so far had been accidents at level crossings. Last year we have become unmanned level crossings free by manning or closing/diverting them by constructing LHS or RUBs. With the broader objective of Indian Railways to eliminate all level crossings - manned or unmanned, - we have also eliminated 19 manned level crossings this year. To further enhance safety, we have converted 116 “Close to Road Traffic” (CRT) level crossing gates to normally “Opened to Road Traffic” (ORT) this year and Gate Working Rules at Level Crossings which could not be converted to “Open to Road Traffic” have been amended suitably. This has not only speeded up our operations but also has resulted in zero accidents at level crossings this year.

To ensure safety, we have ensured timely USFD testing and carried out all required track maintenance activities like ballast renewal, track renewal, sleeper renewal, deep screening of track, bridge rehabilitation etc. A total of 14,620 km of track has been covered by USFD testing and Tinsukia division of the zone actually achieved the distinction of being the first division in Indian Railway with zero overdue of USFD testing of AT welds.

To ensure safety of bridges and timely intervention in the event of any natural vagaries, Continuous Scour Monitoring Instrument using Solar Echo Range Technology has been installed at three major bridges. We are the first zonal railway to use such technology.

To ensure safety of our customers we have installed CCTV cameras at five base kitchens for continuous monitoring of food preparation hygiene and quality on real-time basis.

On the security front our RPF has started quick response mechanism to attend to any kind of request for assistance through social media or dedicated Apps. In recent times the active discharge of duties by RPF personnel has resulted in detection and rescue of trafficking of children and women, recovery of smuggled goods, illegal arms & ammunitions and recovery of stolen properties of our passengers. To enhance surveillance RPF is also manning CCTV systems installed at 13 stations. Soon, CCTV surveillance will be installed at 15 more stations.
Improved Throughput and Punctuality

We have been able to raise sectional speed in record 12 sections sprawling over 474 km resulting in reduction of 130 minutes running time of trains. 25 permanent speed restrictions have also been removed during this year. We have been able to speed-up 19 trains reducing their journey time between 5 to 30 minutes. All our concerted efforts have resulted in remarkable improvements in freight train operations and in punctuality of passenger train services. While on several occasions we had achieved 100% punctuality, our zone had also been among the top three zones in terms of punctuality for three consecutive months from September to November last year. This was a record for this zone after installation of Data Loggers.

Digital Initiatives for Rail Users

Following development of a number of free Apps on Android and IOS platform for different purposes like buying UTS tickets, complaint registrations and security help lines etc. passengers have found the free Wi-Fi hotspots provided in our stations immensely helpful and beneficial. To promote these Apps we have also conducted awareness drives at stations and carried out publicity drive through various media. We have so far installed free Wi-Fi at 361 stations and more stations will get such free Wi-Fi soon.

We have also introduced Wi-Fi Hotspot-based On-demand entertainment system in all Rajdhani, one Shatabdi and one Humsafar trains. To showcase Indian Railway's glorious history and heritage, and to inform citizen about current and future developmental efforts along with innovations that make journey pleasurable, we have started to install Digital Museums at 26 stations.

To provide correct and properly audible and visible public announcement on arrival / departure of trains at stations we have installed PC-based announcement system called Integrated Passenger Information System (IPIS) in 17 stations and more stations will be covered in coming days. Moreover, better public address system has been installed in 337 stations of the zone. Large LED displays/ Video Walls have been installed in five stations to display information regarding arrival/ departure of trains through NTES. These Video Walls are also being utilized for generating Non-Fare Revenue by letting them out to advertisers.

As a pioneering zone in Indian Railways we have implemented Electronic Transmission of Railway Receipts (eT-RR) for our freight customers in July last year. This has done away with the need for carrying or transmission of physical copy of the RR while transporting goods and eliminated paperwork besides ensuring transparency.

Innovation - Noise Reduction

Every step - however small it may seem – matters when it comes to increasing satisfaction level of our passengers. Rangiya division has set an example of how a small effort can enhance passenger experience at stations. High noise levels at stations often cause discomfort and fatigue to travellers. To keep the noise level within tolerable level, Rangiya division has deployed sound level recording instrument at three stations. These instruments are used to monitor and control decibel level at concourse, booking office, waiting halls, parking area etc.
Way Ahead
Customers’ satisfaction has to be a major objective for any organization to be commercially successful. This is more true for Railways as we have the added responsibility of contributing towards economy and nation building. N. F. Railway is taking several steps, within the ambit of the policies and directions of Indian Railways, to be one of the best among all zonal railways so that people travelling in the North-eastern region of the country gets to see and feel the new face of Indian Railways that is in making.

Green Initiatives
N. F. Railway has been actively advocating less use of plastic and complete stop to single-use plastic. Plastic packaged drinking water bottles are one of the major sources of plastic pollution. To address the issue we have installed plastic bottle crusher machines with capacity of flaking 500 plastic bottles an hour at Barpeta Road, New Bongaigaon, Rangiya, Rangapara, North Lakhimpur, Silapathar and Harmuti stations.

Rangiya division has commissioned a solar-powered Rolling-in / Rolling-out inspection hut at New Bongaigaon station. This has made the rolling-in / rolling-out inspection self-sufficient and green energy based eliminating dependence on electricity supply and saving on energy bills.
North Western Railway came into existence on 1st Oct. 2002, comprising 4 divisions namely Jaipur, Jodhpur, Ajmer & Bikaner. In this zone, Jodhpur & Bikaner divisions from Northern Railway and Jaipur & Ajmer divisions from Western Railway have been included. This railway mainly caters to Rajasthan, western Haryana and some parts of Gujarat & Punjab states. Initially North Western Railway predominantly operated meter gauge trains. At the time of establishment, the zone had 2578 Kms of BG and 2875 Kms of MG Railway tracks. This posed a big challenge to connect the trains of this railway to the destinations of other Zones of Indian Railways. This challenge has been met by executing various projects of gauge conversion. Today the work of gauge conversion is almost complete on all the sections, and works on Mavli-Badi Sadri and Himmatnagar-Udaipur City sections are in progress. As on 31.03.2020, NWR has only 394 Kms patch of MG including Marwar-Mavli section, out of which 71 Kms will be converted to BG by 31.03.2021 and 171 Kms by Dec '2020. It has been decided at highest level of Railways to leave Marwar-Mavli (152 Kms) of MG as it is a Heritage MG section.

Special Emphasis for Infrastructure strengthening  
NWR is an emerging zone on Indian Railways with highest growth in infrastructure in recent years. It is fast becoming the lifeline for the states in the western and northern parts of India. The construction of new infrastructure & up-gradation and modernization of existing infrastructure are being done on priority. Investment on infrastructure is rising each year. In the previous year, around ₹5000 cr were allocated to NWR. This year, more than ₹6400 cr have been allotted. During this financial year till the month of March, works of 58.5 Kms of new line, 98 Kms of doubling and 105.71 Kms of gauge conversion have been completed and the work of 12 Kms of double line is likely to be completed by the end of July-2020.

Besides this, electrification work is underway on NWR on a large scale. Till March end 1819 Kms of route have been electrified. In the current year, 570 Kms of route have been electrified. Eight passenger trains on Bhiwani – Rohtak section and two passenger trains on Rohtak-Hisar section are being operated with electric traction. The goods trains on Alwar – Bhiwani – Hisar – Bhatinda and Rohtak – Bhiwani sections are also being run on electric traction.

Works Completed on NWR during the financial year 2019 – 20 (till February 2020)  
- New Lines  
  Thaiyat Hamira – Sanu (58.5 km) section opened for operations from 31.12.2019
• **Doubling**
  Mangaliyawas – Daurai (19 Km) section opened for operations from 28.11.2019
  Bhimana – Abu Road (17 Km) section opened for operations from 24.01.2020
  Abu Road – Maval (10 Km) section opened for operations from 24.01.2020
  Sendra – Bangurgram (19 Km) section opened for operations from 25.02.2020
  Dhwigawara – Bandikui (33.37 Km) section opened for operations from 27.02.2020

• **Gauge Conversion**
  Ringus – Jaipur (57.45 Km) section opened for operations from 21.10.2019
  Raigarh – Himmatnagar (24 Km)
  Udaipur – Kharvachanda (24.26 Km)
  Raigarh – Dungarpur (70.73 Km) target of work will be achieved by 31.10.2020

• **Electrification**
  Suratgarh – Biradhwal (27.48 Km)
  Bhinwaliya – Rani– Jawai Bandh (61.96 Km)
  Sawai Madhopur – Shivdaspura (106.54 Km)
  Kanakpura – Phulera (48.60 Km)
  Rewari – Mahendragarh (50.09 Km)
  Alwar – Bandikui (62.25 Km)
  Madar – Ajmer – Adarsh Nagar (12.81 Km)
  Mahendragarh – Sadulpur (89 Km)
  Jawai Bandh – Swaroopganj (54.42 Km)
  Bandikui – Bassi (56.10 Km)

**Western Dedicated Freight Corridor**
The important project Western DFC of Indian Railways is passing through North Western Railway. DFCCIL conducted an inaugural Trial-Run of freight trains on the newly built Rewari-Madar section of WDFC, covering a distance of about 306 Km on 27.12.2019. There are 9 newly built DFC stations in this section, six crossing stations (i.e. New Dabla, New Bhagega, New Sri Madhopur, New Pachar Malikpur, New Sakun and New Kishangarh) and three junction stations (i.e. New Rewari, New Ateli and New Phulera). DFCCIL is committed for targeted commissioning of the section and till March 2020, 306 Km stretch is being

![Ringas Detour Bridge – Launching of PSC Girders](image-url)
used for running trains on WDFC and by March 2020, it will increase to 641 Km. Timeline of commissioning of the different sections is as following:

<table>
<thead>
<tr>
<th>Section</th>
<th>Length</th>
<th>Time of Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rewari - Palanpur</td>
<td>641 kms</td>
<td>Partly trial runs have started on Madar – Rewari 306 km. The total 641 km will be commissioned by Mar-2020. Remaining work in progress.</td>
</tr>
<tr>
<td>Rewari - Dadri</td>
<td>127 kms</td>
<td>Mar-2021</td>
</tr>
<tr>
<td>Palanpur - Makarpura</td>
<td>308 kms</td>
<td>Sep-2021</td>
</tr>
<tr>
<td>Makarpura - JNPT</td>
<td>430 kms</td>
<td>Dec-2021</td>
</tr>
<tr>
<td>Entire WDFC</td>
<td></td>
<td>Dec-2021</td>
</tr>
</tbody>
</table>

Safety and Security

Safety is the prime objective of North Western Railway and we have witnessed improved safety in the recent past. North Western Railway is the first Zonal Railway to air-condition all its running rooms (18) to enhance comfort level of crew during their stay. It has not only improved the productivity of the crew but has also reduced their stress levels.

All BG Unmanned Level Crossings have been eliminated by way of conversion into Manned LCs, construction of RUBs/ROBs etc. This year 243 limited height subways and 21 ROBs have been constructed and 166 manned LCs have been eliminated. This has resulted into zero accidents on LCs over NWR for the last 2 years.

For the security of passengers and property, RPF is working round-the-clock. Various drives like “Operation Thunder”, “Operation Thirst” and “Operation Number Plate” were conducted and this resulted into arrest of 207 unauthorised railway ticket agents; also 301 vehicles were seized for illegal parking in a single day on Independence Day. The work of upgradation of Security helpline no. 182 has been completed and Control Rooms have been established in all the 4 divisions. Distress call and distress button facilities have been made available in the mobile app.

A massive drive for educating Station /Running Staff through audio/video aids to ensure proper coupling of LHB rolling stock was launched resulting in tremendous reduction in the cases of train parting. Such cases have reduced to zero in the past three months on NWR.

During the financial year (till March), the work of track renewal of 242 Km has been completed and also the work of deep screening of 981 Km track has been completed in which 530 Km of plain track & 451 Km of turn-out track were included. 20,240 Km of track have been tested by Ultra-Sonic Fault Detection (USFD) technique during this financial year on NWR.

Passenger Amenities

NWR is situated on the international and domestic tourism map. NWR has upgradated the passenger amenities on all the important stations. All the basic amenities have been provided at various stations of NWR as per the norms set by Railway Board.

During the financial year 2019–20, an amount of ₹120 crore has been allotted to the passenger amenities and up to the month of March 2020, works of ₹118.01 crore have been completed. This year the works of FOB at 08 stations, high level platform at 20 stations, model stations at 02 stations and facility of 128 divyang-friendly toilets for the Divyang have been completed upto December 2019. The work of installing National Flag on 21 stations at district headquarters has also been completed till the end of December 2019. The work of 4000 stainless steel benches on all the divisions has been sanctioned and the work is under progress.

For enhancing passenger convenience, 02 escalators each have been provided at Hisar, Bhiwani & Ajmer stations of NWR. Similarly 30 escalators and 15 lifts have been provided on NWR till now. Similarly 03 lifts at Rai-Ka-Bagh and Ajmer stations are being provided. In addition to this, the work of 16 escalators and 34 lifts has been sanctioned and the work is under progress.

Shri Anand Prakash, GM/NWR inspecting Loharu-Ringus section of Jaipur Division during GM annual inspection

GM Shri Anand Prakash discussing passenger amenities with senior divisional officers
A meeting of Standing Committee on Railways was held with NWR administration on Jaipur Division on 26 January 2019 in relation to passenger services. Committee members Shri Sumedhanand Saraswati, MP-Sikar, Ms. Diya Kumari, MP-Rajsamand and Smt. Jaskaur Meena, MP-Dausa attended the meeting.

To facilitate passengers, 12 important stations viz. Jaipur, Ajmer, Jodhpur, Bikaner, Abu Road, Udaipur City, Durgapura, Alwar, Rewari, Sanganer, Lalgarh & Gandhinagar Jaipur have been provided with QR Code for issuing paperless unreserved mobile tickets. For promoting Digital India & promoting internet penetration, 394 stations have been provided with high speed free Wi-Fi facility on NWR in order to provide better internet facility.

Mobility and Punctuality

Major commodities being transported on NWR are cement, limestone, gypsum, coal, salt, oil, fertilizer, containers and foodgrains. Despite limitations of line capacity, this railway earned gross originating freight earnings of ₹1822.13 crore by transporting 16.73 million tonnes of goods traffic, passenger earnings of ₹ 2063.69 crore from 17.82 crore passengers and other coaching earnings of ₹292.52 crore. Passenger earnings of NWR has increased by 0.1% in comparison to the same period of previous year. We are confident that after completion of infrastructure projects on this railway, we will definitely be able to increase the railway revenue. Nine freight customers of NWR have been included in the Platinum (3), Gold (3) & Silver (3) categories on the basis of earnings during Financial Year 2018-19.

NWR is committed to providing better services to passengers. Punctuality of trains is our priority. In this respect, by achieving punctuality of 89.4% of mail/express trains till March 2020, we are second on Indian Railways. We have achieved 5.34% more punctuality in comparison to the same period of previous year. NWR has been one of the leading zones in punctuality over the years.

The increasing demand of passengers is being met by introducing new Mail/Express trains, by augmenting coaches temporarily/permanently, by running special trains & by optimally utilising the available time for link rakes. Till March 2020, 11992 trips of 233 Special trains were run during holidays and fairs/festivals. During this period, temporary augmentation of coaches to the tune of 14843 additional coaches in various trains and permanent augmentation of 60 coaches in 37 trains were carried out. In the year 2019-20, 04 new trains have been introduced and 10 trains have been extended.

NWR - The symbol of cleanliness: Achieved first rank across Indian Railways

A third party survey was conducted by Quality Council of India (QCI) across Indian Railways under the project “Swachchh Rail Mission”. In this survey, all the

---

**New Train Services**

2. Train No. 14819/20 Bhagat ki kothi–Sabarmati–Bhagat ki kothi Exp. (05 days in a week)
3. Train No. 79603/04, Jaipur–Sikar–Jaipur Demu Passenger Train (06 days in a week)
4. Train No. 14817/18, Bhagat ki kothi–Bandra Terminus–Bhagat ki kothi Biweekly Express.
5. Minister of Railways Shri Piyush Goyal inaugurating Rail Service through Video Conferencing on newly BG-converted Jaipur-Ringus route

**Extension of Rail Services**

1. Train No. 54309/10 Delhi–Rewari extended upto Hisar
2. Train No. 22982 / 81 (New No. 22997 / 98) Sriganganagar–Kota express extended upto Jhalawar
3. Train No. 14021/22 Delhi Sarai Rohilla - Ringus extended upto Jaipur
4. Train No. 74861/62 Churu - Ringus DEMU extended upto Jaipur
5. Train No. 1907/08 Jaipur–Bandra Terminus express extended upto Sriganganagar
6. Train No. 54604/05 Ludhiana–Churu passenger train extended upto Ratangarh
8. Train No. 12259/60 Sealdah–New Delhi express extended upto Bikaner.
10. Train No. 19717/18 Jaipur–Chandigarh express extended upto Daulatpur Chowk.
zonal railways were included and 33 stations of NWR participated in the survey. On various parameters, NWR secured a cumulative score of 848.7 out of maximum 1000 and bagged the first rank all over Indian Railways for the second consecutive year.

Quality Council of India covered 720 stations across India in this survey. In this survey, stations were categorised in Non-suburban group (NSG) and Suburban group (SG). Due to the efforts made during the past years, in the NSG (non-suburban) Category, Jaipur and Jodhpur stations of NWR have bagged 1st & 2nd ranks, respectively. During the last survey (2018), Jodhpur station had secured 1st rank and Jaipur station had secured 2nd rank.

Other stations of NWR have also got high ranking for cleanliness; 7 stations of NWR have made it to the top 10 stations of India: Jaipur, Jodhpur, Durgapur, Gandhi Nagar Jaipur, Suratgarh, Udaipur City and Ajmer. In addition to this, 26 stations of NWR are included in the top 100 stations of India in the survey.

This survey involves stringent evaluation on various criteria like cleanliness in parking, main entry gate, platforms, waiting rooms, cleanliness procedures, passenger feedback process, etc. Ranking is based on points earned in process audit, direct observation and citizen feedback. Many steps have been taken for strengthening cleanliness over NWR. In addition to this, passengers have also become more aware and their cooperation is proving to be invaluable to NWR in this mission.

During visit to Jaipur Shri Piyush Goyal, Minister of Railways and Minister of Commerce & Industry received detailed information on the functioning of the railway, action plans, construction projects, dedicated freight corridor and passenger amenities during a review meeting with officials of North Western Railway. Shri Piyush Goyal expressed satisfaction over the performance of North Western Railway and also expressed his happiness on the railway being ranked first in the cleanliness survey on the entire Indian Railways and emphasised on improving it further in future.

Recently, Shri Suresh C. Angadi, Minister of State for Railways visited Jaipur station on 19.01.2020 and appreciated the efforts for cleanliness and also stated that Jaipur station has maintained international standards & its cleanliness system is outstanding. He suggested that the cleanliness model of Jaipur station should be adopted all over India. He congratulated the NWR team for this achievement. In addition to this, Minister of Jal Shakti Shri Gajendra Singh Shekhawat has awarded 1st prize to Jodhpur Railway Station and 2nd prize to Jaipur Railway Station in the “Swachhta Mahotsav Puruskar” by Jal Shakti Ministry. Around the same time, Jodhpur station was adjudged the cleanest station in India by the “Safai Giri” Awards organized by India Today Group.

Eco friendly Railway

Indian Railways is sensitive towards environment and NWR has focused on Solar Energy for environmental conservation. Solar power plants of 6943 kWp capacity have been set up on NWR and 73 Lakh units of electricity are being generated annually, resulting into savings of ₹3.30 crore per year.

North Western Railway Headquarters building and Jaipur Railway Station have been awarded with the highest Platinum Rating by Indian Green Building Council (IGBC) for adopting modern green initiatives. Jodhpur station and Gandhi Nagar Jaipur stations have been awarded 1st and 2nd prizes, respectively in the station building category in Rajasthan Energy Conservation Award, 2019. NWR Headquarter office building also secured 1st prize in the office building category. This year NWR Headquarter office has been declared as “Single Use Plastic-free office”.

In addition to this, Jaipur station has been awarded “Platinum” rating by Indian Green Building Council. Jaipur and Secunderabad stations are the only platinum rated stations across Indian Railways. Jaipur station is...
Indian Railways

JULY 2020

NORTH WESTERN RAILWAY

also the first “5–S” certified station by the Quality Circle Forum of India, Hyderabad chapter. Jaipur station has been awarded “Certificate of Merit” in the National Energy Conservation Awards by Bureau of Energy Efficiency. Jaipur station is the 1st station to get the Water Conservation Award by Indian Green building Council. Central Railway Hospital, Jaipur is the only hospital to be awarded with platinum rating by IGBC for its initiatives towards green environment.

Mechanised cleaning is being done at major stations of NWR. In addition to this, Jaipur and Jodhpur stations are following the Clean Train Station (CTS) scheme. To ensure cleanliness, 76 trains have been provided with OBHS facility. Almost all the coaches of trains running on NWR have been fitted with bio–toilets. 11 stations have been facilitated with bottle-crusher machines and dustbins are provided at prominent places for the disposal of garbage. For better utilization of resources and to reduce the garbage and protect the environment, 18 stations of North Western Railway have been certified with ISO:14001:2015 on the recommendations of National Green Tribunal. Automatic coach washing plants have been established on all the coaching depots of NWR. Quick watering system has been provided to fill the water in coaches quickly at Jodhpur station. This system is also being established in Hisar. 23 rakes have been upgraded under the Project “UTKRISHT” for a clean & happy journey for passengers of NWR.

Innovations

For better management of files, transparency & space utilisation, e-Office has been started on North Western Railway. NWR has become the 3rd zone of Indian Railways after SCR and NR to start e-Office. In the first phase of e-Office, NWR HQ and Jodhpur have been connected through the e-Office system and it will be implemented over the remaining divisions also in the near future. The entire transactions related to internal supply chain on NWR are fully digitized on IMMIS platform and IREPS. Vendor development cell has been opened in stores department so as to enhance transparency and improve the relationship between the buyer and supplier. Three vendor meets have already been organised on NWR in this regard.

Android based quiz application PARAKH (Professional Ability for Railwaymen Knowledge Honing) has been developed by NWR for knowledge enhancement and informal training to staff. This application has been designed and developed in-house by IT Centre, NWR. Computerised online pass module has been implemented on NWR. Upto January 2020, cumulative growth in coverage of e-HRMS was 98.38% (46,850 employees) and NWR was at 4th place among all zonal railways in this regard. 98% NWR employees have been registered on UMID portal. This year Ministry of Railways has released the mobile app “Rail MADAD (Mobile Application for Desired Assistance During travel)” to expedite and streamline passenger grievance redressal. Rail Madad is part of the Railway Passenger Grievance Redressal and Management System (RPGRAMS) of Indian Railways.

The work of drawing approval on North Western Railway is being done on web portal ROADS (Railway Online Approval of Drawings), developed in-house by
NWR. E-DAS (E-Drawing Approval System) is also being implemented for drawing approval as per the instructions of Railway Board. Computer training centre having 10 terminals with LAN connectivity has been commissioned in NWR HQ premises. NWR has achieved the target under project Saksham-II before the deadline and has secured first place among all the zonal railways by imparting training in skill development and domain knowledge to 100% of its employees. Moreover, 283 supervisors attended the “Mission Satyanistha” training session. NWR has paid the highest Goods & Service tax of ₹172.70 crore during 2018 – 19 without any error to the state government. Commercial Tax Department, Jaipur (Rajasthan) appreciated the efforts of NWR. As the representative of Ministry of Railways for Rajasthan, NWR has been designated as a “Platinum” category “Rajya Mitra” in Jaipur region under the “Vyavhari Evam Seva Pradata Sammaan Yojna – 2019” for payment of highest GST in Jaipur-II division of State of Rajasthan during 2018-19.

Medical and Health Services
North Western Railway is providing OPD and indoor health facilities with 604 beds distributed among one Central Hospital at Jaipur, three Divisional Railway Hospitals each at Ajmer, Bikaner & Jodhpur and four Sub-Divisional Hospitals. Daily OPD services to about 3500 patients are provided with high standards of health services. In the field of surgery, about 1332 major and special surgeries with 1317 cataract surgeries have been performed upto March 2020. To add to our achievements, special surgeries like TKA, THR, sports surgery, laparoscopic surgery, LSCS and cancer-related surgeries have been carried out by our in-house specialists, external HVS and super specialists. To add a feather to our cap, Central Hospital, Jaipur provides tertiary level services of Hemodialysis in the field of Nephrology and since October 2017, more than 1600 patients have undergone Hemodialysis at the hospital.

Central Hospital, Jaipur is a state-of-the-art and eco-friendly hospital. The STP plant treats 4 lakh liters of waste water daily. The solar plant produces 50 KV electricity and the hospital also has a functional water harvesting system. As a testimony to our commitment towards a greener environment, Central Hospital, Jaipur became the only Railway hospital across IR to get Platinum Rating Shield by IGBC, Divisional Railway Hospital, Jaipur bagging the first Silver Rating Shield by IGBC across Indian Railways.

In order to promote digitization, IT modules like IMMS, LIS, OPD registration, Q-management, HMIS etc. have been implemented in hospitals of NWR. CCTV cameras and Wi-Fi have also been installed in all the hospitals. The facility management system at the Central Hospital has been outsourced with an aim of maintaining a clean and healthy environment.

NWR zone organizes Health and Wellness activities for its employees and their family members throughout the year. A mega health check-up camp was held throughout NWR on 29th November, 2019, covering 85% of employees for routine check-up. A blood donation camp was organized on 18.1.2020 in which more than 200 units of blood were donated. Blood donation camps were also organised by employees’ unions and associations wherein 2923 units of blood have been collected during 2019-20. A special health check-up camp for women of age 40 years & above was organised on 25th January, 2020, in which detailed examination of 451 complaints were received from 20,073 employees, out of which 100 percent complaints have been redressed. New Kendriya Vidyalaya has been started in Bandikui since 17th October 2019, in which a total of 188 students from class 1 to 5 have been enrolled, out of which 43 are children from railway families. An amount of ₹1.07 crore has been disbursed by the Central Staff Welfare Fund Committee as technical scholarship for the children of 598 railway employees. A total of 17...
Sports

The sportspersons of North Western Railway have performed excellently at international and national tournaments. Players in Athletics, Power Lifting, Wrestling, Cycling and Boxing have won many medals. Women’s team of NWR has achieved 1st place and Men’s team has achieved 3rd place at the All India Railway Boxing Championship organised at New Delhi. Similarly, NWR has achieved third place in All India Railway Wrestling Championship organised at Agra and also third place in All India Railway Cycling Championship organised at Bikaner.

Five players of NWR have participated in the Asian Games this year. Ms. Kiran of NWR bagged bronze medal in Commonwealth games and Shri Manohar Lal railway won silver medal in Cycling Championship organized by International Railway Sports Association. Sonia Lather, boxing star of North Western Railway, has been awarded the prestigious Arjuna Award this year. Shri Sunil Kumar, a wrestler from North Western Railway, also brought laurels to India by winning gold medal in 87 Kg weight category of Greco Roman style at the Asian Wrestling Championship-2020. It is worth mentioning that the medal has been received by an Indian wrestler in this category after 27 years.

camps including one children’s camp and 3 women’s camps were organized by the North Western Railway under the aegis of Central Staff Welfare Fund Committee in which 767 candidates had participated. A camp for Divyang employees was also organized by Jodhpur Division in Nainital, in which 19 Divyang employees participated. 57 employees attended the seminar for Divyang employees organized by Ajmer workshop. An e-book on women’s safety laws in India was published on the website and also shared in PDF format for Android users.

Conclusion

Extensive works of gauge conversion, doubling, electrification and modern technology-based signaling system are currently underway on North Western Railway. The challenge is to ensure high level of operational efficiency without slowing down the pace of infrastructure projects. The challenges are immense, but they are being successfully faced by the dedication and determination of the officers and employees of North Western Railway. North Western Railway has been continuously moving forward since inception, adding new milestones of development every year and providing more and more facilities to the passengers. In the future, we resolve to continue our march towards development and customer satisfaction.
Genesis

Southern Railway, the earliest among the zones of Indian Railways, came into existence on 14th April, 1951 through the amalgamation of three state Railways, namely, the Madras and Southern Mahratta Railway Company, the South Indian Railway Company and the Mysore State Railways. The re-organisation paved the way for streamlining the system, embracing the positive facets of working from the erstwhile Railways. Piloting on the 69th year, the zone has created memorable milestones in its historic journey.

Salient features

Rightly acclaimed as the 'Lifeline of Peninsular India', Southern Railway’s vast network has a length of 5081 RKM covering 726 railway stations spanning across the states of Tamil Nadu and Kerala, Puducherry (U.T) and portions of Andhra Pradesh and Karnataka. With 80000 employees on the rolls, the Railway is served by six major divisions – Chennai, Salem, Tiruchirappalli, Madurai, Tiruvananthapuram and Palakkad. Six production units and workshops falling under the zone's jurisdiction nourish and support the divisions. Passenger transportation being the mainstay of Southern Railway, the zone is witnessing an increasing trend in passenger traffic. Several developmental works carried out in the recent years have led to the expansion of the network and augmentation of its carrying capacity. Dynamic freight marketing efforts have been put in place to attract new streams of goods traffic.

Financial Indices

Southern Railway has earned a revenue of `8,188 crores as gross earnings and `4,586.77 Crores as passenger earnings during the year 2019-20.

On the freight front

During the year 2019-20, this terminal Railway zone has achieved a loading of 31.76 MTs of various commodities to different destinations across the country. This includes 3.59 Million Tonnes of Fertilizers which has registered a 11% increase over last year and 4.37 MTs of POL registering a 13.8% increase. From 16 rakes in 2018-19 the automobile train traffic has gone upto 108 rakes during 2019-20 with earnings going up by 648%. 2 new goods sidings and 3 new goods sheds were opened this year. Further, 2 goods sidings were electrified this year so far as part of the zone's efforts to improve freight traffic.
Doubling of Ambalapuzha-Haripad (18.13 km.) and 4th line of Attipattu Pudunagar to Attipattu (1.7 km.) are targeted for completion this year. As part of Madurai – Usilampatti – Bodinayakkanur Broad Gauge project, Madurai – Usilampatti section has been completed and Commissioner of Railway Safety inspected the section and conducted speed trial on 23rd January, 2020. The remaining stretch, Usilampatti to Bodinaiyakkanur section, is also targeted for completion by April 2020.

Electrification
63.7% of the zone’s network is under electrified traction. Electrification of Cuddalore-Mayiladuthurai (74 km.) which is being undertaken by RVNL and Thiruvarur to Karaikkal port (40 km.) by CORE targeted for completion this year will give a fillip to the zone’s initiatives for expanding its electrified network. Recently, speed trial between Cuddalore – Thiruvarur (114 Km) and Thiruvarur – Thanjavur (54 Km) has been successfully completed by Commissioner of Railway Safety, Southern Circle.

The Arterial Network of Chennai
Chennai suburban railway network is the third busiest suburban railway system after Mumbai and Kolkata. With the completion of the 9.5-km detour, new line between Takkolam and Arakkonam in Kancheepuram-Arakkonam section, Chennai suburban railway network has become the country’s longest circular route covering 204 Km. There are 153 Suburban stations spread over Chennai and its vicinity. Over 330 EMU trains are run daily.

Infra boost in Chennai Suburban during 2019-20
- 9th and 4th line between Chennai Beach and Korukkupet has been commissioned, giving operational boost to NE suburban sector.
- 12 Car EMU trains have been introduced for the first time in North East Line of Chennai Suburban Sector in MMC – Gummudipundi – Sullurupetta.
- Cross- sectoral train services have been introduced between Chengalpattu and Gummidipoondi, the extremities of the South BG and NEL lines respectively, saving the commuters from the hassle of having to jump trains at Chennai Park station.
10 Nos of 3 phase EMUs with 12 cars have been introduced to give more comfort to passengers. It also saves 30% - 50% energy.

The commissioning of Takkolam-Arakkonam detour line has paved the way for introduction of Circular train services in Chennai Beach-Tambaram-Chengalpattu-Kanchipuram-Arakkonam-Tiruvallur-Chennai Beach corridor. Two trains, a MEMU and an EMU service have been running in the circular route since May, 2019.

Station Redevelopment

In tune with Railway Ministry’s modernization plans, six railway stations, namely, Chennai Egmore, Madurai, Salem, Palakkad, Kottayam and Tiruchchirappalli have been identified for Redevelopment to international standards at a total cost of 109.55 crores.

The 3-phase EMUs introduced in Chennai suburban promises greater speed and comfort

The redevelopment works are progressing at a faster pace in Salem Junction. In phases, the station will get a facelift at an estimated cost of ₹24 crores. Presently, the façade and the landscape have been revamped at a cost of 5 crores. Separate lanes have been provided for buses, private cabs and autos ensuring smooth flow of traffic. Vertical garden, LED backlit Passenger Amenity Guidance Board, Braille Information Boards, modified Platform shelters and façade lighting arrangements will also be provided at the station in a phased manner.

Special Care for Divyangjan

Braille Information Boards at Coimbatore

Coimbatore Junction has earned the distinction of being the first railway station in Southern Railway and the fourth station Pan-India to become visually-challenged-friendly with the installation of Braille information boards and Braille-embossed handrails. Two Braille master boards – one at the main entrance and the other at the back entrance near the Information Centre – have been installed, which lays out the blueprint of the railway station for the visually challenged passengers. Apart from these, the railway offices and amenities such as Water taps, Lifts and Waiting rooms have been fitted with Braille boards. Besides, the station is also equipped with Battery-operated cars, portable ramps, differently-abled friendly Booking Office and earmarked parking lots, escalators and lifts.

Mobile Apps for Passenger Convenience

UTS Mobile App, launched in 2015 for ease of Unreserved ticketing has been extensively used in Southern Railway. The UTS on Mobile App is showing a steady growth with a variation of 79.64% in No. of tickets, 79.09% in No. of passengers and 99.46% in the Earnings for the year 2019-2020 over the year 2018-2019.

An indigenous all-purpose Mobile App ‘RAIL PARTNER’ has been developed by Southern Railway. Truly a passenger’s companion, Rail Partner App is a one-stop solution for all rail-related issues, travel information, ticketing, complaints and grievances. Rail Dandora, an exclusive Android App for the use of Railway employees and customers is updated with all the existing official circulars and orders pertaining to Ticketing, Catering and various amenities and services including Freight and Parcels.
Redefining Speed and Luxury Travel – Tejas Express

Flagged off by Hon’ble Prime Minister of India on 1st of March 2019 through Video conferencing from Kanniyakumari, Madurai – Chennai Egmore – Madurai Tejas Express has become the Railway’s pride redefining speed and luxury travel. This Premium service is equipped with state-of-the-art interior, personalised reading lights, AC coaches, mobile charging points, CCTV cameras, bio-toilets, LED TV and automatic doors. The recent novel addition is the ‘Magic Box’. This Wi-fi entertainment system will offer 500 hours of non-stop entertainment to the passengers. The box is pre-installed with content such as movies, music, kids content and information on Government schemes in English and regional languages.

Keeping Alive a Shining Legacy

UNESCO listed Nilgiri Mountain Railway is one of the prized possessions of Indian Railways. Southern Railway has been taking concerted efforts to preserve this heritage mountain railway for posterity with great Pride and panache. Recently, steam joy rides and chartered trips have been introduced between Mettupalayam – Coonoor – Udhragamandalam which have proved to be extremely popular among the rail enthusiasts and foreign tourists. Recently, 77 foreign tourists, hailing from America, England, Russia, Australia and South Africa enjoyed the beauty of the pristine hills onboard a steam-powered NMR Chartered service operated between Coonoor and Ooty.

A meeting for promoting tourism on Nilgiri Mountain Railway (NMR), was convened at Southern Railway Head quarters under the aegis of Shri Rajesh Agarwal, Member Rolling Stock, Railway Board. Deliberations were held with Stakeholders from Travel and Tourism industry on devising plans to exploit the tourism potential of NMR and running of special trains in the section.
GOC Workshop – A center of excellence

The central workshop at Goldenrock (GOC), Tiruchirappalli in Southern Railway had bagged the award for Best Railway Workshop in Indian Railways for its outstanding performance during the year 2018-19. The award was presented at the 64th Railway Week Celebrations held in July, 2019. The workshop had also achieved milestones in Periodic Overhauling of Coaches (POH), reduction in sick marking of coaches, local passing of rolling stock, commissioning of critical plants and machinery, effective utilization of funds and for imparting quality training to employees. Special projects such as upgradation of coaches under Utkrisht Scheme, fitment of eco-friendly bio-toilets and efficient scrap management by GOC deserve special mention.

Southern Railway Pavilion at the 46th All India Tourist and Industrial Trade Fair in Chennai

Southern Railway has been participating in the All India Tourist and Industrial Trade Fair being held at Island Grounds, Chennai, for the past several years as this provides an opportunity to showcase the universal appeal of Railways and its technological advancements through conventional publicity and to promote public awareness. This year, the working model of the existing Pamban Bridge, a replica Mahatma Gandhi spinning the Charka, miniature model of WAP4 and WAP7 locomotives made by C&W Workshop and GOC, miniature working models of NMR’s X Class Locomotive were the prime attractions.

Glorious Future

Southern Railway aspires to fulfill the growing demands of passenger transportation duly expanding and upgrading its network. Safety, security, punctuality and cleanliness will be our priority areas. We hope to modernize our system harnessing the benefits of Information Technology. With a customer-centric vision, the zone has been launching a host of passenger amenity schemes. All these new initiatives stand testimony to the fact that Southern Railway is living upto the motto of ‘Passenger Care’. In the coming years, with the valuable co-operation and support of the travelling public, the Railway is focused to make rail travel safe, secure, comfortable and pleasant.
Showcasing All Round Performance

Gajanan Mallya, General Manager

South Central Railway (SCR) carries a proud legacy of sharing its birthday with the apostle of peace and Father of the Nation, Mahatma Gandhi. Born on 2nd October, 1966, the Zone has travelled a long course through 53 years with commitment to serve the people of the region, lending wheels to progress. With a network that spans 6234 route kms covering entire Telangana, major portion of Andhra Pradesh, sizeable parts of Maharashtra and Karnataka besides a small stretch of Tamil Nadu and Madhya Pradesh, SCR is the virtual gateway to south of India from all other directions.

The Zone has been steadfast in its objective to register all round performance across spheres. In the financial year 2019-20, SCR has strived hard to attain the best possible performance overcoming challenges of the competitive transport scenario. The achievements validate a keen sense of cohesion and team spirit from the 80,000 strong workforce of the Zone.

Figuring Performance

The financial year 2019-20 up till January, 2020 has seen SCR record gross originating earnings of ₹11,573 crore, with the freight traffic contributing ₹7479 crore and passenger traffic generating the highest ever ₹3591 crore. Freight loading on SCR attained 91 million tonnes during the period, the bulk being Coal, Cement, Iron ore and Fertiliser traffic. Over 315 million passengers boarded SCR’s multi-optional train services until January, 2020. The zone is confident of a significant rise in volumes of both freight and passenger traffic by the end of the fiscal, thereby maintaining its position as amongst the front runners on Indian Railways in Performance.

