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100 km VIADUCT for MAHSR Corridor is Completed

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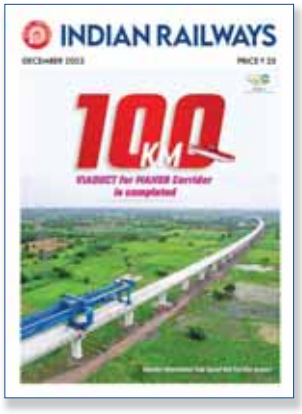
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Editorial



Indian Railways' 'Mumbai-Ahmedabad High Speed Rail Corridor Project' is progressing like a bullet train. The National High Speed Rail Corporation Limited has recently completed the construction of a 100 km viaduct. It is worth mentioning here that one of the world-class technologies – Japanese Shikansen Technology -- has been selected for this project. The Shikansen system provides the safest facility in the world.

The Mumbai-Ahmedabad high speed rail corridor will run 352 km in Gujarat and Dadra and Nagar Haveli and 156 km in Maharashtra. In this corridor, 12 stations equipped with world-class facilities are being prepared. The journey from Mumbai to Ahmedabad can be done in about two hours and seven minutes. This entire corridor will have a viaduct of 456 km, out of which 100 km has been completed.

About 92% of this high-speed railway corridor will be elevated through viaducts and bridges. Out of the 508.09 km stretch, 460.3 km (90.5%) will be viaduct, 9.22 km (1.8%) will be on bridges, 25.87 km will be on tunnels (including 7 km long undersea tunnel) and 12.9 km (2.5%) will be on embankment/subway. There are many benefits of elevated tracks above viaducts and bridges. Most importantly, it will ensure that there is no obstruction in the natural flow of water. It provides crossings at all places, adequate clearance of 5.5 m (i.e. the highest for roads) is available on the existing road network, it improves the perception of safety and security against external interference and reduces the need for land (providing 17.5 m width instead of 36 m wide conventional rail tracks).

In addition to the segmental launching method, a full span girder launching method is also being used to speed up the construction of the viaduct. Indigenous equipment and machinery such as straddle carriers, girder launchers and transporters are being used. Work on the Maharashtra side of the corridor has also started. Necessary contracts have also been made for this.

The facility of construction of high-speed rail track slabs near Anand and Surat districts of Gujarat has been started. Recently, the construction work of the first mountain tunnel of this corridor has been completed. The corridor will have seven mountain tunnels, which will be constructed using the NATM method. The construction of the first steel bridge near Surat and three river bridges has been completed in a month. The work of installing sound barriers on the constructed bridge has started. The work of laying track beds has also started in Surat. This is the first time the J-slab ballastless track system is being used in India.

Special care is also being taken of the environment while preparing this project. The corridor will pass through Thane Creek in Mumbai. Since there are mangroves around the area and it is a protected sanctuary for flamingos, the rail track will be made undersea through a tunnel so that the existing ecosystem is not harmed in any way. It will be the longest and first undersea tunnel of Indian Railway transport. The tunnel will be a single tube of 13.2 m diameter, which will be executed by both NATM and TBM methods in various departments. Underwater static refraction technology was used for the survey work, which has now been completed.

Please share your feedback with us. We shall be waiting.....

Hon'ble President of India Inaugurated, Laid Foundation Stone and Flagged Off Three New Trains from Badampahar Railway Station



Smt. Droupadi Murmu, Hon'ble President of India laid foundation stone for redevelopment of Badampahar Railway Station alongwith Shri Raghubar Das, Governor of Odisha and Minister of Railways, Shri Ashwini Vaishnaw

The Hon'ble President of India, Smt Droupadi Murmu flagged off three new trains namely Badampahar – Tatanagar MEMU; Badampahar - Rourkela Weekly Express; and Badampahar - Shalimar Weekly Express from Badampahar Railway Station, Odisha on 21st November, 2023 and laid the foundation stone for redevelopment of Badampahar Railway station on this occasion.

Addressing the gathering, the Hon'ble President said that three trains launched will help locals in travelling to neighboring states like Jharkhand and West Bengal. She added that people will also not face any inconvenience in visiting Odisha's industrial town Rourkela.

The Hon'ble President said that the Union Government is taking various initiatives for the development of tribal communities. She noted that there is almost three times increase in the current budget compared to the budget for the Financial Year 2013-14. She said that inclusive development is incomplete without the development of tribal people. That is why the government is giving priority to the development of tribal communities. She urged tribal youth to take advantage of the government's schemes. She emphasised that one's effort is also necessary for self development. Therefore, youth should keep trying to move forward in their lives.

The Hon'ble President said that the government has launched PM JANMAN (PM Janjati Adivasi Nyaya Maha Abhiyan) on the occasion of Janjatiya Gaurav Divas this year for the development of PVTGs.

After the event, the President travelled in the Badampahar - Shalimar Express from Badampahar to Rairangpur.



Hon'ble President Flagged Off Three New Trains from Badampahar Railway Station alongwith Shri Raghubar Das, Governor of Odisha and Minister of Railways, Shri Ashwini Vaishnaw



Hon'ble Prime Minister, Shri Narendra Modi flagged off the inaugural run of the Steam Heritage Special Train between Ekta Nagar and Ahmedabad through video conference from Ekta Nagar (Kevadiya).

Hon'ble Prime Minister Flagged Off Gujarat's

First Steam Heritage Special Train between Ekta Nagar and Ahmedabad Stations

Hon'ble Prime Minister Shri Narendra Modi flagged off the inaugural run of the Steam Heritage Special Train between Ekta Nagar and Ahmedabad on 31st October, 2023 through video link from Ekta Nagar (Kevadiya) on the occasion of National Unity Day. MPs Shri Mansukhbhai Vasava, Smt. Gitaben Rathva, MLA, Dr. Darshna Deshmukh and other dignitaries were present at Ekta Nagar railway station including senior railway officials of Western Railway.

The Steam Heritage Special Train is a befitting tribute to the great son of our country, the Iron Man of India - Sardar Vallabhbhai Patel. The Heritage Special Train will be an added attraction for the tourists visiting Statue of Unity. With its unique heritage look, the travellers will be transported to the bygone era of Steam engine locomotives. This train is equipped with enhanced interiors and luxurious amenities to provide a memorable travel experience to the travellers. The train comprises of four AC Vistadome type coaches consisting of three Air-Conditioned Executive Chair Car coaches with a seating capacity of 144 passengers. There is also an AC Restaurant Dining Car for fine dining experience which can accommodate 28 passengers.

The Steam Heritage Special Train is a move towards promoting tourist-friendly trains and to showcase the rich heritage of Indian Railways. This Special Train comprises of two locos of MEMU Driving Motor Car modified to resemble steam locos which are attached to both ends of the train. The Steam locos replicate the look and feel arrangement of first indigenously built Steam Loco No. F734. To give the feel of a yesteryear steam locomotive, fogging arrangement and the horn sounding arrangement have been incorporated which will rejuvenate old memories. These four coaches have been converted duly incorporating modern features along with aesthetically designed interiors and fittings to have a pleasant and comfortable travel experience. The designing and retrofittment work of this special train has been successfully undertaken by the joint efforts of EMU Car Shed, AVADI and Carriage Works, Perambur of Southern Railway.

Akhaura-Agartala international Connectivity Rail Line

Project between India and Bangladesh Inaugurated



Hon'ble Prime Minister of India, Shri Narendra Modi and Hon'ble Prime Minister of Bangladesh, Sheikh Hasina virtually inaugurated the Akhaura - Agartala international connectivity rail line project between India and Bangladesh

Hon'ble Prime Minister of India, Shri Narendra Modi and Hon'ble Prime Minister of Bangladesh, Sheikh Hasina virtually inaugurated the Akhaura - Agartala international connectivity rail line project between India and Bangladesh on 1st November, 2023. The 12.24 km long railway line (5.46 km in India and 6.78 km in Bangladesh) linked Bangladesh's Akhaura through an international immigration station at Nischintapur, which will be a dual gauge station for both passenger and goods interchange between India and Bangladesh.

Speaking on the occasion, Hon'ble Prime Minister said that both the countries have once again come together to celebrate the success of India-Bangladesh cooperation. Bangladesh has been connected to the Northeast for the first time by rail link. This rail link will give a great boost to the tourism sector and will bolster economic development of the Northeast, the Hon'ble PM added.

Indian Railways is significantly working towards Hon'ble PM's vision of 'Act East Policy' and 'Neighbourhood First Policy' by executing several new railway line projects connecting the neighbouring countries. Construction of the Akhaura - Agartala international connectivity rail line project between India and Bangladesh is one such of the crucial projects.

The new rail project will provide a great boost to people to people contact between the two countries apart from increasing the trade and commerce. Once fully operational, this new rail line will help grow small scale industries in the border areas and boost tourism of the two countries particularly in Tripura. It will also help in export and import of commodities faster and help the local producers to export their produces outside the country faster. Goods carrying trains from various parts of India can reach NE region via Bangladesh with much lesser transportation cost. Also, the travel time between Agartala and Kolkata via Dhaka will get reduced significantly.

Moreover, Nischintapur Railway station in Tripura which has been developed as a part of the ambitious Akhaura - Agartala international rail link project has been identified as Land Customs Station (LCS). A passenger and cargo terminal have been constructed to facilitate international travellers and freight cargos. The station yard, equipped with modern amenities will serve the purpose of Indo – Bangladesh trade along with trans shipment facility of goods and passengers. Further, the station yard will be used for security purpose and document checking of passengers to and from Bangladesh.

Hon'ble Prime Minister Inaugurated and Laid the Foundation Stone of Several Development Projects in Jharkhand



Hon'ble Prime Minister inaugurated and laid the foundation stone of several development projects in Jharkhand. The Governor of Jharkhand, Shri C.P. Radhakrishnan and the Chief Minister of Jharkhand, Shri Hemant Soren were also present

The Hon'ble Prime Minister, Shri Narendra Modi inaugurated and laid the foundation stone of several development projects in Jharkhand on 15th November 2023, during a function to mark 'Janjatiye Gaurav Diwas' (Tribal Pride Day), 2023 at Khunti, Jharkhand. These include the doubling of the Hatia-Pakra section, Talgaria-Bokaro section, and Jarangadih-Patratu section of Indian Railways. Apart from this, the achievement of 100 percent railway electrification in the state of Jharkhand was also dedicated to the nation by the Hon'ble Prime Minister.

The Governor of Jharkhand, Shri C.P. Radhakrishnan, the Chief Minister of Jharkhand, Shri Hemant Soren, and the Union Minister for Tribal Affairs, Shri Arjun Munda, among others, were present on the occasion.

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Minister of Railways Flagged off New Train from Mau to Mumbai



Minister of Railways, Shri Ashwini Vaishnaw flagged off new train service from Mau to Mumbai through video conferencing.

The weekly new train between Mau-Lokmanya Tilak Terminus-Mau was inaugurated on 22nd November, 2023. The inaugural train service was flagged off by Minister of Railways, Shri Ashwini Vaishnaw through video conferencing. He congratulated the residents of Mau region on the commencement of the inaugural train service of Mau-Mumbai (Lokmanya Tilak Terminus). Railways are being transformed and 100 per cent electrification of Railways has been done in Uttar Pradesh. Railway infrastructure is being strengthened.

At present, railway projects worth ₹98,000 cr. are underway in Uttar Pradesh. In Uttar Pradesh, the re-development of 156 stations, in which Mau Jn. station is also included, is being done keeping in view the traffic needs of the next 50 years. This train is also very useful from the point of view of weavers and farmers. This train will be very beneficial in sending textiles as well as agricultural products from here to Mumbai.

General Manager, North Eastern Railway Ms. Soumya Mathur welcomed all the guests including Railway Minister Shri Ashwini Vaishnaw, Minister Uttar Pradesh Shri Arvind Kumar Sharma, and Minister of Labour and Service Planning, Uttar Pradesh Shri Anil Rajbhar.

On this occasion, Minister of Labour and Service Planning, Uttar Pradesh Shri Anil Rajbhar, Member Legislative Council Shri Yashwant and a large number of regional people were present.



Minister of Railways, Shri Ashwini Vaishnaw flagged off new train service. Also seen are the dignitaries and general public who attended the physical function.

Minister of Railways Conducted Safety Review
Meeting through Video Conferencing

Shri Ashwini Vaishnaw, Minister of Railways, conducted a detailed review of safety aspects of Indian Railways through video conferencing.

In the meeting with Board Members of the Ministry of Railways, zonal officials and divisional officials, RDSO various safety aspects was discussed on 25th November, 2023. Various safety aspects of automatic signalling, long hours of crews, yard modernization and safety in yard infrastructure, duster management team was emphasized. Further, instructions were given for a fortnightly safety action plan and its review on a regular basis.