Safe Travel

Safety and Security is the bench mark of a trustworthy journey for rail users. SCR lays thrust on these two vital parameters which influence public opinion on Railways. Initiatives such as stringent Safety drives, night inspections, safety audits, refresher training programs, counselling sessions etc have derived excellent results, both in terms of keeping a hawk’s eye on alertness of staff belonging to safety categories on duty and also making them feel confident and valued. The zone has laid stress on maintenance schedules of the rolling stock and track, giving no room for any complacency. During the year, a record 231 kms of track renewal has been completed, with the added satisfaction of bare minimal regulation to train services. Continuing with mission elimination of railway crossings, SCR has brought the curtains down on 104 manned railway level crossings during the fiscal, ensuring alternate options for smooth road traffic movement, mostly by construction of Road Under/Over Bridges.

Security at railway stations and in trains has been maintained to the optimal best on the zone throughout the year. Highly motivated Railway Protection Force personnel and use of modern technology is the reason for success. Enhancing the capabilities, high resolution Surveillance cameras have been commissioned at 44
Infrastructure Boost

Infrastructure is the key to growth. SCR has adopted a proactive approach to fast track the infra works of all hues, during the year. A sizeable length of 191 Kms of rail line has been doubled while 14 kms of new rail line has been completed until date, in the FY 2019-20. On the anvil, is the completion of an important new rail link in Telangana, connecting Manoharabad and Gajwel (which will further extend upto Kothapalli in the heart of North Telangana). The strategic 41 route kms length between Guntakal - Kalluru has been doubled and electrified, opening up new vistas of mobility for freight and passenger traffic in Rayalaseema region of Andhra Pradesh. This line acts as a bypass for trains bound to South from the North and the Western regions. The Marathwada belt of Maharashtra will also experience a surge in rail traffic with the completion of the doubling of 82 Kms long section between Parbhani and Mudkhed. The ambitious “Mission Electrification” is proceeding at a fast pace and 155 Route Kms have already been electrified this financial year which also includes India’s longest electrified tunnel of 6.6 Kms between Rapuru - Cherlopalli as part of Obulavaripalli - Venkatakalam new rail line project.

Passenger Satisfaction

A smile on the face says it all. For SCR, passenger satisfaction is measured by their valued nod for a comfortable and convenient rail journey. Therefore, passenger amenities and facilities have been significantly enhanced during the current financial year at a cost of ₹ 142 crore. 10 high speed technology enabled lifts at 6 stations and 2 escalators at 2 stations have been commissioned during the year, while works are apace to commission 32 more lifts and 12 escalators at 20 and 10 rail stations respectively. Adding a new dimension to riding experience and safety, the latest German technology based Linke Hoffman Busch (LHB) coaches have been inducted in 22 pairs of express trains, with plans to introduce the same by all express trains in a phased manner. SCR is amongst the first on Indian Railways to achieve 100% results in commissioning of major railway stations during the year for round the clock operations, which has acted as a deterrent to criminal activities. In addition, Lingampalli, Begumpet and Dharmabad stations have been provided with latest IP based VSS cameras under NIRBHAYA fund to monitor security, while plans are in the offing to extend the same to all stations in a phased manner.
free High-Speed Wi-Fi at all its 576 railway stations, barring the halt stations.

As a responsive transporter, the zone lined up a dynamic plan to cater the demands of passenger rush, basing on which 2,990 special trains have been run between different destinations in the current financial year up to January, 2020 while 9,932 additional coaches were attached to regular train services. In terms of enhanced train connectivity, the introduction of a new day time intercity express between Vijayawada and Gudur and extension of the popular Rajyarani Express running between CSMT Mumbai and Manmad up to Huzur Sahib Nanded has met public acclaim.

Being Environment Friendly
SCR has been in the forefront to safeguard environment and reduce pollution. The Zone has taken the lead nationally, by being the first on Indian Railways to come up with the concept of “Energy Neutral” railway stations, capable of meeting 100% energy requirements by tapping solar power through Solar Photo Voltaic (SPV) panels commissioned on the station buildings. A high capacity 65 kWP SPV Cover over Platform has been installed on Platform 4/5 of Vijayawada railway station, yet another innovative measure towards harnessing natural power. The Yerraguntla - Nandyal section in Guntakal Division which has been prone to power fluctuations, has overcome the problem with installation of solar panels at all the 8 stations enroute, making it the first “Solar Section” on SCR. Use of Solar energy has attained a new high with the capacity getting enhanced to 8.2 MWp on the zone, scaling down use of fuel based energy and electricity, thereby saving on revenue too. Another recent innovation in this area is the concept of solar roofs made of solar energy panels which has been commissioned for the new booking Office building at Kamareddi railway station. The comprehensive measures undertaken in the realm of energy conservation have earned due recognition nationally with SCR winning 04 prestigious National Energy conservation Awards from the Ministry of Power, Government of India besides 03 awards from Government of Telangana. Opting for a more viable option, innovative Head on Generation (HOG) technology has been commissioned to replace the conventional Diesel run End on Power Generation (EOG) system to power the electrical needs of 18 pairs of express trains during the current fiscal. This will encourage use of green energy and reduce running costs besides offering scope to attach an extra coach by the trains.

Green is In
The Zone has taken visible strides in afforestation with block Plantation of 08 lakh trees in 860 hectares of land and Boundary plantation of 07 lakh tress along 622 kms of railway land during the year. Drawing inspiration from “Sewa Diwas” celebrated on 2nd October, 2019 to commemorate Gandhi Jayanthi, SCR has launched an extensive campaign against single use plastic, seeking rail users as stakeholders in the task. 85 Plastic Bottle crushing machines have been installed at 60 busy railway stations to facilitate responsible disposal of plastic. SCR is the first on Indian Railways to install the environment friendly Atmospheric Water Generator kiosk “Meghdoot” at Secunderabad Railway station which produces pure potable drinking water from air, for sale at reasonable cost.

Employee Centric Digital Initiatives
Employees are the strength for the Organisation. Steps to upgrade their skills and enhance work efficiency are
SCR has taken to the Digital Avenue by introducing a host of initiatives. The Zone is the first to implement the paperless digital working system, “e-Office”, for all internal correspondence on files. e-DAS (electronic Drawing Approval System) is another first of its kind initiative of SCR, to provide an electronic platform for online approval of drawings, which significantly expedites the approval mechanism to facilitate on time commencement of rail projects. A host of measures including the introduction of Unique Medical Identity Card (UMID) have earned a positive nod.

Women’s Welfare

Women employees and family members are equal partners in the growth journey of Railways. Their contentment and happiness enables the organisation attain its goal on the strength of workforce loyalty. Complementing the initiatives of the organisation, the SCR Women’s Welfare Organization (SCRWWO) has been rendering yeoman service in the area of women welfare. In addition, the Organization is also reaching out to other deserving sections of the society. The schools being run by SCRWWO for children of railway employees as well as the under privileged sections of the outside society, are imparting quality education. At Vidya Vihar High School, Secunderabad, SCRWWO has organized painting and essay competitions amongst children and involved them in environment related activities, including Tree Plantation and the “Say No to Plastics” campaign. Aakansha, one of the best schools for specially abled children in the region, is also being run by the organization. In the segment of health and family welfare, SCRWWO has undertaken various programs to benefit the families of railway employees. The organization has extended its concern towards the less privileged women contractual staff involved in cleaning contracts on railways by conducting health awareness programs and health check up camps.

Sporting Spirit

The Zone boasts of a very thriving sports activity, earning recognition by producing top notch players in various disciplines who made their mark at the National and International levels. Teams representing the Zone have participated in 23 disciplines in All India Railway Sports Championships signifying its strength. The performance graph has also been creditable with SCR emerging among the top three ranked Zones on Indian Railways. The Railway Sports Complex (RSC), Secunderabad, one of the biggest integrated Sports facilities in the country got a shot in the arm with the inauguration of a new State-of-the-art world class synthetic Turf Hockey Stadium in November, 2019.

With the onset of the new fiscal 2020-21, yet another challenging period awaits the Railways. Priority needs to be given to substantially increase traffic and revenue, so as to financially stay strong. This is vital in view of the fact that Indian Railways is leapfrogging into a technology driven future with speed and safety of services becoming critical. South Central Railway is ready to pick up the gauntlet by strengthening its infrastructure, innovating the working practices and compounding its core competence areas so as to remain a top performing Zone on the Indian Railways.
South Eastern Railway was carved out of Bengal Nagpur Railway, popularly known as BNR which was formed in the year 1887 taking over the Nagpur-Chhattisgarh Railway. The entire stretch of the main line from Nagpur to Asansol of East India Railway was built in 4 years and opened to public in 1891. The rail link was also established between Sini and Howrah via Kharagpur in the year 1900 and finally it was connected with Howrah after construction of the rail bridge over River Rupnarayan at Kolaghat. The railway gradually got its recognition as Steel Enterprise Railway. The SER in its present form came into being on 1st April, 2003 after trifurcation which led to formation of present South Eastern Railway and two new zonal railways viz. South East Central Railway and East Coast Railway. The South Eastern Railway covers substantial areas of mineral wealth in India, specially iron ore.

Rich reserves of iron ore are concentrated in various pockets of Chakradharpur Division with the Dangoaposi sector and the Barsuan sector being the most important. Another area, although of comparatively lesser importance, is the Manoharpur sector. After commissioning of Mahanadi Coal Field Siding, SER is now gaining prominence in loading of coal. This apart, SER also has to meet the challenges of loading other products like finished steel, cement, manganese ore, dolomite, POL, food grains and fertilisers. Located in between SECR, ECR and ECoR; all fast growing zones, SER has presently assumed tremendous importance in contributing to the overall economic health and well being of the nation in general and Indian Railways in particular.

SER’s performance in 2018-19 had been spectacular. South Eastern Railway bagged the prestigious Govind Vallabh Pant Shield for the best overall performance among all Zonal Railways. It also jointly received the Signal & Telecommunication Engineering Shield and Civil Engineering Construction Shield for the best performance in these categories.

The year 2019-20 has been another year of challenges. Not only have we focused on the growth of freight loading but adequate steps have also been taken regarding passenger amenities, punctuality in train service, staff welfare etc. This has resulted in SER achieving significant growth through meticulous planning, hard work and utilisation of available resources.
Freight Loading – Upward Trend Continues
In the financial year 2018-19, S.E. Railway loaded 154.87 million tonnes of freight, which was highest ever loading after trifurcation of this railway.

This rising trend accelerated and in the financial year 2019-20 SER has been able to load 171.96 million tonnes of freight which is 17.09 million tonnes or about 11.04% more than the financial year 2018-19. SER has not only surpassed the target of 164 million tonnes set by the Railway Board but also established itself as the second highest freight loading zone in Indian Railways during 2019-20. Loading of iron ore during 2019-20 has increased spectacularly by 23.76% in comparison to the financial year 2018-19.

As a result of growth in freight loading, SER has earned ₹14,459.22 crores from freight sector during the financial year 2019-20 which is ₹1671 crores more than the previous fiscal i.e. 2018-19, registering a growth of 13.07%.

Earnings – Major Contributor to Indian Railways Exchequer
During the financial year 2019-20, the gross earnings have been ₹15,972.02 crores. Various steps have been taken for curtailment of expenditure and plugging leakage of railway revenue, resulting in generation of a Surplus of ₹7,066.94 crores. During financial year 2019-20, this railway recorded an Operating Ratio of 64.86%, which is remarkable in present scenario.

Passenger Services – Facilitating Communication
Though predominantly a freight carrying railway, passenger services have always received due importance on SER. During the last financial year i.e. 2019-20, SER has carried total 252.25 million passengers consisting
of about 129.55 million suburban passengers and 122.70 million non-suburban passengers. In the last fiscal, 8 pairs of new Mail/Express, Passenger and EMU Trains have been introduced and services of 2 pairs of trains have been extended. Due to ever increasing demand of the passengers during the festive seasons and holidays, SER arranged to run 796 Special Trains towards different destinations. Moreover, 13,536 coaches have been added on temporary basis and 47 coaches on permanent basis to different existing Mail/Express Trains. Punctuality in running of Mail/Express trains in the financial year 2019-20 has improved in comparison to the previous year inspite of facing hardship due to frequent elephant movement over railway track and law and order situation.

Passenger Amenities – Adding More Features

A full-fledged and intensive drive has been undertaken to provide maximum passenger amenities at the stations of SER. For more comfort and convenience of the passengers, a number of steps have been taken including installation of lifts and escalators, provision of potable water, high speed Wi-fi facility, renovation of platforms, station beautification etc. Till now, 13 lifts and 14 escalators have been commissioned at different stations over SER’s jurisdiction. Moreover, as part of station redevelopment work, more stations will have lifts in days to come. To provide better communication facility, free and high speed Wi-fi connectivity is available for passengers at 232 stations. Out of these, 218 stations have been equipped with Wi-Fi during the year 2019-20. Conventional rakes of trains are being gradually replaced by LHB rakes. To ensure comfortable journey and safety of passengers, 12 pairs of trains have been converted to LHB which has led to an increase of 1120 berths in all classes in the reserved segment. During the last fiscal, extensive platform renovation work has been undertaken. Platforms have been raised at 15 stations and extended at 8 stations. Moreover, circulating area improvement work has been completed at 11 stations. During the last fiscal, 9 number of Foot Over Bridges have been opened for use of travelling passengers and work of 15 other Foot Over Bridges is under progress. The widest FOB in West Bengal (12 meter wide and 160 meter in length) which is under construction at Santragachi will be commissioned shortly. Moreover, all the nominated 86 stations over SER have been converted into Adarsh Stations.

Station Re-Development – Towards a Better Passenger Experience

To ease the congestion at Howrah Station and also for smooth train operation, Santragachi and Shalimar stations are being upgraded as major Passenger Terminals. Moreover, Ranchi, Adra and Jharsuguda stations are being redeveloped with enhanced passenger amenities, better road connectivity, improved circulating area etc. Beautification of stations has been undertaken with a view to promote tribal and local art.

Mobility- Speeding up the Journey

Mobility is the key to smooth train operation. To increase mobility, total 23 Permanent Speed Restrictions have been removed in 2019-20 and total time saved is more than 37 minutes. Moreover, expeditious removal of Temporary Speed Restrictions has been ensured to maintain long restriction free stretches. Apart from this, measures have been taken to run trains with right powering to reduce utilisation of additional engine in graded sections and to minimise and eliminate stalling.

Foot Over Bridge at Ranchi Station

Flagging Off of Ranchi-Tatanagar Express and Hatia–Shanki Passenger Trains by Shri Suresh C Angadi, MoSR and other dignitaries from Ranchi Station on 29th August, 2019
Doubling/3rd line works are in progress. Coordination meetings with the concerned departments of respective State Governments are being held regularly to remove the obstacles to land acquisition and forest clearance. During the financial year 2019-20, Third Line between Jaraikela and Bisra (14.6 KM) and Doubling Work between Mohishila-Kalipahari (2.86 KM) & Andul-Baltikuri (7.25 KM) have been commissioned. The Third Line Works between Chakradharpur-Sonua (21.3 KM), Bamra to Dhutra (27.9 KM) and Doubling between Karra – Govindpur (12.3 KM) have also been completed in the last fiscal. Moreover, to prevent road congestion and ensure uninterrupted train movement, 4 number of new Road Over Bridges (ROB) have been commissioned during 2019-20 out of which one is in West Bengal and three are in Jharkhand.

Security – Our Commitment

With a view to ensure safe and secure journey of the passengers, SER has taken several measures with the cooperation of State Authorities. Railway Protection Force (RPF) and Railway Protection Special Force (RPSF), our own security forces are on constant vigil to prevent any untoward incident in stations and in trains.

Safety – Always the Priority

Safety is our prime concern and we cannot afford to show any complacency in this regard by any means. All unmanned level crossings have already been eliminated under SER’s jurisdiction and in the last financial year, 50 manned level crossings have also been eliminated as a part of safety enhancement measure, with a mission to eliminate all level crossings in coming years. To create safety awareness among the passengers as well as railway employees, SER is regularly organising Safety Campaigns, Seminars, Counselling Sessions etc. Altogether 310 Safety Seminars on various topics have been held during the last financial year to improve safety awareness among staff. Moreover, in order to improve awareness among the families of crew and guards, Family Safety Seminars have also been organised. With a view to strengthen the preparedness to handle disasters efficiently, two joint Mock Exercises in association with National Disaster Response Force (NDRF) have been conducted in the last year in Kharagpur and Ranchi Divisions.

Manned Level Crossing in Adra Division of SER

During the period from April 2019 to March 2020, Sectional Speed has been raised in 6 locations which has helped to reduce running time by more than 9 minutes.

Infrastructure – An Avenue of Growth

In its quest for infrastructural development to increase mobility and punctual running of trains, SER has laid more and more stress on enhancement of line capacity. As a part of extension of its network, a good number of doubling/3rd line works are in progress.

At present on an average 80-85 Mail/Express/Passenger/EMU trains are being escorted by RPF personnel daily. SER has already installed 952 CCTV Cameras over 24 stations within its jurisdiction. Security of women passengers is one of the main thrust areas and “Nirbhaya
Fund” is also being utilised for installation of CCTV Cameras. It has been proposed to install CCTV Cameras at 33 Stations by utilising this fund, out of which 32 Cameras at two stations have already been installed. Two Mahila Vahini Teams have also been formed and are being utilised for escorting ladies compartment in Howrah-Kharagpur suburban section.

Cleanliness – Adopting Eco Friendly Measures
SER is striving hard to make Hon'ble Prime Minister’s “Swachh Bharat Mission” a great success. During the year 2019-20, altogether 1847 Bio-tanks have been installed in 621 coaches to prevent open discharge of all the nominated 21 stations over its jurisdiction for providing passenger amenities in clean and green environment including sanitation throughout the railway station premises. Installation of Effluent Treatment Plants, Sewage Treatment Plants, Bottle Crushing Machines, conducting of Water & Energy Audit, Collection and Segregation of Bio-Degradable and Non-Biodegradable Waste etc. are some of the initiatives taken in this regard. With a view to encourage use of alternative and non-conventional sources of energy, SER has installed Solar Power Plants of total capacity of 2.304 MWp. This railway has also replaced conventional light fittings by energy efficient LED lights at all 362 stations over its jurisdiction. For saving of fuel cost, SER has adopted energy efficient power supply technology through ‘Head On Generation’ (HOG) System in 39 rakes, wherein power supply is drawn from Over Head Equipment (OHE) through electric locomotives (WAP-7/WAP-5) for functioning of the coach AC, lighting and fans etc. This system also helps to reduce carbon emission.

Staff Welfare - Fulfilling Aspirations
SER is having a dedicated workforce of around 80,000 and this railway has always taken timely initiatives for welfare of its employees and their family members. In the year 2019-20, renovated Staff Canteen, ‘BNR Kitchen-Aahar’ has been inaugurated at SER's headquarters. Under the aegis of Central Staff Benefit Fund, SER has opened an AC Holiday Home consisting of two rooms for its employees at Dadar, Mumbai mainly for cancer patients and their family members. Service record of all employees of this railway has been digitized to keep pace with the present digital era.

Medical Facilities – A Healthy Workforce
SER is committed to provide all possible health care facilities to its dedicated workforce. In the recent past an Automated Laboratory System in Pathology Department at SER Central Hospital has been started recently which is the first of its kind in Indian Railways. Lab Automation is a concept to minimise Turn Around Time from the point of patient registration to the delivery of clinical reports to them through Laboratory Information System.
Automated Laboratory System introduced at SER Central Hospital, Garden Reach

System & Analytical Automation. With a view to prevent Hospital Acquired Infection, a Centralised Sterile Supply Department has also been started in Central Hospital, Garden Reach. This railway also organises Surgery Camp on Cleft Lip & Palate at SER Central Hospital from time to time for the benefit of the children suffering from cleft lip to bring them back to normal life without any deformity. Vestibular Audiometry & Cochlear Implant Department at SER Central Hospital has also been started for treatment of inborn hearing impaired babies.

Sports – Reaching New Milestones

South Eastern Railway Sports Association has been in the forefront of developing sports activities in this railway. Sports persons of this railway have achieved many laurels in the recent past. SER's Men's Table Tennis Team emerged champion in the All India Railway Table Tennis Championship held at Guwahati last year. Our Water Polo Team became Runner Up in the All India Railway Aquatic Championship held at Kolkata. In the All India Railway Badminton Championship held at New Delhi, SER's Men's Team secured Runner Up Title. SER emerged Champion in the All India Railway Body Building Championship held at Chakradharpur in February, 2020. Ms. Trisha Dev and Ms. Madhumita Kumari bagged Gold Medals in the All India Railway Archery Championship held at Chittaranjan Locomotive Works. Two SER Body Builders – Shri N. Sarbo Singh and Shri Kundan Kumar Gope bagged Gold Medals in the Asian Body Building Championship held at Indonesia while Shri N Sarbo Singh secured second place in the World Body Building Championship held at South Korea. Ms Salima Tete and Ms Nikki Pradhan have been selected as members of Women's Hockey team of India for Tokyo Olympics. Ms Payel Chowdhury and Shri Supriyo Mondal have made us proud by winning Gold Medals in Kabbadi and Swimming respectively in the SAF Games held at Nepal. Going by the performance of our dedicated work force and available technical inputs, we are confident that SER would be in a position to rise to the occasion and meet the heightened expectations of the public and the industries in years to come. SER is all set to continue the legacy of being the Blue Chip Railway on Indian Railways network.
South East Central Railway (SECR) has become functional as a newly formed zone from 1st April, 2003 with its headquarters at Bilaspur comprising of three Divisions viz. Bilaspur, Raipur and Nagpur.

The operational areas of SECR are in states of Chhattisgarh, Madhya Pradesh, Maharashtra and Odisha which are having abundance of mineral resources. The geographical centrally located position of SECR states provides abundant mineral resources especially coal generation, enormous scopes, challenges for encouraging industrial growth & economic development not only in this region but also support and supplement for far flung areas thereby creating direct & indirect opportunities for employment generation.

In last few years, there has been substantial growth in infrastructure all over the country and expansion to Power, Cement, Coal, Steel sectors for which there has been a constant demand of raw materials in these sectors. Over the past years, SECR has played its role in enabling movement of minerals especially coal very successfully thereby augmenting the overall growth in the economy for an inclusive & sustainable developmental process. There still exists enormous potential for developing new infrastructure within the jurisdiction of SECR for transportation of the mineral resources especially coal.

The passenger traffic has always been given special emphasis in SECR. It has been a huge challenge to meet the growing passenger traffic at the rate of 5% while handling this enormous freight traffic. To cater for the growing passenger traffic during festival season, Special trains have been run and augmentation of passenger services done by augmenting the capacity with additional coaches. Special attention is also being paid towards punctuality of passenger services.

Freight Performance
Since inception of Indian Railway, the combined SER had earned the sobriquet of “Blue chip zone of Indian Railways” for its largest share of freight loading on Indian Railways. Even at that time the bulk of the loading was contributed by the geographical jurisdiction of the present SECR. It is a matter of pride that SECR has not only sustained the status of highest loading Railway but has been making constant progress in this direction.

The journey started with freight loading of 83.05 MT in 2003-04 with originating earning of ₹5343.65 crores which has reached the pinnacle of 186.13 MTs and corresponding earnings of ₹23416.13 crores in 2018-19. SECR first achieved the 150 MT milestone in 2011-12 which has been sustained over the years. SECR was the first Zonal Railway to load more than 150 MT of originating freight in 2011-12 and 1st Zonal Railway to clock originating earnings in 5 digits in the year 2011-12.

SECR has been consistently contributing more than 15% of the total IR originating loading & 17% of Freight earnings. It also has the distinction of being the only Railway Zone whose two divisions figure in TOP 10 FREIGHT LOADING DIVISIONS in Indian Railway, namely, Bilaspur Division which is also the highest loading division of the country and Raipur Division. This

In Pursuit of 100 Per Cent Customer Satisfaction

Goutam Banerjee, General Manager
is possible as SECR boasts of high coal reserve areas in India and a robust cluster of 10 Cement plants. SECR loads around approx 140 rakes per day out of which 51 rakes are loaded for local 16 power plants and innumerable industries, consequent to that 83 rakes are unloaded daily, a majority of which are deployed for reloading. The evolution of loading is given above. In 2019-20, SECR's freight loading target is 194 MT however, sluggish market and less availability of coal at rail heads is making this target a difficult task. However, efforts are being made to achieve best performance under the circumstances.

Coaching Operations
SECR's territory hosts the Howrah-Mumbai Trunk Route which carries substantial passenger traffic to two of the metropolitan cities of India. SECR is also well connected to all major cities in the country by 184 Mail/Express train services (90 through passing, 56 SECR owned and 38 Other Railway owned- SECR terminating). Apart from this, 159 daily broad gauge passenger train services which run within the territory, transport lakhs of people of Chhattisgarh state from its cities like Korba, Raigarh, Bilaspur, Ambikapur to Raipur, Durg and vice-versa along with people of adjacent states. Overall punctuality of the Coaching trains from Apr-Jan'20 has been 81% which is 31% more than the corresponding period of last year.

Infrastructure Development in 2018-19 & 2019-20 (up to February)
- New Lines: Bhanupratappur-Keoti (8Kms.), Kharsia-KoriChhaper (44 KMs.)
- 3rd line commissioned: Champa–Saragaon (09 KMs), Robertson–Kirodimal Nagar–Raigarh (26 KMs), Raigarh–Jamga (22 KMs), Belpahar–Brajrajnagar (09 Kms), Jamga-Belpahar (33 KMs)
- 4th line commissioned: Champa–Saragaon (09 KMs), Belpahar–Brajrajnagar (09 KMs)
- Gauge Conversion: Balaghat–Samnapur (16 KMs), Nainpur–Chairaidongri (19 KMs), Itwari–Kelod (47 KMs)
- Electrification: Gondia–Samnapur (59 KMs), Sikara–Nainpur (56 KMs), Raipur–Lakholi (29 KMs)
- Automatic Signaling: Kachewani–Gondia, Gatora–Jairamnagar (8 KMs), Bilaspur–Dadhapara–Belha (16 KMs), Bilaspur–Uslapur (5 KMs), Gudma–Amgaon–Salekasa (25 KMs).

Private Sidings/PFTs commissioned :-
1. Vedanta Washery & Logistics (BPFT)
2. Godavarri Power & Ispat Ltd. (BPFT)
3. SECL (Rapid Loading System) at Junadih
4. Paras Power & Coal Benefaction Ltd. at Ghutku
5. DB Power Ltd. at Robertson.
6. NTPC/Lara at Kotarlia.

Passenger Amenities
South East Central Railway has been making remarkable progress in providing improved amenities to the passengers. Huge initiatives are being taken to offer state-of-the art amenities at NSG-2 and NSG-3 category stations. It is our continuous endeavor to make available such additional facilities at the stations making the journey of passengers comfortable like disabled-friendly ramps for easy access to the platform, toilets, water booth, water cooler, waiting halls wheel chairs at all important stations. To make the travel easier, accessible and comfortable, especially for the Senior Citizens, Divyang and other needy persons, improved passenger facilities like Escalator, lift, Ramps and Battery operated car are being added at important stations.

Foot Over Bridges, Platform Raising & Extension:
Provision of 30 Nos. new Foot Over Bridges, 25 Nos. platform raising and 17 Nos. platform extension works has been completed at important stations over SECR.

Escalators: Total 12 Escalators have been commissioned at 5 stations of Bilaspur, raipur, Durg, Rajnandgaon & Gondia stations. 12 more Escalators at 5 stations of Bilaspur, Raipur, Durg, Bhilai Power House & Bhatapara stations has been sanctioned and will be commissioned shortly.

Lifts: Total 12 Lifts have been commissioned at 5 stations of Bilaspur, Raipur, Durg, Rajnandgaon & Gondia stations. 16 more Lifts at 9 stations of Bilaspur, Uslapur, Korba, Akaltara, Umaria, Anuppur, Bhatapara, Gondia & Rajnandgaon have also been sanctioned and will be commissioned shortly.

Ramp: Ramp is provided to facilitate “Divyangjan” for entering station platform, getting ticket from booking window & between station platforms at 59 major stations over SECR. Moreover Ramps with FOB for interplatform transfer is available at 6 stations of Bilaspur, Durg, Sakti, Akaltara, Gondia & Dongargarh.
Divyang Friendly Toilet: 199 Toilets for “Divyangjan” provided at 185 stations over SECR.

Tactile Map: Tactile map has been provided to facilitate passengers with visual impairment with accessibility at 18 stations over SECR.

Tactile Map for Divyang at Uslapur Station

Paperless Charting Display Board: This system available at Bilaspur and Raipur stations.

Mist Cooling System: To reduce temperature in station premises, this facility is available at Bilaspur, Raipur, Durg, Rajnandgaon and of Gondia station.

Portable Ramp: Portable ramp provided to facilitate “Divyang passenger for entering in train at 12 major stations over SECR.

Battery Operated Vehicle: To facilitate Divyang, Sr. Citizens & sick passengers, 11 Battery operated vehicles are available at 8 stations of Bilaspur, Raipur, Durg, Raigarh, Bhatapara, Rajnandgaon, Gondia & Dongargarh.

Baby Feeding Corners: Understanding the need of lactating mothers, Baby Feeding Corner has been provided at the waiting room of 22 Stations.

High Speed wi-fi: To provide internet facility for the passengers, high speed wi-fi facility provided at 174 stations over SECR.

ATVM & CoTVM: 26 ATVM & 12 CoTVM are available at 23 stations to reduce queue in booking counter.

Water Vending Machine: 43 Water Vending Machine installed at 16 stations to provide potable drinking of prescribed standard to willing passengers at affordable price.

Bottle Crusher Machine: 25 such machines are available at 21 stations over SECR.

Monumental Flag at Important Stations: Monumental Flag commissioned at Bilaspur, Raipur & Gondia stations. Work is under progress for provision of Monumental Flag at 16 more stations.

Digital Museum: Digital screens displaying multimedia contents related to “Mahatma Gandhi & Railways” as well as depicting Railway Heritage and current developments has been provided at G, RJN, R, BSP, RIG & Durg stations.

UTS on Mobile: Paperless mobile ticketing system from all stations over SECR has been enabled w.e.f. 05.07.18 and seamless facility across Zones/Divisions w.e.f. 01.11.18. Regular seminars are being organized in schools, colleges & University, Digital campaigning, Poster and Banners, address from PA system at stations being done to increase the popularity of UTS app.

On board housekeeping service (OBHS) has been implemented in all 23 SECR qualified mail/express trains.

Clean train station (CTS) is operational at Bilaspur and Raipur stations. In Bilaspur – 53 trains and in Raipur – 14 trains are covered on daily basis.

Rail Madad App is available on web version or 139 call center based for addressing all types of complaints has been implemented. For security helpline 182 is available separately.

Innovation/System Improvement
South East Central Railway encourages continuous system improvements and innovations for effective and efficient utilisation of its scarce resources. Some of the recent system improvements and innovations are detailed in the following paragraphs:-

Ladies Rest Room – ON WHEEL

Existing ladies rest room (19mx5m) demolished to connect 2nd line in IOH shed.
No space to shift as construction demands further dismantling of buildings. One
condemned 2nd AC coach shifted by hydraulic jacks at the present location due to no track connectivity. The coach has been provided electrical connection to run AC, lights and fans. One toilet was modified as changing room with provision of napkin dispensing machine. Other toilets were fitted with bio tank and discharge is connected to common drain.

Hydraulic Press for disassembly & assembly of Primary and Secondary LHB Springs
Disassembly & assembly of Primary & Secondary springs during SS-I of LHB coaches are must. Conventional special purpose press machine costing 35-40 lakhs approx is required for above. Two released hydraulic jacks @ 25 ton capacity each with hand pump arrangement received from ART/BSP are used. Released rails and MS plates used to fabricate structure to make press machine. With the use of locally developed press machine, springs in dismantled conditions are being examined thoroughly.

Evacuation machine for 1st chamber of Bio-tanks
Presence of guthka pouch, sanitary pads, polythene wrappers etc in 1st chamber of Bio-tank reduces the effective volume. This affects decomposition of fecal discharge resulting in foul smell. A special drive has been launched for evacuation of first chamber. Special purpose vacuum machine supplied through COFMOW is found to be very effective.

Staff Welfare : Our Concern
At South East Central Railway, it is believed that the organization is stronger when its employees are healthy and happy.
- Holiday camp at Anadaman & Nicobar Island for Male employee with spouse organised from 07.05.2019 to 12.05.2019 and female employee with spouse organised from 21.05.2019 to 26.05.2019. Total 116 male and female employees with spouse participated in the camp.

Pit Inspection Car
Under gear inspection of 24 coach standard rakes requires staff to be in bent condition for 650 mtrs length inside PIT. After fitment of Bio-tanks space is a major constraint during examination. This innovation aims to provide fatigue free environment to staff for inspection of under gear examination. Special purpose low height, battery operated car fitted with lights & camera has been designed.
- Features
  1. LED lights for better visibility inside pit, 2. Two cameras with Digital Video Recorder, 3. Modem and router to telecast videos in internet, 4. Video can be viewed ONLINE through free app iVMS-4500 in mobile phone or PC.
5th International Day of Yoga was celebrated on 21.06.2019 jointly by HQrs and BSP Division at SECRSA ground. There were more than 1000 officers/staff family members/School children/Scout & Guide members. Yogasan, Pranyaam and Meditation was organised during the celebration.

Yoga Camp at SECRSA ground, Bilaspur (Middle).

Passenger Security – Our Priority

Security of Railway Passengers, Passenger Facilitation as well as Protection of Railway Property is being given top most priority by RPF in South East Central Railway. About 40 night bound vulnerable trains are being escorted by RPF staff to ensure Security of Passengers in the jurisdiction of this Railway. Close surveillance is being kept on the activities of criminals involved in theft of Passenger Belongings, Drugging, Pick pocketing and other Heinous Crime like Robbery, Dacoity by deployment of a number of Decoy Task Force Teams in vulnerable trains/sections, leading to detection of 277 cases of Crime against Passengers with arrest of 332 criminals by RPF of South East Central Railway in the year 2019. Raid and search under “Operational Thunder” part I, II &III against touting of Railway travel tickets was successfully conducted by RPF/SECR at different places over South East Central Railway. During this drive, more than 60 cases registered for involvement in business of Railway E- Tickets illegally.

Regular raids have been conducted by RPF officers and staff under Railways Act against persons like Hawkers, Vendors, Trespassers, Touts, Nuisance etc. in trains and Railway Premises leading to arrest of 34835 offenders under various Sections of Railways Act with realization of fine to the tune of ₹99 Lakhs approximately.

RPF has also seized Firewood/Teakwood valued ₹65,950 and contraband materials like Ganja & Liquor valued ₹22.58 lakhs, and handed over the same to concerned Departments. Frequent raids/searches have been conducted by RPF against Criminals/Receivers involved in theft of Railway Property leading to arrest of 446 criminals and registration of 266 cases under RP (UP) Act with recovery of stolen property worth ₹10.45 lakhs. 445 numbers of Minor boys/girls were rescued by RPF officers/staff at various stations/trains and handed over to NGOs/Guardians. Assistance to passengers is also being promptly provided through Security Helpline No. 182 functioning round the clock at Security Control Rooms. Special emphasis has been given to Security of Women Passengers by deployment of lady RPF staff at Railway Stations/Trains and 6251 male persons travelling in ladies compartments were arrested/prosecuted under section 162 Railways Act. Awareness Drives in connection with Drugging, Theft of Passenger Belongings, Run over, LC gate incident have been undertaken by RPF by staging Nukkad Nataks, Rallies, Distribution of Pamphlets and Announcements by Loudhailer etc.

- Holiday Home with 04 rooms at “Amarkantak” a notable place for religious tourism is ready for possession/allotment. This will be the first and only Holiday Home in SECR.
- 08 Nos. of Motorised Tri-cycle costing ₹3,36,000 have been sanctioned in favour of the PWD employees and their PWD wards/Spouse and distributed on 79th Independence Day Celebration at North East Institute Ground.

Motorised Tri-cycle distribution at NEI, Bilaspur

- An amount of ₹2,58,000 has been sanctioned for SBF for assistance to 12 PWD employees/their PWD wards for procurement of Computer/Laptops, Speech therapy, B.P. Machine & Brail Reader/Software.
- Higher Technical/Professional Education Assistance to NG Staff:- For the year 2019-20, an amount of ₹11,402,400 to 1058 wards of NG employees has been granted for higher technical/professional education.
- Quiz Contest on “The crucial role of Sardar Vallabhbhai Patel played in national integration” was organised by HQrs on 30.10.2019 at 11:00 hrs in the Zonal Conference Hall Dining hall during celebration of Rashtriya Ekta Diwas.
Special emphasis has also been given on modernization of the Force and implementation of Station Security Plan at Bilaspur, Raipur & Gondia Railway Stations. Bomb Detection and Disposal Squads, Dog Squads, CCTV’s, X-ray Baggage Scanner etc. has been provided at important Railway Stations. Modern Security Gadgets like HHMD, DFMD, VHF sets, Walkie-Talkie sets, Night Vision Device, Binoculars, Trolley Mirror, Body warn Camera etc. have been procured besides automatic weapons like SMC, SLRs, INSAS and ARMs with proper training to RPF staff to handle them effectively. Attention is also being given to welfare of RPF staff by mobilization of RPF Barracks, Posts, Armoury and imprest for cleanliness of Barracks RPF Post. The morale of RPF officers and staff of South East Central Railway is quite high and they are committed and dedicated to the aim of RPF to ensure proper security of Railway Passengers, Passenger area and Railway Property.

Safety

Safety is prime focus area for SECR and efforts to improve the safety scenario have been giving rich dividends. 2020 is second consecutive year in which no consequential accident took place in SECR. Level crossings are always accident prone. All the unmanned level crossing gates have been eliminated on BG section in entire SECR. Now we are trying to eliminate accident prone manned level crossing gates too with provision of LHS, ROB and diversion of roads. Total 126 no. of level crossing are required to be eliminated on SECR out of which 28 have been eliminated this year till February. Effort are being made to eliminate the rest.

Interlocking of Level Crossing having high TVU also plays vital role in ensuring safety at Level Crossing. This year, all level crossings in BG over SECR having TVU more than 50,000 were interlocked. Now, effort are being made to interlock LC having TVU less than 50,000.

Safety Awareness campaigns are conducted by Safety department regularly on Level Crossings. Road users and villagers of nearby villages of the Level Crossings are counselled during campaign.

Safety Review Meetings are being conducted on regular basis. Staff who prevent accidents due to their alertness are being awarded by GM in first Safety Review Meeting of the month to encourage them for their alertness during train operation.

Entries of unusual occurrences in CMS by engine Crew are being given paramount attention and action taken there on are being closely monitored. Crew are being encouraged to enter all types of unusual occurrences in CMS during signing off their duty.

Sixty Safety Seminars were organised this year till January in different places of SECR to make the railway staff directly involved with train operation and to make them aware about safety aspects in train operation. Animated case studies are projected in Safety Seminars as well as in training schools during classes on regular basis to make the trainees understand the chronology of the accident. Various unsafe practices during train operations have been disclosed by Railway Staff in the Safety Hazard module in SIMS. Prompt actions are taken to resolve these irregularities. Total 30 such Safety Hazard cases were reported this financial year out of which 24 cases have been resolved.