General Manager, Southern Railway, Shri. R.N. Singh, attended the meeting through video conference.



Minister of Railways, Shri Ashwini Vaishnaw attended the meeting through video conference along with Smt. Jaya Varma Sinha, Chairman & CEO, Ms. Anjali Goyal, Member Finance, Shri Roop Narayan Sunkar, Member Infrastructure and other Board Members



Minister of Railways, Shri Ashwini Vaishnaw flagged off Banaras-Sambalpur Express extended upto Visakhapatnam on 20th November, 2023, easing commute for residents of western and southern Odisha alongwith Shri Dharmendra Pradhan Minister of Education and Skill Development and other officials



The foundation day of Surat Railway Station which was established on 27th October, 1860 was celebrated in the presence of Minister of State for Railways, Smt. Darshana Jardosh.



Kotdwar - Delhi - Kotdwar (train number 14090/14089) new train service was flagged off on 28th October, 2023 by Shri Pushkar Singh Dhami, Chief Minister of Uttarakhand. With the operation of this train service, the residents of Uttarakhand and Delhi will get another option of rail connectivity.

Stoppages of Various Trains Inaugurated by MPs

New Lifts at Platforms in SMVT Bengaluru Railway Station Installed

Three passenger lifts installed at platform nos. 2/3, 4/5 and 6/7 in SMVT Bengaluru Railway Station were opened to the use of passengers on 1st November, 2023.



Shri P.C. Mohan, MP Bengaluru, Central, who was present on the occasion suggested the lifts to be inaugurated by civic workers. As per the directions of MP, the house keeping staff, porters along with other co-workers inaugurated the lifts by cutting ribbon. The lifts are installed at a cost of ₹80.62 lakhs. Each lift has a capacity to carry 20 persons.

Inaugurated of New Stoppage of Train Chhapra Kacheri-Gomti Nagar Express at Ramkola



Member of Parliament of Kushi Nagar, Shri Vijay Kumar Dubey inaugurated the new stoppage of train number 15113 Gomti Nagar-Chhapra Kacheri Express on experimental basis at Ramkola station of Varanasi division over North Eastern Railway on 30th September, 2023 at a function organized at Ramkola station

New Stoppages of Three Trains Inaugurated by MP of Gorakhpur

Member of Parliament, Gorakhpur Shri Ravi Kishan Shukla inaugurated the new stoppages of Gorakhpur-Aishbagh-Gorakhpur Express on experimental basis at Peppeganj and Campierganj stations on 7th October, 2023. On 8th October, 2023, The MP inaugurated the new stoppage of Gwalior-Barauni Express on experimental basis at Sahjanwa station. In another programme on 9th October, 2023, he also inaugurated the new stoppage of Gomti Nagar-Chhapra Kacheri-Gomti Nagar Express on experimental basis at Pipraich station.



New Stoppages of Two Trains Inaugurated by MPs

Minister of State for Rural Development, Govt. of Uttar Pradesh Smt. Vijay Laxmi Gautam and Member of Parliament, Gorakhpur Shri Ravindra Kushawaha inaugurated the new stoppage of Lokmanya Tilak Terminus-Chhapra Express on experimental basis at Salempur station on 13th October, 2023 by flagging off the train at a function organized at Salempur station.



In another programme on 14th October, 2023, Member of Parliament, Shri Ravindra Kushawaha inaugurated the new stoppage of Gorakhpur-Pune Express on experimental basis at Belthara Road station of Varanasi division by flagging off the train at a function organized at Belthara Road station.

Inaugurated New Stoppage of Gorakhpur-Ahmedabad Express at Bhatni Station

Member of Parliament of Deoria, Dr. Ramapati Ram Tripathi and Member of Parliament of Salempur, Shri Ravindra Kushawaha inaugurated the new stoppage of Ahmedabad-Gorakhpur Express on experimental basis at Bhatni station of Varanasi division on 16th October, 2023 by flagging off the train at a function organized at Bhatni station in the presence of MLA of Rampur Karkhana, Shri Surendra Chaurasia.



Member of Parliament Introduced Stoppage of Three Trains at Panagarh

Shri S. S. Ahluwalia, Member of Parliament flagged off Sealdah – Ballia Express from its new stoppage at Panagarh station on



18th October, 2023. In the programme organized on this occasion, Shri Ahluwalia, Member of Parliament also announced for stoppages of Howrah-Kathgodam Bagh Express and Raxaul–Howrah Mithila Express at Panagarh station.

Guwahati – SMVT Bengaluru Express with LHB coaches flagged Off by MP

In a bid to further enhance safety and comfort for passengers, the coaches of train number 12510/12509 (Guwahati – SMVT Bengaluru – Guwahati) tri-weekly express has been converted into modern LHB (Linke Hofmann Busch) coaches, equipped with the-state-of-art features. Smt. Queen Oja, Member of Parliament (Lok Sabha) flagged off the train with LHB rake from Guwahati Railway Station on 29th October, 2023.



Chairman & CEO Of Railway Board Inspected Howrah Maidan to Esplanade Stretch of East West Metro



Smt. Jaya Varma Sinha, Chairman & CEO of Railway Board inspected Howrah Maidan to Esplanade stretch of East West Metro on 28th November, 2023.

Starting from Howrah Maidan station, CRB travelled upto Esplanade station in a Metro under the river Hooghly. She held a detailed discussion about this project with Shri P. Uday Kumar Reddy, Genral Manager and other senior officials of Metro and Kolkata Metro Rail Corporation Ltd. (KMRCL). Shri Reddy showed her the 3-d model and schematic diagram of East-West Metro Project and apprised her the progress of work. From Howrah Maidan, she travelled in the Motorman's cabin of a Metro and reached Howrah station. There, she inspected Passenger Interchanging Points of Metro Railway with Eastern and South Eastern Railway. She travelled under the river Hooghly, through the tunnel, first of its kind in India. She concluded her inspection at Esplanade where she inspected passenger amenities, safety and security measures that are going to be adopted here as well as passenger interchanging arrangements between Blue Line and Green Line.

Chairman and CEO of Railway Board Visited RDSO



Smt. Jaya Verma Sinha, Chairman and Chief Executive Officer, Railway Board visited RDSO on 24th November, 2023. Director General, RDSO, Shri Ajay Kumar Rana welcomed Smt. Jaya Verma Sinha. On this occasion the RDSO officials made a detailed presentation mentioning the recent achievements and the ongoing projects of RDSO. During this presentation, Chairman and CEO gave many useful suggestions. She reviewed all the major projects and important works of RDSO and directed RDSO officials to complete them expeditiously. In her address Smt. Jaya Verma Sinha, Chairman and CEO, Railway Board, appreciated the work and efforts being done by RDSO and said that RDSO has been an important part of Indian Railways. She also stressed upon the officers and employees of RDSO to adopt latest technologies and complete the ongoing projects in a minimum time.



Smt. Jaya Varma Sinha, Chairman & CEO Railway Board along with other Board Members paid floral tributes to the legendary tribal freedom fighter, Bhagwan Birsa Munda at Rail Bhavan on 15th November, 2023

Member (Infrastructure) Inspected Ayodhya Station

On 22nd November, 2023 Shri Roop Narayan Sunkar, Member Infrastructure, Railway Board visited Ayodhya Cantt. and Ayodhya Station and took stock of the modernisation works. He alongwith the officials of Northern Railway carried out window tracing of Barabanki-Ayodhya-Shahganj section and thoroughly examined the doubling work and safety arrangements. He also gave necessary suggestions and guidance to the concerned officers. Officials of RITES were also present in this inspection programme.



Additional Member (Traction) Railway Board
Visited Chittaranjan Locomotive Works



Shri Vijay Pratap Singh, Additional Member (Traction) Railway Board, visited Chittaranjan Locomotive Works on 17th October, 2023. Shri Singh was shown around the Loco Assembly, TM, Shell, Bogie, and Wheel Shop, inside shop floor premises. Later, Shri Singh chaired a meeting with Shri Debi Prasad Dash, General Manager and senior officers in the conference room of the administrative building, wherein various matters were deliberated upon.

Indian Railways Showcased its Progressive 'Changing India's Infrastructure' at India

Indian Railways Pavilion secured a Bronze Medal

for Excellence in Display amongst the Ministries and Departments Pavilions at the 42nd India International Trade Fair 2023



Ministry of Railways Pavilion at IITF-2023 showcased the model of Vande Bharat Train and the proposed design of Jammu Tawi railway station inspired by Raghunath Temple

The Ministry of Railways participated in the 42nd India International Trade Fair (IITF)-2023 held at Pragati Maidan, New Delhi from 14th to 27th November, 2023. The Ministry had set up a pavilion in Hall No.5 with the theme 'Infrastructure of Changing India' under the guidance of Shri Ashwini Vaishnaw, Minister of Railways, Communications & Electronics & Information Technology. The pavilion of Indian Railways was inaugurated by Smt. Jaya Verma Sinha, Chairman and CEO, Railway Board. The Indian Railways pavilion was the center of attraction for the people in this fair which lasted till 27th November, 2023.



Smt. Jaya Varma Sinha, Chairman and CEO inaugurated the Ministry of Railways pavilion by cutting the ribbon

Taking inspiration from the theme of IITF 2023 - "Vasudhaiva Kutumbakam - Unity through Business", Indian Railways showcased its journey in this pavilion. He also spoke about how Indian Railways has made a mark globally by exporting locos, coaches and DEMU trains to other countries of the world. Apart from this, the commitment of Indian Railways towards net zero carbon emission was also shown in the pavilion.

The pavilion highlighted various aspects of Indian Railways where various themes were showcased along with their technological and structural progress through paintings, translights and models etc. The exterior of the rail pavilion showcased the model of Vande Bharat Train and the proposed design of Jammu Tawi railway station inspired by

Journey at Railway Pavilion with the Theme of International Trade Fair





General public took immense interest in the pavilion

Raghunath Temple, showcasing the Amrit Bharat Station redevelopment scheme launched for 1309 stations across the country. Various formats were displayed in this pavilion. These included the USBRL project (Katra-Banihal section), the proposed Surat station on the National High Speed Rail Project, Vande Bharat Train, Pamban Bridge Vertical Girder, Bogibeel Bridge and Darjeeling Himalayan Railway.

The rail pavilion was divided into sections such as transformation of India's infrastructure, heritage development, celebration of women power, and knowledge tree. A selfie booth in the Nari Shakti section attracted the attention of the visitors. Interesting things were available for the audience of every age group in the Rail Pavilion. Apart from this, interactive screens displaying videos of natural beauty of Indian Railways for the purpose of entertaining children along with being educational and informative and enjoying, interactive quizzes to learn more about Indian Railways and achievements of railways in the last nine years were displayed. It was an informative experience for the people to visit the Railway Pavilion at IITF-2023.



Smt. Jaya Varma Sinha, Chairman & CEO showed great interest in the Magazine Section of the Ministry of Railways pavilion



Shri Shivaji Maruti Sutar, Director (I&P) alongwith Senior Officers and Staff of Public Relations Directorate with the Award

Four Iconic Real Rail Size Exhibits of NRM Awarded with IMECHE Engineering Heritage Award



Mr. Giles Hartill, Preseident of IMechE alongwith Shri Milind K. Deouskar, Secretary, Railway Board during IMECHE Engineering Heritage Award

National Rail Museum represents 170 years of rich heritage of Indian Railways. Emulating the setting of a railway yard, the extensive outdoor gallery houses a variety of steam, diesel and electric locomotives along with fascinating collection of royal saloons, wagons, carriages, armoured trains, rail cars and a turntable. Interactive displays and models exhibited inside the Indoor gallery displays the remarkable stories related to early modes of transportation to latest development over the Indian Railways.

Four iconic real rail size exhibits of National Rail Museum were awarded with IMECHE Engineering Heritage Award by Mr. Giles Hartill, President of IMechE, London (UK) in the presence of Chief Guest Shri Milind K. Deouskar, Secretary, Railway Board on 28th November, 2023 at NRM, New Delhi.

The Institution of Mechanical Engineers is an independent professional association and learned society headquartered in London, United Kingdom, that represents mechanical engineers and the engineering profession. with over 120,000 members in 140 countries, working across industries such as railways, automotive, aerospace, energy, biomedical and construction, the Institution is licensed by the Engineering Council to assess candidates for inclusion on its Register of Chartered Engineers, Incorporated Engineers and Engineering Technicians.



It is a pride moment for Indian Railways to receive the Engineering Heritage Awards for its exhibits.