Environmental & Water Conservation Improvements over SECR

Rain Water Harvesting: Rain Water Harvesting (RWH) is the process of collecting rain water for recharging of ground water for future use. The objective of RWH is to make optimum use of rain water at the place where it falls. During 2018-19, RWH provided at 86 locations & during 2019-20 up to Jan’2020, RWH provided at 57 locations. Cumulatively, a total of 363 numbers (including 2018-19 & 2019-20 up to date) of RWH systems on SECR are provided at various locations.

Water Recycling Plants (WRPs): At present, 7 no Water Recycling plants are functional on SECR resulting in saving of precious potable drinking water. The recycled water is used for coach washing, station cleaning etc. During 2019-20, One WRP near Hemu Nagar/Bilaspur completed in Aug’ 2019.
Sewage Treatment Plants (STPs): At present 06 nos. of STP/ETPs are functional on SECR which helps improve the environment. The treated water is used for gardening purpose which ultimately results in saving of precious drinking water. During 2019-20, One STP at Tikrapara/Bilaspur completed in Aug’2019.

Creation/Renovation of Water Bodies: During the year 2018-19, 07 ponds/water bodies have been created/renovated. During the year 2019-20 up to Jan’2020 ponds/water bodies created/renovated at 15 locations.

Electric LED Fittings
- Provision of 100% LED light fittings in railway administrative buildings: Installation works of 100% LED light fittings has been completed in all 1101 administrative buildings in South East Central Railway. Balance 36 Railway stations will be completed with gauge conversion work.

Sewage Treatment Plants (STPs): At present 06 nos. of STP/ETPs are functional on SECR which helps improve the environment. The treated water is used for gardening purpose which ultimately results in saving of precious drinking water. During 2019-20, One STP at Tikrapara/Bilaspur completed in Aug’2019.

Creation/Renovation of Water Bodies: During the year 2018-19, 07 ponds/water bodies have been created/renovated. During the year 2019-20 up to Jan’2020 ponds/water bodies created/renovated at 15 locations.

Energy Conservation and Green Energy Initiatives

Solar Power Project
- **Rooftop Solar Power Project:** So far, total 4.636 MWP capacities of Solar Power Plants have been installed on rooftop of railway stations and administrative buildings in South East Central Railway. As a result of the achievements made from solar energy, an estimated 5 million units and savings of about 2 crores are estimated to be saved per year.

Land Based Solar Power Project: There is a plan to set up a 50 MW capacity land based Solar Power Plant at Bhilai of Raipur division in the year 2020-2021 and this work is in progress. The work is expected to be completed by January 2021. This solar energy will be utilized for electric traction purpose, as a result of the completion of the work, it is estimated to save about 21 Crore Rupees per year.

Wind Power Project
- Railway Board has proposed to purchase one MW capacity wind energy from MSPDCL for the Motibagh workshop of South East Central Railway, Nagpur through open access. REMCL by Railway Board Has been designated to purchase wind energy through tariff base bidding from wind energy provider. Its work is in progress.

LED Fittings
- Provision of 100% LED light fittings in railway administrative buildings: Installation works of 100% LED light fittings has been completed in all 1101 administrative buildings in South East Central Railway.

Provision of 100% LED light fittings in railway stations: Total 313 Railway station are available in South East Central Railway of which 277 Railway stations have been completed with 100% LED light fittings. Balance 36 Railway stations will be completed with gauge conversion work.

Provision of one time LED lights in Residential Quarters: As per the Railway Board Guidelines of one time replacement of LED lights has been completed in 6000 out of total 21088 Residential Quarters in South East Central Railway and remaining 15088 Residential Quarters is expected to be completed by March-2020.
**Important Events**

- **19th All Indian Railway Jamborette of Bharat Scouts and Guides** hosted by South East Central Railway was organized from 6th to 11th January 2020 at SECRSA stadium, Bilaspur, in which around 3500 scouts, guides, rovers and rangers from 16 railway zones participated.

- **"Inter Railway Cultural Dance Competition-2019"** was successfully organized on 28th and 29th November 2019 at North East Institute Auditorium of South East Central Railway Bilaspur. During this entire competition, about 371 participants of 22 different Railways presented their dancing talents. Shri Manoj Pandey, Member (Staff), Railway Board graced the occasion as Chief Guest.

- **A National Conference on National Level Otorhinolaryngologists (ENT Specialists)** was organized at Bilaspur on 21st to 22nd December, 2019 by medical department of South East Central Railway. In this conference, special lectures were given by specialists’ doctors from different places of the country.

- **1st Inter Railway School Athletic Meet-2019** was organized from 2nd to 4th December’ 2019 at South East Central Railway Higher Secondary School Ground at Bilaspur.

- **Railway Exhibition at Ranchi**: Team SECR participated in Railway Exhibition at Ranchi during 64th National Railway Award Function 2019. The exhibition was conducted on 14th July’ 2019. The exhibits were appreciated by Chairman Railway Board, Members Railway Board, General Managers, other officials and public at large.

- **International Railway Equipment Exhibition at New Delhi**: Mechanical Department has represented SECR in International Railway Equipment Exhibition at New Delhi. The exhibition was conducted for 3 days from 22nd to 24th April 19. Various models of important and effective innovations such as Natural forced ventilation in Bio-Tank, LED lighter cum cam recorder for pit examination etc. were displayed.
Vigilance: Promoting Good Governance

The hallmark of good governance is having a clean and transparent organization and, therefore, vigilance administration in any organization forms an integral part of the management. The Vigilance Organisation on Indian Railways has been set up to investigate complaints of corruption, conduct preventive checks, suggest system improvements and to ensure that those held guilty of irregularities are appropriately punished. Some activities during the year are as follows:-

- During January to December-2019, 676 preventive checks were conducted by the Vigilance Branch. In addition, 27 complaints were also investigated during 2019. As a result of the Preventive Checks, out of 676 checks done, 122 resulted into disciplinary actions.
- Investigations into 27 complaints were completed, which resulted into disciplinary action.
- During the preventive checks conducted at Electronic In-motion Weigh Bridges over SECR, rakes were re-weighed and overloading detected. In addition, preventive checks were also conducted in leased SLR/AGC/VPUs. An amount of ₹168.2 lakhs has been raised/realized as punitive charges.
- Six different System Improvements were suggested to various departments and these have been implemented.
- 18 work studies have been conducted and 11 work studies have been closed out of 39 open studies. As a result, 337 Nos of obsolete and surplus posts have been surrendered resulting financial savings to the tune of ₹1722 lakh p.a.

Development in S&T Department

- ‘Automatic Signalling’ have been commissioned between Bilaspur-Dadhapara section (7.2Km), Gатора–Jairamnagar section (7.5Km) & Bilaspur Chord Cabin-Uslapur section (4.4Km) in Bilaspur division, Dadhapara-Belha section (9Km) in Raipur division and Gudma-Salekasa sections (25.5Km) in Nagpur division.
- Overaged electromechanical K&M cabin (Bhilai Exchange Yard) has been replaced & commissioned by Route Relay Electronic Interlocking (490 Route) in Raipur Division.
- Panel Interlocking has been commissioned at Keoti station (32 routes) in Dallirajhara–Rowghat section in Raipur Division (New line, RVNL Work).

- Panel Interlocking has been replaced with “Electronic Interlocking” at Jamul Block station (29 routes) station in Raipur Division.
- “Electronic Interlocking” has been commissioned at SPGCL (45 route) Block station between Robertson - Bhopdeopur section in Bilaspur Division.
- Electronic Interlocking (Distributed type Ansaldo make) has been commissioned at Padriganj (30 routes), Nagarwar (20 routes) and Lamta (20 routes) stations in Nagpur Division.
- Panel Interlocking has been replaced with “Electronic Interlocking” with dual VDU and hot standby system at Belpahar station (183 routes) & Brajrajnagar station (229 routes) in connection with 3rd & 4th line between Champa - Jharsuguda section in Bilaspur Division.
- Electronic Interlocking at Lajkura station (208 routes) and Bhopdeopur station (117 routes) has been replaced by new EI with distributed type (Ansaldo make), dual VDU and hot standby system in connection with 3rd & 4th line between Champa-Jharsuguda section in Bilaspur Division.
- 15 nos. non-interlocked LC Gates have been Interlocked with Electrical Lifting Barrier with EKT less working, Mini IPS and Data logger over SECR.
- Sliding barrier have been commissioned at 07 Interlocked LC Gate over SECR.
- Modification to Panel Interlocking at Hathbandh, Belha and Dadhapara stations, Electronic Interlocking at Kotarlia, Robertson, Kharsia, Jairamnagar, Gatora, Nainpur, Gudma, Angao & Salekasa and Route Relay Interlocking at Bilaspur station have been carried out over SECR.
- Multiple aspect color light signal has been commissioned at Mandirhasaud with the existing lever frame station in place of Semaphore signal in Raipur Division by RVNL in connection with Railway Electrification work.

Conclusion

South East Central Railway is maintaining a fine balance between Safety & Operational Efficiency with Punctuality amid intensive works for line capacity enhancement. SECR is diligently working to realise the motto of “SERVING WITH A SMILE”.

Automatic Signalling between Bilaspur Chord Cabin-Uslapur section
Route Relay Interlocking at Bhilai Exchange Yard

SOUTH EAST CENTRAL RAILWAY
Setting New Benchmarks

Alok Kansal, General Manager

With its sights on the right goals—customer service, safety, security, infrastructure development, innovation and energy conservation—Western Railway is on the fast track to growth and 2020 promises to be a turning point on its path towards accelerated socio-economic growth.

Winning with Infrastructure Development

A sound infrastructure is a critical catalyst for economic growth and development. In the last 5 years Western Railway has given tremendous boost to gauge conversion, electrification, doubling and elimination of unmanned level crossings. In 2018-2019 about 101 Kms of Gauge Conversion work was completed.

Western Railway has once again accomplished a great feat by completing the electrification of the newly converted broad gauge line between Mahesana and Vadnagar section of 34.43 km in just 8 months. Thus a benchmark has been set for other similar projects being executed by Western Railway to realize the nation's ambitious mission of 100% electrification of railways.

Other important projects include completion of 51 kms Patan – Bhilidi new Broad Gauge line, which will establish a direct link to the World Heritage Site of Rani Ka Vav. The Gauge Conversion of Nimarkheri – Mathela section was also completed, giving connectivity to the 1320 MW NTPC power plant at Khargone for coal supply. The year 2019 saw the completion of Ahmedabad – Himatnagar Gauge Conversion and Moti Sadli – Alirajpur new line projects. These projects will not only boost economy and tourism, but will also provide better opportunities to the locals.

Chhayapuri station near Vadodara is being developed as a satellite station to eliminate reversal of trains at Vadodara, thus improving punctuality and mobility. Electrification of Ratlam – Fatehabad – Laxmibai Nagar and Ahmedabad – Viramgam sections are completed. The work of 25 kv OHE modification of Unjha, Palanpur and Bhandu yards for Dedicated Freight Corridor has also been completed. Western Railway's performance in reduction of Rail Weld failures, removal of PSR and other track improvement works was remarkable too. Western Railway's outstanding performance in infrastructure development was rewarded when it won the Indian Railway's Civil Engineering Shield for 2019.

Scoring with Energy Conservation

Western Railway bagged 3 National Energy Conservation Awards instituted by the Ministry of Power for 2019 which included 1st prize in Transport category and 2nd and 3rd prizes in Institution category for Divisional Railway Manager's offices at Rajkot & Bhavnagar respectively. In yet another environment friendly initiative, Western Railway provided 100 percent solar energy operated Mobile Charging Kiosks at 15 stations. Commuters can now charge their phones free of cost 24x7 at these kiosks. A single kiosk can charge 8 phones and more than 100 phones in a day. Provision of
The commuter continues to be the main driver of Western Railway’s initiatives and innovation. One such innovative idea was the introduction of ‘On Board Shopping Cart’. FMCG household products such as oral care, skin care, stationery etc are sold in six trains of Western Railway. 18 Mail/Express trains have been nominated for the facility of On Board Shopping. To facilitate new mothers to feed their new born, baby feeding centres have been installed at Palghar & Boisar, and is very soon planned to be set up at Umbergaon, Sanjan and Bhilad stations of Mumbai Division.

417 stations on Western Railway including both suburban and non-suburban, now have free wi-fi facility. The facility of buying paper and paperless unreserved tickets without having to visit the booking counter is available for passengers at all stations.

Western Railway introduced ‘Uttam Rake’ on its suburban section with advanced features, thus making travel in local, a better experience. CCTV cameras have been installed in every ladies coach and emergency chains have been replaced with emergency push buttons. The inner walls of the coaches adorn posters of iconic women along with their inspirational stories. Considering the demand from passengers, the AC EMU suburban services have been extended to all 7 days. 42 rakes of long distance trains have also been upgraded under Project Utkrisht.

For the convenience of passengers, particularly old and differently abled, 12 lifts and 12 escalators at various stations were commissioned and 57 Lifts and 73 escalators are planned to be provided this year.

Western Railway ran 3215 Holiday Specials and more than 2860 additional coaches were attached to various trains on temporary/day-to-day basis. Punctuality of Mail/Express trains has been 92.46 percent which is more than that of the last year. Indian Railway’s second semi-high speed and fully air conditioned Tejas Express was flagged off with its inaugural run on 17th January, 2020 between Ahmedabad and Mumbai.

In 2019, Mumbai witnessed the decade’s heaviest rainfall in just 3 days, but Western Railway was monsoon ready with meticulous planning in co-ordination with the local Municipal authorities. Execution of various important pre-monsoon works, such as drone survey, building new underground drains through micro-tunneling and removing more than 2.5 lakh cubic metre muck from the tracks by specially designed in-house muck special trains was carried out well in time. This resulted in uninterrupted services and satisfied passengers. Also, during the heavy rains in Gujarat, especially in Vadodara Division, WR officers and staff worked day & night to monitor and restore the tracks and bridges, as well as provide relief to the stranded passengers and residents of railway colonies.
HOG electric locomotives, LED lights at stations, service buildings, residential quarters and in 3857 coaches have resulted in saving of approx. ₹246.14 crore in this financial year, apart from reduction in carbon credit, thus assisting in maintaining Green & Clean environment.

Freight Earnings Up

Western Railway achieved a loading of 71.75 million tonnes in this financial year upto February 2019. 3529 Double Stack Container trains and 1125 Long Haul trains were run during this period which are highest ever. The originating earning in this period has been approx. ₹13627 crore. During the current financial year upto February 2020, Western Railway has recorded the highest ever outturn for ROH of wagons i.e 664 per month. This is 10% above the previous year ROH outturn of 606 per month. ROH outturn of our main ROH depots is also an all-time highest. We have achieved an earning of approx. ₹341 crore from land resources which is ₹77 crore higher than the proportionate target. Western Railway has successfully implemented Budget Module, Traffic Accounts Management System and E-recon on Indian Railways.

Innovations & Laurels

The first ever “Promotion on Wheels” Special Train by IRCTC and Western Railway in coordination with a major production house to promote a Bollywood movie “Housefull 4” was run on 16th October’ 2019. Celebrities Akshay Kumar, Riteish Deshmukh, Bobby Deol, Kriti Sanon, Pooja Hegde, Kriti Kharbanda, Chunky Pandey along with media travelled by this 8-coach special train upto Delhi. This was a novel & pioneering initiative to garner wide publicity for Indian Railways and popularise rail travel.

Western Railway has successfully implemented Budget Module, Traffic Accounts Management System and E-recon on Indian Railways. Western Railway has come up with yet another initiative of generating revenue through branding of locomotives. Western Railway has got the branding of its 10 Electric Locomotives done at Loco Shed at Vadodara, generating additional revenue of ₹1.05 crore. This will also save the Railway’s ₹8.10 lakh by way of painting.

At the concluding ceremony of the two-day Parivartan Sangotshti held in New Delhi, Hon’ble Minister of Railways Shri Piyush Goyal felicitated Shri Jitendra Kumar Jain – Senior Section Engineer of Electric

Waste Management Plants have been commissioned at Vadodara Yard, Bandra Terminus and Indore. Pratapnagar workshop and Diesel Shed, Ratlam have been awarded the gold Green-Co certification for efforts towards green energy. Vadodara railway station got the Gold-Green Railway station certification and Divisional Railway Manager’s Office Building, Vadodara got the Silver-Green Building certification. Diesel Shed-Ratlam has become the first Diesel Shed on Western Railway to get Gold GreenCo certification due to green initiative taken in the fields of Energy Efficiency Water Conservation and Renewable Energy. With 0.87 MWp capacity solar plants provided in this year, solar plants with 8.64 MWp capacity are available on Western Railway. With a view to segregate bio-degradable and non-bio-degradable waste separate dustbins for collection of dry waste and wet waste have been provided at stations. Western Railway’s Jagjivan Ram Hospital has set an Effluent Treatment Plant (ETP) for liquid Bio Medical waste. This type of ETP facility is the first ever for any Indian Railway hospital. A water treatment plant has also been installed at Bandra Terminus.

View of a Locomotive with Branding on the exterior of the train

Solar powered mobile charging kiosk installed at railway stations for charging mobile phones free of cost
Loco Shed in Vadodara Division for his exemplary and important role in the loco Push-Pull Operation.

Competing for Cleanliness
In keeping with ‘Swachh Bharat Mission’, Western Railway has done commendable work in bio-toilet fitment. 5067 coaches comprising 99 percent holding are now fitted with bio-toilets. For better washing of coaches with saving of water, First Automatic Coach Washing Plant for main line coaches in Gujarat has been commissioned in Bhuj, Western Railway’s 8 stations i.e. Udhna, Surat, Virar, Naigaon, Borivali, Kandivali, Andheri and Santacruz have got top slots in National Cleanliness Survey. At Vadodara, Ahmedabad and 52 stations of Mumbai Division, Cleanliness Feedback System has been installed where passengers can rank the station on cleanliness. Mumbai Central station is the first station to be certified as “Eat Right Station” by Food Safety and Standards Authority of India (FSSAI) for providing quality & hygienic food to passengers. As part of the nationwide Swachh Bharat Abhiyan, Western Railway carried out the campaign of banning single use plastics on all its stations from September 16, 2019. During the drive, over 109 tonnes of plastic waste was collected at stations. To beat Plastic Pollution, 32 Bottle Crushing Machines are installed at major stations. PET bottle crushing machine has also been installed in the pantry car of one rake of Rajdhani Express for the first time in India. The first recycled plastic bench was set up at Churchgate station. Swachh Competition drives were intensively conducted to inculcate a healthy competition amongst the various stakeholders urging them to maintain cleanliness in railway premises. 23 stations on Western Railway are certified with ISO 14001:2015 for environment management system. Recently, Western Railway has been the pioneer in installation of ultra modern dustbins for the first time in India at Ahmedabad railway station. These bins consist of three collection containers of 65 litre each with a total capacity of 195 litres. This allows in segregation of waste into Dry, Wet and Plastic waste at the source itself. Western Railway’s continuous and vigorous efforts towards environment friendly and green initiatives have been appreciated and awarded with the Indian Railway’s Environment & Cleanliness Shield.

Safety First
Safety undoubtedly continues to remain a top priority for Western Railway and constant efforts are being made in this direction. 37 employees were felicitated this year for their alertness to save untoward incidents. To enhance safety, Electronic Interlocking has been provided at 12 stations. 177 level crossings have been eliminated in this year so far. Work of 29 Road Over Bridges & 141 Road Under Bridges/Low Height Subways have also been completed. For the safety & convenience of passengers, 30 Foot Over Bridges have been provided in this year, including 19 on Mumbai Suburban Section. To improve the safety, 189 CTR units of Track Renewal have been done against the proportionate target of 127 km. 46 old bridges are rehabilitated, while 41 major bridges have been strengthened during this year. 39 PSRs have been removed, raised speed on loop lines on 7 sections, while sectional speed has been raised on six sections to save travel time. All these efforts have made it possible to increase the average speed of the trains.

In 2019, Western Railway was also awarded Level Crossing and ROB/RUB Safety Works Shield at all India level for elimination of Manned and Unmanned Level Crossings & Construction of RUBs. Western Railway is continuing this zeal further this year also and aiming for removal of unmanned level crossings on MG route as well as manned level crossings on war footing. To spread awareness among the Mumbai commuters, against the dangerous and fatal social menace of crossing the railway tracks, a unique “Yamraj Abhiyan” was run by Railway Protection Force of Western Railway, which received accolades on social media as well. With regular campaigns, deaths due to trespassing have decreased by 7 percent and cases of injuries have seen a fall by 30%.
Reliable Security
Our Railway Protection Force ensures protection of railway property as well as security of passengers. RPF personnel saved lives of 10 passengers with their quick thinking and swift action this year. 163 theft cases were detected and left over belongings worth more than ₹2.6 crore were returned to their owners. It is worth mentioning that 637 runaway or separated children were reunited with their families or handed over to NGO/City Police. We have introduced Bio Metric Token System at Bandra Terminus and Mumbai Central stations for streamlining the entry of passengers in unreserved coaches. To make the force more efficient, we are providing high tech equipments like Segways, Body Worn Cameras, modern weapons, baggage scanners & more CCTVs at stations and in trains.

Zero Scrap Mission
Fulfilling its commitment towards 'Zero Scrap Mission', 4 out of 7 workshops have achieved zero scrap status. EMU workshop at Mahalaxmi has become the 'First Zero Scrap' workshop in Indian Railways. Western Railway has achieved the scrap sale of about ₹313 crore; which is about 28 percent more than the proportionate target.

Employee Welfare
Behind the achievements of Western Railway is a dedicated and committed staff. Seven of Western Railway officers received National Award for outstanding services at the National Railway Awards Function held at Mumbai. Employee welfare is of utmost importance to Western Railway and ₹9 crore has been disbursed from Staff Benefit Fund for welfare activities since April last year. 106 new staff quarters have been constructed in this year. 58 running rooms have been made air-conditioned now to provide enhanced comfort to running staff. The Motorman & Guard’s lobby at Churchgate and Borivali has been renovated. A Tranquility room has also been provided for meditation and de-stressing. Railway schools have been upgraded with modern infrastructure. Western Railway was first to accomplish open market recruitment of 5610 candidates of Group ‘D’ categories. More than 7500 staff were promoted and compassionate appointments given to wards of 500 families. More than 1800 employees were given MACP during the year. Western Railway was first to provide training to all its employees under project Saksham-I. Saksham-II project is also being undertaken this year. Under Project ‘Saksham-II’, 100% staff have been trained. A commendable contribution is being made by our Divyang employees in Bhavnagar Workshop and other offices. In keeping with the digital initiatives, Western Railway have moved towards implementation of Unique Medical Identity Card (UMID) and office and Human Resource Management System (HRMS). Western Railway is the first zonal railway to complete revision of all its over one lakh pensioners. Western Railway successfully provided a platform ‘ARPAN’ for pensioners.

Commemorating World Heritage Week

Western Railway joined hands with Archaeological Survey of India (ASI) to commemorate the World Heritage week with a two-day heritage exhibition. Coffee Table book by Western Railway titled ‘Travelling in Time’ and a Heritage Compendium on Western Railway titled “Retrospecting into our great legacy through a Magnificent Heritage” was also released. Towards another step in preserving its heritage, Western Railway has been the pioneer in setting up a Heritage gallery at Mahalaxmi Printing Press of the printing and allied machines used in Western Railway Printing Press since 1948, which are still in working condition.
Sports Achievements
Western Railway has once again proved its supremacy in the field of sports by winning the prestigious all India ‘Kaul Gold Cup’ for record 28th time in a row. Chinglensana Kangijom Singh, Hockey player of Western Railway has been conferred with the prestigious Arjuna Award. Nilkanta Sharma and Amit Rohidas have qualified to represent in Men’s Hockey team and Deep Grace Ekka, Lilima Minz and Navneet Kaur have qualified to represent in Women’s Hockey team in the 2020 Tokyo Olympic Games (yet to be held). An indoor cricket academy has been opened by Western Railway at Mahalaxmi Sports ground, which is the first of its kind on Indian Railways. This academy also has an Automatic Bowling Machine with Auto Ball Feeder. Recently 26 sports persons were recruited to further promote sports.

Medical Excellence
Western Railway’s Jagjivan Ram Hospital offers world class medical facilities. Patients with rare complications are being treated successfully. First time in the history of Jagjivan Ram Hospital, a big hole in the heart of a 9 year old child was closed successfully through an ASD closure device, thus avoiding open heart surgery. Also a technologically advanced procedure Trans-catheter Aortic Valve Replacement (TAVR) is performed without any major heart surgery in high risk patients.

The Joy of Giving
Western Railway Women’s Welfare Organisation (WRWWO) has always rendered support to the needy staff and their families. A ‘Skill India’ seminar was organised for the children of railway employees to enlighten them on the importance of acquiring industrial and technical skills. On the occasion of International Women’s Day, the Organisation felicitated 46 outstanding women employees. They have also donated a fully equipped ambulance to Jagjivan Ram Hospital (JRH), WRWWO presented Gift Hampers to the patients of JRH. Teams of Western Railway State Bharat Scouts & Guides and volunteers of Civil Defence rendered services during Vayu cyclone, as also during Vadodara floods. It is a proud moment for WR as 51 Scouts, Guides, Rovers and Rangers qualified for the prestigious Rajya Puraskar Award for 2019.

Our Recognized Unions
WR’s trade unions and associations have played a constructive role in maintaining perfect harmony. They have represented the labour issues in a very matured and responsible manner and acted as a bridge between the administration and staff.

Challenges Ahead
WR has a tough challenge ahead of achieving the goals and fulfilling the targets in time. The quest for excellence should always propel one to bring out the best. With a committed work force, WR will be able to surpass its goals and fulfill its role as facilitators to its valued customers with zeal and commitment and move a step ahead from customer satisfaction to customer delights.
West Central Railway is strategically located on the Indian Railways network along major trunk routes. Kota division bridges the North with the West; Bhopal division bridges the North to the South and Jabalpur division links the West with the Eastern regions of India. WCR was established on 1st April, 2003 with its headquarters at Jabalpur. WCR has 295 stations and total route km of 3009. Majority of the routes are in Madhya Pradesh (73%) & Rajasthan (25%). 100% routes of WCR are sanctioned for electrification.

### Division-wise Route & Track Kms

<table>
<thead>
<tr>
<th>Division</th>
<th>Total Route Kms</th>
<th>Total Track Kms</th>
<th>Total Electrified Route Kms</th>
<th>Total Electrified Track Kms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jabalpur</td>
<td>1085</td>
<td>2406</td>
<td>892</td>
<td>1941</td>
</tr>
<tr>
<td>Bhopal</td>
<td>1022</td>
<td>1993</td>
<td>815</td>
<td>1855</td>
</tr>
<tr>
<td>Kota</td>
<td>902</td>
<td>1980</td>
<td>738</td>
<td>1771</td>
</tr>
</tbody>
</table>

### Traffic Volumes & Earnings of WCR

<table>
<thead>
<tr>
<th>Performance Indices (upto Jan’20)</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Originating Freight Loading</td>
<td>40.29 MT</td>
<td>39.89 MT</td>
</tr>
<tr>
<td>Originating Freight Earning</td>
<td>4008.46 Cr</td>
<td>3518.62 Cr</td>
</tr>
<tr>
<td>Originating Passengers in Lakhs</td>
<td>1364.30</td>
<td>1301.35</td>
</tr>
<tr>
<td>Originating Passenger Earnings</td>
<td>1725.13 Cr</td>
<td>1699.78 Cr</td>
</tr>
<tr>
<td>Apportioned Freight Earning</td>
<td>9050.34 Cr</td>
<td>8020.31 Cr</td>
</tr>
<tr>
<td>Apportioned Passenger Earning</td>
<td>3477.38 Cr</td>
<td>3384.17 Cr</td>
</tr>
<tr>
<td>Apportioned Other Coaching Earnings</td>
<td>160.69 Cr</td>
<td>126.97 Cr</td>
</tr>
<tr>
<td>Apportioned Sundry Earnings</td>
<td>132.41 Cr</td>
<td>168.78 Cr</td>
</tr>
</tbody>
</table>

Sailent Features of WCR Network and Operations

West Central Railway is predominantly a through passing railway and mobility is a key factor here. About 72% of Mail/Express and 75% of Freight trains are through trains. Average speeds of Mail/Express trains (57 kmph) and Goods trains (32.9 kmph) are among the highest on IR. WCR is located on Delhi-Mumbai, North-South and East-West trunk routes. It serves 7 Thermal power plants, 13 Cement plants, 3 Fertilizer plants and one refinery besides significant container movement on JNPT-Tughlakabad route (Mathura-Kota-Nagda). It has a network of about 3,009 Route kms with nearly 1,500 kms of trunk routes, 1750 kms of double line and 2445 kms of electrified routes. WCR is on the major coal route with heavy movement of emptied/loaded coal rakes with South East Central, East Central and Central Railways. WCR is a major base for examination of Close Circuit (CC) BOXN (New Katni Junction: 250+ CC rakes) and BCN (Satna: 52 CC rakes). 100% of traction power on WCR (covering MP and Rajasthan) is being purchased through Open Access system.
The most important indication of performance, the Operating Ratio up to January 2020 is 83.44%. It is one of the best performing zonal railways over Indian Railway and is better than the average operating ratio of Indian Railway.

Redevelopment of Habibganj Station: Habibganj station of West Central Railway is being developed as the first World Class station. Work has been awarded to M/s. Bansal Pathways Habibganj Pvt. Ltd. Site was handed over to developer, along with all station contracts, on 01.03.17. Work is under progress.

**Freight Business**

Mainly, 12 commodities are loaded of which Cement (49%), Coal (14%), Fertilizer (13%) and Food grains (5%) account for 81% of the total cargo. As a marketing strategy, WCR is organizing Freight Customer Meetings regularly to address issues of customers and have a proper understanding with the customers.

Commodity wise loading is under-

<table>
<thead>
<tr>
<th>Commodity</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>% Share of</td>
<td>Actual</td>
</tr>
<tr>
<td>Loading</td>
<td>Loading</td>
<td>Loading</td>
</tr>
<tr>
<td>Cement</td>
<td>13.61</td>
<td>33.82</td>
</tr>
<tr>
<td>Clinker</td>
<td>7.04</td>
<td>17.49</td>
</tr>
<tr>
<td>Fertiliser</td>
<td>5.29</td>
<td>13.15</td>
</tr>
<tr>
<td>F/Grain</td>
<td>2.53</td>
<td>6.28</td>
</tr>
<tr>
<td>RMSP</td>
<td>1.70</td>
<td>4.21</td>
</tr>
<tr>
<td>POL</td>
<td>1.46</td>
<td>3.62</td>
</tr>
<tr>
<td>Iron ore</td>
<td>0.13</td>
<td>0.32</td>
</tr>
<tr>
<td>Containers</td>
<td>0.87</td>
<td>2.16</td>
</tr>
<tr>
<td>Coal</td>
<td>5.52</td>
<td>13.71</td>
</tr>
<tr>
<td>Others</td>
<td>2.11</td>
<td>5.24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>40.24</td>
<td>100.00</td>
</tr>
</tbody>
</table>

**Passenger Business**

After the formation of WCR, 45 originating Mail/Express and 184 passing through new trains have been introduced. Besides, 117 trains have been extended and frequency of 50 trains has been increased. This year 06 new trains have been started & 8 trains have been extended. Presently 694 Mail/Express and 182 Passenger Trains are running over WCR. There are over 292 Mail/Express train and 117 Passenger trains daily on the WCR system.

WCR has also completed the modification of all its Power cars to HOG technology, which is in addition to being a environment friendly technology and also a fuel saving technology. Bhopal and Jabalpur stations have been awarded ISO 14001: 2015 in the area of green stations. An ISO 9001:2015 certificate is awarded to 03 running rooms and for 02 Crew and Guard lobbies of Kota division. In the “Rail Exhibition cum Rail Mela”, the West Central Railway has received the second prize for the “Best Innovative Ideas” under the “64th Railway Week National Festival” held at Ambala from 21st to 23rd July 2019. The Dance Group of the West Central Railway Cultural Academy has received the second prize at the national level at the Rail Mela held at Ranchi. “CRWS Bhopal” has met the requirements in accordance with Green Co rating System and has been awarded “Green Co Silver” certificate on 04.07.2019 by CII. Diesel loco Shed, New Katni Junction has been Awarded Gold Shield By Principal Chief Electrical Engineer, WCR on the occasion of Railway week awards.

**Capacity Enhancement Projects**

To create capacity and improve mobility, doubling of over 1100 kms (including tripling of 300 km) and electrification of over 1300 kms are sanctioned and are under implementation. To remove movement bottlenecks, 68 kms of Rail Flyovers are sanctioned at Katni, Itarsi and Bina.
Major Works in WCR

<table>
<thead>
<tr>
<th>SN</th>
<th>Works</th>
<th>Length (Kms)</th>
<th>Cost (Rs.Cr.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>New Lines</td>
<td>1022.5</td>
<td>12206</td>
</tr>
<tr>
<td>2</td>
<td>Doubling/3rd Line</td>
<td>1070</td>
<td>8030</td>
</tr>
<tr>
<td>3</td>
<td>Electrification</td>
<td>1387</td>
<td>1541</td>
</tr>
<tr>
<td>4</td>
<td>Flyovers</td>
<td>68</td>
<td>1801</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3547.5</td>
<td>29618</td>
</tr>
</tbody>
</table>

Summary of Sanctioned Works

MAJOR PROJECTS

Doubling/Tripling Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Route Kms</th>
<th>Cost (Rs. in cr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katni-Singrauli Doubling</td>
<td>201</td>
<td>1792</td>
</tr>
<tr>
<td>Katni-Bina 3rd line</td>
<td>278</td>
<td>2478.23</td>
</tr>
<tr>
<td>Satna- Rewa Doubling</td>
<td>50</td>
<td>465</td>
</tr>
<tr>
<td>Sontalai-Bagra Tawa patch Doubling</td>
<td>7</td>
<td>106</td>
</tr>
<tr>
<td>ET-BPL 3rd line</td>
<td>99.51</td>
<td>1594</td>
</tr>
</tbody>
</table>

New Line Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Route Kms</th>
<th>Cost (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indore-Jabalpur</td>
<td>342 kms</td>
<td>4320 crore</td>
</tr>
<tr>
<td>Lalitpur-Singrauli</td>
<td>(541 km)</td>
<td>6672.85 crore</td>
</tr>
<tr>
<td>Ramgarh Mandi-Bhopal</td>
<td>(262 km)</td>
<td>2909.99 crore</td>
</tr>
</tbody>
</table>

Rail Flyover Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Distance</th>
<th>Cost (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Itarsi North-South Flyover</td>
<td>28 kms</td>
<td>487 crore</td>
</tr>
<tr>
<td>Malikedi-Mahadevkhedi (Bina Flyover)</td>
<td>9 kms</td>
<td>54 crore</td>
</tr>
<tr>
<td>Katni - Grade Separator</td>
<td>21 kms</td>
<td>1260 crore</td>
</tr>
<tr>
<td>Powarkhedha-Jugaharpur-Single Line Flyover</td>
<td>15.89 kms</td>
<td>347 crore</td>
</tr>
</tbody>
</table>

PERFORMANCE PROGRESS REPORT 2019-20

<table>
<thead>
<tr>
<th>Items</th>
<th>Target 2019-20</th>
<th>Progress 2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track renewal (CTR units)</td>
<td>175</td>
<td>207</td>
</tr>
<tr>
<td>Ballast Supply (Thou. cum)</td>
<td>700</td>
<td>703</td>
</tr>
<tr>
<td>Ballast inserted in track (Thou. cum)</td>
<td>700</td>
<td>783</td>
</tr>
<tr>
<td>Deep Screening/TBR of Turnouts (Nos.)</td>
<td>470</td>
<td>468</td>
</tr>
<tr>
<td>Deep Screening/TBR of Plain Tracks (km)</td>
<td>650</td>
<td>645</td>
</tr>
<tr>
<td>Shoulder Ballast Cleaning</td>
<td>640</td>
<td>936</td>
</tr>
<tr>
<td>Laying of PSC turnout sleepers (Nos.)</td>
<td>399</td>
<td>372</td>
</tr>
<tr>
<td>Rectification of defective Yard Layouts (Yard completed (Nos.)</td>
<td>38</td>
<td>41</td>
</tr>
<tr>
<td>Flash Butt Welding</td>
<td>15,000</td>
<td>31,576</td>
</tr>
<tr>
<td>Scrap disposal (in MT)</td>
<td>19,400</td>
<td>26,429</td>
</tr>
</tbody>
</table>

Raising of maximum permissible sectional Speed (Apr’19 to Jan’20)

During Apr’19 to Jan’20, Maximum permissible speed raised in 615.65 km length of different sections of WCR, resulting in time saving of 45.77 minutes. Section wise details is as under:

<table>
<thead>
<tr>
<th>Group</th>
<th>Name of Section</th>
<th>Length (Track Km)</th>
<th>Speed raised Speed Raised on (km/h)</th>
<th>Time Saved (in minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-Spl</td>
<td>Damoh-Saugur (UP)</td>
<td>77.42</td>
<td>100 to 110</td>
<td>22.10.19</td>
</tr>
<tr>
<td>D-Spl</td>
<td>Saugur-Bina (UP)</td>
<td>70.69</td>
<td>100 to 110</td>
<td>21.11.19</td>
</tr>
<tr>
<td>D-Spl</td>
<td>Bina-Saugur (DN)</td>
<td>70.69</td>
<td>100 to 110</td>
<td>21.11.19</td>
</tr>
<tr>
<td>D-Spl</td>
<td>Saugur-Damoh (DN)</td>
<td>77.42</td>
<td>100 to 110</td>
<td>22.10.19</td>
</tr>
<tr>
<td>E</td>
<td>Ruthayai-Maksi</td>
<td>197</td>
<td>100 to 110</td>
<td>08.06.19</td>
</tr>
<tr>
<td>E</td>
<td>Satna-Rewa (SL)</td>
<td>48.61</td>
<td>100 to 110</td>
<td>06.12.19</td>
</tr>
<tr>
<td>E</td>
<td>KTES-KMZ (Chord Line)</td>
<td>1.82</td>
<td>15 to 30</td>
<td>07.2019</td>
</tr>
<tr>
<td>E</td>
<td>Sukhswaniya-Diwanganj (3rd line)</td>
<td>16.32</td>
<td>105 to 110</td>
<td>13.11.19</td>
</tr>
<tr>
<td>D</td>
<td>Baran-Salpura</td>
<td>41.859</td>
<td>75 to 110</td>
<td>09.12.19</td>
</tr>
<tr>
<td>E</td>
<td>Majorja-Gondwali</td>
<td>15.785</td>
<td>90 to 110</td>
<td>18.12.19</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>615.65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Details of important Works

1. The work of construction and linking of Mathela – Ajanti chord line of Bhopal division has been completed, and the work was completed within record 100 days.
2. Mutation of Railway land measuring 43.32 Hectare, transferred from SECR, has been completed in Jabalpur. This will be helpful in proper demarcation, keeping the valuable land in safe custody and in initiating action against any encroachment on the land.
3. The long awaited Jabalpur yard remodeling work has been completed. Following works have been executed to improve the track infrastructure of the yard: (a) Dismantling of 12 T/out, including 2 Double Diamonds. (b) Laying/shifting of 29 T/outs, including shifting of one Double Diamond slip. (c) Deep screening of 59 turnouts. (d) 1.2 Tkm TRR and 2.0 tkm TFR including renewal of turnout fittings. (e) Insertion of 4 improved SEJs and 38 glued joints. (f) Layout corrections in the crossovers of the yard to increase the safety of track assets. The entire P. Way work of turnout shifting/dismanstaling/laying work has been executed with 2 sets of T-28 machines along with deep screening of turnouts and associated plain track. During the course of execution of yard remodelling Work, there has been no unusual and zero injuries to any of the railwayman or contractor's manpower.
4. The doubling of Katangi Khurd-Salhana section, having a length of 17.49 km, on Katni-Singrauli route, has been opened for traffic after obtaining CRS sanction.
5. Doubling of Ashoknagar-Pilighat section, 25.67 kms, as part of Bina-Guna doubling of Bhopal division has been commissioned.
6. Cover Over Platform: 104 bays cover over platform constructed at Katni Murwara, tarsi, Narioli, Saugor, Malkhedi, and Hoshangabad stations of WCR.
7. Closure of level crossings:- 33 level crossings have been closed, which in turn contribute to safety of trains and saving of substantial railway revenue.

Also, work of 19 LHS has been completed, which will further result in closer of level crossings.

**Motive Power & Rolling Stock**

**Motive Power**

WCR has the second highest holding of 1125 locomotives (751 Electric & 374 Diesel locos) in a single zone which are based in three Electric Loco Sheds viz New Katni Jn, Itarsi and Tuglakabad and two Diesel Loco Sheds viz New Katni Jn. and Itarsi. Electric Locomotive holding of Tughlakabad, Itarsi and NKJ Sheds are 222, 195 and 234 respectively. Diesel locomotive holding of New Katni Jn. and Itarsi are 281 and 194 respectively. The two Diesel Loco Sheds are progressively being converted to Electric Sheds. To capture train running information 299 Diesel Loco Sheds are progressively being converted to Electric locos.

**Diesel Loco Shed New Katni Junction**

- One of the largest Diesel Shed on IR with 2nd highest loco holding of 229 D + 53 AC. Spread in the area of 53 acres.
- NKJ shed mainly serves the need of cement transportation from Madhya Pradesh lime region to Eastern, Northern & North-Western part of India and transportation from Madhya Pradeshi region to northern/north western thermal power stations.

**Indian Railways, for undertaking Mid Life Rehabilitation (MLR) of ICF coaches. CRWS/BPL is among first few workshops of Indian Railways, which were certified for Integrated Management System (IMS) from April 2011. CRWS/BPL is also certified for ISO 50001, 5S and ISO 3834. The coaches after MLR are turned out with exterior painting of PU paints, Bio toilets, Emergency light and CBC coupling as per latest Railway Board instructions. “Model rake” coaches have been refurbished with aesthetic polycarbonate panels fixed with invisible screws, ergonomic seats and berths, complete rewiring, modular toilets, PA system, LED/LCD display, change of exterior and interior colour scheme and other enhanced amenities.**

‘Utkrisht’ coaches are also being turned out with ‘Utkrisht’ colour scheme, and improved coach interiors as per the Railway Board guidelines. Centre of excellence has been set up in Bogie Shop. Regional Railway Welding Institute (RRWI) has been upgraded to Centre of excellence as per the Railway Board’s guidelines. Knowledge centre / maintenance hub for EOT cranes has also been established at CRWS Bhopal. To promote green energy, Roof top solar PV (photo voltaic) system of 500 KWp capacity has been commissioned and put into service in June 2018 with facility of net metering. As per the Railway Board directives of stopping of MLR of ICF coaches, CRWS will carry out POH ICF coaches & SS-2/SS-3 schedules of LHB coaches from April 2020 onwards.

**Wagon Repair Shop, Kota**

Wagon repair shop Kota is one of the major workshops in Indian Railway and was commissioned in Oct-1960 for POH of four wheeler wagons. The workshop since inception has witnessed continuous up gradation in wagon maintenance technology and the workshop is now doing POH of eight-wheeler stock and air-braked stock of all types. Workshop has developed facilities for the POH of stainless steel wagons. WRS/KTT is only workshop in Indian Railway which is handling POH, ROH and NPOH of LPG wagons. WRS/KTT is also one of the few workshops that undertake repairs of Centre sill broken BCNHL wagons & Barrel crack BTPN wagons.

**Coach Rehabilitation Workshop Bhopal**

Coach Rehabilitation Workshop, Bhopal was established in August 1989, as the pioneer workshop of WRS Kota is turning out all the wagons duly fitted with twin-pipe braking system. In addition to this WRS/ KTT also undertakes conversion of rake of BTPN (Veg

<table>
<thead>
<tr>
<th>Shed Performance</th>
<th>Achievements</th>
<th>% improvement w.r. to last year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tasks Performed/Objectives (Items)</strong></td>
<td><strong>2018-19</strong></td>
<td><strong>2019-20</strong></td>
</tr>
<tr>
<td>Total ST failure in nos. (Apr–Jan)</td>
<td>344</td>
<td>181</td>
</tr>
<tr>
<td>ST Failures/100 locos/month (Apr–Jan)</td>
<td>14.4</td>
<td>7.66</td>
</tr>
<tr>
<td>Direct punctuality loss Nos. (Apr–Jan)</td>
<td>25</td>
<td>16</td>
</tr>
<tr>
<td>Direct punctuality loss Nos./100 Mail Link (Apr–Jan)</td>
<td>16.9</td>
<td>11.5</td>
</tr>
<tr>
<td>Specific Fuel Consumption (SFC)-Goods in liters/1000 GTKM (Apr–Dec)</td>
<td>1.82</td>
<td>1.8</td>
</tr>
<tr>
<td>Specific Fuel Consumption (SFC)-Mail-Express in liters/1000 GTKM (Apr–Dec)</td>
<td>3.38</td>
<td>3.33</td>
</tr>
<tr>
<td>Lube oil consumption (LOC)-Goods in liters./100 EKMs (Apr–Dec)</td>
<td>1.78</td>
<td>1.63</td>
</tr>
<tr>
<td>Lube oil consumption (LOC)-Mail/Exp in liters./100 EKMs (Apr–Dec)</td>
<td>1.21</td>
<td>1.19</td>
</tr>
<tr>
<td>Reliability-Lakh Kms/Failure (Apr–Dec)</td>
<td>0.85</td>
<td>1.27</td>
</tr>
<tr>
<td>In-effective repair percentage (Apr–Jan)</td>
<td>9.33</td>
<td>9.2</td>
</tr>
<tr>
<td>Freight Outage (Apr–Jan)</td>
<td>102.42</td>
<td>104.83</td>
</tr>
</tbody>
</table>

**Coast Rehabilitation Workshop, Bhopal**

Coach Rehabilitation Workshop, Bhopal was established in August 1989, as the pioneer workshop of
Oil) wagons to “Water Rakes” which are then used for the noble cause of ferrying water to drought hit cities of India. WRS/KTT has developed Wheel shop & CTRB assembly shop as Centers of Excellence. To meet the wagon POH requirement in Indian Railway the outturn of Kota workshop is increasing year after year. The outturn is 3% higher than the previous year. In the current year also the workshop is well on course to surpass the last year outturn.

Coaching Depots

WCR is having 07 coaching depots in Jabalpur, Rewa, Bhopal, Habibganj, Bina, Itarsi & Kota. Coach holding is 1694 coaches including 397 LHB coaches. 55 trains are being maintained on WCR. Special efforts are made to ensure happier journey for the passengers still if there are any complaints, 26 trains of WCR are equipped with OBHS service for Onboard attention of passenger complaints.

Disaster Management Activities

West Central Railway is having Four ‘A’ class Accident Relief Trains (ART) with 140T Crane, Three ‘B’ class ART & One “C” class ART, Six Accident Relief Medical Vans (ARMV), Three Self Propelled Accident Relief Medical Equipments & Five Road Mobile Vehicles at various location. Drone Camera is available at ART/NKJ, ART/ET & ART/KOTA.

Tech Initiatives

In a bid to make trains & Railway system economically convenient & feasible, WCR is taking several steps for the advancement in its technology & facilities. Some of them are as follows:-
- Bhopal division of WCR became first in IR to establish a unique network titled RailNetRA (Rail Network of Relief Assets) to connect all 12 relief units of the division with GPS-based tracking technology. At present, all 26 relief units of West Central Railway have been brought under Rail-NetRA.
- Installation of Automatic Coach Washing Plants (ACWP) is under progress at JBP, HBJ & KOTA.

**Performance Highlights**

(Comparison wrt Previous Year Performance (April - January)}

- **ROH OUTTURN**
  - 10877
  - 11622
  - 6.9%
- **CRWS OUTTURN**
  - 646
  - 712
  - 10.21%
- **WRS OUTTURN**
  - 5007
  - 5164
  - 3.13%
- **COACH DETACH.**
  - 19
  - 15
  - 21.05%
- **WAGON INEFECT.**
  - 6.48
  - 5.67
  - 12.5%
- **WAGON DETACH.**
  - 105
  - 84
  - 20%

**Cleaning Activities**
Passenger Security
RPF Helpline No.182 – We Are Just A Call Away
- A Software has been developed and is being integrated in existing system to
- Upgrade Security Helpline No.182 at Bhopal for better response.
- Wide publicity is being given to security helpline.
- 7322 Complaints received and disposed off in 2019

Women & Children Security/Rescue
- No. of missing/Run away girls/Women rescued- 211
- No. of missing/Run away minor boys rescued- 622
- All above Total 833 rescued girls/Women and boys have been rehabilitated with the help of NGO’s with their families in 2019.
- Following four Special lady squads (Mahila Vahini) are formulated over WCR -
  1. Durgawati Mahila Vahini at Jabalpur Division,
  2. Avanti Bai Mahila Vahini at Bhopal Division
  3. Padmini Mahila Vahini at Kota Division and
  4. Panna Mahila Vahini at Sawaimadhipur in Kota Division

Child Help Desk
- Instructions have been circulated to extend child Help desk under SOP for Railways to ensure Care & Protection of Children on contact with Railways to all A1 category stations. Child Help desk operational at 04 stations (Jabalpur, Itarsi, Bhopal and Kota) and 16 Stations are under progress.

Child and women Awareness
- Awareness campaign is being launched by unauthorized RPF officers & staff to educate passengers & general public against menace of Stone pelting, trespassing, Alarm chain puling, protection to women & child, various offences against passengers.
- Seminars are also being organized at various school & residential localities near railway areas to spread the awareness amongst children.

Train Escorting Detail Over WCR
- Total No. of Train Escort by RPF over WCR average 86
  - No. of Rajdhani Trains Escorted 14
  - No. of Shatabdi Trains Escorted 02
  - No. of Important Mail/Exp. Trains Escorted 70

Passenger Amenities - Key to Customer Satisfaction
- Free Wi-Fi: Free Wi-Fi facility at Railway stations over WCR are being provided for passengers. As on date Wi-Fi facility have been provided at 266 Railway stations including 17 major stations. Work for provision of Wi-Fi at remaining 6 stations (Planned) over WCR is in progress and will be completed by 31.03.2020.
- CCTV: The work of CCTV is in progress over WCR. 250 CCTV cameras have been provided under Nirbhaya Fund at 10 stations. Presently Work for provision of 650 CCTV at 22 stations is also sanctioned for WCR and tender for the same is under finalization.
- 163 CCTV have been provided at 2 stations under ISS work i.e. Bhopal & Itarsi.
- **Water Vending Machines**: Total 190 water vending machines are to be installed at 61 stations of WCR. Among these, 109 machines have already been installed at 30 stations. (Jabalpur Division-28 machines at 10 Stations, Bhopal Division-44 Machines at 9 stations and Kota Division -37 Machines at 11 stations).

- **Baby Feeding Corner**: Baby Feeding Corners have been provided at 17 stations of WCR. (Jabalpur Division-6 baby feeding corner at 5 Stations, Bhopal Division-09 baby feeding corner at 09 Stations and Kota Division -02 baby feeding corner at 02 stations).

- **Bottle Crusher Machine**: Total 11 bottle crusher machines have been installed at 8 stations of WCR. (Jabalpur Division-04 bottle crusher machines at 02 Stations, Bhopal Division-04 bottle crusher machines at 04 Stations and Kota Division-03 bottle crusher machines at 02 stations).

- **Passenger Self-care App**: This app has been launched in all three Divisions of WCR on 29.10.2018.

- **Paperless Charting display**: At present this facility has been provided on 16 stations of WCR.

- **Yolo Health ATM**: At 4 stations (BPL-2, Itarsi-1, BHS-1, JBP-1)
  - On payment of Rs. 50 check up of 16 health parameters (non-invasive basic screening) will be done.
  - On payment of Rs. 100 check up of 18 parameters (Basic + Hemoglobin + Glucose) will be done.
  - Optional health advisory can be availed on additional payment of Rs. 100.
  - Diagnostic package from NABL certified lab at discounted rates are also available.
  - ATM will work for 16 hours a day i.e. from 07:00 hrs to 23:00 hrs.

- **Mobile Charging Kiosks**: At Bhopal Station
  - 10 Mobile charging kiosk are installed at Bhopal station.
  - 60 minutes charging of mobile phones are provided on payment of Rs. 10.
  - At each kiosk 24 mobile phones can be charged simultaneously.
  - This is self operated charging kiosk which is very easy to use.
  - Charging of mobile phones at these kiosks is very safe as while charging, your phone remains in a digitally locked locker which can only be opened through a pass-code written in your payment slip.
  - All type of mobile phones can be charged in these kiosks.

- **Mobile Ticket (Un-Reserved)**: UTS Ticket on Mobile app has been developed for obtaining UTS ticket by passenger himself. This app has been launched in all three Divisions of WCR on 29.10.2018.
New FOB have been provided at Morak (Kota-Nagda), Dundi (Jabalpur-Satna) and Satna stations.
A new station building at BPL station has been constructed at an approximate cost Rs. 6.00 crores at the second entry on West side. The building comprises of booking office and provision of executive lounge on ground floor & waiting hall, first class waiting room, ladies waiting room and provision of food plaza on the first floor.
New Upper class and ladies waiting room have been provided at PF no. 04 at Kota.
Escalators: 12 escalators have been installed, 2 at Bhopal, 4 at Jabalpur, 4 at Kota, 2 at Itarsi. 26 more escalators are under progress.

Lifts: 24 lifts have been commissioned, 4 at Jabalpur, 2 at Saugor, 2 at Maihar, 1 at Satna, 05 at Bhopal, 4 at Itarsi, 2 at Bina, 2 at Kota and 2 at Sawai Madhopur. 6 more lifts are under progress.

Beautification of Stations: Local/Worli paintings provided at concourse, waiting hall and PF area of 33 stations. Sawai Madhopur, Bharatpur, Kota, Hoshangabad, Obaidullaganj, Bhopal, Sanchi, Vidisha, Ganjbasoda, Satna, Maihar, Patwara, Jukehi, Rewa, Amdara, Beohari, Majholi, Malkhedi, Jaruakhera, Ganeshganj, Sihora Road, Sleenmabad Road, Niwar, Katni South, Katni, Khurai, Bargawan, Sagour, Majhgawan, Kaima, Hinautaramban, Baghai Road, Bandakpur.

Development of Guna station building of Bhopal division and beautification of the facade, expansion of circulating area with beautification and construction of guide lane in Guna station were completed. Along with this, renovation of Ashoknagar station building, new parking shed, refurbished foot over bridge etc. were inaugurated passenger facilities.

EnHM Activities
World Environment day, National sports day, International Yoga day & National Unity day have been celebrated in WCR HQ, All Divisions and Sheds as per Railway Board’s directives. WCR in its endeavor to safeguard & conserve the environment has taken several steps like, this year 1% fund from every work is kept reserved for environment related work. Under this head 21 works of JBP, 02 works of BPL & 12 works of KOTA related to water harvesting & water conservation are sanctioned this year. Diesel Loco Shed, New Katni Junction has 02 Effluent treatment plants & 01 oil water separator plant.
Kota workshop is certified for IMS (Integrated Management system) certification comprising of ISO 9001(Quality Management), 14001 (Environment Management), OHSMS 45001(Occupational Health and Safety) and ISO 50001 (Energy management), 5-S (SEIRI, SEITON, SEISO, SEIKETSU & SHITSUKE). Certification under ISO 3834 (for fusion welding). Kota workshop is also certified for “GreenCo Bronze Rating” certificate for Green initiatives.
Coach Mitra is being implemented in all OBHS trains of WCR. In this facility passenger can avail the assistance for Coach cleaning, linen problem, watering problem, Toilet cleaning, Pest Control Train lighting and AC issue and petty repair issue by SMS at 9821736069 or through WWW.coachmitra.indianrail.gov.in. Mechanized Laundry has been commissioned at JBP, BPL & KOTA Coaching complex area. 100% linen is being washed in mechanized Laundries over WCR. It is being ensured to provide neat and clean linen to passengers.
To reduce travel time under “Mission Raftaar” WCR has installed Quick Watering arrangements at Jabalpur, Katni, Katni Mudwara, Itarsi & KOTA stations and work is under progress at Bina station. WCR has the honour of becoming the first Railway in IR to complete 100% fitment of bio digester tanks in coaches. Housekeeping contracts are being awarded as per SBD and WCR is the first railway to combine the work of cleaning of coaches with the work of coach attendants in OBHS contracts.
23 items of NGT guidelines implemented along with energy and water audit at ‘A’ category stations.
To promote use of green energy, solar power plants of overall 500 KWp capacities have been installed on the roof top of Admin building and various shops and account for around 29% share of electrical power. Use of CNG and LPG gas is promoted & 15% reduction in DA gas consumption has been achieved.
WCR is promoting use of LED Bulbs, Tube lights, Solar Panel, Energy Efficient Pumps etc for energy
conservation. All the Stations 279 of WCR have been provided with 100% LED lights so far. Target is to provide 7.63 MWP Solar Power, 1.7 MWP Solar Plant for traction purpose at Bina by BHEL is in progress.

New Train Services from WCR: 2019-20

<table>
<thead>
<tr>
<th>New Trains Passing through</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train No</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>22997/22998</td>
</tr>
<tr>
<td>51613/51614</td>
</tr>
<tr>
<td>19813/19814</td>
</tr>
</tbody>
</table>

- In addition to above, 30 Supervisors (10 each from a division) from Commercial, Operating, Electrical and S&T departments were imparted training the five days to train them for conducting “Fire Safety Audit” of Rly installations. This training was also conducted by an expert agency of BPL (Institute of Industrial Management for Safety, Health and Environment). After successful completion of training, multi-departmental teams of above trained supervisors conducted “Fire Safety Audit” of other stations and installations. The deficiencies noticed are being addressed by taking correcting measures.

Air-conditioning of OT and Passenger area of ARMVs

Consequent upon review of relief measures in the accident which took place on 24.11.17 on N.C. Railway, Railway Board vide letter in reference directed Railways to make OT as well as passenger area of ARMVs dust proof and air-conditioned at the earliest. West Central Railway has taken prompt action on the above directives of Railway Board and planned dust proofing and air-conditioning works for all ARMVs based in JBP, BPL and Kota divisions. It gives me immense pleasure in informing you that all ARMVs based in all divisions have been made dust proof and air-conditioned.

Innovations/Initiatives/Achievements

- Productions of 02 “utkrashth” coaches were completed by Bhopal division in a record time of 03 months. Train number 12155/12156 having the similar “utkrashth” coach was inaugurated on 15.10.2019 by Honorable MP, Bhopal Parliamentary constituency Sadhvi Pragya Singh Thakur.
- On the occasion of 150th birth anniversary of Mahatma Gandhi on 2nd October, 2019, a special campaign on cleanliness was carried out in the West Central Railway, under which the Anti Plastic Cleanliness awareness drive and other activities along with plantation, Nukkad Natak were organized and cloth bags were distributed on behalf of WWO.
- Various competitions like Athletics, Chess, Badminton and Carrom were organised by the Cultural Academy and Sports Association for the overall mental and physical development of Railway employee's children. Under the “Swachh Bharat” Mission “Clean and Beautiful Home” Competition Quiz and painting competitions were organized for the cleanliness by the West Central Railway Women's Welfare Organization. The Railway men and their families took part in it.

SAFETY: Our Utmost Concern

Airconditioning of Running Room

As per CRB, the improvement in facility to ensure quality rest to crew is one of the important aspects of safe train operation and hence providing air-conditioning in Running Room is a priority area. West Central Railway has taken prompt action on the above directives of Railway Board (CRB). Total 15 Running Rooms have already been air-conditioned and besides providing Air conditioning in 08 lobbies have also been air-conditioned. The Railway has also improved quality of linen and food to take care of rest and health of the crew.

Fire Safety Audit

During this audit railway’s preparedness to combat fire, adequacy of fire fighting measures, escape routes, electric wiring and safe use of LPG gas cylinders etc. were covered. The report of the audit has been received and corrective action is being observed on deficiencies. In addition to above, 30 Supervisors (10 each from a division) from Commercial, Operating, Electrical and
including release of EMD/SD and imprest bills are all being made online. The department has also procured goods of common use items value of Rs. 12.51 Crore so far by issue of 524 purchase orders through GeM. We are also procuring services of common use through GeM now in WCR. The Department has fully implemented e-Office that has helped in adopting end-to-end paperless working of WCR. West Central Railway in association with Modern Coach Factory, Rae Bareli has organized Vendor Meet successfully at Indore on 13.05.2019 & at Bhopal on 14.05.2019 for Railway’s Digital Supply chain, induction of new vendors in Railway Supply chain and broad basing of product range of existing Railway vendors etc. We received huge response from the Vendors.

Swachhta Hi Sewa

WCR Celebrated “Swachhta Hi Sewa Pakhwada” from 15th September to 02 October 2019 Commemorating the 150th Birth anniversary of Mahatma Gandhi. During this period various activities were held across the three Divisions, Loco Sheds and Workshop. On the concluding ceremony various competitions were organized and awards were distributed.

International Women’s Day 2020

On the occasion of the International Women’s Day Campaign 2020, various programs were organized at the West Central Railway Headquarters and all the three divisions. On 07.03.2020, various programs related to women’s interest were organized, under the guidance of Deputy Chief Personnel Officer Smt Purnima Jain, i.e. rangoli, flower decoration and quiz etc. were organized and women employees were awarded. On 09.03.2020, Women’s Seminar - “Abhiyakti” was organized at Jabalpur Divisional Office, in which mutual discussion was held on women’s participation in the development of Railways. During this special guest Dr. Richa Sharma expressed her displeasure over the inadequate participation of women in the Railways compared to other institutions. During this time, a street play was staged by Bharat Scout and Guide, Jabalpur about women’s empowerment and women’s status in society. On this occasion, 32 outstanding women employees including Additional Divisional Railway Manager, Smt. Anju Mohanpuria (Surendra) were honored. During the International Women’s Day Campaign 2020, a workshop on “working women on the harmony of workplace and home” was inaugurated on 03.03.2020 by Divisional Railway Manager Shri Uday Borwankar at Bhopal. Also a Women Power Walk organized on 04.03.2020 in the same occasion, on 5.03.2020, a seminar on the theme of women empowerment was organized at Electric Loco Shed, Itarsi. Nukkad Natak was organized on 6.03.2020 by the artists of Divisional Cultural Academy on the theme of women’s contribution to society and family and their strong role in the divisional office. On 7.03.2020, a medical camp for women was organized at Divisional Railway Hospital, Nishatpura. On this occasion, the Divisional Railway Manager met the women employees and greeted them. On 8.03.2020 a pink train having fully loaded with coal from Habibganj to Bina was piloted by Loco Pilot Kumari Nutan Singh, Assistant Loco Pilot Kumari Neha and Guard Kumari Poonam was flagged off by Deputy Station Manager, Habibganj. Ms. Alma Khan. DRM Bhopal congratulated them for their full work.

Women Welfare Organisation

West Central Railways Women Welfare Organization (WCRWWO) has been voluntarily organizing welfare schemes for the benefit of the needy families of railway employees as well as general public. In times of need, it has joined national efforts in providing relief and rehabilitation to the people in distress. On the occasion of 71th Republic Day, 100 nos. sitting chair have been donated to central Hospital WCR Jabalpur. Also a big carpet and a Camera have been donated to Jagriti Day Care Centre. During the “Swachhta Hi Seva Pakhwada”, large number of Tree Plantation was done near madan Mahal Station, Rail Saurabh Colony and Jagriti Day Care Centre.

A few of the activities of WCRWWO are: WCRWWO,
Jabalpur runs Jagriti Day Care Centre & Night shelter Jabalpur, WSECKG/High School Jabalpur, Phulwari, Kalani Stitching and Embroidery Training Centre Jabalpur, Ashakiran Shelter for Orphan Platform Children Jabalpur, Creche at Habibganj, Ashadeep for Differently Abled Children Jabalpur & Dance Centre at Habibganj.

WCR Employee Welfare

Indian Railway is the largest employer and always peruse towards achieving better goals. WCR is carrying out many welfare activities for its about 55 thousand employees. WCR runs 05 railways school wherein 2,379 students are studying. 24 railway institutes, 10 community halls, 10 Staff Canteens, 7 welfare handicraft centres, 9 Homeopathic and 01 Ayurvedic dispensaries, 1 subsided hostel and 2 creches are also being run by WCR. Payment of Bonus to all the employees was made 100% through bank before Dusshera. To ensure transparency in every railway selection exam are conducted under CCTV camera. In order to encourage the technical education among the wards of the employees scholarship was sanctioned for all 3 divisions and 2 workshops. Rs. 18,000 were sanctioned for the wards of employees upto grade pay Rs. 2400 and for the wards of employees above grade pay 2400 for the girls child Rs. 15000 and for the boys child Rs. 10000 sanctioned. In total 1999 wards of railway employees were sanctioned Rs. 2,52,27,000 for technical scholarship through SBF for all 03 divisions and 02 workshops. Apart from this 839 Divyangs employees have been sanctioned Rs. 10,000 per employees amounting to Rs. 88,90,000. For the welfare of the regular employees and their families of the Headquarter, divisions and both the workshops of WCR Rs.5,26,05,000 were sanctioned through SBF. On 04/09/2019 a programmers organized for motivation and carrier guidance for the wards of the working employees. Inter School Cultural Competition amongst the school of WCR was organized on 16/11/2019 at Railway School, Itarsi. Total 60668 UMID medical cards were generated for working and retired employees by personnel department. West Central Railway is on number one position amongst the railway in uploading the data in HRMS. Plantation of 5000 trees in shed & New Katni Junction area, Furnished railway playground NKJ with open gym equipments fabricated from shed scrap materials, Coordinated with Sr. DEN(Co.) in preparing volleyball & football grounds. Made kits available for Cricket, volleyball, badminton & football, Organized inter-departmental sports tournament of Cricket, volleyball & football, Carried out renovation of toy-train in Bal Vihar Park & made it functional. Fabrication of ‘Make in India’ logo & other swachhta logos with shed scrap materials, 02 day Funfair on 25th & 26th January in Bal Vihar Park NKJ as a part of social initiative.

WCR Tourism

West Central Railway is full of scenic beauties. There are number of world famous sites for wildlife lovers. Kanha Tiger Reserve stretches over 940 sq km and has the reputation of one of the finest and best National Parks in Asia and is an irresistible attraction for all wildlife lovers. Bandhavgarh is a National Park where the density of the Tiger population is the highest in India. Ranthambore is known for its tiger reserve, perched on the easternmost point of the Aravallis and sprawling over the area of 392 sq km. Besides tigers, one can spot sambar, leopard, cheetah, wild boar, sloth bear, hyena, jackal and many other species of animals. Keoladeo Bird Sanctuary at Bharatpur in Rajasthan is another famous tourist centre where birds migrate from various parts of the world.

Health Care: Our Continuous Attention

WCR has one Central Hospital, two divisional hospitals, four sub-divisional hospitals and 19 health units. During the year, as many as 1114536 outdoor patients were given medical aid and 26976 indoor patients were treated in these hospitals. As many as 13946 minor, 1086 major and 71 complicated surgeries like Total Hip and Knee Replacement, Cholecyctectomy with liver resection with complete nodes dissection, Core Decompression and fibular strut grafting were done in these hospitals. About 661160 pathological tests were conducted in-house. Over WCR, total 34 reputed hospitals are serving as referral hospitals for specialized health care. We have also outsourced advanced investigations to reputed service provider. During the year total 24787 children were given polio vaccination through pulse polio programme. CCTV and Wi-Fi facility have been started all hospitals of WCR. Health Checkups of 33417 Railway beneficiaries and 1571 RPF staff in first stage and 1259 RPF staff in second stage have been done under Annual Wellness Assurance Checkup Camps. Newer technologies in form of Fully Automatic Bio-chemistry Analyzer, Computerized radiography System, Upper G.I. Gastrointestinal Endoscopy, Phaco Emulsification Machine System, Dental DIODE Laser with accessories, ICU Bed/Mattresses/Side lockers have also been introduced. In Divisional hospital Bhopal, renovation of operation theatre, female ward and a new paediatric ward has been done. At Jabalpur Railway station an Emergency Medical Room Services has been started for providing medical aid to passengers falling ill while travelling. Part time lady doctors at Health Unit/SATNA and Nursinghpur in Jabalpur division and Health Unit/TKD/Kota division have been posted.
Kolkata’s Life Line Extending its Wings

Manoj Joshi, General Manager

With a view to alleviating the hardship of the people of Kolkata and to ease the traffic congestion, the foundation stone of India’s first Metro was laid on 29th December, 1972 and construction work of this project started in 1973-74. India’s first Metro became a reality on October 24, 1984 with the commissioning of a partial commercial service covering a distance of 3.40 kms with five stations between Esplanade and Bhawanipur (now Netaji Bhavan). The services from Dum Dum to Tollygunj (Now Mahanayak Uttam Kumar) stretch of this North-South axis was introduced on September 27, 1995.

At present, Metro is running from Dum Dum in the North to Kavi Subhash in the south of the city in 27.2 Kms route covering 24 stations and from Salt Lake Sector V to Salt Lake Stadium (5.3 kms) on East-West Axis covering six stations. In order to fulfil the needs of the people and to ease the traffic congestion of the city and its adjoining districts, the following Metro projects measuring 100 Kms (approx.) have been undertaken and construction works of these projects are going on.

East-West Metro

East-West Metro is a major and important Metro project of the city. It is a 16.55 kms long stretch which connects Howrah on the West bank of the river Hooghly with Salt Lake City on the East bank. The project is being executed by Kolkata Metro Rail Corporation Limited (KMRCL). 10.8 Kms of the stretch is underground and 5.75 Kms is on the elevated viaduct. It is India’s first ever transportation project where trains will ply under the mighty river Hooghly.

Phase-I of this project from Salt Lake Sector V to Salt Lake Stadium (5.3 Kms) on viaduct was inaugurated by Shri Piyush Goyal, Minister of Railways and Minister for Commerce & Industry on 13.02.2020.

For the first time in Kolkata Metro
- Platform Screen Doors at all stations.
- Communication Based Train Control System (CBTC) is the latest state–of–the–art signalling system which ensures the safe passage of trains and optimises the line capacity.
- Toilets and designated sitting arrangements for Divyang.
- Sockets for mobile and laptop chargers inside each coach.
- Ramps for emergency evacuation from all coaches.
- Emergency announcement from Operation Control Centre (OCC) will be heard inside the coach.
Shri Piyush Goyal, Minister of Railways, Shri Babul Supriyo, Minister for State for Environment and Forest & Climate Change, GMs of Metro, Eastern & South Eastern Rlys., MD of KRCL and Consul General of Japan flagging off the maiden run of the first of East-West Metro

Platform Screen Doors
East-West Metro has the unique feature of the Platform Screen Doors. It will enhance safety of the passengers by preventing accidental and intentional fall. This project will be immensely helpful in easing the traffic congestion of Kolkata – a 300 year-old city and also in reducing pollution. Phase-I of East-West Metro has six elevated stations viz. Salt Lake Sector V, Karunamoyee, Central Park, City Centre, Bengal Chemical and Salt Lake Stadium.

Project Progress
• Phase-1B: CRS enquiry compliance for the underground section upto Phoolbagan station and train

NAME OF THE ON-GOING METRO PROJECTS

<table>
<thead>
<tr>
<th>NAME OF THE PROJECT</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joka-Esplanade</td>
<td>16.75 kms</td>
</tr>
<tr>
<td>Noapara-Barasat</td>
<td>18.13 kms</td>
</tr>
<tr>
<td>Noapara- Baranagar-Dakshineshwar</td>
<td>4.012 kms</td>
</tr>
<tr>
<td>Kavi Subhash-Bimanbandar</td>
<td>32 kms</td>
</tr>
<tr>
<td>BARANAGAR - BARRACKPORE</td>
<td>12.5 kms</td>
</tr>
<tr>
<td>East-West Metro</td>
<td>16.55 kms</td>
</tr>
</tbody>
</table>

Indian Railways JULY 2020
reversal from east of Sealdah [another 3.6 Kms] has been done by Metro Railway. CRS final inspection is due.

In the financial year 2019-20, Metro Railway has performed outstandingly well in the following areas

- In the financial year 2019-20, Metro Railway has earned ₹ 253.31 crore which is 7.85 % more than 2018-19. The break-up is given below:

| In the financial year 2019-20, Metro Railway has performed outstandingly well in the following areas |
|---|---|
| **In the financial year 2019-20, Metro Railway has earned ₹ 253.31 crore which is 7.85 % more than 2018-19. The break-up is given below:** |
| **PASSENGER EARNINGS** | **SUNDRY EARNINGS** | **ADVERTISEMENT** |
| **(Figure in Crores)** | **(Figure in Crores)** | **(Figure in Crores)** |
| ₹ 219.53 | ₹ 33.78 | ₹ 25.57 |

At the same time, expenditure was successfully contained by adopting various expenditure control mechanism due to which total expenditure registered a decrease of 6.19% while earnings increased by 7.85%. Consequently, the Operating Ratio registered a record improvement from 248 % to 216% registering one of the best financial performances among all Railway zones.

Another significant achievement is the phenomenal growth in commercial publicity advertisement earnings which placed Metro Railway, Kolkata in 3rd position amongst all zonal railways.

Other Achievements

- Centralized Integrated Payment System (CIPS)
- Centralized Integrated Payment System (CIPS)

has been successfully implemented in Metro Railway/ Kolkata, whereby issue of cheques has been dispensed with as the payment is credited to the payee’s account through SBI/Hyderabad. This has enabled prompt payment and saved infructuous expenditure on stationery, man-hours etc..

- Pre-2016 Pension Revision Cases
  98.55 % out of the 2207 pre-2016 pension revision cases, have been revised by 31.03.2020.

- Scrap Disposal
  In the year 2018-19, ₹5.20 crore were realized from disposal of scraps, which was 130 % of the target.
  During 2019-20, ₹7.00 crore were realized, which is 175% of the target.

Additional Passenger Carried

- In this financial year, during Durga Puja Metro Railway has carried highest ever passengers of 9.22 lakhs in a single day on 03.10.2019 (Panchami).
• On the day of Mahanavami (07.10.2019), Metro Railway has witnessed the footfall of 8.51 lakhs passengers which is the highest ever on any Puja Day.
• To cater to additional rush of passengers on the Christmas and New Year’s Eve, additional Metros were run upto mid-night on 25.12.2019 & 31.12.2019.
• Metro Railway is running services on Sundays from 09:00 hrs. instead of 09:50 hrs. from July, 2019.
• In order to ease the traffic congestion after the closure of Tala Bridge in North Kolkata, Metro Railway has increased more services in Dum Dum – Noapara section. At present, Metro runs 133 services on weekdays, 109 services on Saturdays and 63 services on Sundays.
• Time schedule of Noapara (last Metro station in the North of the City) bound train from Kavi Subhash (last Metro station in the South of the City) has also been modified to 21:45 hrs instead of 21:25 hrs on weekdays and 21:42 hrs. instead of 21:29 hrs on Saturdays and Sundays.
• For digital transaction in ticketing system, 17 new POS machines have been installed.
• As a part of Green initiative, PET bottle crusher machines have been installed at three more stations, thus tallying the total to 9.
• Additional AFC gates have been installed at Park Street station to enhance the passenger amenities. Biodegradable and non-biodegradable dustbins have been provided at all the stations adhering to directives of Green Bench.

First all Woman Managed Underground Metro station in India
• Netaji Bhavan, one of the important stations of Metro Railway has been the first all Woman Managed underground station in India.

Rolling Stock
• In 2019-2020, new ICF rakes with 3-phase propulsion have been commissioned and put into commercial services. Total 7 rakes with latest 3-phase technology were run for commercial services.
• At present, the number of AC rakes - 20
  Non-AC rakes - 06
• The POH of 08 rakes has been done till 31/03/2020.

Escalators
• Replacement time of escalators has been reduced to 1 month from 3 months which resulted in replacement of 18 escalators in the tunnel section. Two new escalators have been commissioned.

WI-FI Facility
• Wi-Fi system has been installed at 24 Metro stations, Tapan Sinha Memorial Hospital and at Rest House, New Delhi.

Staff Welfare
• 99.9% staff have been registered under UMID. A total of 4245 UMID cards have been generated. 95.1% employees got UMID cards and Metro Railway is No: 1 with respect of percentage of generation of UMID cards for employees in Indian Railways.
• A total of 223 grievances (received through CPGRAM, NIVARAN, Single Window System, Staff Interview etc.) have been redressed.

Safety & Security
• Metro Railway has given special emphasis on Safety & Security of the commuters specially for the women and children.
• 37 children (11 Girls + 26 boys) were rescued by RPF personnel at different Metro stations and were handed over to their parents/local police stations following all formalities.
• 100 walkie-talkie sets have been provided to Security Department.

Metro celebrating 150th birth anniversary of Mahatma Gandhi
• Metro Railway is celebrating 150th Birth anniversary of Mahatma Gandhi, the “Father of the Nation” and as part of this programme an illuminated mural of Mahatma Gandhi highlighting his great life and activities has been on display at Metro Rail Bhavan.

Sports Activities
• Shri Sumit Mukherjee and Shri Debabrata Majumdar represented in the Yeh Brothers World Bridge Championship in China where they got 3rd place in pair event. Shri Sumit Mukherjee also secured 2nd position in the Asia Pacific Bridge Federation Championship.
• Shri Pronay Halder has been selected in Indian National Football Team for the Pre-World cup. Metro Railway became champion in All India Railway Chess Championship in this year.

Scouts and Guides
• Bharat Scouts and Guides Metro Railway organised various programmes like Tree plantation, voluntary Blood donation camp etc. They have also participated in various activities like Swachh Bharat Mission and have given services at Metro stations to guide the commuters in heavy rush during Durga Puja.

MRWWO Activities
• Metro Railway Women’s Welfare Organisation organises various noble activities like felicitation of Group-D Railway employees on May Day and Children on Children’s Day.
**Achievements & Highlights for the Year 2019-20**

Virendra Kumar, 
Director General

RDSO has made significant progress in important railway research projects related with setting up of facilities for testing and design validation, harmonization of IR testing and rolling stock design validation methodologies with widely accepted international norms, induction of new technologies essentially required for migration to predictive maintenance philosophy in place of the currently followed preventive maintenance regime in different sectors of railway application. Projects pending initiation for many years were brought to the table for action and time bound delivery. Some of the important R&D projects which have been sanctioned and initiated during the year 2019-20 include amongst others (i) Setting up of Dedicated Test Track (ii) Switch-over to UIC-518 testing and rolling stock acceptance methodology (iii) development of Automatic Train Protection system for higher speed and for operation in Automatic Signalling territory (TCAS-Phase 2) (iv) Development of Instrumented Measuring Wheels for measurement of actual Rail-Wheel forces at the rail-wheel flange level (v) Increasing the operational speed of 22.9T Axle load wagons from 60 to 75 Kmph (vi) Operation of 25T Axle-Load wagons on DFC at 100 Kmph (vi)

Increasing the operational speed of Empty Open type wagons to 100 Kmph and many more.