WAG1 20710 Electric Locomotive -The first 25kV AC electric locomotive built in India, was rolled out from Chittaranjan Locomotive Works in 1963.This class of broad-gauge freight locomotives were in service until 2002, contributing to India's development. Weighing 85 tonnes, this 2840 HP locomotive could run at 80 kilometres an hour.

John Morris Fire Engine - Built in Salford, Manchester in 1914 and brought to India by the seventh and last Nizam of Hyderabad, Mir Osman Ali Khan, for the Nizam State Railways' Lallaguda Carriage and Wagon Workshop. It retired in 1960 after nearly four decades and is still in working condition.





Patiala State Monorail Tramway (PSMT)- Built by Orenstein & Koppel for the first steam monorail in India, from Sirhind to Alampur and Patiala to Sunam in Punjab. The tramway was designed by C W Bowles using the Ewing system. The locomotive operated from 1909 to around 1927, being restored in 1976.

F1 734 Steam Locomotive -The first steam locomotive manufactured entirely in India. A metre gauge locomotive built in 1895 at Ajmer Workshop to a design by Dübs & Co. Glasgow. It was used for mixed traffic on the Rajputana-Malwa Railway (RMR) and later on the Bombay, Baroda & Central India Railways (BB&CI) until 1958.





Indian Railways 'One Station One Product' Scheme

How it Started

One Station One Product (OSOP) scheme was announced in the Union Budget 2022-23. This scheme aims to provide opportunities for enhanced livelihood through skill development to local artisans, potters, weavers/handloom weavers, craftsmen etc, through provision of sale outlets at Railway Stations across the country. The pilot project was launched on 25th March, 2022 for 15 days at 19 stations. Based on the experience gained from the pilot projects, OSOP policy was issued on 20th May, 2022 vide Commercial Circular 12 of 2022.

As on 9th November, 2023, 1134 OSOP outlets are operational at 1037 stations.



How OSOP Stalls are Allotted

Under this scheme, Indian Railways is providing uniquely designed sale outlets with distinctive look, feel and logo at stations as per the design developed by NID/Ahmedabad for showcasing, selling and giving high visibility to indigenous/local products. Allotment is done to all applicants by tendering process, who meet the objectives of the scheme on rotation basis by draw of lots at stations.

How Many Beneficiaries are Benefitted



Patna Jn. (ECR)
'Madhubani Painting and Related Products'

Total 39,847 direct beneficiaries have availed the opportunities being offered under this scheme up to 9th November, 2023. Assuming indirect





beneficiaries @5 per allotment, total beneficiaries work out to be 1,43,232. Total sales of ₹49.58 cr. have been registered.



Secunderabad (SCR)
'Millets Shop'

Vision Behind OSOP and Outreach

In the OSOP Policy, it is envisaged that the benefit of this scheme must reach the target groups i.e. those at the bottom of the pyramid and to provide opportunity to all applicants. To achieve this objective, various public outreach measures including advertising in newspapers, social media, public announcements, press notifications, personal visits to artisans, etc. have been adopted by the Railway authorities.



Products in OSOP

The products category would be indigenous/local to that place and could include artefacts, handicrafts, textiles and handlooms, toys, leather products, traditional appliances/instruments, garments, gems and jewellery, etc made by local artisans, weavers, craftsmen, tribes, etc and processed, semi processed and other food products indigenously made/grown in the area.



RDSO Successfully Tested 15% Methanol Blended Diesel as a Cost-effective Fuel on High-Horse Power Diesel Locomotive Engine



Indian Railways is making efforts to replace mineral diesel by methanol as fuel on diesel locomotives as about 1.6 billion liters of diesel fuel per year is consumed with an annual expenditure of ₹15,200 cr. In this regard, RDSO has taken up a project to reduce the consumption of diesel fuel on Indian Railways by replacing it with alternate renewable fuels and is working on using 15% methanol blended diesel as fuel on the diesel locomotive engines. The use of methanol as a fuel is driven by the Methanol Mission of the Government of India as methanol is a single molecule fuel and exhibits clean combustion. On the other hand, mineral diesel require more energy for complete combustion.

RDSO in collaboration with Indian Oil Corporation Ltd. is working to develop MD15 fuel with blends of diesel and methanol contain (v/v) 71% mineral diesel, 15% methanol and 14% coupler additive (developed indigenously by IOCL). RDSO carried out the detailed engine tests on its research engine test bed with MD15 fuel that was supplied by IOCL. Performance, emission and combustion experiments of the 4500 hp diesel locomotive engine were carried out with MD15 fuel vis-a-vis neat mineral diesel. Certain critical parameters of the engine, like fuel injection timing, were varied to ascertain optimum performance of the 4500 hp diesel engine with MD15 fuel.

It was found after the tests that the Brake Specific Energy Consumption (BSEC) of MD15 fueled engine is lower than diesel fuel due to higher combustion efficiency with MD15. This performance was seen at all engine notches and the difference in the BSEC between two fuels was almost constant. Thus, use of MD15 is useful in terms of engine efficiency. It was also observed that in the MD15 fuelled engine, cylinder temperatures were lower at all the notches in comparison to baseline diesel that will have a positive effect on the life of the engine components. NOx emissions were significantly lower with the MD15 fuelled engine that is a harmful pollutant which causes atmospheric smog and near surface ozone formation and is also harmful for lungs. Emission of particulate matter was also considerably low with the MD15 fuelled engine and exhaust smoke from the MD15 engine was clear without trace of opacity as compared to Diesel exhaust particulates that are harmful and are known carcinogens.

Overall MD15 fuelled engine has shown superior performance, emission and combustion characteristics than the mineral diesel fuelled engine and it is expected that the use of MD15 fuel will reduce the diesel fuel consumption by 15% and will result in annual savings of ₹2,280 cr. per year. Two Diesel Locomotives of Abu Road Diesel shed have been nominated for the field trails. After one month of field tests, it is planned to switch over to MD15 fuel on all diesel locomotives of Indian Railways.

KIND ATTENTION

AUTHORS/WRITERS contributing articles for the magazine are requested to restrict their articles to a reasonable size. Ideally an article should not exceed **1000 WORDS**.

In view of the space constraints of the magazine, sometimes it becomes difficult to include longer articles. All are requested to appreciate our problem and co-operate.

During October 2023, RPF Reunited Over 601 Children Under Operation 'Nanhe Faristey'

In October 2023, RPF continued to ensure the safety, security, and comfort of passengers, while also assisting Indian Railways in delivering reliable freight transport services to its customers.

A brief of the achievements of RPF during the month of October 2023 is as under :

Operation 'Nanhe Faristey' - Rescuing Lost Children: Under the mission 'Nanhe Faristey', RPF played a pivotal role in reuniting more than 601 children in need of care and protection with their families. These children were separated from their families for various reasons, and RPF worked tirelessly to ensure their safe return. Anti-Human Trafficking Efforts (Operation AAHT): RPF's Anti-Human Trafficking Units (AHTUs) at various posts across the Indian Railways worked relentlessly to thwart the sinister plans of human traffickers. In October 2023, RPF rescued 39 persons from the clutches of traffickers.

Operation 'Jeevan Raksha' - Saving Lives: RPF's vigilant and swift action, saved the lives of 262 passengers who had come close to getting run over by trains, at platforms and railway tracks, in the month of October 2023, under operation 'Jeevan Raksha'.

Empowering Women Passengers - 'Meri Saheli' Initiative: RPF takes the security of women passengers seriously and has launched the 'Meri Saheli' initiative. During October 2023, 232 'Meri Saheli' teams attended 13,664 trains and provided security assurance to 423,803 lady passengers. RPF also took action against 5,722 individuals found in coaches reserved for women.

Cracking Down on Touts (Operation 'Uplabdh'): In the fight against touts, RPF arrested 490 individuals in October 2023 and took legal action against them as per the law. Additionally, they seized future tickets valued at ₹43.96 lakhs, including 42 illegal software.

Operation 'NARCOS' - Combating Drug Crimes: In a commendable effort, RPF arrested 99 individuals and seized narcotics valued at ₹5.99 cr. during October 2023. These criminals were handed over to empowered agencies for further legal action.



Swift Response to Passengers' Concerns: RPF promptly addressed security-related passenger complaints through 'Rail Madad' Portal and the helpline (No. 139 integrated with Emergency Response Support System No. 112). Over 30,300 complaints were received in October 2023, with RPF taking necessary actions to resolve them.

Operation 'Yatri Suraksha' - Protecting Passengers: RPF supplements the efforts of police in preventing and detecting crimes against railway passengers. In October 2023, RPF arrested 256 criminals involved in offenses against passengers, delivering them to the concerned GRP/Police.

Ensuring Safety through 'Operation Sanraksha': In a resolute effort to maintain passenger safety and protect railway services, RPF arrested 33 individuals involved in the perilous act of stone pelting on running trains in October 2023.

Assisting those in Need (Operation Seva): With a humanitarian approach, RPF provided assistance to 272 elderly, sick, or injured passengers during their rail travels in October 2023.

Curbing Illegal Goods Transport (Operation Satark): Under 'Operation Satark,' RPF seized illegal tobacco products worth ₹10,33,149 and illegal liquor worth ₹26,12,656, apprehending 127 individuals. These individuals were handed over to the relevant law enforcement agencies.

Indian Railways Successfully Implements Special Campaign 3.0



11.80 lakh sq. feet of space freed up and revenue of ₹224.95 cr. (approx.) generated.

More than 2.88 lakh Public Grievances resolved during the campaign.

More than 1.70 lakh files reviewed for the purpose of recording and weeding.

Inspired by the vision of Hon'ble Prime Minister, the Government of India launched Special Campaign 3.0 focusing on cleanliness all around, reducing pendency of public matters and improving work-culture at the work places.

As part of the aforesaid initiative the Special Campaign 3.0 was taken up on Indian Railways from 2nd October, 2023 to 31st October, 2023 with increased enthusiasm and wider ambit of targets to further promote cleanliness and good governance.

The campaign has been a huge success in Indian Railways. Nodal officers at various levels were nominated over countrywide spread of Indian Railways to carry out the campaign successfully. All employees from top to bottom were proactively involved in achieving cleanliness at work places and disposal of pending matters. It is due to the untiring efforts of all Nodal officers and employees that Railways could achieve almost 100% targets in many parameters.

During the campaign, 23,672 cleanliness campaigns have been conducted over entire Indian Railways including Zonal offices, Divisional offices, PSUs, PUs, Training Institutes, Railway Workshops and Stations. Special focus has been given to scrap disposal in offices and workplaces which resulted in freeing up of 11.80 lakh sq. feet of space and has generated revenue of ` 224.95 cr. (approx.).

Besides this, more than 2.8 lakh Public Grievances have been resolved during the campaign. More than 1.70 lakh files have been reviewed for the purpose of recording and weeding of which more than 1.00 lakh have been finally recorded



The Railways is actively using social media (Twitter, Facebook etc.) and other platforms to highlight it's efforts and motivate the employees and public in general towards ideals of Swachhata Campaign. More than 6,900 social media posts were posted from various handles of Railways and 114 press releases were published by Railways during the campaign period.



100 km of Viaducts are ready for MAHSR Corridor



The 100 km of viaducts for Mumbai-Ahmedabad High Speed Rail Corridor project are completed:

Girder/viaduct	Date	Timeline/ completion time
Launching of First Girder	25th November, 2021	-
Completion of First km of viaduct	30th June, 2022	6 months
Completion of 50 km of viaduct	22nd April, 2023	10 months
Completion of 100 km of viaduct	9th November, 2023	6 months

- The project achieved this milestone of construction of cumulative 100 km of viaducts through launching of 40 m long Full Span Box girders and Segmental Girders
- Full Span Launching technique (FSLM), where 40 m long box girders are launched through state-of-the-art launching equipment, are being used along with Span by Span launching of segments.
- FSLM is 10 times faster than the launching through Span by Span method, which is normally used for constructing metro viaducts.
- The viaducts include bridges over Six (6) rivers: Par (Valsad district), Purna (Navsari district), Mindhola (Navsari district), Ambika (Navsari district), Auranga (Valsad district) and Venganiya (Navsari distt), all in Gujarat.
- The installation of noise barriers has already started on the constructed viaduct.
- The laying of first Reinforced Concrete (RC) track bed for the MAHSR corridor track system as used in Japanese Shinkansen has also started in Surat. This is for the first time, the J-slab ballastless track system is being used in India.
- Breakthrough of first mountain tunnel of 350 m has been completed in Valsad district, Gujarat.
- First steel bridge of 70 m length has been erected in Surat district, Gujarat. This is the first of the 28 steel bridges which will be the part of MAHSR corridor.