Design of Test-Track has been finalized by RDSO. Total length of the Test Track under this project is 58.45 KM. Phase-I of the project includes 25 km of test track alignment while phase-II of this project includes additional track length of 33.5 km. Construction work has already started and is under progress. Significant portion of earthwork and work on 8 Minor bridges has already been completed. Project is progressing as per the planned timelines and is targeted to be completed by 2022.

Project for migration to UIC-518 (EN-14363:2016) testing protocol on Indian Railways has also been initiated and is progressing at a fast pace. Consultants have been engaged by RDSO for this project and basic training has been imparted to RDSO engineers on interpretation of the test data and modalities to be followed for categorization of track stretches and use of testing software etc. This project will realign IR testing methodology with the internationally accepted testing and rolling stock ride quality validation procedures. Implementation of UIC-518 (EN-14363:2016) method on Indian Railways will streamline our testing and
acceptance procedures with the internationally accepted norms and will facilitate smooth transfer of technology (export & import both) related with semi high speed passenger rolling stock application. Two pairs of Instrumented Measuring Wheels of LHB Coach have already been received and dynamic mock-trial run as per UIC-518 has also been completed on LHB rake in AGC-JHS section in December 2019. Final switch-over to UIC-518 / EN 14363:2016 standard on IR is likely to be implemented from Feb-2021.

RDSO is also working on upgrading the indigenously developed ATP (Automatic Train Protection) system for higher operational speed and working in Automatic Signaling territory. Long term trials of TCAS-Phase II RDSO have been successfully completed on 250 KM section with Absolute Block Section covering both RE and Non-RE routes and deployment of TCAS in Absolute Block Section territory up to a speed of 110 KMPH has been cleared by RDSO, the design of TCAS has been improved (TCAS-Phase II) for making it suitable for speeds up to 200 Kmph. System has been tested up to a speed of 160 KMPH. Trials in Automatic Block Section territory are also in progress.

Sectional capacity has been one of the major constraints affecting train operation on IR. Majority of sections on the core routes are getting oversaturated. There is therefore a need to create capacity on these sections by increasing the sectional speeds and/or induction of new technologies that help in reducing the headway. In this regard, RDSO has conducted oscillation trials of all open type wagons (eight types) for increasing their speed potential in empty running to 100 Kmph. All eight types of open wagons have been tested for 100 Kmph operation in empty condition and inputs required for making them fit for running at 100 Kmph have been identified. Out of about 1,48,000 open type wagons plying on IR, 88,000 wagons have been identified as fit for running at 100 Kmph. 60,000 more wagons will become fit for 100 Kmph operation after modification in their suspension and the likely timeline for completing the modification is about 18 months. Operation of 25 T axle load wagon at 100 Kmph on DFCCIL has been one of the priority areas for IR. RDSO has successfully conducted trials for 100 Kmph operation of 25 Ton Axle Load Wagons (BOXNS, BLCAS) on DFC. RDSO is also working on the technical inputs required for track up-gradation for higher axle load operation on feeder routes.

RDSO, while ensuring fast-track execution in important projects, has also realigned and channelized its resources for speeding up design validation tests and trials with the objective of faster induction of new design rolling stock on IR. More than two hundred speed certificates were issued by RDSO during the year 2019-20 as against 140 last year. This is an indication of the substantial increase in the workload handled by RDSO during the current year. Some of the important new design Rolling Stock tested and cleared by RDSO during this year include (i) LVPH – High Capacity Parcel Van (ii) Push-Pull Special Rajdhani (iii) Train-18 (Vande Bharat) (iv) High Horse Power Diesel Locomotives (WDG4G and WDG6G) (v) High Horse Power Electric Locomotives (WAG11 and WAG12) (vi) High Speed Electric Passenger Locomotive WAP7HS (vii) Under-Slung 3 Phase MEMU (viii) Onboard 3 Phase MEMU

---

**Push Pull Special Rajdhani**

**High Capacity Parcel Van LVPH**

**BOXNS Wagon**

**Train 18**
On the ease-of-doing business front, RDSO has taken a number of steps like simplification of procedures, involvement of all stake-holders in specification making, use of web-based platform for interaction and providing a well-equipped vendor facilitation lounge to facilitate engagement with the industry. More than 60 interactive vendor meets, including a Mega Vendor Meet held on 30th August 2019, have been conducted by RDSO. Focus of Mega Vendor Meet was on increasing the vendor base for 242 items having less than 3 vendors. More than 650 industry representatives from across the country participated in this meet.

(ix) Air-conditioned 3 Phase AC EMU etc.

The quantum leap in RDSO’s performance and delivery has only been possible with the dedication and commitment shown by team RDSO and the organization will continue to work in mission mode and accelerate execution of all R&D initiatives for modernization and complete make-over of IR’s image in general public.
Chittaranjan Locomotive Works (CLW) is the indomitable symbol of India’s pioneering efforts in the field of heavy engineering. This site, for a Loco Building Factory was chosen on September 1947 and the construction was taken up in March 1948. The production was commenced on 26th January 1950, on the very day when India became a sovereign Republic. With this humble beginning, CLW had rolled out the 1st WG class Steam locomotive on 1st November 1950.

CLW, right from inception, has produced different types of locomotives powered with Steam, Diesel & Electric and presently produces exclusively modern IGBT based, State-of-the-Art, 3-phase electric locomotives. CLW has turned out 2,351 steam locomotives, 842 diesel locomotives and 7090 electric locomotives till January, 2020, thereby, has produced more than 10,000 locomotives of different class and category. Adopting latest technologies in traction field & locomotive production, CLW always endeavour to remain abreast and preeminent in this field. It fulfils the requirements of Indian Railways with international standard and keep on scaling new heights in locomotive production.

Other Locomotives Reworking with Modern Technologies
In order to adopt new modern technologies in manufacturing of electric locomotives in India, CLW has undertaken various initiatives as mentioned below:

Head on Generation
A Beginning on IR
The Head on Generation (HOG) loco fitted with hotel load converter can supply hotel load power to the coaches and pantry cars in prestigious Rajdhani and Shatabdi Express trains. Thus, it eliminates the need of power cars and allows adding one extra coach.

Indigenous development of IGBT Based Propulsion system
CLW has switched over to Insulated Gate Bi-polar Transistor (IGBT) based technology with an effort to improve the reliability of 3-phase locomotives.
PRODUCTS MIX
Presently, CLW produces, WAP-5, WAP-7 & WAG-9 locomotives

WAP-5 Passenger Loco of 5400 HP

WAP-7 Passenger Loco of 6000 HP

WAG-9 Freight Loco of 6000 HP

OTHER LOCOMOTIVES....

Head On Generation (HOG) loco

WAG 9 with IGBT based propulsion system

RECENT DEVELOPMENTS
Passenger Locomotive Segment
The first high speed loco WAP-7HS produced by CLW, for which trial run has been successfully completed recently is capable to run at 160 kmph.

Successful test run of WAP-7HS loco touching 180 kmph

Push-Pull Operation
To meet more power requirement, locomotives are built for the Push-Pull operation suitable to meet the requirement of Rajdhani & Shatabdi trains, for which trials have been successfully conducted.

Push Pull operation in Rajdhani Express
Freight Locomotive Segment
CLW also successfully produced second WAG-9HH series of 9000HP heavy haul freight locomotive. This heavy haul freight loco will be used for dedicated freight corridor train operation.

Production : Scaling New Heights
During the current FY of 2019-20, CLW has established its credentials in production of locomotives by attaining new milestones. The 100th loco was turned out in 88 working days. 200th in 158 working days, 300th in 216 working days and 350th in 250 working days.

In order to meet the enhanced demand of electric locos under the cent percent electrification policy of Ministry of Railways, the staff & officers of CLW had worked round the clock and produced record 446 locomotives in a year i.e from January to December 2019. This was made possible with the persistent efforts of staff & officers to mobilise 223% asset utilisation against installed capacity of 200 locos per year of CLW.

In the current financial year 2019-20, CLW has been assigned a target of 390 locomotives by the Railway Board. So far, CLW has produced 379 locomotives till 19th Feb 2020. With this, CLW will supply the maximum requirement of electric locomotives of Indian Railways and will also be the largest & biggest electric locomotive producer in the world.

Recognition
It is also very promising to mention that Limca Book of Records has acknowledged our claim of Record production of 402 locos in a year i.e, 2019-20 (World Record). The World Record Academy has also endorsed our claim of manufacturing of 446 locomotives in one calendar year 2019 in their publication of 2nd Jan 2020.
Chittaranjan Locomotive Works (CLW), a premier Production Unit of Indian Railways, has completed 70 years of glorious journey. Over the years, CLW is not only doing its core business of Locomotive production but it has also proved to be a responsible entity in preservation of its rich Heritage.

As part of the mission a heritage loco park had been exclusively developed as “Deshbandhu Loco Park” wherein, the First Steam loco “Deshbandhu” named after the famous freedom fighter Deshadhu Chittaranjan Das and the last loco named “Antim Sitara” marking the end of Steam production are proudly preserved. This loco park proudly houses 1:4 scale Steam loco in running condition and is regularly thrown open for joy ride for visiting dignitaries, general public and children. A steam loco of 1:8 scale has also been proudly placed in the loco park.

A New heritage site has been developed in front of Children’s Park and a Narrow Gauge Loco of ZDM class bearing No.501 (built by CLW in 1987) and a narrow gauge coach have been installed at the site. Another NG coach has been placed in Loco Park as Exhibition Car for general public.
Celebration of 70 Glorious Years

During this FY 2019-20, CLW has completed 70 glorious years of its service to the nation and various programmes were organised to commemorate this up till 26th Jan 2020. Seventy retired railway employees of CLW were honoured & felicitated on 26th Jan 2020. Other programmes were also organised on this occasion, such as Drawing, Essay & Debate competitions by Railway schools; Inter Unit competitions organised by Scout & Guides wing of CLW; Annual cultural competitions by Basanti & Srilata Institutes; Photography competition & Exhibition organised by the Public Relations deptt.; Inter Area cultural competitions organised by the Cultural Association & Inter Departmental Athletics championship organized Sports Association.

Medical Facilities

Kasturba Gandhi Hospital, the state of the art hospital in this region, has 197 beds along with all modern facilities. A dialysis unit has been commissioned in PPP mode for the benefit of chronic renal patients. To further improve the Health Services, tie up has been made with 18 renowned hospitals.

Energy Management

Towards green initiatives and to harness solar energy, CLW has installed 4.24 MW Rooftop Solar plant at shop floor and 1 MW Rooftop Solar plant on service buildings. For energy efficient lighting, LED lights have been installed.
CLW - Women's Welfare Organisation

CLW-Women's Welfare Organisation (CLW-WWO) has been working hard in extending philanthropic activities by providing social and humanitarian services for the CLW fraternity as well as the underprivileged. Through Sishu Vihar and Asha Kiran School, quality education is being imparted to children and differently-abled boys and girls. This organization has been striving for overall development of the kids of CLW staff over the years. To make this happen, it regularly organizes various competitions such as Essay and Drawing competitions as well as Baby Shows which draw huge number of competitors each time. It stands testimony of this organisation's acceptance and popularity among CLW staff.

Environment Protection

Besides electric loco production, Chittaranjan is also famous for its clean and green environment. The beauty of serene lakes, hillocks & green forests are place of attraction where migratory birds often visit. With proper planning and with the active participation of CLW employees & their family members, environment of CLW is absolutely pollution free which allows the flora and fauna to blossom. We do maintain the workshop & colony clean as an objective of SWACHCH BHARAT ABHIYAN. During winter, the Chittaranjan township becomes the home for the variety of migratory birds, who fly down from farthest parts of the globe and flock in and around our water bodies. It becomes the birdwatchers’ paradise over this period. Many visit CLW especially to watch these guest birds.

Sports & Cultural Activities

CLW Sports Association has established its remarkable presence in the National and International levels. In 64th All India Rly Golf Championship organized by DLW at Varanasi in December, CLW team became Champions for the fifth time in a row. Shri Vinay Kumar Yadav became Champion in individual category. Miss Monika, Women Boxer of CLW won Gold Medal & Best Boxer award in 4th Elite National Boxing Championship (48kg) held in Kerala in Dec, 2019. Besides, our football player and women gymnast performed well in various competitions. In this year, an Indian Railway Archery Range has been commissioned in Nov, 2019 and Archers of all the railway Divisions are being provided training and other facilities.

CLW Cultural Association emerged as star performer in Inter Railway Cultural competitions. In Inter Railway Dance & Music competition CLW team has bagged first place.
Indian Railway is lifeline of the Nation. It is the symbol of unity in diversity, and a strong force for the integrity of the nation. Serving world’s second largest population, Indian Railways is the fourth-largest in the world in terms of rail track length and second-highest in terms of volume of passenger traffic. It has 69,182 route kilometers (RKM) of tracks and it runs 22,550 trains that carry 22.24 million passengers and 3.04 million tons of freight every day.

There has been tremendous increase in railway transportation both in the terms of passenger as well as freight traffic over the past years. Since the year 2000, passenger traffic in India has increased by about 200% and freight traffic by about 150%. The Railways remain a primary means of transport in India connecting many places and playing a vital role in economic growth of country by movement of goods from one place to other.

In recent times, Railways has been facing stiff competition from the road sector and the airlines in area of freight traffic and passenger traffic respectively. Hence the future of Indian Railways will depend on how it responds to both rising transport demand and rising pressure from the competing sectors. Despite the Railways having a long-standing position as one of the pillars of passenger mobility and freight transport, it faces new challenges in terms of environmental issues, cost cutting and capacity constraints. Thus it becomes imperative that Indian Railways adopts speedier, economical, environment-friendly, safe and reliable mode of transportation. These objectives are met by the electrification of all broad gauge (BG) routes of Indian Railways which has been identified as a mission area by Government of India.

The Central Organization for Railway Electrification (CORE) was set up in 1979 under Ministry of Railways with the prime objective of electrification of railway tracks. After almost 41 years since its inception; the organization has contributed more than 80% of total electrified sections of Indian Railways. In recent years, there has been greater emphasis on reducing the dependence on imported petroleum based energy sources, and to enhance the country’s energy security, with a vision of providing eco-friendly, faster and energy efficient mode of transportation.
During the last five years, 201 electrification projects consisting of 30,490 RKM have been sanctioned by Government of India, keeping in mind the significant cost savings and considerable reduction in carbon foot print.

It has been decided by Government of India to complete 100% electrification of all BG routes by the year 2024. As per this plan, commissioning of 38,000 RKM has been completed so far. Work is in progress under CORE for 19,000 RKM, while work in progress by other agencies like Zonal railways, RVNL, RITES and PGCIL etc is for 7,703 Rkm. As on Feb 2020, routes of 27,000 Rkm are yet to be electrified across Indian Railways.

Many advantages

The advantages of complete electrification are many.
- The foremost is that it reduces dependence on imported petroleum based fuels, leading to a major saving of foreign exchange.
- Further, it reduces diesel consumption by 2.83 billion liters per annum.
- It provides energy efficient friendly mode of transports besides improving the system throughput.
- It is also faster and environment friendly, reduces line hauls cost, capital, operating and maintenance costs and increases sectional capacity by about 18% due to higher average speeds and end to end (seamless) connectivity.
- Electrification also offers regenerative braking, resulting in saving of energy by around 20% in locomotives and around 30% in electric multiple units.
- It leads to employment generation of about 5.5 lakh man years during execution period of electrification.
- Electrification is also essential for HOG rakes which help reduce carbon emission and improve passenger capacity of rake.
- Electrification projects will give a boost to infrastructure sector and also benefit various industries which are manufacturers of raw materials and electrical equipments used for electrification such as steel, copper contact and centenary wire, transformers, circuit breakers and insulators. This will help construction industry, manufacturers and also enhance economic growth.

CORE has electrified total 10,043 RKM in last 5 years, which is 4 times higher than electrified route of 2450 RKM in previous five years.

<table>
<thead>
<tr>
<th>Rly</th>
<th>Sections Electrified in 2019-20 (As on 28.02.2020)</th>
<th>RKM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECR</td>
<td>Maheshpur-Rema</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Samastipur-Khangariya</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>Rema-Mahesmunda</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Jamalpur-Munger</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Chopan-Karaila Road</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Munger-Sahibpur Kamal</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Sanki-Tatilwai</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Karaila Road-Mahadiya</td>
<td>23</td>
</tr>
<tr>
<td>ER</td>
<td>Bonidanga-Tinpahar</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Tinpahar-Sahibganj</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Tinpahar-Rajmahal</td>
<td>12</td>
</tr>
<tr>
<td>NCR</td>
<td>Mandwar-Bandikui</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Dingawai-Badausa</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Chunar-Churk</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Badausa-Manikpur</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Churk-Chopan</td>
<td>19</td>
</tr>
<tr>
<td>NER</td>
<td>Jalalpur-Thave</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Mankapur-Katra-Ayodhya</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Thave-Rajapatti</td>
<td>54</td>
</tr>
<tr>
<td>NFR</td>
<td>Gunjaria-New Jalpaiguri</td>
<td>67</td>
</tr>
<tr>
<td>NR</td>
<td>Raja Ka Sahaspur-Chandausi</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Batala-Bharoli</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>Chandausi-Anola</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Unnao-Unchahar</td>
<td>110</td>
</tr>
<tr>
<td>NWR</td>
<td>SOG-Birdhwal</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Alwar-Bandikui</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Bhinwaliya-Rani</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Rewari-Mahendraigarh</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Phulera-Kanakpura</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Madar-Ajmer-AHO</td>
<td>13</td>
</tr>
</tbody>
</table>
**Electrification work in the following sections is nearing completion**

<table>
<thead>
<tr>
<th>Rly</th>
<th>Section (Div)</th>
<th>RKM</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC</td>
<td>Kukdam-Vishnupuram</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Nadikudi-Macherla</td>
<td>34</td>
</tr>
<tr>
<td>SCR</td>
<td>Gangadhar-Lingampet jagityal</td>
<td>26</td>
</tr>
<tr>
<td>SR</td>
<td>Tanjavur-Thiruvrur</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Sagma-Satna</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Ohan-Bansipahar</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Satna- Rewa</td>
<td>49</td>
</tr>
<tr>
<td>WCR</td>
<td>Dhoswas-Jaora</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Sanand-Jakhwada</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Fatehabad-Laxmibainagar</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Jakhwada-Virangam</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Jaora-Mandsor</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Rajkot-Hapa</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>Mandsor-Nimach</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Mehsana-Virangam</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Dharangdhara-Surendranagar</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Surendranagar-Botad-Dhola</td>
<td>119</td>
</tr>
<tr>
<td>WR</td>
<td>Dhoswas-Jaora</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Sanand-Jakhwada</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Fatehabad-Laxmibainagar</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Jakhwada-Virangam</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Jaora-Mandsor</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Rajkot-Hapa</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>Mandsor-Nimach</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Mehsana-Virangam</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Dharangdhara-Surendranagar</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Surendranagar-Botad-Dhola</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1924</td>
</tr>
</tbody>
</table>

**Recent Technology Infusion to Speed Up Electrification**

- Unique Design of High Rise OHE of 7.57 meter for the first time in the world to run Double Stack Container trains.
- Mechanised Augur for foundations is being extensively used to speed up foundation work.
- OHE design has been revisited for low density traffic routes, which has reduced cost of electrification by 19%.
- Anchor Bolt type foundation has been provided in rocky soil this foundation has high soil bearing capacity, it will speed up RE works in rocky soil.

**The Year ahead**

During FY2020-21 CORE will strive to achieve electrification of about 4300 RKM of track. This includes sections of high density rail networks like Amrit-Sagar Sampark Corridor, Kathiawar-Shivalik Sampark Corridor and missing patches of longer routes like Hapa-Kanalus, Rewari-Ringus-Phulera-Madar etc.
Signaling and Telecommunication works in RE

Scope of the work broadly includes modification in all existing Signal and Telecom installations in the section and adjacent stations of the section, and junction stations to make them suitable for 25 KV AC traction, replacement of Semaphore Signals with Multiple Aspect Colour Light Signalling (MACLS) wherever those exist and laying of Optical Fiber Cable (OFC) and 6-Quad cable in the sections where those either do not exist or require replacement on age cum condition basis. This also includes Interlocking alterations of station yards in connection with provision of Tower Wagon Sidings (TWS) and contractor sidings as required for Railway Electrification. Telecom works include laying & jointing of telecom cables (6 Quad, OFC, PJF cables) for providing Traction Power Control (TPC)/ Traction Loco Control (TLC)/ Emergency Communication (EC) at Stations/ SP/ SSP/ TSS/ TWS in the section, provision of data channel for Supervisory Control and Data acquisition System (SCADA) as per RE requirement. This includes provision/ augmentation/ strengthening of existing communication link/ Quad cable/ OFC network as required. This also includes RE fitness of Public Address system, Coach Guidance system and other telecom systems provided at stations, as applicable. During 2019-20, 382 signalling installations have been made fit for 25KV AC traction. The work has been executed as per stipulations given in SEM, ACTM, SOD and extant guidelines, specifications, drawing, pre-commissioning checklists and Railway’s practices.

In addition to above, four Semaphore signalling installations were replaced with Multiple Aspect Colour Light Signalling (MACLS). In all, during 2019-20 (upto December 2019), 386 works related to signalling installations were completed by CORE. While 398 works of signalling modification were completed in 8 project units during 2018-19.

Civil Engineering works in RE

The Civil Engineering department is also playing very important role in railway electrification work. These include various modifications in foot over bridges/road over bridges (FOBs/ ROBs) to make them suitable for 25KV OHE, alterations in tracks and provision of various facilities required for the functioning of electrified lines. Logistics like Quarters for staff, TRD Offices/Depots, TW Sheds, and Remote Control Buildings are being constructed during the electrification work.

Challenges and strategy for the future

The work of electrification is of a specialized nature for which availability of manpower and resources is limited. The increased target of electrification requires not only judicious and optimal manpower but also on better productivity of existing manpower. There is a realisation that multi-faceted strategies and meticulous short-term and long-term planning are required for achieving mission electrification in a time bound manner. CORE has devised a multi-pronged strategy to achieve its target.

- To begin with, the project units of CORE have been strengthened by way of enhanced delegation of power which has resulted in faster decision making and expeditious progress of electrification.
- The targets necessitated judicious deployment of existing manpower across various projects, and it has led to increased output.
- The conventional mode of tendering has been switched over to EPC mode of contract which is by its very nature of delivery module (i.e. preparation of designs & drawings, procurement of all the materials, its erection and commissioning with physical and financial milestone in a agreed time frame) proves to be an appropriate solution in the face of serious constraint of trained manpower.
- Milestone based progress, provision of penalty/bonus; prescribed time schedule and no cost variation are main features of EPC contract.
- CORE is engaging PMC services specifically in the sections where EPC contract have been awarded. It will ensure execution of works with due control for safety, quality and cost.
- Adopting simultaneous wiring of centenary and contact wiring provides faster, safer and less expenditure in Railway Electrification.
- Enhancing vendor base capacity through online vendor registration system and also adopting online bill submission to help firms to keep track on bills and ensure timely clearance of bills.
- Advance procurement planning of critical items like catenary, contact wire and S&T cables.
- Close coordination with State Electricity authority for timely completion of transmission line.

On the technology front too, there has been an updation and adoption of new designs to speed up electrification work.

- For the first time in the world, a unique design of high rise OHE of 7.57 meters has been used to run Double Stack Container trains.
- Mechanized Augur for foundations is being extensively used to speed up pace of foundation work.
- OHE design has been revisited for low density traffic routes, which reduced cost of electrification by ₹1400 crores, which is nearly 15% reduction.
- Anchor Bolt type foundations in rocky soil having high soil bearing capacity has been developed. It will speed up RE works in rocky soil.

The Verdict is clear

In recent years, a lot of emphasis has been given to Railway Electrification with a view to reduce the Nation’s dependence on imported petroleum based energy and to enhance the country’s energy security, with a vision of providing eco-friendly, faster and energy efficient mode of transportation. One of the major advantages of electric traction is pollution free atmosphere not only to the travelers but also to the surrounding environment. Electric traction is proven to be less pollutant than the existing diesel mode and thus could be more eco-friendly to an area having delicate flora and fauna. Electric traction could reduce noise and air pollution and result in lesser disturbance to wild life habitat of the region. With the achievement of 100% electrification of Indian Railway’s network, India is well-poised to reap benefits in the years to come.
Diesel Locomotive Works (DLW) was established in 1961 in collaboration with M/s ALCO, USA in the ancient holy city of Varanasi to undertake indigenous manufacture of diesel electric locomotives for meeting increasing transportation needs of Indian Railways. DLW is one of the few facilities in the world, where the complete locomotive is manufactured under one roof starting from component level.

First diesel electric locomotive WDM2 manufactured at DLW was flagged-off by Shri Lal Bahadur Shastri on 3rd Jan 1964, since then DLW is continuously acquiring expertise in the latest Designs of Diesel locomotives & lately of Electric locomotives meeting the transport needs of Indian Railways and Non Railway Customers (NRC) in India as well as abroad. Since inception, DLW has manufactured more than 8737 locomotives of various types and horse power viz. Diesel loco (ALCO & HHP) and Electric locos. With the dedication of its team of officers, supervisors and staff, DLW rolled out 334 locomotives (highest ever) during the year 2016-17, which accounts to “more than one locomotive a day”.

**Beginning of New Era: Transition From Diesel locomotive to Electric locomotive**

With rapid electrification in IR during FY 2015-16, requirement of electric locomotive was on rise and requirement of diesel locomotive was on decline. It was decided by Indian Railways to switch over from Diesel to Electric Locomotive usage in order to reduce carbon foot print and other environmental issues. Railway Board entrusted DLW to manufacture 2 Electric locomotives as a test project in Financial Year 2016-17. Before this transition, DLW was only a Diesel locomotive manufacturing unit & a hub of Excellency for Diesel loco manufacturing. DLW successfully rolled out first 2 locomotives within the time limit set by Railway Board. Thereafter production of Electric locomotive manufactured at DLW kept on increasing and DLW manufactured 25 & 145 locos in FY 17-18 &
18-19 respectively. Now DLW has completely switched over from Diesel locomotive manufacturing to Electric locomotive manufacturing except few Diesel locos required for NRC/Export. Following chart clearly indicates transition of DLW from a Diesel locomotive manufacturing unit to an Electric locomotive manufacturing unit.

During the financial year 2019-20 DLW manufactured 272 electric locomotives.

Switching from a Diesel Locomotive manufacturing unit to an Electric locomotive manufacturing unit in such a short span of time required meticulous planning, dedication and hard work. Team of officers and supervisors working at DLW achieved this milestone with hard efforts and commitment. Major steps taken during the transition phase are as under:

- Training imparted to the staff, supervisors & officers involved in Electric loco manufacturing.
- Development of product structure - Complete parent-child relationship to permit procurement.
- Arrangement of various special facilities like Horse/ Ladder /Tackles for shell & Roof, Synchronized Jacks for lifting of loco, Hydraulic synchronized system for transformer mounting, Dummy bogies for shells etc.
- Commissioning of various Testing & Commissioning facilities like Loop & Logic Box testing arrangement, Transformer oil centrifuging arrangement, Battery charging arrangement, Traction Motor Run Test arrangement etc.
- Removal & Shifting of structures like long hood fixture, RW2 structure, deck milling machine etc. in order to make space for electric loco manufacturing.
- Conversion of HHP Diesel loco manufacturing structures like trunion and paint booth to facilitate manufacturing of Electric loco shell.

- Streamlining of process flow in Loco Assembly Shop in line with the requirements of Electric loco manufacturing.
- Establishment of a feedback close loop system for taking care of feedback of internal as well as external customers.
- Online Warranty Handling System for DLW rolled out electric locos introduced, for lodging and disposal of complaints made by user loco sheds.

With each passing day, DLW is improving efficiency of Electric loco manufacturing, which can be inferred from the fact that our efforts have reduced Loco Assembly time from 21 to 15 working days, Loco testing time from 12 to 5 days and Rain test time from average 10 passes to 4 passes. Overall, loco outturn time has been reduced from 38 to 26 working Days for unpainted shell and with Painted shell from 33 to 20 days. Today DLW has evolved into a unit which can easily roll out 400 Electric locomotives in a year.

Further, various innovative features have also been added to the Electric locos rolled out of DLW like foot rest for loco pilots, modified loco pilot seats with improved ergonomics etc.

In order to further improve quality of our Electric locomotives regular feedback from various sheds are taken and necessary corrective actions are being implemented. In this regard customers meet was also organized at DLW in August’19. Officers from Railway Board, RDSO and various Zonal Railways participated and shared their experiences which has also enriched DLW’s knowledge bank for Electric loco manufacturing.
DLW has also undertaken some of the innovative projects like conversion of Diesel loco to Electric loco and manufacturing of Dual mode loco. Till now, DLW has already converted 8 Diesel locomotives to Electric locomotives. It was an honour for DLW that a Converted locomotive WAG10 was flagged off by the Prime Minister of India in February 2019. The manufacturing of Dual Mode Locomotive, which will run on both diesel & electric mode, has also been successfully completed by DLW. The Dual Mode locomotive will produce 4500 bhp in Diesel mode and 4500 HP in electric mode. This was again a flagship project for DLW and first such Dual Mode loco WDAP5 is under testing.

**Ensuring Quality in Changing Times**

In line with the mandated requirement, DLW made necessary changes in the apex organization to meet the challenges of increased and sustained production of electric locomotives along with consistent quality. Officers having exposure in the field of electric locomotive design, production and maintenance were deputed to DLW to lead the change.

To align the knowledge of inspection wing inspectors with the changed product, identified supervisors and artisans were trained in Technical Training Center, DLW. They are now the frontline personnel in ascertaining the manufacturing quality of the product. They were imparted in-depth knowledge of three-phase drive-based electric locomotives with emphasis on items to be checked during inspection.

For large and complex systems like Locomotive, production passes through multiple stages of manufacturing, and for each stage, there are several quality checkpoints that need to be ascertained. All the checkpoints are required to be standardized in the form of check sheets.

The check sheets were collected from CLW and other production units were adopted initially. However, on gaining more experience all these check sheets were thoroughly revised for correction, inclusion, deletion of checkpoints and also to suit and align with the stages of Production at DLW. A further system of digitization of all check sheets was developed to give a copy of the locomotive booklet to the customer via digital means (E-mail).
Inspection Wing at DLW is also working as a bridge between the customers and DLW production shop. To strengthen it, a Service Improvement Group (SIG) was also set up for Electric Locomotives. The main role of SIG is to monitor the customer complaint (warranty, failure), take a lead in resolving these issues, and also to actively monitor commissioning of Locomotive in the user loco Shed.

To deal with the warranty claims in a transparent and fair manner, an Online Warranty Portal was launched for Electric Locomotives also, and all the user sheds were given direct access for lodging the warranty claims of failed Equipment/Component of newly turned out Locomotive. Two training sessions have also been conducted for the users of warranty portal from the sheds for imparting know-how of working of Warranty Portal. Each and every warranty claim on this portal is monitored with the respective firms for corrective and remedial actions. This is helping DLW in fulfilling the warranty obligations towards its customer sheds in the timeline of 90 days.

A centralized system of monitoring the commissioning defects and failure reported by sheds through various means of communication was set up. All such reporting is being acted upon for improving the process/checkpoints and vendor side corrections.

Customer satisfaction can truly be achieved only if his suggestions are acted upon in true spirit & for this the Feedback System for reliability improvement was adopted. The issues raised by sheds and non-conformity during production are being consolidated on monthly basis and being advised to the Production shop and Design division of DLW.

Exhaustive meetings are also being conducted regularly with the active participation of all Officers/Supervisors from Production, Design and Inspection. Frontline officers and staff have very enthusiastically taken on themselves to contribute better practices and innovations on this forum. This has become a forum of a healthy discussion with an overall objective of improvement in the quality and reliability of Electric Locomotive being turned out from DLW.

Since the importance of direct communication cannot be denied, a system of roster of Inspectors has been made and implemented with the mandate to visit the nominated sheds on a bi-monthly basis. It will enable DLW to understand the customer’s problems in the right perspective and implement the suggestions effectively. DLW has also complied with the requirements and obtained following certifications from reputed certifying agencies:

- 5-S certificate for Workplace Management System (WMS).
- ISO 22163 International Railway Industry Standard (IRIS).
- In addition to this, following small but far-reaching steps were also taken to improve the quality & reliability of Electric locomotive-
  - Daily meeting of inspection supervisors started to discuss the issues arising on the shop floor during quality checks.
  - Quality booth: a one-stop place for inspection know-how started in Loco Frame shop.
  - Work Instructions for UST of Bogie & Underframe.
  - Radiography of critical joints in Cattle Guard of Electric Loco.
  - Load Test of Crimping of Cables used in Electric Locomotives.
  - Use of Laser-based measurement tools.

Diesel Locomotive Works is thus committed to scale new heights by breaking old records, introducing cutting edge technology and continuously improving the quality of locomotives along with care for its environment.
Switched Over from Producing Diesel Locos to Electric Locos

Vivek Kumar, Chief Administrative Officer/R

DMW is a Production Unit of Indian Railways, engaged mainly in manufacture of Electric Locomotives, Diesel Electric Tower Cars, rebuilding of Diesel Electric Locos and other components and major assemblies. In the past, it carried out manufacturing and rebuilding of Diesel Electric Locomotives. Foundation Stone of Diesel Component Works (DCW), Patiala was laid on October 24, 1981 and production started in 1986. The name of DCW was changed to Diesel Loco Modernisation Works (DMW) in July, 2003 to fall in line with the revised objective of modernisation of Diesel Locomotives introduced later in DCW. DMW started manufacturing new WDM3D 3300 HP ALCO Locomotives from 2011 and turned out 227 WDM3D locomotives till 2015. DMW has also manufactured Multi Genset Locos, having fuel saving potential of 15-20%. First such loco was turned out in Mar’13. Till Aug’19, 3 Multi Genset locos have been manufactured. The first new WDG3A diesel locomotive for Non-Railway Customers (NRCs) was turned out in March’16 and total 24 WDG3A locos for NRCs have been supplied till date.

Though DMW is nodal agency for supporting ALCO locos, it also started rehabilitation of Traction Alternators and AC Traction Motors of High Horse Power (HHP) Diesel locos since 2010 with annual capacity of around 2000 traction machines. Similarly manufacture of Wheel Sets of HHP locos was introduced in 2016 and thereafter it is a regular activity of DMW Patiala. From 2017-18, DMW started supporting Electric Loco Sheds by supplying Wheel Sets for WAG7 electric locos and the first Wheel Set was assembled & dispatched in 2017. DMW is now going ahead with full scale manufacturing of new Motorized Truck Assemblies (Bogies) and Motorized Wheel Sets of Conventional and 3-Phase Electric Locos from 2018-19. In 2018-19 DMW produced 58 new WAP7 locos and there is a plan for manufacturing
of 80 such locos during 2019-20 and till Dec.’19, 65 new Electric WAP7 locos have already been manufactured in 2019-20. It is aligned to the Indian Railway’s plan to electrify its entire route and switch over to electric traction in a major way. In addition, DMW has also been entrusted with the task of manufacturing 135 Diesel Electric Tower Cars (DETs) for the first time and 34 DETCs have been supplied in 2019-20 till Dec.’19.

Latest Processor Upgrades at DMW

Implementation of IPAS: The CIPS module for online payment has been implemented. It has completely eliminated human intervention in payment operations. Its implementation will go a long way in preventing frauds.

Implementation of iMMS: All concerned staff and officers have been trained for submitting the stock and non-stock demand online to Store Depot and Purchase Sections. The implementation of the module gave boost to paperless working, increased work accuracy and transparency.

Implementation of e-Office: e-office has been implemented in DMW w.e.f. 26th August, 2019. About 730 officers and staff have been trained in e-Office at their work place. This is proving to be useful in promoting paperless working. Efforts are being made to involve and motivate more officers and staff to work in e-Office and completely eliminate physical files.

Achievements of DMW

• DMW got Energy Efficient Unit Award-2019 in the 20th National Award for Excellence in Energy Efficient Management 2019 organized at Hyderabad by Confederation of Indian Industries (CII). A Shield and Merit Certificate was awarded to DMW.
• During the National Energy Conservation Award 2019 (NECA) organised by Bureau of Energy Efficiency, Ministry of Power, DMW/ Patiala got first prize among all Production Units of Indian Railways.
• DMW/Patiala participated in State Energy Conservation Award 2019 organised by Punjab Energy Development Agency (PEDA), Chandigarh and achieved second position. Punjab Energy Development Agency (PEDA) awarded DMW/ Patiala with a Shield, Merit Certificate and cash award of ₹30,000.
• DMW/Patiala got 1st position in Smart City Awards 2019 for Green Energy organised by India Trade Promotion Organization & Exhibition Group of India and awarded with Shield and Merit Certificate.
• In year 2019-20 (April to December 2019) there is reduction of 65,1344 units in total consumption of electricity as compared to consumption of the same period of last year. This has resulted in saving of ₹50.28 lacs approximately.
• Solar power Plant installed in DMW Workshop and Colony has generated 20.87 lac units of

DMW Products

Electric Locomotive
• 6000 HP with IGBT based 3 phase propulsion system.
• Maximum speed = 140 kmph
• Single Loco can haul 24-26 Coaches passenger train
• Fitted with regenerative braking
• Microprocessor based fault diagnostic fitted with system.
• Hotel load convertor for Head-on-Generation eliminates need of one power car in Rajdhani/Shatabdi Exp. Trains.

8-Wheeler Diesel Electric Tower/Under Slung (DETC/US)
• Self Propelled Unit for OHE inspection and maintenance.
• Maximum operating Speed 110 KMPH
• Axle Load 20 Ton (Approx.)
• No. of Power Packs 2

Diesel to Electric Converted Loco-WAG 10
• Twin Co-Co Locomotive
• Axle load 21.5 Ton
• Horse Power (HP) 5000x2=10,000
• Max. Speed 105 KMPH
• Very high starting Tractive effort (43 x2T)
• Suitable for heavy haul freight operations.

3 Phase Traction Motor
6FRA06068
• Total motor weight = 2100 kg
• Gear ratio = 72:20
• Continuous rating = 850 KW, 2180 Volts, 270 Amps
• RPM = 1283
• Motor efficiency =95%
electricity during 2019-20 till Dec’19. DMW was able to save ₹1.61 crores with solar generation.

Quality Improvement Initiatives

Improvement in Reliability and Quality of locomotives has been a thrust area for DMW. DMW has established Integrated Management System (IMS) for the implementation of QMS ISO 9001, EMS ISO 14001 and OHSMS IS 18001 management systems, Energy Management System (EnMS) ISO 50001:2011 Certification, GreenCo Gold Certification, 5-S certificate QCIC UK and has identified Customer Satisfaction & Customer Delight as one of its mission areas. Areas, requiring improvement, are regularly being identified and corrective action taken to improve the reliability. Corrective measures are continuously monitored. Team of senior officers visits sheds in a programmed manner to collect feedback on the performance with special emphasis on:

- Commissioning reports of all new and rebuilt locomotives.
- Defects noticed/major sub-assemblies changed during warranty period.
- Equipment failures/assets failures recorded by the shed.
- Trend of SEC/SFC/LOC of locomotives.
- Feed back on important modifications being undertaken by DMW.