News of Zonal Railways and Production Units



Shri R. Rajagopal took over as General Manager Rail Wheel Factory

Shri R. Rajagopal, an officer of Indian Railways Service of Mechanical Engineering, 1987 Batch, took over as the General Manager of Rail Wheel Factory, Bangalore.

Shri Rajagopal joined Indian Railways on 6th March 1989. During his tenure, he has served in various leadership positions in Indian Railways. He has undergone Senior Managers' training Programme on Strategic Management at IRSMI, Lyon, France. He has also attended the Divisional Railway Managers (DRM) training at SDA Bocconi Business School, Milan, Italy. Apart from this, he has been awarded Post Graduate Diploma Programme in Public Policy and Management from the prestigious Indian Institute of Management, Bangalore.



Shri S. Srinivas joined as General Manager of Rail Coach Factory, Kapurthala

Shri S. Srinivas has joined as General Manager Rail Coach Factory, Kapurthala on 31st October, 2023. He belongs to 1986 Batch of Indian Railway Service of Mechanical Engineers. Shri S. Srinivas has worked in various capacities in various Zonal Railways, Production Units and in RDSO. At RDSO, he was instrumental in converting GTO based propulsion to IGBT based propulsion on EMD Locomotives.

He has played a vital role in design and development of Vande Bharat trains in FY 2017-18 and again has played a major role in design improvement and series production of Vande Bharat trains.

His systematic planning and meticulous follow up has led to manufacture of 40+ Vande Bharat rakes in a short span of time.



Shri Hitendra Malhotra took over as the new General Manager of CLW

Shri Hitendra Malhotra, an officer of the Indian Railways Service of Electrical Engineer (IRSEE) belonging to the 1987 batch, has officially taken over as the General Manager of Chittaranjan Locomotive Works (CLW) on 1st November, 2023.

Throughout his illustrious career spanning over 34 years, he has held several crucial positions over the Indian Railways in the fields of General Management as DRM, Operations and Maintenance of Electric Locomotives in WR and NR. Design Standardization and Reliability improvement at RDSO for self generating coaches.

He had successfully completed 11 months training in National Defence College covering strategic thinking and international relationswith a diverse group of officers from various ministries.

The entire team at Chittaranjan Locomotive Works (CLW) is looking forward to an unparalleled progress and innovation under his leadership and guidance.



Smt. Shobhana Bandopadhyaya assumed charge of General Manager of West Central Railway

Smt. Shobhana Bandopadhyaya assumed charge as General Manager, West Central Railway on 1st November 2023. Smt. Shobhana Bandopadhyaya is a Senior Railway Officer of the Indian Railway Service of Signal Engineers (IRSSE) 1987 batch. Smt. Bandopadhyaya is the first woman Railway Officer to take charge of the post of General Manager in West Central Railway. Before taking over as General Manager, she was working as Principal Executive Director (Vigilance) in Railway Board.

Smt. Bandopadhyaya is one of the distinguished women engineers of Indian Railways with rich experience in Railway Operations Management, Planning, Design and Control, Maintenance, Construction and various Project Managements. She has contributed in various fields like development of infrastructure of Railways, modernization of IT, Signal & Telecom assets, business development and customer service, safety etc.



Ms. Saumya Mathur takes over as General Manager, NER

On 1st November, 2023, Ms. Saumya Mathur has taken over as General Manager, North Eastern Railway. Ms. Mathur is the first woman General Manager of North Eastern Railway since it's formation in 1952. After taking over the charge of General Manager, Ms. Mathur set the priorities and said that safety, punctuality, efficient train operations, staff welfare, speeding up infrastructural projects & Amrit Stations works will be the top priorities. She has attended various training programme abroad including JICA (Japan), Management Training at INSEAD (Singapore) and ICLIF (Malaysia). Ms. Mathur has wide experience of railway management and administration.

Landmark Medical Achievement at Southern Railway Headquarters Hospital in Perambur



Southern Railway Headquarters Hospital at Perambur has reached an extraordinary medical milestone, achieving India's first high-risk, non-surgical mitral valve replacement in a government institution. This ground breaking procedure, only the third of its kind in India and the first in a government institution, was executed with unparalleled expertise and dedication. The successful completion of the surgery resulted in the patient's swift recovery, demonstrating the pivotal role of healthcare professionals in saving lives.

SCR Headquarters Building Awarded with Gold Rating by Indian Green Building Council

South Central Railway Headquarters Administrative Building, Rail Nilayam, has been awarded the prestigious IGBC – Green Existing Building Gold Rating by Indian Green Building Council (IGBC). The building has earlier achieved Gold Rating and has been recertified with Gold Rating as it met all the stipulated requirements

for Gold Rating. This certification is valid for three years from July 2023.

The IGBC Gold Rating was achieved for the building by means of undertaking various water conservation and saving measures like waste water treatment, rain water harvesting, solid waste management, eco friendly landscaping, electrical energy saving and generation, occupants comforts, building operations and maintenance and others. The IGBC, with the support of Environment Directorate of Indian Railways has developed the Green Railway Stations Rating system to facilitate adoption of Green concepts, thereby reducing the adverse environmental impacts due to station operation and maintenance and enhance the overall commuter experience. The rating system helps to address National priorities like water conservation, handling of waste, energy efficiency, reduced used of fossil fuel, lesser dependency on usage of virgin materials and health and well being of occupants. The six modules involved in the task are – sustainable station facility; health, hygiene and sanitation; energy efficiency; water efficiency; smart and green initiative; and innovation and development.



Shri Arun Kumar Jain, GM/SCR congratulated the Hyderabad Division officials and SCR Headquarter officials for securing Gold Rating from IGBC.

New Token Introduced in Kolkata Metro

Metro Railway has introduced a new token from 10.10.2023.Celebrating the success of lunar voyage of Chandrayaan-3 conducted by Indian Space Research Organization (ISRO), country's first Metro, Kolkata Metro has designed this new token. The first Metro of India has thus marked country's first successful soft landing on lunar surface in an unique way.



Design of this new token has been unveiled by Shri Saumitra Biswas, Principal Chief Operations Manager, Metro Railway on 10th October, 2023 at Metro Rail Bhavan.

These new tokens will be made available to the commuters from the ticket counters. These new tokens will be available in all three corridors of Kolkata Metro.

General Manager, SCR Flagged off 'SAHASRASHV' 1000th Electric Locomotive of SCR

Shri Arun Kumar Jain, General Manager, South Central Railway flagged off the 1000th Electric locomotive of SCR named 'SAHASRASHV' and dedicated the loco to the service of vibrant and green India on 10th November, 2023 at Electrical Loco Shed (ELS), Lallaguda. South Central Railway has etched a new milestone in its journey of serving people with pride. The 'SAHASRASHV' locomotive is a symbol of the zone's dedication to Mission Life and Sustainable Development Goals. Accordingly, the locomotive is equipped with modern state of the art IGBT (Insulated Gate Bipolar Transistors) propulsion system which gives it regenerative braking capacity. This feature alone saves around 12.4% of electrical

energy along with other benefits like saving 0.976 kilo tonnes of coal per year per locomotive and reducing carbon footprint by 2.362 kilo tonnes of CO2(e) per year per locomotive.



The General Manager congratulated the SCR team for reaching this commendable milestone. Shri Arun Kumar Jain also undertook detailed inspection of the Electric Loco shed.

Metro Railway Observed 3rd Janjatiya Gaurav Divas

Metro Railway on 17th November, 2023 observed the third Janjatiya Gaurav Divas to celebrate the birth anniversary of freedom fighter Dharti Aba Bhagwan Birsa Munda. A special programme was organised at Metro Rail Bhavan to pay the profound respect of Metromen to Birsa Munda who made supreme sacrifices to make India free from British rule. Shri P. Uday Kumar Reddy, General Manager, Metro Railway inaugurated this programme by lighting a traditional lamp. He along with other senior officers, staff of Metro Railway and members of All India Scheduled Caste and Scheduled Tribes Railway Employees Association (Zonal Executive Committee) paid their floral tribute to Dharti Aba Bhagwan Birsa Munda.



Assam's 4 Stations Achieved 'Eat Right Station' Certification

The Harishchandrapur and Lumding Railway Stations of N. F. Railway have been awarded 'Eat Right Station' certification by FSSAI (Food Safety and Standards Authority of India) in recognition of providing high-quality, nutritious food to passengers. These stations have been able to qualify the guidelines established by FSSAI and become the second and third railway stations, respectively in N. F. Railway after Guwahati Railway Station to get this status. This certification has been awarded for the period of 19th October, 2023 to 18th October, 2025 to both the stations.

The Rangiya and Mariani Railway Stations of N. F. Railway at Assam have been awarded 'Eat Right Station' certification by FSSAI (Food Safety and Standards Authority of India) in recognition of providing high-quality, nutritious food to passengers. This certification has been awarded for the period from 25th September, 2023 to 24th September, 2025 for Rangiya Railway station and from 19th October, 2023 to 18th October, 2025 for Mariani Railway station.

The certification is part of the 'Eat Right India' movement a large-scale effort by FSSAI to transform the country's food system to ensure safe, healthy and sustainable food for all Indians.



Oil India - NFR Northeast Half Marathon
at Bogibeel, Dibrugarh held successfully



The third leg of Northeast Half Marathon was completed with great enthusiasm on 5th November, 2023. The Oil India - NFR Northeast Half Marathon was flagged off from Bogibeel Bridge, Dibrugarh by Shri Rameswar Teli, Minister of State for Petroleum and Natural Gas in the presence of General Manager of N. F. Railway, Shri Chetan Kumar Shrivastava. Participants competed in three different race categories - 21 km, 10 km and 5 km run both for men and women. Among the 21 km-long half marathon runners, Trilok K.R. won the men's race clocking 01:08:44 while Nodia Patar won the women's race clocking 01:37:05. Monobi Sinha came second in 01:10:04 in the men's race while Maya Medhi emerged as second runner in the women's race clocking 01:40:20.

Winners of 21 km, 10 km and 5 km run for both the categories were awarded with prize money, medals, and certificates.

Handball Championship Organised
by Noth Eastern Railway Sports Association

North Eastern Railway Sports Association (NERSA), Izzatnagar division organised 16th All India Railway Men and Women Handball Championship-2023 from 11th to 14th October, 2023. North Eastern Railway defeated Northern Railway and won the trophy in men's category on 14th October, 2023. In the final match of women's category on 13th October, 2023, NER defeated Northern Railway and won the trophy. In the men's category, Northern Railway was the runner-up and Western Railway team stood third. In the women's category, NR was the runner-up and SECR got the third place.



READERS

are requested to send their

SUGGESTIONS/FEEDBACK

editorindianrailways@gmail.com

Photo Gallery



A brilliant harmony of cherry blossom hues and azure pave the way for Mysuru-Chennai Vande Bharat Express near Kengeri, Bangalore.