On the basis of information collected, the following action is taken:

- Observations of commissioning reports are co-related with checks done at DMW and pre-dispatch testing procedures are corrected and strengthened.
- Regular internal technical audits are conducted to identify potentially weak areas and take remedial measures.
- Technical presentations by OEMs are organized.

Welfare Activities & Staff Amenities

DMW management is committed to provide good quality residential colony with recreational and sports facilities to its employees. In addition, the following welfare activities are being undertaken for Railway men, their families and retired Railway men.

- APNA GHAR: A Recreation facility for Senior Citizens-ex Railway men.
- Crèche: run by DMWWWO for working women.
- DMW Neev Public School: run by DMWWWO to provide quality educations for tiny toots upto class V.
- Staff Institute: Recreational facility, indoor and outdoor games and a Library with variety of Books.
- Sewing School: Run by DMWWWO, girls and women are being trained in stitching, knitting and embroidery.
- Co-operative Society: DMW Co-operative Society runs LPG service for Railway employees. More than 3512 employees are shareholders of this society.
- Medical Facilities: DMW is having a 50-bed hospital, providing preventive and curative services to all employees and their dependents and also to retired DMW and Northern Railway employees and their dependents, under the jurisdiction of Patiala Station.
- Modern AC Gym for Officers/Staff in DMW Stadium.

Activities of DMW Sports Association

DMW Sports persons have brought laurels not only to DMW but also to Indian Railways and the country and their performance have been as follows:

- Ms. Annu Rani, Javelin Thrower
  - represented India in World Athletic Championship which was held at Qatar from 27th September to 6th October, 2019 and secured 8th place in the event of
Javelin Throw with new National Record of 62.34 Mtr,
- represented India in Asian Athletic Championship which was held at Doha, Qatar from 21/04/19 to 24/04/19 and won the Silver Medal in the event of Javelin Throw.
- represented Indian Railways in the 59th National Open Athletic Championship held at Ranchi From 10/10/19 to 13/10/19 and won the Gold Medal in the event of Javelin Throw.
- was declared Sportwoman of the year by Sportstar Aces 2020, for her phenomenal feats in 2019 during Sportstar Aces Awards Function in Mumbai.

- Ms. Prachi, Athlete
  - represented Indian Railways in the USIC World Railways Athletics (M&W) Championship which was held at Czech Republic from 10/09/19 to 13/09/19. She secured 02 Gold Medals in the event of 400 Mtr. and 4 x 400 mtr. Relay and one silver medal in 800 Mtr,
  - represented Indian Railways in 59th National Open Athletic Championship which was held at Ranchi From 10/10/19 to 13/10/19 and won a Silver medal in 4 x 400 mtr. mixed relay and Bronze medal in 4 x 400 mtr. women relay.
  - represented DMW in All India Railways Athletic Championship which was held at Pune from 20/08/19 to 22/08/19 and won Silver medal in 400 mtr and Bronze medal in 200 mtr.

- Ms. Kamalpreet Kaur, Athlete
  - represented Indian Railways in the USIC World Railway Athletics (M&W) Championship which was held at Czech Republic from 10/09/19 to 13/09/19. She secured 03 Gold Medals in the event of Discus Throw, Javelin Throw & Shot Put event.
  - represented Indian Railways in the 59th National Open Athletic Championship which was held at Ranchi From 10/10/19 to 13/10/19 and won Gold medal in Discus Throw event.
  - represented DMW in All India Railway Athletic Championship which was held at Pune from 20/08/19 to 22/08/19 and won Gold medal in Discus Throw event.

- Shri Eknath Sambhaji Turambekar, Athlete
  - represented DMW in All India Railway Athletic Championship which was held at Pune from 20/08/19 to 22/08/19 and won Bronze medal in 20 KM Walking.
  - represented in the All India Inter-State Athletic Championship which was held at Lucknow from 26/08/19 to 29/08/19 and won Bronze medal in 20 KM Walking.
ICF, the Pioneer and the Path Breaker

Rahul Jain, General Manager

ICF is the leading worldwide manufacturer of passenger coaches. It has turned out more than 63,801 coaches as on 31 March, 2020 and boasts of an annual production capacity of over 4000 coaches. The wide product range of ICF includes state of the art passenger coaches of both air-conditioned & non air-conditioned variety as well as day cars.

A few noteworthy coaches from ICF’s stables include Anubhuthi, Antyodaya, Tejas, Vistadome, Kolkata metro, DETC as well as DPRS such as Suburban self-propelled MEMUs and EMUs / AC EMUs, DEMUs. ICF also exports coaches to Sri Lanka (DEMU), DEMUs to Nepal and has exported to over 14 countries so far. ICF has also gone into the custom built segment and has made Self Propelled Inspection Cars (SPIC), Coaches for luxury trains like Palace on Wheels, Maharaja’s Express and Deccan Odyssey and Indias’ first semi-high speed Train, the Vande Bharat.

ICF has been increasing its production levels and designs every year. The 65,000th shell was rolled out recently.

ICF has exported coaches, spares and shells to countries such as Thailand, Burma, Taiwan, Zambia, Philippines, Tanzania, Uganda, Vietnam, Nigeria, Bangladesh, Mozambique, Malaysia, Angola and Sri Lanka. ICF is in the process of completing supply of 2 rakes of 1600 HP DEMU for Nepal Railway which will be operated between Jayanagar and Kurtha (37 kms). This will be the first BG train to be operated in Nepal.

ICF has also bagged follow up orders from Sri Lanka Railways for manufacture of 2 air-conditioned DEMU rakes and 160 mainline coaches.

Accolades for ICF

It is a matter of pride that ICF has obtained IRIS (ISO 22163) Certification for the design, development and manufacturing of different types of coaches and accessories. Also, ICF has been rated as GreenCo Gold for its green initiatives. As a recognition of ICF’s efforts to ensure quality in every sphere of activity, ICF has been certified and found compliant to ISO 9001(QMS), ISO 14001(EMS), BS 18001(OHSAS), ISO 50001(EnMS), ISO 3834-2, ISO 17025 (NABL) for quality management system, which is a reflection of ICF’s quest for excellence.

Carbon Negative

ICF has the distinction of being the only carbon negative unit over Indian Railways. ICF has installed 7 windmills of 1.5 MVA capacities each in the Tirunelveli
district of Tamil Nadu. By generating green energy from windmills and solar power plants, ICF is able to offset the CO₂ generation. By using such renewable and green energy solutions, ICF produces more energy than what it consumes.

Integrated Waste Management
ICF has developed its own model of Integrated Solid Waste Management system for recycling of biodegradable waste into manure by vermicomposting and recovery of other recyclables such as glass, plastic and paper generated from ICF campus.

Lake and Greenery
The ICF Lake is now a thriving eco-system that welcomes a variety of migratory birds. ICF has revitalized this 25 acres reservoir with bio enzymatic clarification method in an eco friendly manner. The sludge was removed from the bed using deep water pumping method and thus, the aquatic life was rejuvenated in the ICF lake. The entire ICF campus has rain water harvesting system which is used for manufacturing process at factories.

Eco-friendly e-rickshaws are being used within ICF colonies for door to door collection of waste materials. The community halls within the ICF campus also have bio-mechanization plants for gasification of food waste, used for cooking purposes, during functions.

The campus has well grown trees and plants with an unique model of ‘Vanams’ named after senior serving members of ICF family that adds to carbon sequestration process by direct absorption of CO₂. ICF is a front-runner in eco-preservation and has bagged the Railway Minister’s Shield for Best Environment and Cleanliness.
Art & Sculpture

ICF is a manufacturing unit with a difference. One can see paintings and sculptures almost everywhere inside the ICF campus. The Chennai Rail Museum, which was dedicated to the nation in the year 2002, is now a place where culture and heritage seamlessly blend into each other. It’s a rare place where not only rail artefacts, but paintings by renowned artists and sculptures made largely from scrap materials are put on display. It is now a ‘must stop’ for tourists in Chennai and attracts over 1000 persons daily.

The walls are decorated with colourful murals while the sculptures mounted at various locations of ICF such as Shell Division, Furnishing Division & LHB Unit premises were made from waste materials sourced from the factory thus transforming ICF into a big outdoor art gallery. These sculptures have now spread even to public areas outside factory premises such as Konnur High Road and New Avadi Road to give Chennai residents something to visually rejoice amidst the traffic chaos.

Sports Facilities on par with International Standards

ICF continues to excel at sports, largely due to its sporting arenas and training facilities built to international standards. ICF has a floodlit Cricket ground and an Astro-Turf Hockey Stadium within its premises - the second such facilities in Chennai city. ICF has also installed an indoor stadium where teams can train and play indoor games such as kabaddi, table tennis, volley ball, and basket ball. In every colony, sports facilities such as tennis courts, badminton courts, volley ball and basket ball courts have been provided to nurture sporting talent. These sports facilities not only help ICF employees and their family members to pursue their sports skills but also provide thrust and promotion to the sports culture in this part of Chennai.

Due to this focused impetus for development of sports, ICF sports team is excelling itself year after year. Recently, ICF volley ball team has won the All India Inter-Railway Men’s Volleyball Championship for the 6th straight time. ICF has also bagged 2 Gold medals (in 75 kg and 70 kg category) and 1 Bronze medal (in 75 kg category) in 53rd Asian Body Building Championships held at Thailand. ICF Basket Ball Team has won the All India Railway Basketball Championship held at Kapurthala recently. As a crowning achievement, Shri S. Bhaskaran, a renowned bodybuilder and ICF employee, has been honoured with Arjuna Award during this year.

E-Office System

E-governance programme, e-Office has been recently launched at ICF Administrative Building. The e-Office system, implemented by RailTel, as part of digitising office works all over Indian Railways, brings transparency, accountability and efficiency while cutting the cost in day-to-day functioning providing an effective way of handling office files and documents. ICF has also switched over to publication of its in house magazines and bulletins in e-formats and uploaded in ICF website providing access to every employee resulting in considerable savings of paper and in turn the environment. ICF has, in the past 65 years, evolved itself and has grown multi-fold, manufacturing different types of coaches in increased numbers by way of deploying the state of the art machinery and adopting modern technologies in rail coach manufacture. ICF will continue its efforts in this direction, to ensure safe and comfortable journey for the passengers of Indian Railways in the years to come as well.
To meet the continuously increasing demand of passenger coaches to replace existing stock and provide for growth of passenger traffic, Indian Railways in 2007 decided to set up its third passenger coach manufacturing unit i.e. Modern Coach Factory (MCF) at Raebareli. It is a green field project built on the philosophy of sustainable and environment friendly technology for manufacturing along with use of energy efficient devices with focus on non-conventional energy and green buildings. The Factory, set up for a planned production capacity of 1000 coaches per annum at an estimated cost of Rs 3192 Crores, is spread over 540 Hectares, including a modern, eco-friendly township with need based social infrastructure.

MCF's Growth Journey So Far
The first fully in-built coach was manufactured in August 2014. Since then, MCF has been practically doubling its production starting from 140 coaches in 2014-15 to 285 coaches in 2015-16, 576 coaches in 2016-17, 711 coaches in 2017-18 and 1425 coaches in the year 2018-19. This became possible through innovative methods and efficient utilization of assets including manpower. In the year 2019-20, it has planned to produce more than 2000 coaches, which is double of its installed capacity. MCF has produced 1930 coaches in financial year 2019-20 against 1425 coaches last financial year i.e. an increase of 35.44%.

To further increase the manufacturing capacity, new expansion project has been sanctioned by Rly Board in 2018-19 at an estimated cost of Rs 480 Crore for additional sheds and M&P. Provision has also been made to set up facilities needed to produce Aluminium body coaches after finalization of infrastructure required for its manufacture. MCF is now manufacturing different variants of LHB AC and Non AC coaches viz. 2 Tier, 3 Tier, Humsafar, Antyodaya, Deendayalu, Chair car, Hot Buffet Car and Underslung power car and Track Recording Car (TRC). In the past year MCF has turned out prototype LDSLR (without DA set), Non AC power car with single DA set and is presently in the process of turning out AC power car with single DA set. Apart from this, MCF is also equipped to produce other variants such as New LHB Second Class Luggage with Guard Van including area for specially abled passengers, Oscillograph Car and First Class AC coaches. MCF is also planning to export coaches to foreign and railways of neighbouring countries.

Scaling New Horizons
Quality Improvement Measures
Industry leaders in quality management have been roped in for stage to stage and final inspections. Contactless measurements and integrated data entry into the reports has been mooted to enhance productivity and efficiency. Quality assurance programme of each Shop and its implementation for better in-process quality control is also planned. Coach Mitra initiative of MCF has served well for effective communication and feedback on quality issues faced by zonal railways leading to swift redressal and monitoring.

Digital Factory (Industry 4.0 implementation)
MCF has taken initiative to implement Industry 4.0 for creation of cyber physical systems to enable Smart manufacturing. It includes end-to-end digitization of all physical assets and integration into digital ecosystems generating, analyzing and communicating data seamlessly. 36 major machines have been identified and being proactively monitored. Under the Technology Mission of Indian Railways (TMIR), a joint research project with IIT Kanpur was initiated to integrate the activities of Design, Planning, Production, Quality and Maintenance and create a virtual digital platform across work centres and also provide handholding services to workshops across Indian Railways to implement Industry 4.0.
Aluminium Body Passenger coaches
An agreement for TOT for design, development (prototyping), manufacturing & Testing of Aluminium Body Passenger Coaches between M/s Dawonsys, Korea and MCF, was signed on 4th October 2019. It shall enable MCF to manufacture energy efficient aluminium body coaches and to acquire know how to manufacture train sets for metro systems, bullet train and high speed trains for future transport needs.

Feathers in the Cap
MCF is the first unit of Indian Railways to get IRIS (International Railway Industry Standard) certification (ISO 22163: 2017) for manufacture and design of rolling stock.
- In May 2019, MCF became the first factory (Production Unit/Workshop) of Indian Railways to get rating of Green Co. Platinum Rating.
- MCF received Golden Peacock Innovation Management Award for the year 2019-20.
- MCF is certified to international standards for Quality, Environment, Energy Management, Occupational Health and Safety, Laboratory and Testing
- MCF achieved“BEST PRODUCTION UNIT SHIELD” for the year 2018-19 for its outstanding performance against the defined parameters of assessment.

- MCF has also taken initiative to implement system of RAMS (Reliability, Availability, Maintainability, Safety) which is first in Indian Railways.
- MCF has implemented Open Access system for power purchase, second in Indian Railways, which has helped bring down the overall coach unit cost by ₹20,000.
- 3 MW Solar Power Plant, biggest in Indian Railways has been installed with further plans to add 7 MW to make the campus ENERGY NEUTRAL.
- 100% Water Recycling/Harvesting with WATER NEUTRAL campus has been targetted.
- SMART COACHES have been developed and fitted in rakes. These have advanced features of Predictive maintenance with PICCU (Passenger information and coach computing unit). These coaches have been envisioned to eliminate on line failure and thus will result into savings in terms of reduced maintenance and less down time.

SMART Township
Apart from manufacturing coaches, MCF provides pleasant environment to its employees. In the residential township named Prashanti Parisar, eco-friendly measures have been implemented to make optimal utilisation of available resources and to provide better facilities to the employees and their families in all possible manners.

The township has adequate facilities such as:
- 24 x 7 Safety & Security (with Drones, CCTVs, Watch-Towers)
- World class Sports Complex and Indoor Stadium (Hockey Astroturf, Football, Athletic, Cricket ground, Olympic size Swimming Pool)
- Auditorium (Digital) and Amphitheatre
- Shopping Complex with Bank & Post-Office
- Officers’, Supervisors’ and Workers’ Clubs & Rest house
- E-Rickshaws, Walking and Cycle Tracks
- 100% Sewage Treatment and Recycling
- 100% Solid Waste Management
- Highest (385 ft) Monumental National Flag in India (planned)
- Wifi facilities - Central park, Hospital, Shopping Complex, Worker Club, Indoor stadium

It is worthwhile to mention that MCF has carved out a niche for itself in a very short span of time. It is indeed commendable and awe inspiring to see the workforce and officers in MCF working in synergy together to bring out the best in all areas of endeavor. It is heartening to see the amount of responsibility and trust reposed by Railway Board in Team MCF, which shall constantly guide it to scale new heights by each passing year of its growth journey.

Received the Best Production Unit Shield
Global demand for rail transport is growing on a rapid pace. Such growth is a token of social and economic progress. In a world becoming ever more urbanized, rail travel is well matched to urban needs. High-speed rail can serve as an alternative to short-distance air travel and conventional and freight rail can complement other transport modes to provide efficient mobility. RCF offers solution to above.

Railways is engaged in the mission of modernization of services and upgradation of rail network. Indian Railways is seeking fundamental changes as autonomous technologies proliferate, besides an inevitable shift in policy. Indian Railway Industry demand competitiveness, proved transport solutions, safety, facilities that meet the high quality of standards. RCF aims to examine how its role in rail transport is elevated.

Past three decades has established RCF Kapurthala as a harbinger in leveraging technology for transforming Indian Railways. It has carved a niche in facilitating life of Indian rail passenger. Being a premier coach manufacturing unit, RCF Kapurthala has always taken the lead in upgradation of rolling stock of Indian Railways and has introduced a large number of innovative new products which have transformed the way of travel such as AC-3 Tier coaches, Shatabdi, Rajdhani, Tejas, Double Decker coaches etc. AC 3 Tier coaches developed by RCF which combine passenger comfort with economy has emerged not only as the first choice of passengers, but a cash cow for Indian Railways.

RCF, Kapurthala has the distinction to start manufacture of World Class Stainless Steel Coaches more than a decade back under TOT contract with LHB, Germany. These coaches have higher speed potential, higher carrying capacity, aesthetically pleasing looks, better riding comfort with lighter weight and above all superior safety features. Moreover, manufacturing capabilities of RCF, Kapurthala have been established even in the International market and in the past, RCF has executed many export orders for coaches to various countries.

With a resolve to upgrade the rolling stock and shift over to more reliable, safer and faster LHB coaches, Indian Railways has introduced many modern trains in recent years – ‘Humsafar’, a fully long distance air-conditioned 3 AC service; High speed ‘Tejas’ offers on-board services such as entertainment, local cuisine and Wi-Fi; ‘Uday’, Utkrisht Double-Decker Air-conditioned Yatri train, a double-decker train on busy routes which
Plush Interior of Tejas

RCF has built Indian Railway’s first ever High Capacity LHB Parcel Van capable to run at 130 Km/h with 24 Ton carrying capacity and it was pressed into service on 30.01.2020. With a total volume of 187 m³, 32 foldable 2-tier luggage racks have been provided besides three collapsible partitions and four numbers of sliding doors to facilitate transportation of wide goods, and efficient staking of small parcels in the Van. The coach has complete stainless steel interior paneling and fitted with 140 kN air suspension and provided with flushed-in type fire retardant LED lights. The coach is HOG compliant with both end connectivity and can be attached at any position in the rake. The LHB parcel van will generate revenue for Indian Railway through Parcel transportation business. This is the first coach which has been conceived, designed, manufactured and launched within a year. RCF is in process to manufacture about 100 such Parcel Vans during the current fiscal.

Rising Indian populace and growth of middle income groups has set to lead to strong demand for more efficient, faster and cleaner transportation system, eventually in favor of car ownership, travel by sleeper buses and cheaper air travel. RCF is aware of these developments and has now undertaken new design initiatives to counter rising transport demand and
rising pressure from competing transport modes. The growing popularity of Tejas has resulted to conceptualize Tejas Sleeper Coaches fit to run at 200 kmph with Electro-pneumatic assisted brakes, besides a variety of innovative features comprising of automatic entrance plug type door, passenger information system and digital destination board, improved aesthetics with new interior and exterior color scheme, personalized control air conditioning and Improved lavatories.

Further, RCF is in process of development of E-commerce Parcel Van fit to run at 160 Km/h with stainless steel LHB shell having a volume capacity 210 m³ as compared to high capacity parcel van of capacity 187 m³. The coach will be equipped with load cell mounted in bogie with digital display with buzzer to indicate pay load and GPS tracker with mobile app to locate vehicle position. The slim, light weight, cost effective & coach sans body pillars will be designed to have vertical corrugated side wall similar to containers. The introduction of these commercial coaches in special parcel rakes will enable e-commerce sites to use safer, faster and reliable rail transport and logistics to meet their requirements.

The success story of UDAY AC double Decker echoes RCF’s initiatives in augmenting passenger carrying capacity of coaches. RCF’s state-of-the-art Design wing is now developing LHB Non-AC Double deck coach design having a seating capacity of 216 seats and 130 seats in flat and diamond frame respectively. Also, a twin deck Non AC of overall 5200mm height from rail level having 126 seats in Upper Deck and 42 sleeper berths in Lower Deck is in conceptual stage.

Indian Industry is increasingly embracing digitalization and RCF is taking big strides in this field. RCF is a proud introducer of Industrial Internet of Things (IIoT) in its working. This is a state-of-the-art system for monitoring & improving utilization of vital Machinery & Plant assets to enable improving the productivity, flexibility, quality & speed, hence improving maintainability & reliability of the vital assets. RCF has also become the first PU to implement e-office in its day to day working. RFID based gate passes and I Cards have been introduced, a testimonial of digital power of RCF. Integrated online workshop and colony gates CCTV surveillance system has been done for increased safety of RCF employees and their families by preventing unauthorized entry. Employees now can view their service records in SEVA Portal on their mobile phones. Smart phone users are kept abreast of day to day information about RCF. The initiatives by our IT wing are now being introduced in zonal railways too, which speaks highly of our IT savvy organization.

Awards and Recognitions of eminence came in for RCFs commitment and achievements in various areas. RCF complements the internationally recognized ISO-9001 quality standard introducing rail specific requirements, however, it is a matter of pride that RCF can now respond to global rail business requests as it is now IRIS (International Railway Industry Standard) certified organization which makes it attuned to globally recognized standard, unique to the railway sector for the evaluation of management systems.

RCF is more responsive to the global challenges and its resolve to reduce carbon footprint is enshrined in the management policy certified under ISI 14001: 2015 (Environment Management System) and ISO 50001:2001 ( Energy Management System). The integrated township is a showcase of environmental efforts and staff amenities which can be set as a benchmark for setting up new townships in the country. Conserving power is the main aim of RCF and has been exemplified by adopting the worthy option of LED lights over other options.
RCF hospital runs exceptional medical services and is regularly conducting various special medical camps which are proving to be highly beneficial to the employees and their families. Employees are being examined periodically and advised proper treatments for the ailments.

RCF is home to an exceptional sports infrastructure. The challenging 18 hole golf course undeniably, is one the best golf courses in the country. The grandiose of Synthetic turf hockey stadium is unmatched with its 150 bed hostel facility for sports persons. Two floodlit basketball courts with PU based flooring, Cricket ground built according to BCCI norms are unsurpassed in its own kind. RCF players have many laurels to their name in the current year and have performed commendably in the international scene too. RCF played host to All India Railway championships in Hockey, Basketball, Cricket etc and emerged as an efficient organizer.

RCF is now on a march to become one of the best coach manufacturers in the world and produce international class coaches for all segments. We shall play our part with gusto in building Indian Railways into a profitable and high quality railway system.
OUR RANGE OF TRANSFORMERS COVER :-

1. Air Conditioned EMU, EMU & MEMU Transformers for Rolling Stock.
2. Advance 3-Phase & Conventional Locomotive Transformers.
3. Track Side Power & Booster Transformers.
4. LHB Coaches Transformers.
5. Instrument Transformers (Current, Potential Transformers upto 132 KV Class)
6. Power Transformers upto 50 MVA, 132 KV & Distribution Transformers upto 2 MVA, 33 KV Class
7. Furnace transformers upto 5 MVA, 10 KA.
8. Dry type Transformers upto 2 MVA, 33 KV Class.
Moving Towards Progressive India

Rajiv Kumar Vyas, General Manager

Introduction

Indian Railways is one of the biggest rail networks of the world under a single management, crisscrossing the length and breadth of the country with a vast fleet of locomotives, coaches and wagons. From an era when India was importing more than 55% of total requirement of wheels for the railways, the scenario has now transformed to available capacity for export.

Set up in the year 1984, Rail Wheel Factory (earlier Wheel and Axle Plant) has grown to manufacture various types of wheels and axles to suit the customer’s requirement, thereby substantially contributing to the ‘Make in India’ policy of the Indian Government. RWF is the only integrated plant in the world undertaking manufacture of wheels, axles and wheelsets under a single roof.

RWF is deeply conscious of the need to be a learning organisation and its obligation to society in general. The Plant consistently endeavours to enhance its intellectual capital through well-planned training schemes for all its employees. It is committed to ensure sustainable development by using the right process/material/technology, provision of a safe and healthy environment, conversation of resources and proper waste management.

From Initial annual plant capacity of 56,700 cast wheels and 23,000 forged axles, RWF has grown to an annual production capacity of 1,90,000 wheels, 70,000 axles and 70,000 wheelsets (with 70,000 Box N wheels manufactured in-house). In its journey so far RWF has manufactured more than 39 lakh wheels, 19 lakh axles and 13 lakh wheelsets.

Product Range

Wheels

RWF produces as many as 19 types of wheels for freight, coaching and locomotive stock with diameters ranging from 725mm to 1100mm. The manufacturing is done on a numerically controlled automatic assembly line with minimum human intervention.

The wheels are subjected to extensive and stringent quality control at all stages. RWF produces variety of wheels including that for Box N Wagon, Broad Gauge Coaching, Meter Gauge Coaching, EMU, Container Wagon and Locomotives.
Axles

RWF manufactures 36 types of axles for freight, coaching and locomotives with diameter ranging from 105 to 285mm and length ranging from 1600 to 2600mm, both for BG & MG tracks, meeting the stringent requirement of Indian Railway standards (IRS) No. R16 – 95 and R43 -92. The factory has facilities for forging, heat treatment, rough and finish machining of axles. The axles are forged from the pre-cast steel blooms of desired specification and length, machined to accuracy after checking for both internal and external flaw detection systems. Blooms are checked for chemical composition and micro/macro properties before they are taken up for forging.

All axles are subjected to end-to-end ultrasonic testing to detect any internal flaw. All axles are subjected to Magnetic Particle Test to detect surface flaw and subjected to radial ultrasonic test.

Wheel Sets

RWF can manufacture 6 types of wheel sets, for both passenger and freight applications to meet the Indian Railway Standards (IRS) No. R-19/93 (Part I) of which at least 4 types are regularly supplied to IR, wagon builders, & Non Railway Customers.

RWF has a high productivity, state-of-the-art wheel set assembly complex, consisting of an auto axle measuring unit, precision borers and two 300T mounting presses. Wheelsets are assembled to precise preset limits of interference, mounting rates and dimensional tolerances.

Production Performance

RWF has been consistently exceeding the targets set by the Railway Board. Proportionate target and achievement upto Jan 2020.

<table>
<thead>
<tr>
<th>Year</th>
<th>Wheels Target</th>
<th>Wheels Actual</th>
<th>Axles Target</th>
<th>Axles Actual</th>
<th>Wheel sets Target</th>
<th>Wheel sets Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-18</td>
<td>10,8500</td>
<td>12,1121</td>
<td>70,838</td>
<td>72,027</td>
<td>26,500</td>
<td>30,159</td>
</tr>
<tr>
<td>2018-19</td>
<td>13,0000</td>
<td>13,1131</td>
<td>70,825</td>
<td>71,001</td>
<td>35,250</td>
<td>40,136</td>
</tr>
<tr>
<td>2019-20</td>
<td>1,76,200</td>
<td>1,76,387</td>
<td>77,000</td>
<td>80,849</td>
<td>64,000</td>
<td>58,868</td>
</tr>
</tbody>
</table>

Turnover of RWF

The financial turnover from 2012-13 to date is shown in the graph below:

Sales to Non Railway Customers

Though the initial plant capacity was only to meet in-house requirement of Indian Railways, RWF through continual improvement in productivity, has grown to cater even to Non-railway customers (NRC). The improving trend of NRC sales over the years is projected below:

Disposal of Scrap

In the year 2019-20, scrap worth ₹33.60 crores has been disposed as against target of ₹35.00 crores.

Accreditation of Quality, Environment and Safety Systems

RWF constantly strives to build successful and lasting relationships with its customers by consistently exceeding their expectations, as measured by the quality, reliability and value of its products and services. Quality begins at the design stage itself to meet the quality and end use requirement of the product. For brought out items, vendors are carefully selected after due process of evaluation audit to ascertain their capability and credentials for supply of required raw materials, to meet the exacting specifications. All incoming raw material is subjected to meticulous inspection. The Quality Assurance Plan includes regular process audits to ensure that the laid down parameters are being met. Rigorous stage and final inspections are conducted for assurance that the final product fully conforms to the customer requirements.
RWf is certified for Integrated Management System, encompassing
- Quality Management System conforming to the standards of ISO 9001:2015, for manufacture of wheels, axles and Wheelsets.
- Occupational Health and Safety Management System to the standards of OHSAS 18001:2007, for all activities related to manufacture of Wheels, Axles & Wheelsets, support activities such as Canteen, Hospital, Kendriya Vidyalaya and maintenance of infrastructure in township.
- RWf has been certified with ISO 50001-2011 for Energy Management System (EnMS).
- RWf has been certified for AAR-QA 5000 by the American Association of Rail Roads which is a requirement for the export of Wheels, Axles & Wheelsets to American Rail Roads. (other than North America).
- RWf has been certified with International Railway Industry Standards (IRIS) in accordance with ISO (International Standards Organisation)/TS 22163:2017; for Design, Development and Manufacturing of cast wheels, forged axles and assembled wheel sets, which allows RWf to enter European market. Perhaps, RWf is the only production unit certified for both American and European Standards.
- Metallurgical Laboratory of RWf, was accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) in accordance with ISO/IEC: 17025/2017 in the disciplines of Chemical and Mechanical testing. The reports of Lab accredited by NABL are accepted internationally.
- RWf has successfully implemented FIVE-S for Workplace Management System in all departments.
- RWf is now aiming at AAR M -1003 certification to enter North American Market.

Patent
On 27/03/2018, RWf acquired patent for "Improvised Pouring System With Introduction of Stationary Pouring Control Mechanism in Pouring Crane and Holding Air Residual Pressure of 2PSI inside the Pouring Pit after 7th Poring Order. RWf has already obtained another patent for Micro Alloed Chemistry for cast wheels during 2006

Innovation
Automatic scrap cutting machine has been built in-house. RWf collects scrap consisting of condemned wheels and axles from all over the country. The scrap is then cut manually into smaller pieces in the Pre-Conditioning bay of RWf so that it can be melted in Electric Arc furnaces. During the last one year, an innovative attempt has been made through iterative prototyping and the first production prototype of the automatic scrap cutting machine has been built in-house.

Environment Management & Initiatives
RWf is committed to ensure sustainable development by using the right process / material / technology, to address issues such as healthy environment, conservation of resources and proper waste management, recycling used wheels axles and rails. RWf has improved emission levels arising from its operations by installing secondary fume extraction system.

RWf has an extensive green cover of 155 acres out of 291 acres of total area, with cumulative green cover of above 46000 trees. Apart from dignitary visit and green events tree plantation by all the retiring employees of RWf in the month of their retirement and maintenance of the same and shramdaan by staff in the Eco Zone are organised from time to time. RWf has a green house of 400 sqm housing 6000 samplings.

Re-charge points were made for water conservation through rain water harvesting and open wells dug during the construction of RWf (WAP) were also revived. One STP in plant is functional.

RWf has also taken following major steps to conserve energy and also venture into alternate green energy:
- As Green House Gas reduction initiative heat treatment furnaces have been converted from HSD fired to CNG. Project of conversion of Ladle pre-heating station and PNG connection to sand reclamation plant and wheel shop normalising furnace are in pipeline.
- PNG connections to colony quarters is under progress which will also contribute to the indirect GHG reduction.
- For Mitigation of particulate matter emission through stacks, Secondary Fume Extraction system and Upgrading of Primary Fume extraction system has been completed during 2018.
- A vertical Garden for dust mitigation near Mould repair shop has been erected.
- Air Monitoring station have been installed to monitor Air quality under National Ambient Air Quality Monitoring Programme (MAMP) for monitoring air quality at Yelahanka (in and around the factory premises).
- Energy efficiency 1 KW hybrid (Solar + Wind Stream) off grid system has been set up on administrative building.
- Solar Roof Top System has been installed and is generating 2MWp electricity. The street lights are now running on Solar energy.
• All conventional electrical bulbs and tubes, in workshops, service buildings and colonies have been replaced with LED fittings, resulting in savings of about ₹93 lakhs per year.
• By harnessing the underground water in RWF eco-zone, the water consumption has been reduced from 18.5 lakh litres per day to 14.8 lakh litres per day.
• Vendor training and emphasis on Eco – friendly packing has been initiated during the year 2019-20.
• Rain Water Harvesting done in the plant is not only helping in conservation of water but also energy. After successful commissioning and working of two pilot projects to canalize rain water, two more mega harvesters were installed one at pump house and other at axle shop. Four projects cover roof top area of total 6437 sq meter combined for rain water harvesting and a total of 25,000 KL rain water harvested in the year 2019.

Swachhta Pakwara
Rail Wheel Factory, can be referred as Urban Oasis of Bengaluru, that has extensive green cover both in Factory and Colonies. The Factory and Colonies are clean and green. The Administrative Building has been awarded as Platinum Rated Green Building by IGBC, Hyderabad.
To maintain cleanliness and bring awareness among employees cleanliness drives are organized regularly. Swachhta Pakhwara was observed during the month of Sept. and Oct’.19, that included shramdan, tree plantation and seminar on waste management.

Events
Meet on “Smart & Sustainable Manufacturing & Operations” organised at RWF on the eve of 40th Anniversary of its dedication to the Nation. Shri Rajesh Agrawal, MRS, was the Chief Guest. Shri R.K. Vyas, GM/RWF and senior officers of railways and outside participated.

Vendor’s Meet on LC Payment & Easing business with Railways’ was organised at RWF. Experts in the field from SBI, Railways and Railway suppliers addressed the vendors dealing in goods and services, who participated in this programme.

Visit of distinguished guests
Shri. Suresh C Angadi, Minister of State for Railways and Shri P. C. Mohan, MP visited Rail Wheel Factory (RWF), Bengaluru on 16/10/2019. MOSR interacted with Shri Rajiv Kumar Vyas, General Manager, senior officers and staff of RWF and visited the factory.

Shri Ratan P Watal, Member Secretary, Economic Advisory Council to Prime Minister of India, visited Rail Wheel Factory on 02/12/19. Discussion was focused on policies of resource efficiency, strategic unit, scrap recycling & e-waste management, along with strategic contribution of RWF in national economic growth.

Smt. Suman Vyas, President RWFWWO took part in the tree plantation programme on 2nd Oct., 2019, in the presence of Sri R.K. Vyas, GM.

Large no of employees and officers participated in the ‘Shramdan’ led by Sri Rajiv Kumar Vyas, General Manager, organized on the occasion of 150th birth anniversary of Mahatma Gandhi.
other recreational facilities, a stadium, a pre-school and Kendriya Vidyalaya, ‘Chandamama’ a Crèche and ‘Ashraya’ a school for mentally challenged children, Ananda’ a multipurpose hall with roof top amphitheater and Utsava’ a Kalyana Mantapa for staff and officers and Holiday homes at Mysuru and Ooty etc.

- 12 Appointments were made on compassionate grounds during the year 2019-20.
- The plant houses a Book Bank for engineering and medical students.
- A digital copy of the Service Book is now being issued to all retiring employees. Further, the system of pension disbursement has been fine tuned to ensure that the retired employees get their pension from the very next month of their retirement.
- Awareness talks on various health care issues including specific issues like diabetes, AIDS and HIV prevention etc was organized by Railway Hospital for the benefit of staff and officers.
- Divyang friendly toilet has been provided at Railway Hospital.

Sports

To promote sports, RWF is fostering cricket, hockey, football and kabaddi teams. Individual and team contributions are commendable.

Shri Durgappa, Helper/RWF has won silver medal in 4x400 meters relay in the 21st Asian Masters Athletic Championship held at Malaysia. He has won many national state level awards. He has won gold medal in 800M, silver in 4x100M relay and bronze in 400M during the National Masters Athletic championship held in Calicut during January 2020.

Sri Pradeep, Jr. clerk, P’ Branch is playing for Indian Railways team in the ongoing Ranji Trophy and has represented Indian Railways Team in all formats of the game.

Sri Siddalinga Murthy, OS/ Stores department was nominated as official for the 3rd Khelo India youth games that recently concluded in Guwahati.

Sri Mandar Shetty, is nominated as Sr.Coach for Karnataka State Kabaddi team.

Sri Kushman Singh, Jr. Clerk, Time Office, has represented Indian Railways hockey team in All India Hockey tournament.

Sri Aniket Pavker, Jr. Clerk RPF has been shortlisted for Indian Railway Kabaddi team to play for Senior National Kabaddi Championship.

Staff Welfare

RWF has facilities like housing colonies for staff and officers, a staff canteen inside the plant, a Railway Hospital with adequate facilities and referral hospitals of repute, Employees’ Institute with library, gym and...
RWF Women’s Welfare Organisation (RWFWWO)

RWFWWO is ably running the ‘Chandamama’ Crèche and ‘Ashraya’, a school for mentally challenged. Independence Day, Republic Day and other festivals are celebrated with fervor and gaiety. The organization conducted drawing and painting competition for students of the pre-school and RWF Kendriya Vidyalaya and awarded the best painting. Cultural events and festivals are celebrated in the crèche and ‘Ashraya’.

The renovated play area with new play equipments was inaugurated by Sri. Rajiv Kumar Vyas, GM in presence of Smt. Suman Vyas, President RWFWWO.

The organization is keen on staff welfare activities also. On the occasion of Republic Day 2020, Smt. Suman Vyas, President, RWF Women’s Welfare Organisation, (third from right in the pic.) inaugurated the Audiometry Booth at Railway Hospital RWF. The organisation has donated the Audiometry Booth to RH/RWF.

Awards and Recognitions

RWF’s efforts towards achieving excellence in quality, environmental awareness and corporate social responsibility have been lauded through various awards and recognitions. A few such awards received by RWF in recent past are:

- ‘Excellent Energy Efficient Unit’ by the Confederation of Indian Industry in September 2017.
- BIS instituted, Rajiv Gandhi National Quality Award in BEST OF ALL category, for the year 2012. The award was given in the year 2015.
- Golden Peacock National Quality Award for the year 2015
- Golden Peacock Innovative product/service Award among Govt. Transport Category 2014
- International Star for Quality (IFAQ) Award in Platinum Category for the Year 2013, BID, Madrid, Spain.

Future Plans

Having established itself as a reliable source of high quality wheels, axles and wheelsets for meeting the requirement of Indian Railways, RWF is presently on the threshold of a major effort to diversify its customer base. Concerted efforts are on to explore the export market for wheels and axles. These efforts are being complemented by substantial initiatives in augmenting the capacity of RWF, and replacement and up-gradation of existing machinery. Rail wheel Factory has already geared up to manufacture high capacity load 25T axles for freight stock and LHB semi finished axles for coaching stock. In order to augment its capacity further, a new forging line is already on order which will go on production prototyping by 2021-2022 which will include the latest higher capacity forge box, hot axles roller conveyor equipment including PNG (Piped Natured Gas) fired furnaces which will be installed at an investment of ₹300 crores. This will enhance the forging capacity to 1,00,000 forgings per annum from the present 66,000 nos. per annum.