Credits: Natarajan C

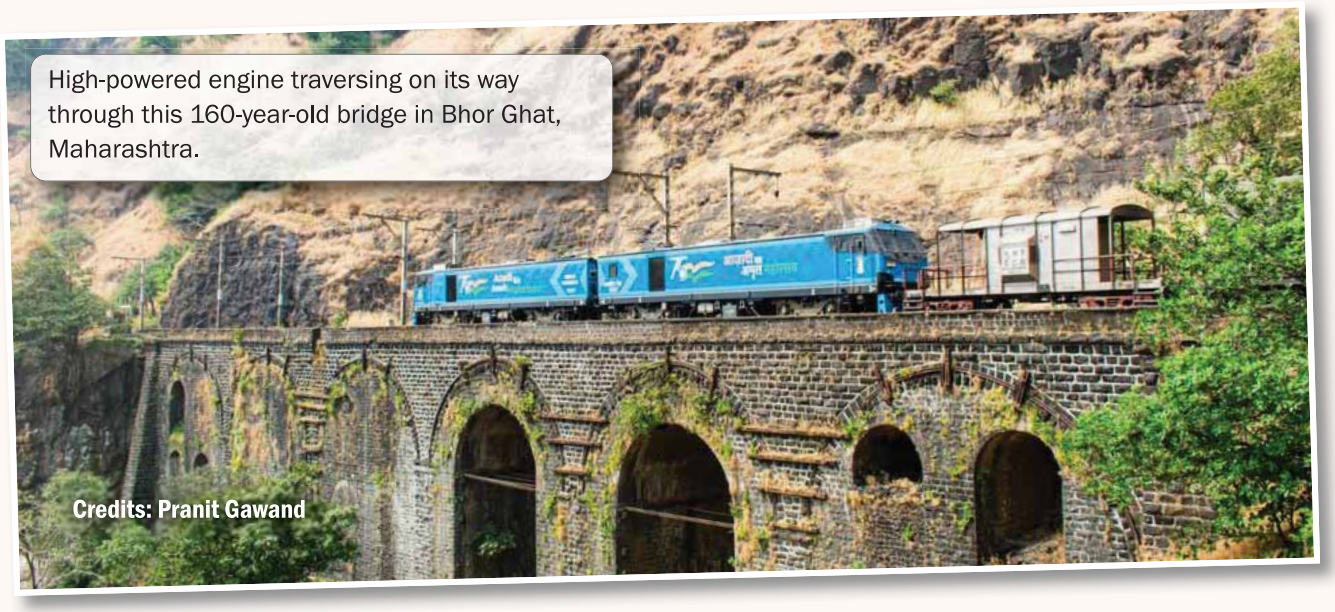


Blue and Tangerine Vande Bharat Express

Location: Vellayil Station in Thiruvananthapuram-Kasaragod section of Kerala

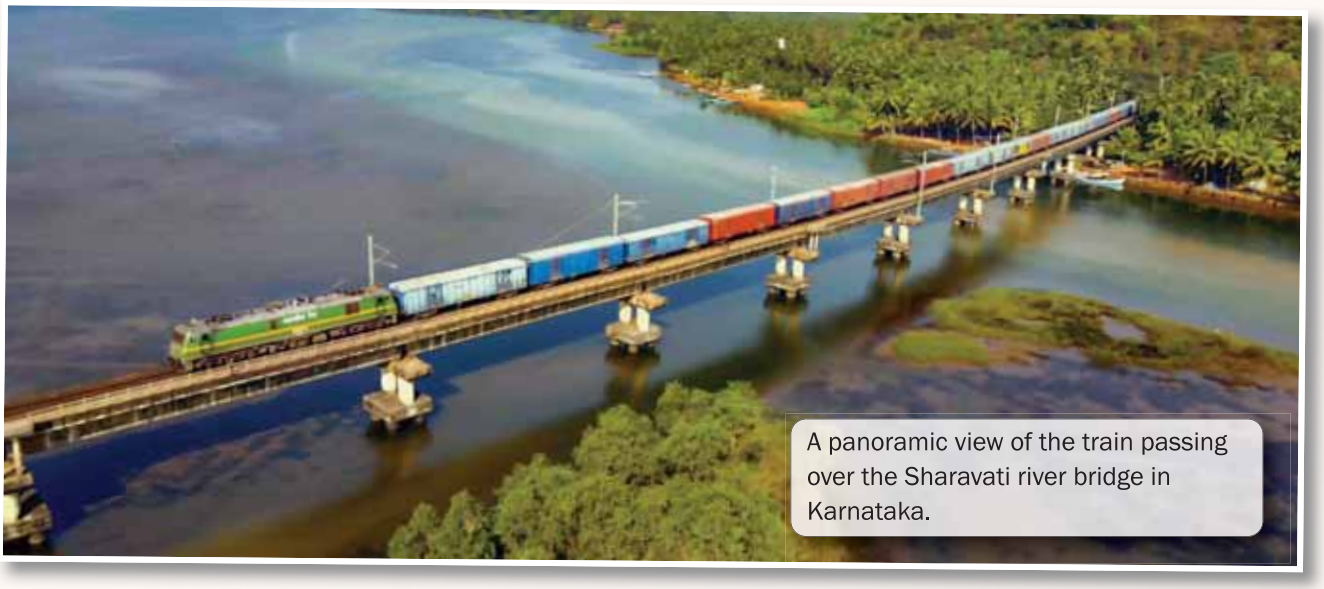


A warm welcome with balmy sun sieved through the Daman Ganga bridge in Vapi, Gujarat, awaits the train with a pleasant greeting.



High-powered engine traversing on its way through this 160-year-old bridge in Bhor Ghat, Maharashtra.

Credits: Pranit Gawand



A panoramic view of the train passing over the Sharavati river bridge in Karnataka.



In the scenic embrace of Khirai in Howrah-Kharagpur Section, West Bengal, a landscape unfolds as a train gracefully crosses, weaving through the vibrant flower bed.

Progress Report

Chennai Beach - Chennai Egmore 4th line project is advancing steadily



The Chennai Beach – Chennai Egmore 4th line project is aimed at enhancing the operational efficiency of Chennai city's rail network and facilitating the introduction of additional passenger and freight services. The project, covering the distance of 4.30 km. between Chennai Beach and Chennai Egmore, is carried out at a cost of ₹279 cr. The construction work is in full swing.



5th November, 2023

Gour Kishor Ghosh Metro Station on Kavi Subhash-BimanBandar (Orange Line), Kolkata





Platform work completed

Entry/Exit points in progress

Viaduct in progress

Upon completion, it will cater thousands of passengers travelling to Salt Lake and Sukanta Nagar area.

29th October, 2023

Agasthiyampalli Goods Shed



Agasthiyampalli Goods Shed has been made operational for traffic, with its maiden consignment sent to Kanchipuram, Tamil Nadu. This will facilitate traders and transporters in the region, ensuring optimal transportation of cargo.

6th November, 2023

Progress of work on 3rd Foot Over Bridge at Jamalpur Jn. Railway Station in Bihar

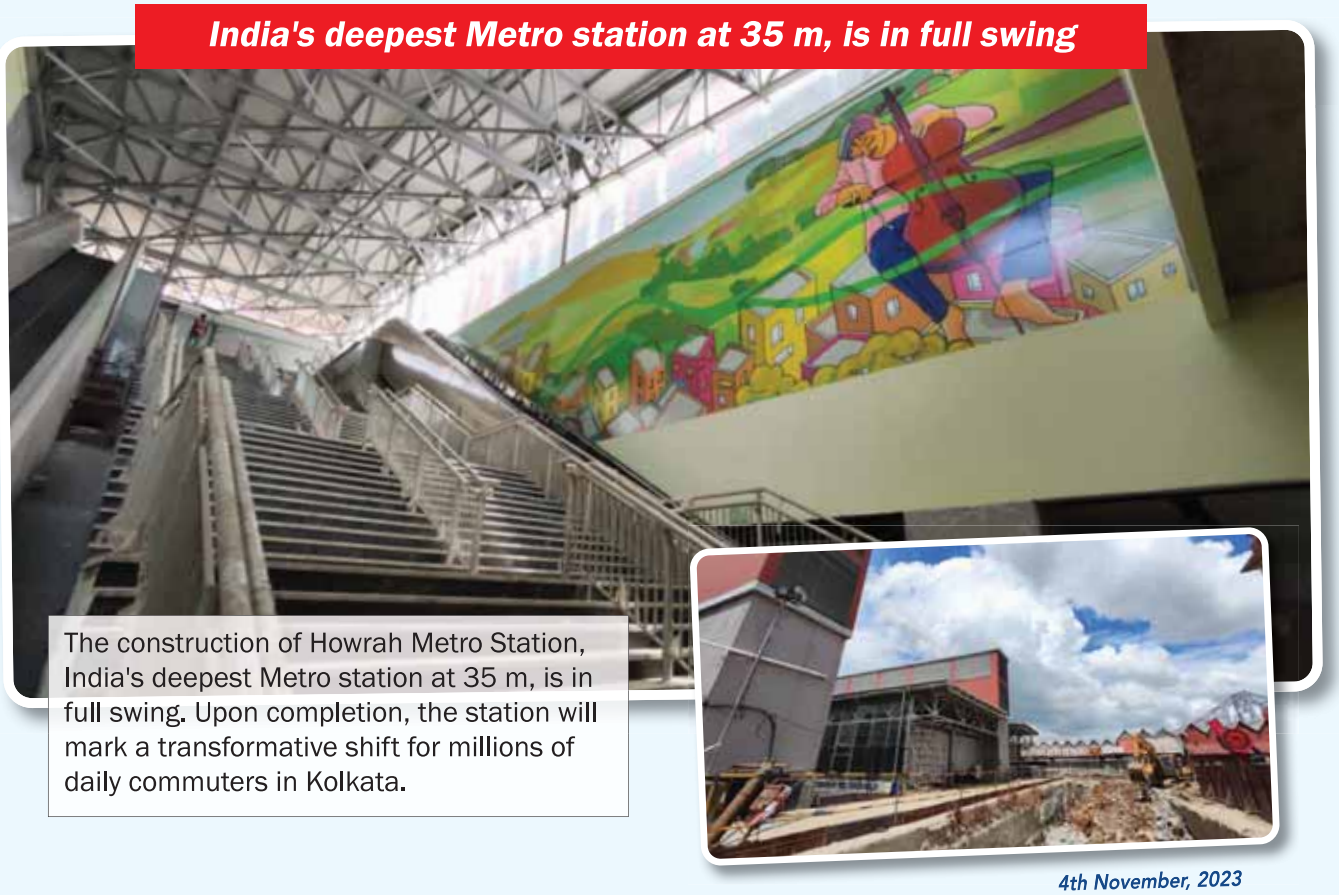




Aiming at establishing interconnected convenience for commuters, brisk progress is being made on work on 3rd Foot Over Bridge at Jamalpur Jn. Railway Station in Bihar. Upon completion, it will connect platform Nos. 1, 2 and 3.

5th November, 2023

India's deepest Metro station at 35 m, is in full swing



The construction of Howrah Metro Station, India's deepest Metro station at 35 m, is in full swing. Upon completion, the station will mark a transformative shift for millions of daily commuters in Kolkata.

4th November, 2023

Station yard at Assam's Kamakhya Junction Railway Station is undergoing modifications



New lines, platforms, improved amenities and station buildings will be added.

It will significantly enhance train handling capacity of this major station.

3rd November, 2023

The doubling of Railway line between New Bongaigaon and Kamakhya via Goalpara in Assam





2nd November, 2023

Amplify train operations in the region, facilitating a larger number of daily commuters travelling to Guwahati for business and employment.

Ghatkopar Railway Station's 4th Foot Over Bridge (FOB) is on the verge of completion



Girder launched

Deck work in progress

It will enhance passenger convenience and safety and provide seamless train operations.



2nd November, 2023

Esplanade Metro Station, Kolkata (Green Line) Work



Completed:
Granite floor covering
Platform Screen Doors
In Progress:
Lifts and Escalators
Ventilation and cooling
Entry/exit gates
Upon Completion, It will be the largest interchange station in Kolkata Metro.



9th November, 2023

Kamakhya Junction Railway Station - Road Under Bridge replacing LC





13th November, 2023

A Road Under Bridge, replacing LC gate no. ST-1, is coming up soon near Kamakhya Junction Railway Station that envisions to facilitate smooth flow of road traffic and foster safe and uninterrupted train operations.

भारतीय रेल 202

1960 से रेल मंत्रालय द्वारा प्रकाशित एकमात्र हिन्दी मासिक पत्रिका

विक्रमी संवत्-2080-2081 | शक

जनवरी पौष–माघ JANUARY

Mon सोम	Tue मंगल	Wed बुध	Thu गुरु	Fri शुक्र	Sat शनि	Sun रवि
1 पंचमी	2 षष्ठी	3 सप्तमी	4 अष्टमी	5 नवमी	6 दशमी	7 एकादशी
8 द्वादशी	9 त्रयोदशी	10 चतुर्दशी	11 अमावस्या	12 एकम्	13 द्वितीया	14 तृतीया
15 चतुर्थी	16 पंचमी-षष्ठी	17 सप्तमी	18 अष्टमी	19 नवमी	20 दशमी	21 एकादशी
22 द्वादशी	23 त्रयोदशी	24 चतुर्दशी	25 पूर्णिमा	26 एकम्	27 द्वितीया	28 तृतीया
29 चतुर्थी	30 पंचमी	31 पंचमी				

01 नववर्ष दिवस / New Year's Day
13 लोहड़ी / Lohri
14 मकर संक्रांति / Makar Sankranti
15 माघ / बिहू / Magha / Bihu
17 गुरु रविदास जयन्ती / Guru Ravidas's Birthday
25 हजरत अली जयन्ती / Hazrat Ali's Birthday
26 गणतंत्र दिवस / Republic Day

फरवरी माघ–फाल्गुन FEBRUARY

Mon सोम	Tue मंगल	Wed बुध	Thu गुरु	Fri शुक्र	Sat शनि	Sun रवि
			1 षष्ठी	2 सप्तमी	3 अष्टमी	4 नवमी
5 दशमी	6 एकादशी	7 द्वादशी	8 त्रयोदशी	9 चतुर्दशी-प्र.अमावस्या	10 एकम्	11 द्वितीया
12 तृतीया	13 चतुर्थी	14 पंचमी	15 षष्ठी	16 सप्तमी	17 अष्टमी	18 नवमी
19 दशमी	20 एकादशी	21 द्वादशी	22 त्रयोदशी	23 चतुर्दशी	24 पूर्णिमा	25 एकम्
26 द्वितीया	27 तृतीया	28 चतुर्थी	29 पंचमी			