In order to create balancing facilities for machining forged axles, an automated machining line with new generation lathes capable of latest industry standards 4.0 also has been sanctioned at a cost of approximately ₹278 crores. The specifications for this line are being drawn up in close coordination and association with machine tool industry world leaders so as to ensure replication of “best in class” railroad axle machining facilities at RWF for this project. RWF has already erected, installed and commissioned a new automated wheel assembly complex integrating with the existing assembly complex that will augment the current wheelset production capacity from 42,000 wheelsets per annum to over 1,00,000 wheelsets per annum. The cost of this complex is approximately ₹49 Crores. As such RWF axle plant capacity augmentation for rail road axle manufacture right from bloom to finished axle shall enable Rail Wheel Factory to increase both the variety as well as quantity of axles which can be delivered to meet the nation’s increased rolling stock needs of railway coaches, high capacity wagons, diesel, electric and hybrid locomotives.
Introduction

Railway engineering is a subject which is not taught as a regular engineering course and therefore, technical training related to railway track, railway bridges and other works are essential. Technical training is also necessary to transform fresh engineering graduates into practising engineer. Railway engineering being applied science in nature requires both classroom training as well as exposure to field working. In order to cater to the need of Indian Railway and to achieve the above objective ‘Advanced Permanent Way School’ was started in 1959 at Pune. Since then, this institute developed in leaps and bounds and today it is known as ‘Indian Railways Institute of Civil Engineering’ or IRICEN. The IRICEN primarily provides training to Officers of Indian Railway. In order to disseminate knowledge about advancement in the technology and refresh the technical knowledge of subordinate staff, during 2014 ‘Senior Subordinate Technical Wing’ or SSTW was started.

Our clients and earnings

Our clients includes Indian Railways, RITES, IRCON, DFCCIL, MRVC, RVNL, NTPC, MES and various Metro Railways like DMRC, BMRC etc. The training is suitably customized as per the requirement of clients. IRICEN has made substantial earnings through training to officers of various organisations other than Indian Railways. The earning for the last three years is shown in Table.

<table>
<thead>
<tr>
<th>Year</th>
<th>Earnings ( ₹ cr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-18</td>
<td>2.17</td>
</tr>
<tr>
<td>2018-19</td>
<td>4.05</td>
</tr>
<tr>
<td>2019-20</td>
<td>6.00</td>
</tr>
</tbody>
</table>

ISO Certification

In order to impart world class training, IRICEN became the first Central Training Institute (CTI of IR) to obtain ISO-9001 certificate during 2000. This certification is now concurrent to 2015 version of ISO-9001. This certification calls for self-discipline in various activities related to conduct of training. The efficacy of training depends upon design of course content as per requirement of the clients and to suit the needs of participants. The IRICEN has established process with checks and balances to impart quality training to trainees.
The course contents are reviewed based on the feedback of the participants during monthly meetings of Corrective Action Team (CAT) and necessary improvements are incorporated in the training performance. The IRICEN also has system of internal audit to ensure effective implementation of guidelines of ISO-9001.

Training programmes at IRICEN is being continuously monitored to make them more meaningful and inline with the needs of the clients and participants. This is evident from the fact that during the year 2019, the number of participants were high compared to previous years in spite of less number of courses conducted. The following tabular statement indicates that the courses offered by IRICEN were more patronized by our clients.

**Number of courses in last five year**

<table>
<thead>
<tr>
<th>Courses</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRICEN</td>
<td>79</td>
<td>75</td>
<td>74</td>
<td>82</td>
<td>83</td>
</tr>
<tr>
<td>SSTW</td>
<td>60</td>
<td>99</td>
<td>87</td>
<td>67</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>174</td>
<td>161</td>
<td>149</td>
<td>132</td>
</tr>
</tbody>
</table>

*Earlier large number of courses were of one weeks, two similar courses have been combined and at present most of courses are of two weeks.*

**Infrastructure facilities at IRICEN**

<table>
<thead>
<tr>
<th>Facility</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostel Capacity</td>
<td>100 rooms</td>
</tr>
<tr>
<td>Class Rooms</td>
<td>5 with total capacity of 190, maximum capacity of one classroom is 70.</td>
</tr>
<tr>
<td>Laboratory</td>
<td>Soil testing, Cement and Concrete testing, Ultrasonic Flaw Detection (USFD), Ballast testing, Non Destructive Testing (NDT), Survey equipment.</td>
</tr>
<tr>
<td>Auditorium</td>
<td>Capacity 220 persons.</td>
</tr>
<tr>
<td>Sports</td>
<td>Swimming pool, Badminton, Squash, Tennis, Basket Ball, TT, Billiards, Gym.</td>
</tr>
<tr>
<td>Mess</td>
<td>Seating capacity - 125</td>
</tr>
<tr>
<td>Library</td>
<td>About 42,000 books, 60 Periodicals and Journals.</td>
</tr>
</tbody>
</table>

**Number of Trainees in last five year**

<table>
<thead>
<tr>
<th>Trainees</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railway Officers</td>
<td>1642</td>
<td>1792</td>
<td>1178</td>
<td>1393</td>
<td>1312</td>
</tr>
<tr>
<td>Railway Supervisors</td>
<td>1633</td>
<td>2050</td>
<td>1446</td>
<td>1493</td>
<td>1000</td>
</tr>
<tr>
<td>Other Personnel</td>
<td>120</td>
<td>54</td>
<td>223</td>
<td>188</td>
<td>560</td>
</tr>
<tr>
<td>Total</td>
<td>3395</td>
<td>3896</td>
<td>2847</td>
<td>2294</td>
<td>3172</td>
</tr>
</tbody>
</table>

**Number of Trainee days**

<table>
<thead>
<tr>
<th>Courses</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRICEN and SSTW</td>
<td>22,158</td>
<td>34,371</td>
<td>32,019</td>
<td>26,265</td>
<td>33,479</td>
</tr>
</tbody>
</table>

**Infrastructure facilities at SSTW**

<table>
<thead>
<tr>
<th>Facility</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostel Capacity</td>
<td>90 beds</td>
</tr>
<tr>
<td>Class Rooms</td>
<td>4 rooms with total capacity of 160</td>
</tr>
<tr>
<td>Laboratory</td>
<td>Soil Testing, Cement and concrete testing, Ultra Sonic Flaw Detection (USFD), Non Destructive Testing (NDT), Survey equipment.</td>
</tr>
<tr>
<td>Auditorium Capacity</td>
<td>Capacity 100</td>
</tr>
<tr>
<td>Sports</td>
<td>Badminton, Table Tennis, Gym.</td>
</tr>
<tr>
<td>Mess</td>
<td>Seating capacity - 100</td>
</tr>
<tr>
<td>Library</td>
<td>About 4,000 books.</td>
</tr>
</tbody>
</table>

**Infrastructure and Development**

To cater to the increased space requirement, a new Institute building was constructed near the IRICEN Hostel in Koregaon Park and commissioned during 2013. (Fig2). Around the same time, the old institute complex near the Pune railway station was refurbished to suit the requirement of Senior Supervisors Training Wing (SSTW). Existing infrastructure facilities are listed in Tables.

**Green Building Certification**

Main building of IRICEN situated in Koregaon Park, is green building and adjudged ‘Platinum’ rated Green building by Leed India (Fig 3) and ‘Five Star’ rated Green building by GRIHA. The main building of IRICEN has also been declared as ‘the best institutional building by Indian Green Building Council’. This building is the first Government building and the second other building to be awarded above mentioned ratings in India. This building has several world class infrastructural facilities such as Conference Hall, Committee Hall, Auditorium, Class rooms, Laboratory, Model Room, Demonstration yard, Sports complex, Residential hostel etc.

**ISO 9001 - 2015 Certification**

Platinum rating Shield by LEED India
In addition to the above, for expansion of Sports complex, development of Demo yard, Model room and upgradation of computer infrastructure etc., work of ₹10 cr. has been sanctioned.

Training Excellence through Digitisation

- Digitisation of Training activities
  At IRICEN, various activities pertaining to conduction of training are digitized. In this process software related to course plan management and display system, hostel occupancy, training material etc. were developed in house and incorporated in the system.

- Digital Laboratory
  Well-equipped laboratory with standardized testing equipment is essential in technical training. IRICEN has gone one step ahead and made its laboratory digital. In order to help the participants and to inculcate the habit of self-learning, each of the equipment at IRICEN is supported with internet based user friendly module that can be accessed by scanning QR code by using their mobile phone. The digital lab is also supported with local server and display board. The training material can also be downloaded in PDF format for later use.

Construction of new hostel building

In order to cater the growing needs of the training, work has been sanctioned for construction of 200 bedded hostel in place of existing hostel at the estimated cost of ₹53 cr. This work is being carried out by MRVC (Mumbai Railway Vikas Corporation). Due to lack of horizontal space in the present IRICEN complex, the proposed new hostel will have three vertical towers.

Digital Model Room

Various models, actual components and samples are displayed in a digital model room in IRICEN premises. Details related to them can be accessed by scanning the QR code and relevant materials can be downloaded in PDF format for later use.
Up-gradation of IRICEN Website

The face of IRICEN Website has been revamped and made more user friendly. Most of the technical content has been brought on the home page itself and can be accessed easily.

IRICEN website

Training module for Officers and Staff

IRICEN is instrumental in giving training to railway officers i.e. training for probationers, Integrated Course for Group B officers, Senior Professional Courses for JAG and above officers. IRICEN also conducts workshops, seminars and specialized short duration courses on topics related to track, bridge and works.

Initially at SSTW, specialized short duration courses on topic related to track, bridge and works were organised. Recently, IRICEN took initiative and developed ‘Training Module for Non-Gazetted Staff of Civil Engineering Department. It includes the initial training module for training of subordinate staff and also refresher courses for existing staff for implementation in all Indian Railways through Zonal Training centres.

Implementation of e-Office and Cash Less transaction

IRICEN is one among the first CTIs to implement e-office. All the transactions at IRICEN are cashless.

Happenings and Highlights of 2019

The year 2019 was filled with numerous activities related to technical upgradation such as improvement in training of the engineering officials, updation of various Codes & Manuals, writing of technical literatures, publication of technical books etc. Incorporation of correction slips to various codes, rules and manuals pertaining to Engineering department is a continuous process and carried out throughout the year.

Unveiling of Training Module for Non-Gazetted Staff of Civil Engineering Department

This training modules were recently unveiled on the IRICEN’s 62 Foundation Day - 23rd November, 2019 by the DG/NAIR, Vadodara.

In view of the revised training module and to wipe out the backlog of refresher training, IRICEN has started conducting refresher courses for sub-ordinate staff belonging to track, bridge and works cadres at SSTW.

Probationers Visit to Rashtrapati Bhavan

Forty eight Probationers of 2016 batch of IRSE visited Rashtrapati Bhavan where His Excellency Honourable President Shri Ramnath Kovind was very kind to meet them on 16.02.2019. It is a matter of pride that His Excellency addressed the IRSE probationary officers and encouraged them to maximise the use of training given at IRICEN in their regular working post to serve the nation. The Honourable President also wished the outgoing batch a bright future in the Indian Railways.
Reprint of IRPWM and Revision of IRPWM

The first edition of IRPWM was brought out during 1984 and since then more than 150 advanced correction slips were issued due to upgradation in the track technology. IRPWM contains the working procedure for various activities related to permanent way. However, the need was felt by the Railway Board to re-print the IRPWM duly incorporating all the advance correction slips which was done in July, 2019.

Subsequently, Railway Board desired that IRPWM shall be thoroughly scrutinized and revised in view of the current technical knowledge. Therefore, revision of Indian Railway Permanent Way Manual (IRPWM) was undertaken by IRICEN. Big exercise was done to re-organise various chapters of the IRPWM duly bringing together the relevant materials in the IRPWM and elsewhere. Revised IRPWM has been prepared and it was approved in principle during TSC meeting held from 16.01.2020 to 18.01.2020. Finalisation of revised edition is now being taken up by a Committee nominated by Railway Board.

Foundation Day celebration

Foundation day of IRICEN was celebrated on 23rd November, 2019. On this occasion, IRSE batch of 1993 were facilitated for completing their 25 years service in Indian Railways. On this occasion, the IRSE officers of 2016 batch and ‘Gr.B’ officers of Integrated Course during 2019 were awarded with medals for their excellent performance during training. During the foundation day five books were also unveiled.

Cultural and Sports Activities at IRICEN

During the year, the IRICEN has conducted several activities for the overall development of officers like hiking, trekking, sports event, cultural events, Quiz, Yoga classes, conduct of Vigilance awareness week, Ekta Daud and other programmes. These activities helped faculty and trainees officers to keep their stay meaningful, joyful and happy at IRICEN.
Salient Features

Indian Railways Institute of Signal Engineering & Telecommunications (IRISET) has completed 62 years of its glorious existence. It was established on 24th November 1957, with the name of All India S&T School, for imparting training on Signalling and Telecommunications to Indian Railways personnel. After change in the name four times in between, finally in January 1971, the institute was named IRISET. S&T officers and supervisors both are being trained in the institute. Since its inception in 1957, more than 89178 personnel from Indian Railways have undergone various training programmes in IRISET. IRISET also provides training to the personnel of foreign Railways, Public and Private Sector companies in India. So far, over 332 trainees from foreign Railways of Afro-Asian region have been trained by the Institute.

Location

The institute is situated centrally in Secunderabad, Telengana. It is conveniently located in South Lalaguda, just 3 km away from Secunderabad Railway Station and about 42 km from Hyderabad Airport. Its campus, full of greenery is spread over an area of 28.3 hectares. Railway's Golf Course located in the campus further enhances its beauty.

Mission & Vision

- IRISET has a mission “To deliver the knowledge to make the workforce competent and confident in their field of working”.
- IRISET has vision “To make IRISET a technical institute of global repute”.

Training Courses

Railway Signal Engineering is not covered as curriculum in any university, college or any other teaching institutions. The availability of literature on this subject is also limited. This puts IRISET in a unique position as the only institution imparting training on Railway Signal Engineering, not only in India, but also in larger part of the world.
To cover all kinds of training needs, the courses being conducted in IRISET are classified in the following categories:-

**Initial Courses:** The officers and supervisors on their induction in Railway services are given intensive training covering all aspects of Railway Signalling and telecommunication to enable them to effectively shoulder responsibilities of their job.

Such course for IRSSE Probationers is for 24 weeks (Phase I - 12 weeks & Phase II - 12 weeks). For in service Group B officers, the course is conducted in two phases with a duration of 6 weeks each for Telecom to Signal & 4 weeks each for Signal to Telecom. The newly recruited Junior Engineers (JEs) are given training at this Institute for 28 weeks. An initial course for Design is also conducted for a duration of 18 weeks for both Junior Engineers (JEs) and Senior Section Engineers (SSEs).

**Departmental promotee JEs are also imparted initial training for 17/12 weeks for Signal/Telecom field.**

**Refresher Courses:** Supervisors undergo Refresher Courses to brush up their knowledge periodically and also update themselves with the latest developments in the field. These courses are common for JEs & SSEs with course duration of four weeks.

**Equipment Courses:** These courses are offered to develop expertise in working, installation and maintenance of various S&T equipments. Such courses are commonly conducted for new S&T equipments and systems inducted in Railways. OEM organised courses are being conducted at IRISET Campus on Electronic Interlocking systems.

**Signalling Design Courses:** These courses are offered from the year 2013 to develop expertise in design of British and Siemens practice of Panel Interlocking and Route Relay Interlocking systems.

**Special Courses:** These courses are conducted to meet the special requirements of Zonal Railways and for the personnel of Public & Private sector organisations as per their specific training needs.

**IRISET Notes**

IRISET provides comprehensive reading material popularly known as IRISET notes, on each subject covered in the training. Since Railway Signalling is not taught in any other college or institute and as there are no books and literature available in the market, these notes have unique importance in training on Railway Signalling and Telecommunications. In line with rapid changes in the technology, the contents are updated regularly. These notes are found extremely useful by trainees not only during their training in the institute but also as a reference material during their service. These notes are arranged through Employees’ Cooperative Stores functioning in the institute. Training notes on 43 subjects have been translated in Hindi.

**Faculty**

IRISET is headed by a Director General who is an Officer in Higher Administrative Grade+ (HAG+) belonging to Indian Railways Service of Signal Engineers (IRSSSE) and he is assisted by two Higher Administrative Grade officers Director & Dean, Five Senior Administrative Grade (SAG) officers Senior Professor (Signal), Senior Professor (Telecom), Senior Professor (IT), Senior Professor (Training) & Senior Professor (Admin) in Administration and Training. In addition, there are four Selection Grade (SG)/Junior Administrative Grade (JAG) Officers, three Senior Scale and four Junior scale Officers in the faculty. One Senior Scale Officer and Three Junior scale Level officers from IRISET cadre discharge various administrative responsibilities. A Rajbhasha Adhikari is also posted in IRISET. Training in Laboratories is primarily managed by 38 Instructors who are in various supervisory grades. All the faculty members possess rich experience in their field and also have flair for teaching. They are sent to various institutes nominated by DOPT for improving their teaching skills. The faculty is suitably augmented with visiting lecturers from Zonal railways, industry and from other training institutes.

**Laboratories**

The Institute has seventeen state of art laboratories for imparting hands-on training to the trainees on various subjects relevant to their jobs. In addition to the conventional Signal & Telecom equipments like various types of Block Instruments, Route Relay Interlocking installations, Track circuiting equipments, Analogue Axle Counters, Control Communication equipments, Electronic Exchange etc., the laboratories are also equipped with modern signalling systems like Electronic Interlocking, Integrated power supplies, Automatic Warning Systems, TPWS, Audio Frequency Track Circuits, Digital Axle Counters, LED Signals, Digital Microwave equipments, Optical Fibre Communication equipments, Synchronous Digital Hierarchy, Mobile Train Radio communication (GSM-R), Computer Networking equipments, Voice Over IP and Next Generation Network systems etc. A Laboratory Building for capacity enhancement has come up in the year 2014 for housing new equipments on Modern technologies.

Axle Counter Laboratory, TPWS laboratory, Electronic...
Interlocking Laboratory, LED Signals Laboratory, TCAS Laboratory and Network Laboratory have been established in this New Building.

Computer Based ‘E’-Learning

‘E’ Learning System has been established at IRISET to augment the traditional learning. This facilitates anywhere, anytime learning. A reliable Computerised training network has been established which acts as a central repository of all S&T content including professionally developed multimedia modules. The infrastructure consists of Learning Management System software, Learning Content Management System Software, LAN & WAN with its components like Servers, Routers, and Switches. 29 modules on various Signalling and Telecommunication contents have been developed. These contents are available on both Railnet and Internet. In order to establish the backbone connectivity for the e-learning network, 10 Mbps connectivity for IRISET and 2 Mbps connectivity for zonal training centres has been provided to carry out live interactive training sessions with Faculty & Trainees of Zonal Railway’s Training Centres. The E-Learning is also extended to the Internet site www.iriset.indianrailways.gov.in. IRISET is connected to National Knowledge Network (NKN) on 100 Mbps link.

Virtual Classes

A ‘virtual class’ for distant learning via Video Conferencing has been established between IRISET & all S&T Training Centres on Indian Railways. The classes on this System are being regularly conducted by the Institute.

Library

Institute’s library with a seating capacity of around 60 persons has a collection of about 44,000 technical books. There is an Audio Visual centre in the library well stocked with CDs & tapes on technical subjects. The library also has a large collection of Hindi literature. State-of-art library Management system with bar coding on books, scanners and photo identity card-cum library card printer is available.

Auditorium

There is a well furnished centrally air-conditioned auditorium with a capacity of 317 seats, which is used for imparting training using projectors and large screen, organising seminars, official functions, cultural programmes and for screening of films for the recreation of trainees.

Hostels

There are four hostels, out of which one is for officers and the remaining three for the supervisors. A separate mess is attached with each hostel, which is run on contract basis. Televisions, Gym, some indoor games like Table Tennis, Caroms, chess etc. are available in each hostel. In addition PCs with internet, Wi-Fi & Billiards table is available in officer’s hostel. Gymnasium facility has been provided in Officers Hostel & Supervisory hostel No. 1, 2 and 3 as well.

Stress Management Centre

To enable the trainees to appreciate the necessity of stress management in present day’s life style, a Stress Management Centre has been set-up in the institute in which programmes are being organised regularly with the help of in-house and visiting faculty. This has become very popular among trainees in a very short time.

Heritage Gallery

A Heritage Gallery of Signalling and Telecom evolution on Indian Railways was inaugurated on 22.01.2018 by Shri Akhil Agrawal, Director General (Signal & Telecom), Railway Board.

Community programmes to promote greenery and conserve environment

IRISET takes pride in conducting Shramadan programme on all working days involving the faculty and trainees. The activities undertaken include cleaning the premises of Institute, hostels; improve greenery by massive plantation drives and conservation of the environment by providing water harvesting pits and enforce ban on use of plastic.

Sports Facilities

Institute has excellent facilities of cricket, badminton (two synthetic courts and one wooden floor court), tennis (one synthetic and four clay courts), volleyball, basketball, skating ring and golf within the campus. A Gymnasium has been added to the sports facility in the Badminton hall.

Golf Course
Indian Railways Institute of Transport Management (IRITM) was established at Lucknow in 1999 as a Centralized Training Institute to impart training to Indian Railway Traffic Service (IRTS) officers selected through Civil Services Examination. The Institute was also entrusted the responsibility of conducting academic courses in Transportation Business for In-service Traffic officers and Multi-disciplinary courses for all Railway officers.

The Foundation Stone of the Institute's Infrastructure was laid by the then Prime Minister of India Shri Atal Bihari Vajpayee on 31st January, 2001 and the inauguration of the Infrastructure was also done by the then Prime Minister of India Shri Atal Bihari Vajpayee on 21st May, 2003.

Initially, the Institute started functioning in RDSO campus and moved into its sprawling 72 acre campus on 21st May, 2003. IRTS officers of 2002 examination batch were the first batch of officers to undergo professional training at the Institute.

The Institute has been nominated by Railway Board as Centralized Training Institute for conducting courses on Disaster Management for all Railway officers. At the behest of Railway Board Safety Management course has been introduced for CSOs, ADRMs & SAG officers to be conducted every month.

Similarly, under the instructions of Environment & Housekeeping Directorate of Railway Board, the Institute is also conducting special course for Railway Officers of all departments on “Environment & Housekeeping Management”.

Apart from professional training of IRTS Officer Trainees, the Institute covers courses on Transport Management, Transport Planning, Information & Technology in Transportation Business, Logistics & Supply Chain Management, Services Marketing, Big Data, Data Analytics & Artificial Intelligence, Customer Care, Claims, Crowd & Media Management, Tender & Contract Management, Vigilance, Right to Information, Human Resource Development, Communication Skills, etc., Appreciation courses for Probationary officers of all other Railway services are also conducted in related areas of Transportation.

Paid courses for PSUs & private organizations and courses for railway officers from foreign countries are also conducted at IRITM.

Achievements & Contributions of the Institute in the field of training and non-core activities are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Courses conducted</th>
<th>Officers Trained</th>
<th>Trainee Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>19</td>
<td>574</td>
<td>2658</td>
</tr>
<tr>
<td>2017</td>
<td>67</td>
<td>1594</td>
<td>7124</td>
</tr>
<tr>
<td>2018</td>
<td>82*</td>
<td>1668*</td>
<td>7882*</td>
</tr>
<tr>
<td>2019</td>
<td>63</td>
<td>1214</td>
<td>7892*</td>
</tr>
</tbody>
</table>

*Peak performance in the last three years as compared to 2016 & before.

Other Important Activities
Under the Paris Climate Conference 2015 (COP21), India is committed to reduce carbon footprints by 33% by 2030. IRITM is already on job to contribute to the challenge through a large number of initiatives undertaken in the campus towards preserving Biodiversity and strengthening the environment.
Green Campus

The campus is being made more green by undertaking large scale plantation by planting saplings of fruit bearing and other shady trees. Banana, Guava, Mango, Papaya, Karaunda, Litchi, Lemon, Naseberry and other fruit bearing trees have been planted in large number. Large scale plantation of Peepal, Banyan, Neem, Pakar, gular, etc. has also been done. It helps maintain the flora and fauna of natural lifecycle. The green campus takes care of campus oxygen requirement and has an abundant surplus for the adjacent localities.

Swachh & Pollution free Campus

Cleanliness drives are regular feature of training curriculum to keep campus clean and pollution free. Campus has been converted into a “Plastic free zone”. Use of single use plastic items, tobacco, gutkha, cigarette, beedi, etc. is strictly prohibited and offenders are penalised.

Water Conservation

IRITM has developed water bodies through which ground water is being regularly recharged. This takes care of not only the requirements of IRITM but also generates a surplus for adjacent localities.
Clean & Renewable Energy

Installation of Solar panels on large scale is already in progress. Rooftop Solar Cells to generate 190 kWp is already installed. Additional installation of 1 MW of Solar energy as alternate/renewable/clean source of energy is planned which shall take care of the campus total energy requirements. Conventional lights have been replaced with Energy efficient LED lights.

Floriculture & Organic Farming

Floriculture and eco-friendly landscaping makes the campus more compatible to learning.

Organic Farming training models are in place for officer trainees to get sensitized towards chemical fertilizer free farming.

Preserving Bio-diversity

IRITM has created human interference free zones for migratory and rare birds and other faunas to preserve bio-diversity.

Solid Waste Management through Vermiculture

is another training model to produce bio-manure from dry leaves and food waste for use in horticulture, organic farming and floriculture. It helps in eco-friendly management of abundant campus dry leaves as well as provides organic manure for campus consumption.
In the year 2020, IRITM has won 03 first, 05 second prizes and 03 third prizes during 51st U.P. State Flower & Vegetable exhibition in the following categories:

First Prize: in garden 300 to 500 sq mts., garden from 700 to 1000 sq mts. & Medicinal Plants garden upto 100 sq mts. categories.

Second Prize: in garden 100 to 300 sq. mts., garden from 300 to 500 sq mts., garden 400 to 500 sq mts., Kitchen Garden upto 500 sq. mts. and garden developed on Landscaping upto 15,000 sq mts categories.

Third Prize: in garden 300 to 500 sq mts., garden 500 to 1000 sq mts categories, Kitchen garden upto 100 sq mts. categories.

Social Service Activities
Social Service Club of IRITM organizes various types of social service activities every year. These activities include distribution of food items, clothes, blankets, stationery, etc. to needy contractual staff of IRITM and to people residing in orphanage/Leprosy asylum.

Celebrating World Earth Day
49th World Earth Day was celebrated on April 22, 2019 with special emphasis on Environment Protection. Plantation was done in the empty shells of raw coconut and officers were sensitized to use eco-friendly & biodegradable methods and materials to save EARTH and plant those trees which conserve water.

Skill Development Programme for Underprivileged Children
IT Skill development Programmes for underprivileged children of staff, contractual staff & children of nearby areas have been started free of cost, supported by Centre for Disaster Management & Training society at IRITM. First batch of 18 such children has completed the training programme in “Awareness in Computer Concepts” and was awarded course completion certificates on 28th February, 2020.
Two day National Seminar on ‘Indian Demography – Challenges’
A two days National Seminar on ‘Indian Demography – Challenges’ was organized by Centre for Disaster Management and Training (CDMT) at Indian Railways Institute of Transport Management, Lucknow from 27th to 28th February, 2020. Centre for Disaster Management and Training (CDMT) is a Society that organizes Seminars & Programmes to spread knowledge and awareness in mitigating and preparing for Disasters.

Hoisting of Monumental National Flag
A Monumental National Flag has been installed at IRITM on 28th February, 2020 by Flag Foundation of India which shall inculcate a sense of National Pride amongst Trainee Officers.

Celebrating Foundation Day
IRITM foundation day was organized on 21st May 2019 with zeal and enthusiasm. IRTS Probationary officers of 2015, 2016 and 2017 batch, faculty and staff organized and took part in various cultural activities. Shri K.K. Srivastava, Retd. Member Traffic (Chief Guest) along with other dignitaries graced the occasion.

Valediction Function of IRTS 2016 batch
The Valediction function of Indian Railway Traffic Service (IRTS) officers of 2016 batch was organized at Indian Railways Institute of Transport Management (IRITM), Lucknow on June 15, 2019. Sri Girish Pillai, Member (Traffic), Railway Board graced the occasion as Chief Guest.

Blood Donation Camp
IRITM in association with Department of Transfusion Medicine, King George Medical University (KGMU), Lucknow organizes Blood Donation Camp every year. This year it was organized by Social Service Club on Saturday, June 8, 2019. Officer trainees, faculty and staff donated 28 units of blood.

Celebrating International Yoga Day
Fifth International Yoga day was celebrated on 21st June 2019 with great zeal and enthusiasm. All officers trainees, faculty and staff participated in the yoga session & performed asanas, pranayam and meditation.
Celebrating World Environment Day

World Environment Day is celebrated at IRITM every year on 5th June 2019. It was celebrated with great enthusiasm to bring positive changes in attitude towards the preservation of environment. A poster competition was also organized and winners were awarded.

Writers and Contributors

Writers are invited to contribute original general articles on subjects like SHORT STORIES, TOURISM, HEALTH, YOGA, CINEMA, GARDENING, MEDITATION, COOKING, SPORTS, FAMOUS PLACES ABROAD, TREKKING etc. in 800-1000 words/poems/quiz/puzzles. Relevant pictures along with article may be sent only on Email ID editorindianrailways@gmail.com. A suitable remuneration shall be paid after its publication. — Editor
Dedicated Freight Corridor Corporation of India Ltd

Anurag Sachan, Managing Director

Dedicated Freight Corridors (DFC) is one of the largest rail infrastructure projects undertaken by the Government of India.

<table>
<thead>
<tr>
<th>Overall cost</th>
<th>₹ 81,459 crores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Dedicated Freight corridor</td>
<td>1504 kms from JN Port (Mumbai) to Dadri</td>
</tr>
<tr>
<td>Eastern Dedicated Freight Corridor</td>
<td>1856 kms from Sahnewal near Ludhiana to Dankuni in West Bengal</td>
</tr>
</tbody>
</table>

A. Main Objectives

- Decongest the existing Indian Railway network.
- Increase the average speed of goods train from existing 25 to 70 kmph.
- Run Heavy Haul trains (higher axle load of 25/32.5 Tonne) & overall load of 13000 Tonne.
- Facilitate the running of longer (1.5km) and double stack container trains.
- Connect the existing ports and industrial areas for faster movement of goods.
- Energy efficient and environment friendly rail transport system as per global standards.
- Increase the rail share from existing 30% to 45%.
- Reduce the logistic cost of transportation.
B. Innovations and State of the art Technology

- Heavy and long Haul train operation of 25 Axle ton with having provision of 32.5 Ton axle load for the First time in India.
- Double stack containers in Western DFC
- Double line electric (2 X 25 KV) track to undertake higher haulage at higher speeds
- Automated New Track Construction (NTC) machine with record single day track laying of more than 3 km.
- Automated Wiring train for Overhead Equipment Work (OHE) capable of wiring upto 3 km per shift.
- Train Protection and Warning System (TPWS) for safe and efficient operation
- Elimination of road level crossing
- Developing Multi Modal Logistic Hubs and integration with Delhi-Mumbai Industrial Corridor & Amritsar-Kolkata Industrial corridor.

The Indian Railways is the lifeline of the nation. To make India to have five trillion Economy it is essential to develop transport network at the same pace. Development of transport infrastructure will give major fillip for the growth of industries, commerce, export and import.

DFCCIL has been set up as a special purpose vehicle to undertake planning, development, mobilization of financial resources, construction, maintenance and operation of Dedicated Freight Corridors. In the first phase the organisation is constructing the Western DFC (1504 Route km) and Eastern DFC (1856 route km) spanning a total length of 3360 route km. The EDFC starting from Sahnewal near Ludhiana (Punjab) will pass through the states of Punjab, Haryana, Uttar Pradesh, Bihar and Jharkhand to terminate at Dankuni in West Bengal. The Western Corridor connecting Dadri in Uttar Pradesh to Jawaharlal Nehru Port (JNPT) in Mumbai will traverse through the states of UP, Haryana, Rajasthan, Gujarat and Maharshta of WDFC. EDFC & WDFC (excluding the Sonnagar – Dankuni PPP section) will be completed by Dec 2021.
C. Trial run in Bhadan – Khurja 194 Kms. section of EDFC

Located between Delhi – Kanpur section, the Bhadan – Khurja stretch has 6 stations and a total of 249 bridges consisting of 17 major, 137 minor, 92 Rail Under Bridges (RUB) and 3 Rail Fly Overs (RFOs). Trial run of goods train started in the section from Sep 2019 and there are following highlights:

- Till date, more than 1000 trains trial run has been done in the section.
- Record 20 train interchange between IR & DFC facilitated normal traffic movement on Kolkata – Delhi route.
- First long and Heavy Haul train run on EDFC 194 km Bhadan – Khurja section carrying a load of 9000 tonnes on 14.09.2019.
- Other Details of the Section:
  - State - Uttar Pradesh – districts – Bulandshahar, Aligarh, Firozabad, , Hathras
  - Cost - `2750 crores. ( Funded by World Bank)
  - New stations - Bhadan, Makhanpur, Tundla, Hathras, Daudkan & Khurja
  - Industrial Areas - Khurja, Firozabad, Agra
  - 43 Level Crossings eliminated.
  - Agency - M/s Tata - Aldesa JV for Civil Works
  - M/s Alstom for System Works

Opening of this section has eased the Congestion of Allahabad-Delhi Section of IR. This helped in improving punctuality of Mail/Express Trains in NCR Zone. The performance of Allahabad Division has improved on both the counts - throughput and punctuality.

D. WDFC - Trial run in Madar-New Rewari –Kishangarh Balawas

DFCCIL conducted an inaugural Trial-Run of Indian Railways (IR) freight trains on the newly built Rewari-Madar section of WDFC, covering a distance of about 306 kms (Total 663 track Km) on 27.12.2019. This section falls in Haryana State (for appx 79 Km in Mahendragarh & Rewari districts) and Rajasthan State (for appx 227 Km in Jaipur, Ajmer, Sikar, Nagaur & Alwar districts). This section contains 16 major bridges and viaduct (1 viaduct & 15 major bridges), 270 minor bridges, 4 Rail Fly Overs, 19 Road Over Bridges & 178 road under bridges eliminating 148 Level crossings.

There are 9 newly built DFC stations in this section, six crossing stations (i.e. New Dabla, New Bhagega, New Sri Madhopur, New Pauchar Malikpur, New Sakun and New Kishangarh) and three junction stations (i.e. New Rewari, New Ateli and New Phulera).

Trial run of goods train started in the section from 27th December 2019 and the highlights are as follows:

- Successful run of Track Recording Car of RDSO on 20th and 22nd October 2019
- Oscillation trials of BOXNS Wagons at 110 Kmph. These wagons have a Tare weight (i.e. own weight) of 19.85 ton and a carrying capacity of 80.15 ton. These wagons have a 14% more weight carrying capacity than the wagons being currently used on Indian Railways. The DFCCIL infrastructure is well placed to utilise the carrying capacity of these wagons. Currently, Indian Railways freight trains can carry 61-71 ton weight per wagon carriage at an approximate speed of 60 kmph. New wagons can carry weights upto 81 ton per wagon at an approximate speed of 100 kmph.
- Trial runs of BLCS-A and BLCS-B wagon prototype have also ensued. These wagons have enhanced axle load of 25 ton and been designed for DFCCIL by RDSO’s wagon department. The design will maximize capacity utilization and is uniformly distributed and will facilitate point to point loading. These wagons on a long-haul double stack container train on the WDFC can carry 4 times in terms of container units compared to the current traffic on IR.
- More than 100 trial runs of trains has been done till date including of double stack container trains.

E. Timelines

DFCCIL is committed for targeted commissioning of the section and till date 500 km stretch are being used by running trains and by March 2020 it will increase to 992 km. Timelines of commissioning of the different sections are following:

<table>
<thead>
<tr>
<th>Section</th>
<th>Length</th>
<th>Time of Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khurja - Bhaupur</td>
<td>351</td>
<td>Part trial runs have started on Bhadan- Khurja. By FY 2019-20, the total 351 km will be commissioned.</td>
</tr>
<tr>
<td>Bhaupur - Mughalsarai</td>
<td>402</td>
<td>Dec-2020</td>
</tr>
<tr>
<td>Sonnagar - Mughalsarai</td>
<td>137</td>
<td>Dec-2020</td>
</tr>
<tr>
<td>Khurja - Dadri</td>
<td>46</td>
<td>Dec-2020</td>
</tr>
<tr>
<td>Khurja – Ludhiana</td>
<td>401</td>
<td>Dec 2021</td>
</tr>
<tr>
<td>Entire EDFC (Excluding PPP)</td>
<td></td>
<td>2021</td>
</tr>
<tr>
<td>Rewari - Palanpur</td>
<td>641</td>
<td>Partly trial runs have started on Madar – Rewari 306 km. The total 641 km will be commissioned by Mar-2020</td>
</tr>
<tr>
<td>Rewari - Dauri</td>
<td>127</td>
<td>Mar-2021</td>
</tr>
<tr>
<td>Palanpur - Makarpura</td>
<td>308</td>
<td>Sep-2021</td>
</tr>
<tr>
<td>Makarpura – JNPT</td>
<td>430</td>
<td>Dec-2021</td>
</tr>
<tr>
<td>Entire WDFC</td>
<td></td>
<td>Dec-2021</td>
</tr>
</tbody>
</table>
Ircon International Limited (formerly known as Indian Railway Construction Company Limited), a Mini Ratna and Schedule ‘A’ PSU, was incorporated on 28th April 1976, mainly for the purpose of construction and development of Railway Infrastructure in India and abroad with the expertise from Indian Railways. During its operation of 43 years the company has diversified and developed core competence in other areas like Highways, Tunnels, Bridges, Flyovers, ROBs, Airport Hangar & Runways, Metro rail and Buildings, EHV Transmission Line & Grid Sub-stations, Industrial Electrification, Signaling and Telecom Systems etc. Considering its major share of business from projects abroad, its name was changed to “Ircon International Limited” w.e.f. 17th October 1995.

IRCON has emerged as front ranking construction company of international repute having executed prestigious projects during the last 43 years of its operations. It has so far completed more than 387 infrastructure projects in India and 128 projects across the globe in more than 24 countries. As per 2018 edition of Engineering News Record (ENR) of USA, IRCON is the only Indian PSU and one of the only six Indian companies to make it to the list of top 250 International Contractors. The company got listed in the Indian Stock Market on 28th September, 2018.