14 बसंत पंचमी / श्री पंचमी / Basant Panchami / Sri Panchami
19 शिवाजी जयन्ती / Shiva Ji Birthday
24 गुरू रवीदास जयंती / Guru Ravi Das's Birthday

मार्च फाल्गुन–चैत्र MARCH

Mon सोम	Tue मंगल	Wed बुध	Thu गुरु	Fri शुक्र	Sat शनि	Sun रवि
				1 षष्ठी	2 सप्तमी	3 अष्टमी
4 नवमी	5 दशमी	6 एकादशी	7 द्वादशी	8 त्रयोदशी	9 चतुर्दशी	10 अमावस्या
11 एकम्	12 द्वितीया	13 तृतीया	14 चतुर्थी-पंचमी	15 षष्ठी	16 सप्तमी	17 अष्टमी
18 नवमी	19 दशमी	20 एकादशी	21 द्वादशी	22 त्रयोदशी	23 त्रयोदशी	24 चतुर्दशी
25 पूर्णिमा	26 एकम्	27 द्वितीया	28 तृतीया	29 चतुर्थी	30 पंचमी	31 षष्ठी

06 स्वामी दयानन्द सरस्वती जयन्ती / Birthday of Swami Dayananda Saraswati
08 महा शिवरात्रि / Maha Shivratri
24 होलिका दहन / Holika Dahan
25 डोली यात्रा / Dolyatra
31 ईस्टर संडे / Easter Sunday
25 होली / Holi
29 गुड फ्राइडे / Good Friday

अप्रैल चैत्र–वैशाख APRIL

Mon सोम	Tue मंगल	Wed बुध	Thu गुरु	Fri शुक्र	Sat शनि	Sun रवि
1 सप्तमी	2 अष्टमी	3 नवमी	4 दशमी	5 एकादशी	6 द्वादशी-त्रयोदशी	7 चतुर्दशी
8 अमावस्या	9 एकम्	10 द्वितीया	11 तृतीया	12 चतुर्थी	13 पंचमी	14 षष्ठी
15 सप्तमी	16 अष्टमी	17 नवमी	18 दशमी	19 एकादशी	20 द्वादशी	21 त्रयोदशी
22 चतुर्दशी	23 पूर्णिमा	24 एकम्	25 एकम्	26 द्वितीया	27 तृतीया	28 चतुर्थी-पंचमी
29 षष्ठी	30 सप्तमी					

05 जुमा अल-विदा / Juma Al-Vida
09 चैत्र शुक्लादि / गुढी पड़वा / उगादी / चैती चांद / Chaitra Sukladi / Gudi Padava / Ugadi / Cheti Chand
13 वैशाखी / विशु / Vaishakhi / Vishu
14 वैशाखड़ी (बंगाल) / मेशादी / बाहाग बिहू (असम) / Vaishakhadi (Bengal) / Meshadi / Bahag Bihu (Assam)
11 ईद-उल-फितर / Id-Ul-Fitr
17 राम नवमी / Ram Navami
21 महावीर जयंती / Mahavir Jayanti

मई वैशाख–ज्येष्ठ MAY

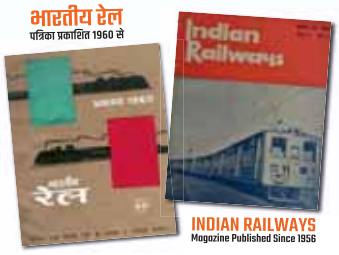
Mon सोम	Tue मंगल	Wed बुध	Thu गुरु	Fri शुक्र	Sat शनि	Sun रवि
		1 अष्टमी	2 नवमी	3 दशमी	4 एकादशी	5 द्वादशी
6 त्रयोदशी	7 चतुर्दशी	8 अमावस्या	9 एकम्	10 द्वितीया-तृतीया	11 चतुर्थी	12 पंचमी
13 षष्ठी	14 सप्तमी	15 सप्तमी	16 अष्टमी	17 नवमी	18 दशमी	19 एकादशी
20 द्वादशी	21 त्रयोदशी	22 चतुर्दशी	23 पूर्णिमा	24 एकम्	25 द्वितीया	26 तृतीया
27 चतुर्थी	28 पंचमी	29 षष्ठी	30 सप्तमी	31 अष्टमी		

08 गुरू रविन्द्र नाथ टैगोर जयंती / Guru Rabindra Nath Tagore's Birthday
23 बुद्ध पूर्णिमा / Budha Purnima

जून ज्येष्ठ–आषाढ़ JUNE

Mon सोम	Tue मंगल	Wed बुध	Thu गुरु	Fri शुक्र	Sat शनि	Sun रवि
					1 नवमी-दशमी	2 एकादशी
3 द्वादशी	4 त्रयोदशी	5 चतुर्दशी	6 अमावस्या	7 एकम्	8 द्वितीया	9 तृतीया
10 चतुर्थी	11 पंचमी	12 षष्ठी	13 सप्तमी	14 अष्टमी	15 नवमी	16 दशमी
17 एकादशी	18 द्वादशी	19 द्वादशी	20 त्रयोदशी	21 चतुर्दशी	22 पूर्णिमा	23 एकम्-द्वितीया
24 तृतीया	25 चतुर्थी	26 पंचमी	27 षष्ठी	28 सप्तमी	29 अष्टमी	30 नवमी

17 ईद-उल-जुहा (बकरीद) / Eid-Ul-Zuha (Bakrid)



पत्रिकाओं की सदस्यता अब ऑनलाइन भी उपलब्ध

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या क्यूआर कोड को स्कैन करें

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INDIAN RAILWAYS

FROM 1956 MONTHLY PUBLICATIONS OF MINISTRY OF RAILWAYS

ह् संवत्-1945-1946

जुलाई आषाढ़-श्रावण JULY

Mon सोम	Tue मंगल	Wed बुध	Thu गुरु	Fri शुक्र	Sat शनि	Sun रवि
1 दशमी	2 एकादशी	3 द्वादशी	4 त्रयोदशी-चतुर्दशी	5 अमावस्या	6 एकम्	7 द्वितीया
8 तृतीया	9 चतुर्थी	10 चतुर्थी	11 पंचमी	12 षष्ठी	13 सप्तमी	14 अष्टमी
15 नवमी	16 दशमी	17 एकादशी	18 द्वादशी	19 त्रयोदशी	20 चतुर्दशी	21 पूर्णिमा
22 एकम्	23 द्वितीया	24 तृतीया	25 चतुर्थी	26 पंचमी-षष्ठी	27 सप्तमी	28 अष्टमी
29 नवमी	30 दशमी	31 एकादशी				

07 रथ यात्रा / Rath Yatra
17 मुहर्रम / Muharram

अगस्त श्रावण-भाद्रपद AUGUST

Mon सोम	Tue मंगल	Wed बुध	Thu गुरु	Fri शुक्र	Sat शनि	Sun रवि
			1 द्वादशी	2 त्रयोदशी	3 चतुर्दशी	4 अमावस्या
5 एकम्	6 द्वितीया	7 तृतीया	8 चतुर्थी	9 पंचमी	10 षष्ठी	11 सप्तमी
12 अष्टमी	13 नवमी	14 नवमी	15 दशमी	16 एकादशी-द्वादशी	17 त्रयोदशी	18 चतुर्दशी
19 पूर्णिमा	20 एकम्	21 द्वितीया	22 तृतीया	23 चतुर्थी	24 पंचमी	25 षष्ठी
26 सप्तमी	27 अष्टमी-नवमी	28 दशमी	29 एकादशी	30 द्वादशी	31 त्रयोदशी	

15 पारसी नववर्ष दिवस / नवरोज / Parsi New Year's Day / Navroz
19 रक्षा बंधन / Raksha Bandhan
15 स्वतंत्रता दिवस / Independence Day
26 जन्माष्टमी (वैष्णव) / Janamashtami (Vaishnav)

सितम्बर भाद्रपद-आश्विन SEPTEMBER

Mon सोम	Tue मंगल	Wed बुध	Thu गुरु	Fri शुक्र	Sat शनि	Sun रवि
30 त्रयोदशी						1 चतुर्दशी
2 अमावस्या	3 अमावस्या	4 एकम्	5 द्वितीया	6 तृतीया	7 चतुर्थी	8 पंचमी
9 षष्ठी	10 सप्तमी	11 अष्टमी	12 नवमी	13 दशमी	14 एकादशी	15 द्वादशी
16 त्रयोदशी	17 चतुर्दशी	18 पूर्णिमा	19 एकम्-द्वितीया	20 तृतीया	21 चतुर्थी	22 पंचमी
23 षष्ठी	24 सप्तमी	25 अष्टमी	26 नवमी	27 दशमी	28 एकादशी	29 द्वादशी

07 गणेश / विनायक चतुर्थी/ Ganesh / Vinayaka Chaturthi
15 ओणम / Onam
16 ईद-ए-मिलाद / Id-e-Milad

अक्टूबर आश्विन-कार्तिक OCTOBER

Mon सोम	Tue मंगल	Wed बुध	Thu गुरु	Fri शुक्र	Sat शनि	Sun रवि
	1 चतुर्दशी	2 अमावस्या	3 एकम्	4 द्वितीया	5 तृतीया	6 चतुर्थी
7 चतुर्थी	8 पंचमी	9 षष्ठी	10 सप्तमी	11 अष्टमी-नवमी	12 दशमी	13 एकादशी
14 द्वादशी	15 त्रयोदशी	16 चतुर्दशी	17 पूर्णिमा	18 एकम्	19 द्वितीया	20 तृतीया
21 चतुर्थी	22 पंचमी	23 षष्ठी-सप्तमी	24 अष्टमी	25 नवमी	26 नवमी	27 दशमी
28 एकादशी	29 द्वादशी	30 त्रयोदशी	31 चतुर्दशी			

10 दशहरा (सप्तमी) / Dussehra (Saptami)
11 दशहरा (महाष्टमी / महानवमी) / Dussehra (Mahastami / Mahanavmi)
17 महर्षि वाल्मीकि जयंती / Maharshi Valmiki Jayanti
20 करक चतुर्थी (करवाचौथ) / Karaka Chaturthi (Karwachauth)
31 नरक चतुर्दशी / Naraka Chaturdashi
02 महात्मा गांधी जयंती / Mahatma Gandhi Jayanti
12 दशहरा / Dussehra
31 दिवाली (दीपावली) / Diwali (Deepavali)

नवम्बर कार्तिक-मार्गशीर्ष NOVEMBER

Mon सोम	Tue मंगल	Wed बुध	Thu गुरु	Fri शुक्र	Sat शनि	Sun रवि
				1 अमावस्या	2 एकम्	3 द्वितीया
4 तृतीया	5 चतुर्थी	6 पंचमी	7 षष्ठी	8 सप्तमी	9 अष्टमी	10 नवमी
11 दशमी	12 एकादशी	13 द्वादशी	14 त्रयोदशी-चतुर्दशी	15 पूर्णिमा	16 एकम्	17 द्वितीया
18 तृतीया	19 चतुर्थी	20 पंचमी	21 षष्ठी	22 सप्तमी	23 अष्टमी	24 नवमी
25 दशमी	26 एकादशी	27 द्वादशी	28 त्रयोदशी	29 त्रयोदशी	30 चतुर्दशी	

02 गोवर्धन पूजा / Govardhan Pooja
03 भाई दूज / Bhai Duj
07 प्रतिहारी षष्ठी या सूर्य षष्ठी / छठ पूजा / Pratihar Shashthi or Surya Shashthi / Chhat Puja
24 गुरु तेग बहादूर शहीदी दिवस / Guru Teg Bahadur's Martyrdom Day
15 गुरूनानक जयंती / Gurunanak Jayanti

दिसम्बर मार्गशीर्ष-पौष DECEMBER

Mon सोम	Tue मंगल	Wed बुध	Thu गुरु	Fri शुक्र	Sat शनि	Sun रवि
30 अमावस्या	31 एकम्					1 अमावस्या
2 एकम्	3 द्वितीया	4 तृतीया	5 चतुर्थी	6 पंचमी	7 षष्ठी	8 सप्तमी-अष्टमी
9 नवमी	10 दशमी	11 एकादशी	12 द्वादशी	13 त्रयोदशी	14 चतुर्दशी	15 पूर्णिमा
16 एकम्	17 द्वितीया	18 तृतीया	19 चतुर्थी	20 पंचमी	21 षष्ठी	22 सप्तमी
23 अष्टमी	24 नवमी	25 दशमी	26 एकादशी	27 द्वादशी	28 त्रयोदशी	29 चतुर्दशी

24 क्रिसमस पूर्व / Christmas Eve.
25 क्रिसमस दिवस / Christmas Day



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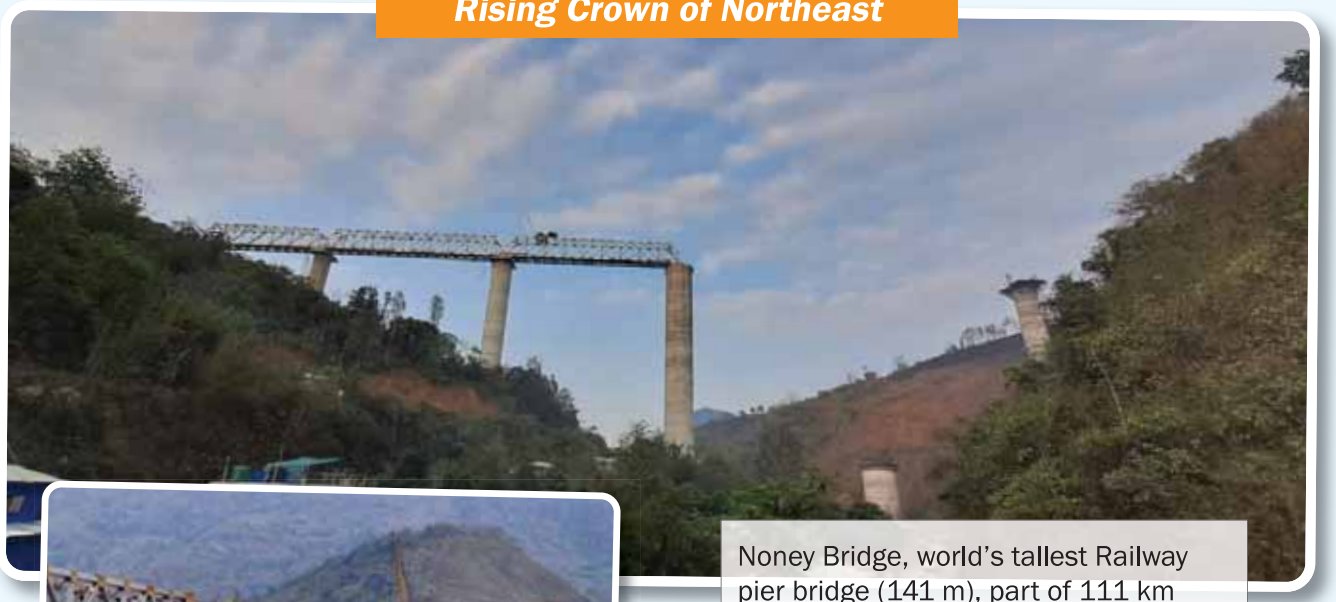
Progress update on 6th line between Mumbai and Borivali



Khar-Goregaon Section (8.8 km) commissioned
Speed Trial conducted successfully at 112 kmph
In progress: Construction of 27 new FOBs in lieu of existing FOBs

14th November, 2023

Rising Crown of Northeast





Noney Bridge, world's tallest Railway pier bridge (141 m), part of 111 km long Jiribam-Imphal Railway line is nearing completion as 80% of work is completed. It will prove crucial in connecting Manipur, inviting a new wave of Rail Infra for Northeast

16th November, 2023

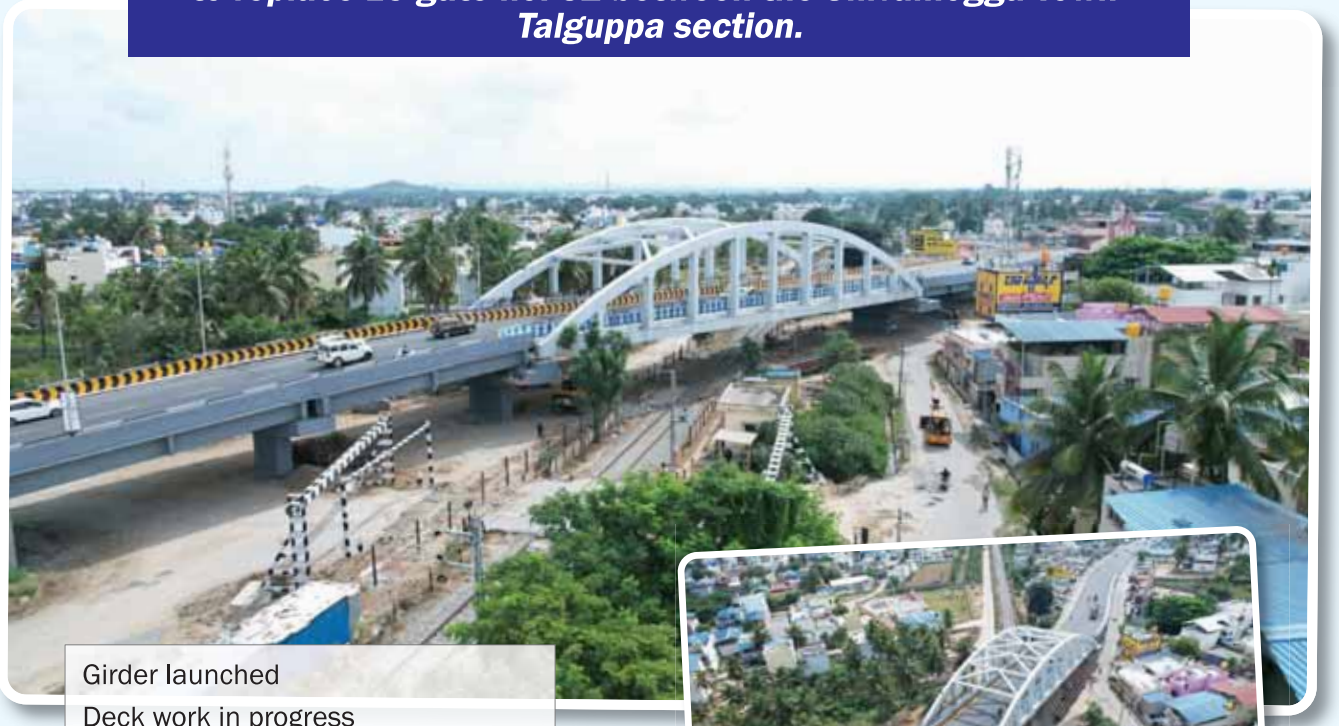
For the convenience of passengers, three Vande Bharat Express trains extended



Extension of 20661/62 KSR Bengaluru-Dharwar Vande Bharat Express upto Belgavi
Extension OF 22925/26 Ahmedabad-Jamnagar Vande Bharat Express upto Udhna.
Extension OF 22549/50 Gorakhpur-Lucknow Vande Bharat Express upto Prayagraj

16th November, 2023

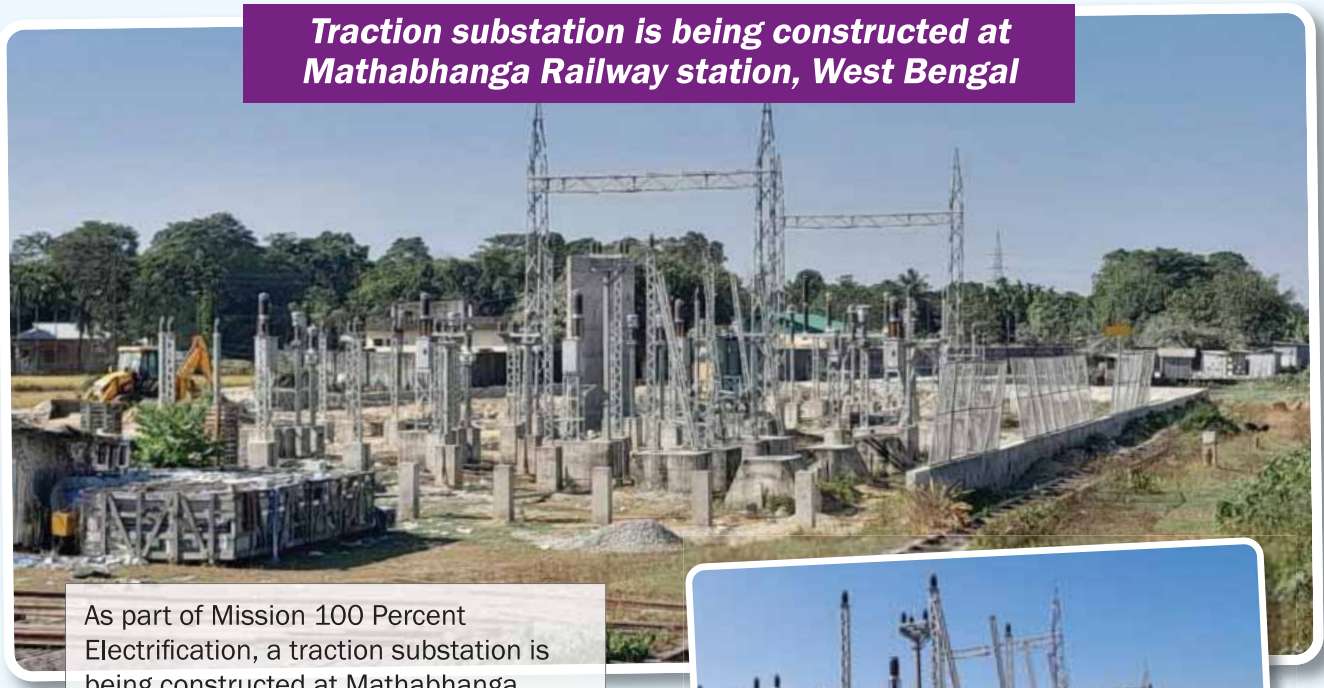
Spectacular view of Road Over Bridge (ROB) constructed to replace LC gate no. 52 between the Shivamogga Town-Talguppa section.



Girder launched
Deck work in progress
It will enhance passenger convenience and safety and provide seamless train operations.

18th November, 2023

Traction substation is being constructed at Mathabhanga Railway station, West Bengal



As part of Mission 100 Percent Electrification, a traction substation is being constructed at Mathabhanga Railway station, West Bengal, enabling eco-friendly train operations on the New Coochbehar-Mathabhanga-Jalpaiguri Road section.



20th November, 2023

A new ROB has been commissioned at New Makarpura yard, Gujarat.



Unlocking Smooth Railway Transit
A new ROB has been commissioned at DFCCIL India New Makarpura yard, Gujarat. Connecting IR Makarpura to IR Gothangam via DFC alignment.



21st November, 2023

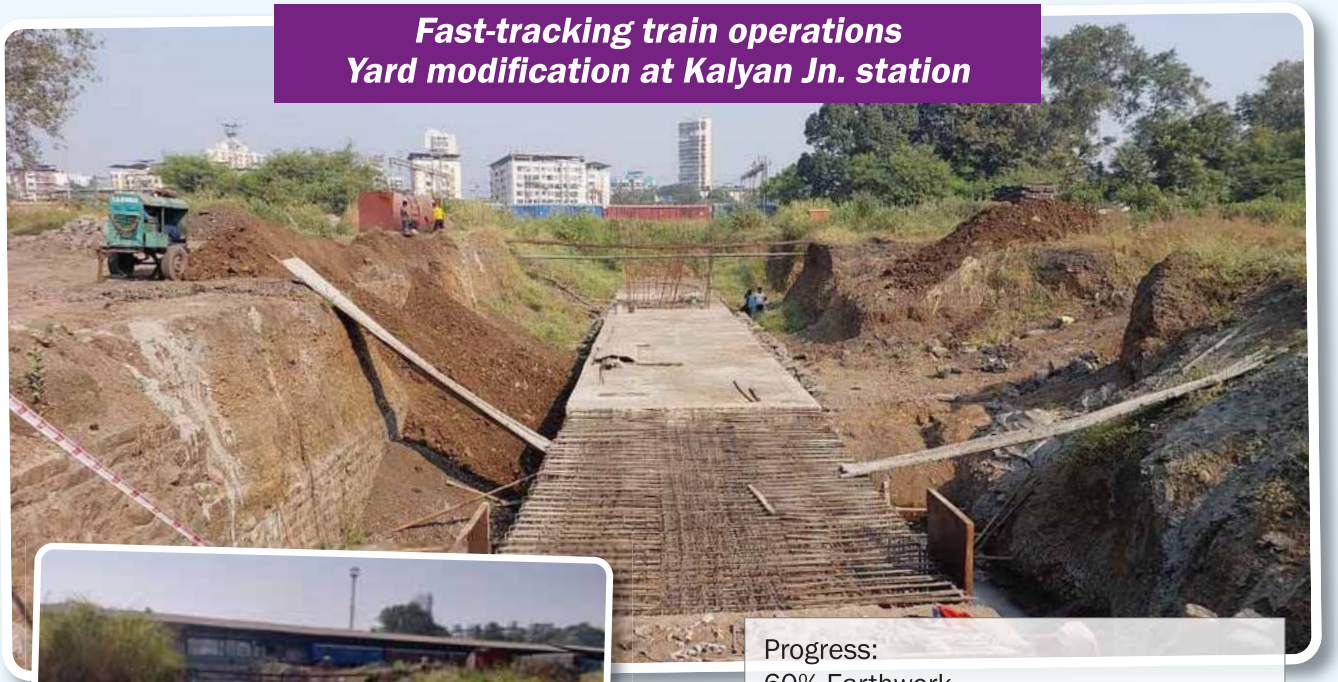
A major bridge is being constructed between Bagalkot and Mugalolli sections, part of the Gadag-Hotgi Doubling project.