Foreign Projects
IRCON is actively engaged in infrastructure development in several Asian and African countries.
IRCON’s expertise coupled with its experience has helped in successful completion and commissioning of a mega project valuing over USD 1 billion in Malaysia, the largest ever Transportation project completed by any Indian company abroad. In Bangladesh, IRCON has completed projects of “Design, Supply, Installation, Testing and Commissioning of Computer-based Interlocking Colour Light Signalling System on turnkey basis at 11 stations between Ishurdi-Darsana section.” Some other Key Railway Projects are also under execution in Algeria, Bangladesh, and South Africa.
IRCON has successfully completed project for Procurement of Plant Design, Supply and Installation of Overhead Track Equipments, Traction Sub-Stations, Auxiliary Power Supplies Sub stations, Bulk Power Supplies Switching Stations and Signalling Systems for Majuba Rail Project, South Africa, at a value of ₹ 345 Crore.

IRCON through its 100% owned subsidiary named IRCON Infrastructure & Services Limited is providing PMC services for Construction of Two Lane Road from Paletwa to India-Myanmar Border (Zorinpui) from km 0.000 to km 109.200 in Chin State of Myanmar.

International Rail Connectivity Projects
As close neighbors, India shares a unique relationship of friendship and cooperation with Nepal, Sri Lanka and Bangladesh. Taking the bilateral relationship to new heights, IRCON is executing Rail connectivity projects in Nepal and Bangladesh. These projects are New Broad-Gauge Railway Line between Jogbani (India) and Biratnagar (Nepal), & Jayanagar (India) and Bardibas (Nepal) besides the work of design and construction of Akhaura (Bangladesh)-Agartala (India) rail link. IRCON has secured a Railway Project for upgradation of Railway line from Maho to Omanthai, in Sri Lanka.
Strategic Projects in India

IRCON has undertaken various prestigious projects, which are emblematic to the country’s rise on global infrastructural map. The Company is involved in the biggest strategic Railway construction project in Jammu & Kashmir. IRCON is also constructing a new Broad-Gauge railway line from Sivok in North Bengal to Rangpo in Sikkim to provide rail connectivity to Sikkim.

During the FY 2018-19, major projects completed include:
- Four Laning of Shivpuri to Guna from Km 236.00 to Km 332.100 (Package-I) in Madhya Pradesh executed on DBFOT pattern under NHDP Phase-IV.
- Widening & strengthening of the existing Bikaner-Phalodi Section to Four-lane from km. 4.200 to km. 55.250 and Two-lane with paved shoulder from Km 55.250 to Km 163.500 of NH-15 on DBFOT pattern in Rajasthan.
- The work of system improvement, strengthening and augmentation of distribution system to bring down AT & C losses and improve quality of consumer supply of Meerut, Uttar Pradesh, to be carried out on turnkey basis including supply of material at a value of ₹329 crore.
- Completed the construction of state of art Modern-Coach Factory, Rae Bareilly, Uttar Pradesh.

Among the ongoing projects, some of the key projects are:
- Civil and Track Works of DFCCIL in three packages between JNPT - Vaitaraana, Vaitaraana - Sachin and Sachin - Vadodara sections.
- Construction of Railway lines of approx. 300 km length at an estimated cost of ₹5,000 Crores in Chhattisgarh.
- Construction of RoBs in the states of Rajasthan and Bihar.
- Six- Laning of Davanagere- Haveri from (Km. 260+000) to Km. 338+923) of NH-48 in the state of Karnataka to be executed on Hybrid Annuity Project on DBOT Annuity Under NHDP - Phase-V.
- Eight-lane Vadodara-Kim Expressway from 323.000 to 355.000 in Gujarat.
- Survey, Feasibility study, detail design and construction of various identified rail connectivity projects of MCRL.
- Kiul-Gaya Doubling Project (East Central Railway).
- Katni-Singrauli Doubling Project (West Central Railway).
- Katni Grade Separator By pass Line Project.
Financial Performance

In the year 2018-19, the Company has registered total income of ₹ 4,680 crore, however the Company’s Average Annual Turnover for the past 5 years stands at ₹ 3,607.8 crore. About 94.34% of the total income i.e. ₹ 4,415.10 crore, has been achieved from operations, out of which about 13.27% i.e. ₹ 586 crore has been contributed by foreign projects. The Profit before tax achieved by the company is ₹ 615 crore and the Profit after Tax achieved is ₹ 495 crore. The Net Worth of the company stood at ₹ 3,950 crore at the end of the financial year. The Company has achieved an increase in total income by 13.5% for the financial year 2018-19 w.r.t. that of the previous year. Also, Projects worth ₹ 7,635 crore have been secured during the financial year. Consequently, the Company is hopeful to maintain the uphill trend and achieve turnover as per objectives.

Corporate Social Responsibility Practices

IRCON is committed to undertake CSR activities complying with the provisions of Section 135 of the Indian Companies Act, 2013 and related Rules. IRCON believes in working jointly with local communities to improve the rural infrastructures, transportation facilities, health care to deprived sections of the society, to fulfil the education need of the children, safe drinking water and sanitation facilities in schools as well as in hospitals, adoption of environment friendly technologies etc.

Below mentioned CSR initiatives have helped in developing the Nation through empowering the society and Improving the Eco System:

- IRCON had taken this issue in consideration under its CSR for improving the basic infrastructure in rural areas of Sheikhpura and Lakhisarai in Bihar by installing 71 Solar PV Street Lights (a cleaner / energy efficient technology in generating & utilizing power and towards environment friendliness). Providing solar street lighting will help the villagers to feel safer to move around after darkness, thus enabling some social life after daytime.
- Environment Sustainability under My Green Society Initiative by Wet Waste Management/Composting of flowers Waste at Pilgrimages in Maharashtra. The garbage is usually thrown or dumped either in rivers or ponds or in the sea creating environmental hazard and impacting sea life. Further, the Khad generated through composting help growing gardens that ultimately reduces pollution and saves environment.
- Environment protection and sustainability through plantation of more than 31,000 trees in J&K and UP and provision of solar lights in UP & Delhi and provision of safe drinking water facility.
- IRCON took an initiative under its CSR to fund Sulabh International for constructing Toilet Units in Niyazi Mohalla, Jajnpur Market and Zamaniya in Ghaziapur, (UP).
- IRCON in association with ALIMCO distributed aids and appliances to various divyangs at Muzaffarnagar, (UP). Under this 177 beneficiaries were distributed aids and appliances like Wheel Chair, Hearing Aids, Motorized Tricycle, Crutches, MSIED Kit, Rollator, Walking Sticks and CP Chair.
- IRCON continues to bring social change for the beneficiaries and society in large through its CSR activities in the future as well. All projects are implemented in true spirit of CSR and are in accordance with Schedule VII of Companies Act / DPE Guidelines and CSR policy of IRCON.

Awards & Recognition

A number of Awards & Accolades were received during the year 2019-20. Some of them are:

- 7th PSU Governance Now Awards for (i) PSU Leadership to CMD IRCON, (ii) Increasing Geo-Strategic Reach.
- ET NOW: World HRD Congress Awards for (i) Business Leader of the Year to CMD IRCON, (ii) National Best Employer Brand.
- Institute of Economic Studies (IES) Award for Outstanding Global Leadership to CMD IRCON.
- 7th FICCI Quality Systems Excellence Award for Good practices in Quality Systems.
- ET NOW: Stars of the Industry Awards for (i) CEO with HR orientation to CMD IRCON, (ii) Talent Leadership - For Excellence in HR.
RailTel Corporation of India Ltd., a Miniratna Category I CPSU was formed on 26th September 2000 with an authorized capital of ₹1000 crore. RailTel is currently one of the very few debt free profit-making Telecom PSUs. It was set-up, for modernizing the Telecommunication system of Indian Railway through an internal entity. RailTel has exclusive Right of way (ROW) along the entire 67,415 RKM of Indian Railway network.

RailTel has matured from a millennial company to one of the largest secure Neutral Telecom Services Provider in the country. It is at the forefront of Digitalisation and Modernization of Train operations and administrative network systems for Indian Railways. It is also providing nationwide Broadband Telecom & Multimedia services. The ownership of a Pan-India 55,000+ RKM of Optic fibre network covering all important towns & cities of the country and several rural areas is the USP of RailTel. RailTel operates under Unified License, International long-distance license and Infrastructure Provider-1 registration from Department of Telecom.

Though RailTel started off as an entity to support Telecommunication system of Indian Railways, it has now diversified into many fields. The company has started offering a bundle of services like, Internet Bandwidth provider, Leased lines, Tower Co-location, HD Video Conferencing service (Telepresence as a Service), Data Center services, e-office, video surveillance system, Wi-Fi services and Content on Demand services etc. to private and Government clients.

**Financial Performance**

RailTel has been a consistent performer and has grown in terms of size, confidence and revenues. The company, with revenue of just ₹114 Crores in FY 2006-07, is today a 1000+ cr Company with an average growth rate of 14.8%. The net worth of the company has also grown steadily and consistently at 8%. The company has maintained steady profit and has been consistently paying dividends to the Ministry of Railways. This year the company is expected to achieve a growth rate of about 15%.

Digitalising Indian Railways

Puneet Chawla, Chairman & Managing Director
Creating Digital Hubs

RailTel is transforming Railway stations into Digital hub by providing public Wi-Fi in Railway stations thereby contributing towards fulfillment of Prime Minister’s Digital India dream and vision of Hon’ble Minister of Railway Shri Piyush Goyal of turning Railway stations into platforms for Digital inclusion. Currently 5630+ stations are live with RailTel’s RailWire Wi-Fi. This is one of the largest and fastest public Wi-Fi networks of the world.

The response to the service has been phenomenal, with around 2.9 crore user login in a month and around 8281 TB of aggregated data consumption. Passengers use this facility for streaming High Definition (HD) Videos, download of movies, songs, games, and do their offices work online.

RailTel has also started its flagship programme RailWireSaathi in which it has set up kiosks at 192 rural stations with RailWire Wi-Fi and has trained local unemployed youth to leverage the kiosks infrastructure for becoming digital entrepreneur. As on date 91 RailWire Saathis have manned the Kiosks and are providing services.

E-Office

RailTel has also started implementing e-office over IR to bring transparency and efficiency in working. Implementation has been completed at 58 establishment of IR in a mere 6 months in Phase 1 way ahead of target. This comprises of all Zonal Railway Head Quarters, production units, CTIs, and 23 divisions of IR. Phase-II involving all balance 46 divisions has also been allotted to RailTel and implementation has been completed at 14 establishments of phase 2 in just 2 months and balance will be completed by June-20.

Video Surveillance Systems

RailTel is also executing the work of provision of IP camera-based Video Surveillance System at 6124 railway stations and 7020 premium train coaches and EMU coaches. In phase 1, CCTV cameras with Video Management System have already been installed at 215 stations. This will go a long way in enhancing the safety and security of the passengers travelling over the IR network. Various standalone video surveillance system installed at various stations by respective zonal railways are also being implemented with the new system so that the video recordings can be seen and monitored at the Divisional and Zonal head quarter centrally. Further work of provision of CCTV on 7367 premium train coaches and EMU/DEMU coaches is under planning.

Content On Demand Service

With an aim to improving overall passenger experience and to generate more non fare revenue by

Vice President of India Shri Venkaiah Naidu dedicating the RailWire Wi-Fi at Nellore, Renigunta and Gudur stations to Nation

DRM/TPJ using e-office
capitalizing on the idle time of passengers, RailTel has been entrusted with providing the Content on Demand (CoD) service to passengers in trains and Railway stations. RailTel will provide various preloaded multilingual content (Movies, Music Videos, General Entertainment, Lifestyle etc) in moving trains through media servers installed in trains. CoD platform will also provide e-commerce/m-commerce services in various domains e.g. travel bookings (train, cab, bus) etc. and provide various innovative solutions in digital marketing domain. With on-board CoD service, passengers will be able to enjoy uninterrupted free/ subscription-based entertainment service during their train journey despite unstable mobile data network in moving trains. Passengers will be able to enjoy high quality buffer-free streaming across their personal devices through CoD App. The content will be periodically refreshed. The High-Quality buffer-free streaming of content and infotainment across personal devices of passengers will make the Railway journey more entertaining.

All Mail/ Express and all Suburban trains of Indian Railways will be covered under the scope of CoD project.
Alongwith trains, CoD app will be available at all W-Fi enabled Railway stations. The Tenure of Project is 10 Years which includes first two years of implementation. A total of approximately 3003 trains (Premium/Mail/ Express-to and fro) pan India and 2864 pairs of Suburban Trains have been kept in the scope of the service rollout and also includes all Wi-Fi enabled 5630+ Railway Stations. The earning from the project will be majorly through three streams e.g. Advertisement based monetization, Subscription based monetization & E-Commerce /Partnership Services. The entire project will be rolled out in a period of 2 years. Work for installation of equipment in 3 trains has already been taken up.

Railway Display Network (RDN)
RDN is an initiative to provide contextually rich and relevant information to Rail users along with public awareness messages & entertainment content and uses the latest digital technologies to unlock the true advertisement potential of the footfalls at stations. RDN is planned to be built and operated on a self-sustainable model. Ministry of Railways has announced the introduction of a centrally managed Railway Display Network at over 2000 railway stations (all A1, A, B, C and D category stations) across India in the next 2 years, which will be implemented and managed by RailTel.

RDN will create a centrally managed, smart display network at Railway stations. The display screens will be provided at the station buildings, entrance, concourse, platforms, waiting rooms and foot-over-bridges but excludes circulating areas. Various passenger related information from most appropriate sources like train charting server, NTES, PRS etc shall provide train related information. The Railway display network with the cloud analytics will provide the ability to generate rich analytics and context to provide Railway users accurate and relevant information to improve the Railway travel experience.

Data Centres
RailTel has two UPTIME, USA, certified Tier-III Data Centers at Secunderabad and Gurugram. RailTel offers a host of Data Centre services like Colocation Services, Managed services, Cloud Computing, Managed E-Office, Aadhar Authentication, Dedicated Solutions etc, from these two state-of-the-Art Data Centres with combined total gross capacity of 6000 Sq.ft Server Farm area. All RailTel hosting and co-location services are backed by SLAs of 99.983% which is best by industry standard. The USP of RailTel Data centre is round the clock multi-layered Physical security at different levels, Very Early Smoke Detection System, IP CCTV System, Access Control System, Water Leak Detection System, Rodent Repellent System, and Building Management System. The on-site power system with redundant diesel generators feeding a N+N redundant UPS grid to offer the highest levels of power reliability. Besides Indian Railway a number of customers trust RailTel for the Data Centre services, such as Gurgaon Metropolitan Development Authority, Central Board of Excise & Customs, EPFO, National Health Systems Resource Centre, Telangana State Technology Services, UTI Infrastructure Technology and Services Limited etc.

HD Video Conference Service
RailTel’s end-to-end, high-definition videoconferencing service that gives users a virtual, face-to-face meeting experience was launched in January-2015. Indian Railways were spending huge amount of money and man hours for meetings and events prior to adoption of video conferencing service. Post adoption of video conferencing service the number of travels for meetings and events has dropped drastically saving man hour, travel and lodging expenses. Being swifter, faster in decision making and crisis handling, lesser travel for meetings and events has also helped in saving significant amount of carbon footprint. The service now serves 452 elite user sites. The success is a result of the significant ease of use & 24x7 customer responsiveness of the RailTel team vis-a-vis the challenges faced with other service providers. The RailTel Telepresence Services have often served events for the Prime Minister of India, Minister of Railways, Industry & Commerce reaching out to places where making available even OB Vans would have been difficult at short notice. The services are offered on a monthly subscription basis requiring no investment into CAPEX by the customer while obviating
the recurring need for investment due to technology obsolescence.

Creation of Knowledge Network & National Optical Fiber Network

RailTel is also working towards creating a knowledge society at various fronts and has been selected for implementation of various mission-mode Govt. of India projects in the telecom field. RailTel is a leading partner in implementation of National Knowledge Network in the country which comprises of connecting premier educational institutes/universities on high capacity network. Under this project RailTel has covered 715 Universities & Premier Research Institutes. It is also a partner for implementation of BharatNet (erstwhile National Optical Fibre Network). The objective of the scheme is to extend the existing optical fibre network of BSNL, RailTel and PGCL, which is available up to district / block HQ’s level to the Gram Panchayat (Village) level by laying incremental fibre utilizing the Universal Service Obligation Fund (USOF) of Department of Telecom. RailTel is also providing campus Wi-Fi services to 26 central universities under Ministry of HRD.

Retail Foray

RailTel, initially, was solely a B2B company. But recently it has entered the B2C market to offer its retail broadband service – RailWire. RailWire is a Broadband delivery platform in partnership with local cable operators and broadband content providers. RailWire has been created as an open source content delivery platform for providing various services including Broadband Internet, IP telephony, e-HealthCare, e-Education, and other content driven services to retail customers using cable operator’s infrastructure. RailWire Wi-Fi now has 1.26 lakh+ subscribers across the country and the number is only growing.

Other Services for Railways

RailTel has implemented various telecom & IT infrastructure projects as well as various Value-Added Services for Indian Railways. This has facilitated in spreading various Railways applications to remote and rural stations thus increasing customer satisfaction.

- Next Generation Network (NGN) for voice traffic: All major telephone exchanges of Indian Railways are connected with future proof NGN technology. This infrastructure is very critical for day to day administrative functioning of Railways.
- Broadband: In addition, RailTel has commissioned Digital Subscriber Line Access Multiplexer (DSLAMS) on existing Railway exchanges to provide Broadband services to more than a lakh of homes and offices of Indian Railways in both urban and rural areas using the existing Copper wire last mile of Railways. This shall not only help Railway employees but shall also help in increasing Broadband penetration in the country in line with the National Telecom Policy.
- Facilitating CUG services: Further, RailTel has facilitated Indian Railways by choosing an operator through an open process for Mobile CUG connections for 2,84,000 officials of Indian Railways which is arguably the largest CUG plan within India. It has greatly facilitated in seamless communication among the officials for improved train operations.

State Wide Area Network

RailTel is also helping create and maintain the State Wide Area Networks (SWAN) in various states of the country. In Haryana RailTel is maintaining the complete SWAN IT infrastructure and upgrading the same where ever required. In Kerla RailTel is upgrading the State Wide Network with new generation equipment’s and providing Facility Management Services. In Rajasthan also RailTel is providing connectivity by erecting towers over Radio links/LAN to 7000 Gram Panchayats and office locations.

Modern Train Control System

RailTel Enterprises Limited (REL), a wholly owned subsidiary company of RailTel Corporation of India Ltd., has been entrusted with the work of Modern Train Control system project for modernizing railway signaling system at 4 railway sections. The Modern Train Control system project is one of the most ambitious modernization projects of Indian Railways which envisages upgradeation of signaling system at par with the world class standard. The Modern Train control system will be implemented for 165 Route KM (RKM) on Yeraguntla- Renigunta section of South Central Railway, 145 RKM on Palasa-Vizianagram section of East Coast Railway, 155 RKM on Jhansi- Bina Section of North Central Railway and 175 RKM on Nagpur- Badnera section of Central Railway. These are some of the busiest railway route with heavy traffic. MTCS will help enhance safety drastically, reduce congestion in rail network and increase line capacity, improve punctuality as it can eliminate train delays due to automated signaling and real time information of train movements. It will also help to increase average speed of trains due to automation of train operations.

Services to Other Sectors

RailTel is also providing services to other sectors. We are providing MPLS connectivity, HD Video Conferencing service, Wi-Fi services and Data Centre services to Coal India and its subsidiaries such as Eastern Coalfields Ltd, South Eastern Coalfields Ltd, Mahanadi Coalfields Ltd and Western Coalfields Ltd. RailTel is providing 2/4/10/20 Mbps MPLS connectivity to banks such as SBI, CBI, Canara Bank, Dena Bank, ICICI Bank etc. We are also providing services of CCTV cameras and MPLS connectivity to the defense sector and other security organizations. RailTel is also providing MPLS connectivity, Data Centre and Data Recovery services, HD Video Conferencing, Cloud infrastructure services, e-office implementation and ERP services to PSUs such as IRCTC, CWC, RITES, NHRC etc..

CSR Initiatives

RailTel is also actively involved in meeting its social obligations through the Corporate Social Responsibility programme and is actively supporting programmes for Digital Literacy, education, health and physically challenged children. RailTel is currently running 7 Digital Literacy
Centres (2 at Varanasi, 2 at Bokaro 1 at Satna, MP, 1 at Lallbagh and 1 at Mewat Haryana) and 1 Skill Development Centre for women at Jahangirpuri, New Delhi.

RailTel is supporting running Menstrual Hygiene Management (MHM) programs in Government Schools of 8 Aspirational Districts of Uttar Pradesh, to create Sanitation infrastructure, promoting menstrual hygiene practices in adolescent girls of government schools by installing incinerator and to increase retention of adolescent girls in govt. schools by providing awareness of hygiene practices on menstrual health, empowering girl child not only by addressing the gender issues but also focusing and raising appreciation on the biological significance of MHM and addressing myths, social factors, discriminatory practices and untouchability attached with mensuration through one-to-one interactive dialogue. RailTel is providing support in creating 5 Mini Science Centres at school’s in Chanduli District of UP to build aptitude of students for learning science and mathematics. This is achieved by creating a child-friendly ecosystem which is fun and enjoyable, empowering teachers with easy teaching aids, improve teaching pedagogy by use of models in conducting the science and math’s class through better engagement of teachers in teaching. RailTel is also supporting the differently abled children by providing financial assistance to Janta Adarsh Andh Vidyalaya, Delhi and Shubhda, Ajmer.

RailTel, in association with Centre for Social Responsibility and leadership, New Delhi, has established a RailTel - Akansha Super 30 center where 30 underprivileged but talented students from different corners of Uttarakhand are provided free residential coaching and mentoring for 11 months for admission in reputed engineering colleges like IIT, NIT and state engineering colleges. It was a proud moment for RailTel when 30 students out of 30 of Akansha Super 30, Dehradun made it to JEE Mains out of which 11 students cracked the JEE advance exam securing admission to premiere league engineering colleges in 2019.

RailTel has successfully managed to keep the numbers growing high for itself despite stress on margins and consolidations in Indian Telecom industry. The growth recorded by RailTel is simply phenomenal considering the current state of Telecom market where almost all the players are posting loss year after year. The expectations from RailTel are high and team RailTel is committed to meeting the expectations and becoming the most dependable IT and ICT solution provider in the country.

---

**Advertisers !!**

For providing regular advertisements you may please contact Shri Prashant Kumar Pattnaik, Business Manager, Indian Railways, Room No. 310, Rail Bhawan, New Delhi-1. Regular advertisers are also requested to communicate one month in advance for the continuation of their advertisements. You may please contact Shri Pattnaik on 011-47845378, 43665 (Rly) or email to bmpr310rb@gmail.com.

**Regular Monthly Issues**

<table>
<thead>
<tr>
<th>Advertisement Material</th>
<th>Casual Rates</th>
<th>Contract Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Page (Special position i.e. before/after text)</td>
<td>₹ 8,550.00</td>
<td>₹ 7,600.00</td>
</tr>
<tr>
<td>Full Page</td>
<td>₹ 7,600.00</td>
<td>₹ 6,650.00</td>
</tr>
<tr>
<td>Half Page</td>
<td>₹ 5,130.00</td>
<td>₹ 4,180.00</td>
</tr>
<tr>
<td>Spread over two adjacent pages</td>
<td>₹ 15,000.00</td>
<td>₹ 13,300.00</td>
</tr>
<tr>
<td>Spread over two adjacent pages (Special Position)</td>
<td>₹ 16,500.00</td>
<td>₹ 14,700.00</td>
</tr>
</tbody>
</table>

**Mechanical Data**

Overall Size:
28 cm x 20.5 cm;
Print Area:
23 cm x 16.5 cm

**Advertisement Material:**
Email or Artpull/CD

- **At least three or more advertisements regularly or alternatively come under contract rates.**
- **Mode of Payment:** Demand Draft (in advance) in favour of Business Manager, Indian Railways payable at New Delhi or Cash may be deposited in Room No. 310, Rail Bhawan, New Delhi-11001.

Payment through Cheque is not acceptable.
Enabling Mobility, Accelerating Growth

Rajeev Mehrotra, Chairman & Managing Director

On track: Mauritius Metro (Victoria in Port Louis-Rose Hill) demonstrates RITES’ PMC capabilities.

RITES Limited, a Miniratna (Category-I) and Schedule ‘A’ Central Public Sector Enterprise under the Ministry of Railways, incorporated on April 26, 1974, is a multidisciplinary engineering and consultancy organization, providing a comprehensive range of services from concept to commissioning in all facets of transport infrastructure and related technologies.

RITES is a leading player in the transport consultancy and engineering sector in India and uniquely placed in terms of diversification of services and geographical reach in various sectors such as railways, highways, airports, ports, ropeways, urban transport, inland waterways and renewable energy. The company is the only export arm of Indian Railways for providing rolling stock to various countries other than Thailand, Malaysia and Indonesia. RITES’ success story spans over 45 years covering more than 55 countries across Asia, Africa, Latin America, South America and Middle East regions.

RITES became a listed company in July 2018. Investors have shown keen interest when 12.6% of Government of India holding was divested through an IPO in June 2018 and the issue got oversubscribed 67 times. Within one year of listing, the company has made it to the top-500 companies with the market capitalization of approx ₹7,250 crore as on December 31, 2019.

Fiscal status

RITES continues to turn in impressive numbers in terms of revenue, profit and business growth. In the year 2019-20, the company has recorded revenue of ₹2,120 crore in the first three quarters of the financial year, a growth of 46.2% from the corresponding period of FY 19-20.

Year 2018-19 too had been a landmark year in the company’s history as RITES Limited crossed the annual total revenue of ₹2,000 crore with improved profitability. During FY2018-19, RITES achieved its highest-ever total standalone revenue of ₹2,164 crore, up by 36.4% over FY 17-18. Similarly, the operational revenue, excluding other income, has increased by 37.3% and reached ₹1,969 crore in FY 18-19. Profit before tax (PBT) and profit after tax (PAT) in FY 18-19 have been ₹677 crore and ₹445 crore, respectively, up by 39.6% and 34.0% over FY 2017-18.

On the consolidated accounts basis, the total revenue has been ₹2,240 crore in FY 18-19 as compared to ₹1,651 crore in FY 18-19, recording a substantial increase of 35.7%. As a result of better utilization of human resources, expansion of international consultancy business, improved efficiency from subsidiary and joint venture and economies of scale in turnkey business, RITES’ consolidated PBT and PAT stand at ₹730 crore and ₹490 crore, respectively, for FY2018-19, with an increase of 40.8% and 37.3% over FY2017-18. RITES has grown from strength to strength, crossing many milestones, as its revenue jumped to ₹2,164 crore in FY2018-19 from ₹1,076 crore in FY2012-13. Moreover, in the last decade, RITES’ employees have provided higher productivity as its
revenue per employee (0.67) has become thrice of what it was in 2009-2010 (0.21).

Projects undertaken

RITES continues to follow a path of systematic and professional operations, maintaining its position as a leading transport consultancy organisation in India and abroad.

• **Domestic projects**
  RITES has executed many projects of national importance over the years. Some of the executed and undergoing projects are given below:
  • Bogibeel Rail-cum-Road Bridge near Dibrugarh in Assam
  • Providing general consultancy for Ahmedabad Metro (part of it was made operational in March 2019), Pune and Nagpur Metro in consortium
  • Project management consultancy work for Western DFC
  • Appreciation report on three Dedicated Freight Corridors (DFCs) – East-West, North-South and East-Coast
  • DPR for conversion of freight yards into SMART yards
  • Integrated Check Post at Moreh in Manipur
  • Track electrification between Vijaypur-Maksi, Chauth Ka Barwara-Shivdaspura (Ringas-Jaipur-Sawaimadhopur project)
  • Rail line construction projects in Gooty-Dharmavaram and Pendra-Anuppur sections Railway
  • Railway Siding works for NTPC at Khargone, Raigarh and Meja
  • Modernization and capacity augmentation of railway workshop projects at Dalhianagar, Kurduwadi, New Bongaigaon and Lumding etc.
  • Project management consultancy for passenger terminal at Srinagar airport
  • Redevelopment of Varanasi and Ayodhya railway stations
Foreign Projects

The company has been engaged in:
- Project management consultancy for the 4-laning of the National Highway in Bangladesh
- Technical services for Metro project in Mauritius (Part of the section had been open for public recently)
- Project management and consultancy for Trident Port in Mauritius
- Supply of Diesel Electric Multiple Units, broad gauge locomotives and AC & non-ACs coaches to Sri Lanka, leading to an additional order as well
- Feasibility study and detailed design work for railway line in Ghana
- Integrated Check Posts at Birganj and Biratnagar in Nepal
- Road projects at Botswana and Guyana etc

Subsidiary & joint venture

RITES, through its subsidiary Railway Energy Management Company Ltd. (REMCL), is also promoting the use of renewable energy in Indian Railways. During the last year, REMCL was able to facilitate flow of about 1300 MW of power in 12 entities across the country as compared to 1160 MW of power in 10 states during the last financial year. REMCL is working in line with the Railways’ vision of “Green Railways” by implementing rooftop solar and wind power plants in various phases.

RITES’ joint venture, SAIL RITES Bengal Wagon Industry Private Limited, has been manufacturing specialised high-end wagons for the Indian Railways and other clients. During the FY 18-19, the plant has achieved a milestone of 100% capacity utilisation by producing 100 wagons in January 2019.

During this year, the company has also decided to acquire a 24% stake in Indian Railways Station Development Corporation Ltd at ₹48 crore.

Going forward

Recently, the Government of India has unveiled infrastructure projects worth ₹102 lakh crore, under the National Infrastructure Pipeline, that will be implemented in the next five financial years as part of the government’s spending push in the sector. During these fiscals, sectors such as railways (13%) and roads (19%) accounted for 32% of the projected infrastructure investment in the country. RITES with wide consultancy expertise in transport infrastructure space is uniquely placed to tap such opportunities starting from feasibility studies, integrated design services, institutional management and technical support services. Also, in several countries where RITES pursues business interests, there is an increased thrust on the expansion and upgradation of infrastructure, including rail and road network, Light Rail System (Metro), to ensure faster, safer and timely movement of goods and passengers. It provides opportunities for technical consultancy and export of rolling stock to these countries.

Awards & Recognition

RITES has received several awards and accolades during the last fiscal. Some of them are:
- Active Customer Engagement Award at Customer Obsession 2019
- National Project Excellence Award
- ICC Corporate Governance and Sustainability Vision Awards
- ICC Operational Performance Excellence Award (in Miniratna Category)
- EEPC Gold Trophy for best export performance
- Skoch Merit Award for CSR project (Skill development centre in Udaipur)

For Sri Lanka: RITES exported state-of-the-art Diesel Multiple Units (DMUs) to Sri Lanka.
Dear Sir,

Please enrol me as a new subscriber/renew my subscription for the INDIAN RAILWAYS MAGAZINE (English) for 1 Year / 2 Years / 3 Years. I am sending the annual subscription of ₹ ..................... by MO/IPO/DD ...................................... in favour of Business Manager, Indian Railways.

Name (All Caps)  ____________________________________________________________

Address ____________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

State ____________________ Pin Code ____________________ Mobile No.  ___________

Email ____________________

Signature
Konkan Railway Corporation Limited was established as a Company under Companies Act in 1990 as an Undertaking of Ministry of Railways. The Corporation began its operations in 1998 when the first train was operated from Mumbai to Mangalore, thus bringing the West Coast of the Country on to the Rail Map of India. In its more than two decades of operations, the Corporation has seen many ups and downs in its financials as well as business operations. But over the last few years, the Corporation is able to generate profits. The Konkan Railway route became first for introduction of Tejas Express which is an upgradation of the Shatabdi type of trains. Konkan Railway also has the honour of running the first Janshatabdi Express train. The Vistadome coach attached to rear of Janshatabdi also operates on this route, giving a panoramic view of the lush green forests, tunnels and bridges.

**Infrastructure Works**

As the traffic grows over Konkan Railway, doubling of 47 Kms Roha – Veer Section on the northern part and electrification of complete Konkan Railway Line has been taken up. These works are likely to be completed by March 2020 and March 2021 respectively. Further to enhance the line capacity, ten new stations and eight loop lines are being added. Konkan Railway has also sent a proposal for capacity augmentation for 141 Kms of doubling which will add another eighteen new stations on the route. This proposal is presently under consideration by Government of India.

**Customer Service**

Keeping up with requirement of the times, Konkan Railway became the first Railway in the country to provide Wi-fi facility at large number of its stations. Works have also been carried out for remodelling of stations so as to have wider station entry / exit points, modification to circulating area, resurfacing of platforms, addition of modular passenger shelters etc. Escalators have been commissioned at Ratnagiri, Kankavali, Madgaon and Udupi Stations. To enhance the tourist potential in the State of Goa, Konkan Railway is undertaking works for remodelling of Thivim, Karmali and Madgaon through assistance from Ministry of Tourism. The work envisages observatory centre at Carambolim Lake, Karmali and hassle free circulating area with dedicated parking bays.

The flagship customer services of Konkan Railway viz Shravan Seva i.e. providing portage assistance to Senior Citizens and Sarathi Seva i.e providing wheel chair
assistance to differently abled passengers free of cost continues to be patronized by the users.

LED Fittings
As the Konkan Railway route is replete with long tunnels, conventional High Pressure Sodium Vapour lights in them have been replaced with LED fittings which has improved illumination levels from earlier 3 lux to 10 lux in 78 Kms of tunnel route. LED lights have also been provided at stations thereby substantially improving the illumination levels. In compliance of the Solar Mission of Railways, 350 KWp is installed at Ratnagiri Station which is capable of catering to full power requirement during generation.

Digital Initiatives
Konkan Railway Business Operations are fully dependent on Information and Communication Technology setup, since its inception. The Commercial Coaching Module and the Operating Module which enabled issue of computerized tickets and computerized train control were then being used on KRCL and were the forerunners to the UTS and COA applications. However, Konkan Railway has now adopted these advanced versions implemented on Indian Railway for commercial and operational use. E-Office application has been implemented as a replacement to traditional file system, to enable a means of paperless office and a step towards digital transformation and speedy clearances. All catering and other vending units have the facility of digital payments. Live streaming of base kitchens are also being made available on public domain.

Modernization of working
Konkan Railway was the first Railway to commission the Automatic Coach Washing Plant which is a multistage external cleaning system for complete exterior cleaning of 24 coaches with facility to clean and disinfect the area of coach below the toilets. Konkan Railway Automated Train Examination System is a Way Side Equipment being fully conceptualized and designed by Konkan Railway to detect various defects in rolling stocks of moving trains which pass through it and provide an immediate alert to avoid unusuals and accidents. It has facility to measure temperatures of wheels and axles, High Speed Infrared cameras to take video of moving train, Microprocessors and embedded software to read and convert data and video in digital form etc. This system has already been installed in KRCL and some Zonal Railways. This application has been granted patent by Govt. of India in 2019. Track Machines Management System which is a smart mobile responsive
web application for monitoring and maintaining various track machines has been recently implemented in KRCL. This app keeps a track of all track machines, generates various graphical reports and sounds alerts for scheduled maintenance and overdue PME / Competency Certificates.

Enhancing Freight Business
KRCL & CONCOR have entered into an MOU and set up a Multi Modal Logistic Park at Balli Railway Station which will be first of its kind on Indian Railway. The facility has started operations in handling container traffic over the Indian Railway Network. New Siding has been constructed at Thokur for MRPL which has enabled loading of PET Coke traffic towards Wadi area. The imported Fertilizer traffic arriving at Jaigad Port Ratnagiri has also come onto the railway network and being transported to various destinations in Maharashtra.

USBRL Project
Udhampur – Srinagar- Baramulla Rail Link Project is a National Project. A part of this project from Katra-Dharan is km 30.00 to km 73,785 & km 91 to km 100.868 has been assigned to Konkan Railway for execution. It comprises 46.1 km (86%) of route in tunnels, 4.6 km (8.6%) of route on bridges & balance 5.4% of route in cuttings and embankments. To make access to these sites, Konkan Railway had constructed 160 km of project roads including road tunnels and many temporary Bailey bridges. The estimated cost of the section with Konkan Railway is INR 9600 Crore

Special Bridge (Chenab)
One special bridge across the river Chenab is being built having length of 1315 m and at height of 359m from the bed level. (Height of Eiffel Tower is 324 m). When constructed, this bridge will qualify for world record of being the highest rail bridge. Another special bridge at Anji Khad will connect tunnel T2 and T3 on the Katra-Banihal Section of the USBRL project. The total length of the main bridge is 473.25 meters including its approaches across river Anji Khad. The 290 meter long main span will be the longest among cable stayed bridges on Indian Railway.

Tunnels
There are 17 tunnels aggregating length of 46.1 Kms. The longest tunnel is of 9.368 Kms length. Four Tunnels will be provided with a separate access and Rescue Tunnel parallel to the main tunnel. The construction is being done by New Austrian Tunneling Method and conventional method.

Future Outlook
Konkan Railway has bagged an order for supply of 2 DEMU rakes to Nepal and has also completed the PET survey of Raxaul to Kathmandu Railway line. An MOU has also been signed between Konkan Railway and Vizhinjam International Sea Port Limited, to link the sea port with Nemam a Railway Station over Southern Railway (17 Kms) on turnkey basis. Konkan Railway is also executing the works of ₹410 cr Rolling Stock Component Factory Project at Lote, Chiplun which is a Central Railway Project.

Corporate Social Responsibility (CSR)
Konkan Railway is pursuing its Computer Literacy Campaign for the villagers along the Konkan Railway route to enable them become Computer Savvy to explore job opportunities. Emphasis is now being given for creating “Ramkrishna Hegde Institute of Skill Development” in line with the National Policy on Skill Development for generating high-quality skilled workforce / entrepreneurs for emerging market needs. It is our earnest desire that Konkan Railway continues to serve the Nation with its motto of “Sadar Seva”. ■

Anji Khad Bridge
TetraFlex® is designed to provide reliable, fast and disruption-free TETRA data and voice communication for mission critical operations.

TetraFlex® features a fully distributed network architecture and is 100% IP based, giving full flexibility in site and capacity expansions - even during operation.

The easily accessible API enables seamless integration with other system environments such as dispatcher solutions.

TetraFlex® is available with both indoor base stations, as well as the IP65 protected and compact outdoor base stations, providing high flexibility in installation.

Meet the increased demands on safety and operational efficiency within large public transport systems with the TetraFlex® TETRA radio infrastructure.

Trusted by industry leaders worldwide

TetraFlex® Solutions have been deployed for a wide range of projects within the transport and logistics sector, including:

- Western Railway
- Nagpur Metro
- St. Petersburg Citywide Network
- Fortescue Metal Group Railway
- Almaty Metro

**EN50121-4 compliant**

DAMM solutions and support are available in India through our Authorized Partner Consort Digital.
As the world’s leading metro supplier, Bombardier is shaping the future of mass transit travel. Our high-tech, high capacity metros ensure a high degree of reliability, safety and maintainability while providing low life cycle costs. The modern mass transit vehicles are designed for rapid, efficient and cost-effective performance with a capacity of up to 80,000 people per direction per hour. In New Delhi, Bombardier MOVIA metro vehicles reduce the daily travel time of around 4 million passengers, alleviating the heavy traffic congestion and pollution caused by more than one million cars that commute in the city every day.
Safety  |  Efficiency  |  Reliability

ISO 9001  |  ISO 14001  |  ISO 45001

SERVING INDIAN RAILWAYS & METROS FOR MORE THAN THREE DECADES...

Traction Power Electronics
Traction Switchgear and Panels
Data Acquisition & Control Device
Audio and Display Systems

Autometers Alliance Ltd
www.autometers.com