On the Ghataprabha river, a major bridge is being constructed between Bagalkot and Mugalolli sections, part of the Gadag-Hotgi Doubling project. Upon completion, this project will provide seamless rail connectivity between southern Maharashtra and Karnataka.

22nd November, 2023

Fast-tracking train operations Yard modification at Kalyan Jn. station





24th November, 2023

Progress:
60% Earthwork
95% bridge work of phase-I
Dismantling of old tracks
It will significantly improve mobility of Mumbai suburban trains & mail express trains.

Construction of Air Concourse over Platforms at Ayodhya station.





25th November, 2023

Moving away from conventional deck slabs, 128m wide girder was launched for construction of air concourse over platforms at Uttar Pradesh's Ayodhya station. Spanning 58m, this concourse will harbour modern amenities like retail shop and cafeteria in one place.

Majerhat Metro station, Kolkata (Purple Line) Update:



28th November, 2023

Completed: Concrete structure Covering of station roof.
Work in Progress: Installation of Lifts and Escalators, Flooring, Electrification work.
It will serve as an interchanging point of Suburban line and Metro line.

Karaikal-Peralam New Line Project, Tamil Nadu



Work Completed: Foundation for station building at Ambagarathur
75/77 minor bridges
Work In Progress:
Station building at Thirunallar
Once completed, this will reduce travel time from Karaikal to Mayiladuthurai.

8th November, 2023

Redevelopment of Ernakulam Town Railway Station, Kerala

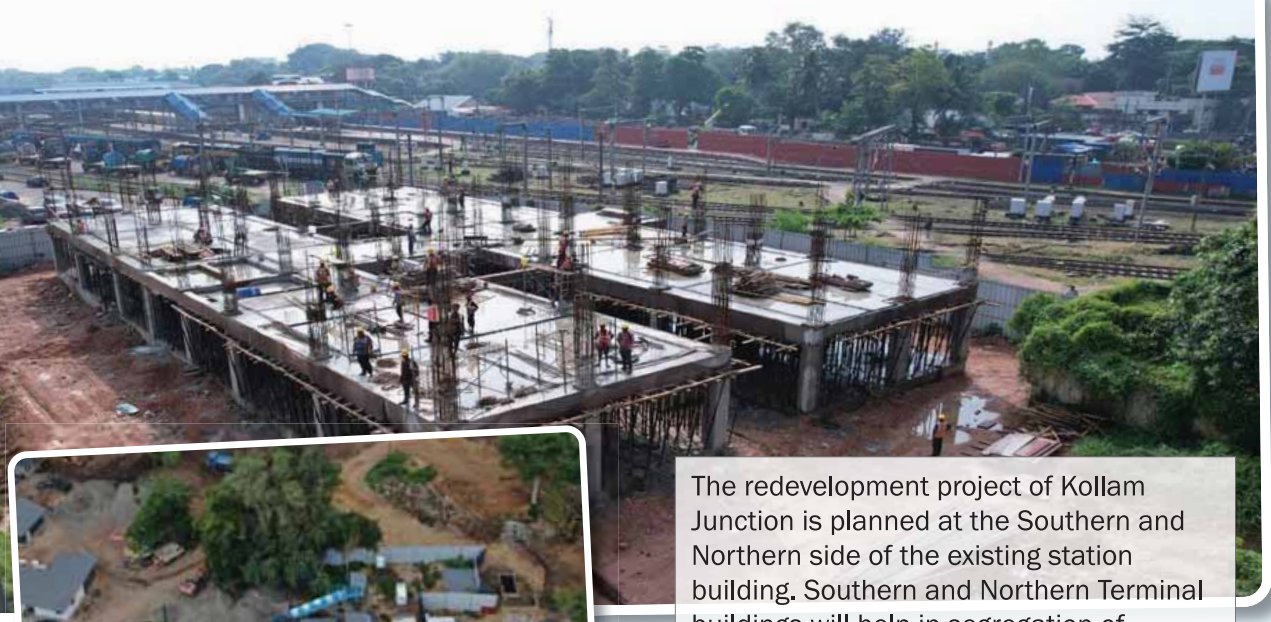




Work Completed:
FOB PF shed removed
OFC repeater room shifted
Upon completion, it will boost intermodal transport facility connecting Kochi metro & KSRTC bus services providing seamless journeys.

14th November, 2023

Progress of Kollam Junction redevelopment works



6th November, 2023

The redevelopment project of Kollam Junction is planned at the Southern and Northern side of the existing station building. Southern and Northern Terminal buildings will help in segregation of operation related administrative and commercial activities from the passenger movement and will host amenities on par with world class standards.

Madurai Junction Redevelopment works



The station redevelopment work at Madurai station is now progressing at a steady pace. Two terminals are proposed to be constructed, one each at the Eastern and Western side. A subway connecting Railway Plot and Periyar Bus Stand, a dedicated FOB for Parcel movement, and two Skywalks connecting the parking facilities on the eastern side, are also planned.

3rd November, 2023

Reviving Rail Coaches for a Culinary Journey





'Gateway' to the hills of Bengal will now begin at Raja Bhat Khawa station's Rail Coach Restaurant set to serve delicious meals to tourists and locals visiting Dooars area.

Rail Coach Restaurant at Katra Railway Station





Along with the darshan now railway passengers will also remember Shri Mata Vaishno Devi Katra Railway Station as pleasant memories of the Rail Coach Restaurant. Passengers will not only enjoy delicious cuisine but will also get free Wi-Fi facility.

Rail coach restaurant at Kokrajhar and Rajabhatkhawa





Step into a multi-cuisine feast at Assam Rail Coach Restaurant cocooned within Kokrajhar Railway Station. Relish delectable dishes while embracing the beauty of resource recycling. The restaurant was opened for public from 18th October, 2023.

An old coach into a pristine restaurant, Pune Jn.





In a relentless pursuit of judicious repurposing of an old coach into a pristine restaurant, Pune Jn. in Maharashtra inaugurated 'Coach Restaurant' which offers delectable meals

'Rail Coach Restaurant' built by modifying an old coach inaugurated in the premises of Gomti Nagar Railway Station





'Rail Coach Restaurant' built by modifying an old coach has been inaugurated in the premises of Gomti Nagar Railway Station in Uttar Pradesh. Now the local people of Lucknow and railway passengers will be able to enjoy delicious dishes in this restaurant.

KSR Bengaluru Station, Karnataka, celebrated 153 glorious years



KSR Bengaluru Station, Karnataka, celebrated Station Mahotsav, commemorating 153 glorious years. On this occasion, school children organised cultural activities and retired staff shared their cherished recollections.

INDIAN

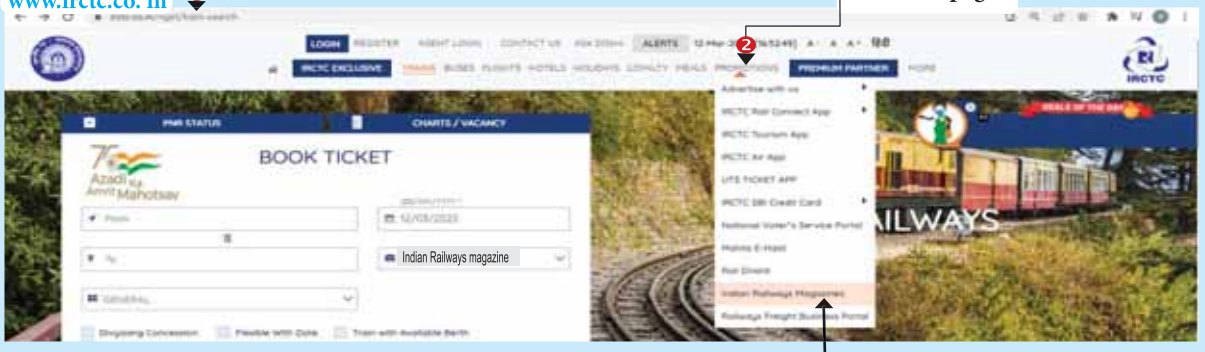
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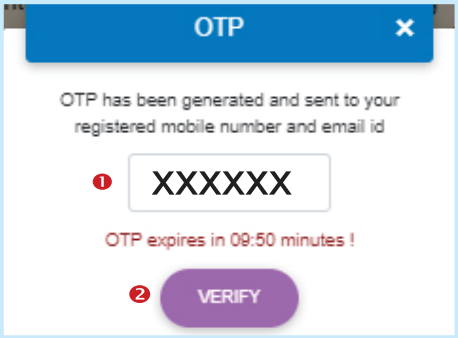


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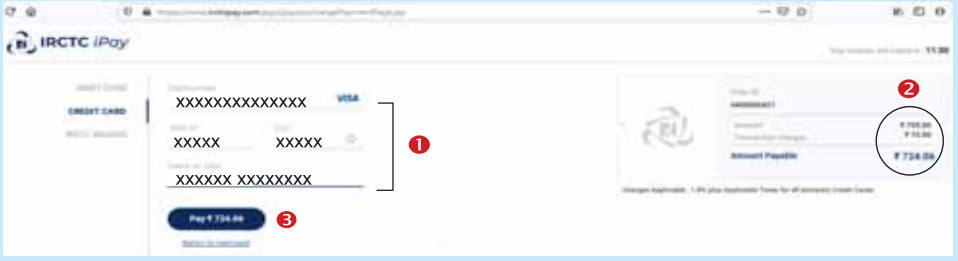
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Redevelopment of Stations





After redevelopment of Ambala City Railway Station, Haryana is completed, it will feature state-of-the-art amenities and a spacious concourse.





Deoria Sadar Railway Station of Uttar Pradesh is being redeveloped under Amrit Bharat Station Scheme. The redeveloped station building will be equipped with modern passenger amenities with attractive design.





Kalka Railway Station in Haryana is currently undergoing redevelopment as a part of the Amrit Bharat Stations scheme. Upon completion, the station will offer modern amenities and improved travel experiences.





Redevelopment of Gomti Nagar Railway Station, Uttar Pradesh is under progress.
Upon completion, station will offer modern passenger amenities.





Chandigarh Railway Station is currently undergoing redevelopment under the Amrit Bharat Stations scheme, offering a fusion of modern and exquisite passenger amenities.





Redevelopment of Bihar's Sabour Railway Station
Work in progress: Roof beam and slab casting of OFC building, remodelling of VIP room and food plaza. It will feature modern facilities to enhance passengers' comfort and accessibility.





Redevelopment of Kollam Junction Railway Station, Kerala

Work in Progress: Sub station foundation work, FOB foundation at PF 1, 4 and 5, Multi Level car parking, Upon completion, station will offer a fusion of modern and exquisite passenger amenities.





Redevelopment work at Mirzapur Railway Station of Uttar Pradesh is in full swing. Upon completion, the station will cater to a greater number of passengers enhancing ease, comfort and accessibility for all.





Redevelopment of Phillaur Junction Railway Station in Punjab is progressing rapidly. Once completed, the station will provide modern facilities to enhance passenger convenience and comfort.

Low Cost Fire Detection Systems for EMU/MEMU Stock

Shri Gaurav Kumar Singh
ED/Carriage-II
RDSO

Shri Shyam Shankar
SSE/Carriage
RDSO

Abstract: Indian Railways approach to passenger rail vehicle fire safety primarily relies on performance criteria for fire retardant furnishing materials such as seats, wall and ceiling panels, curtains, flooring material etc. As far as Fire detection systems are concerned, Indian Railways, to begin with, has developed Fire detection cum alarm systems for AC coaches and Fire detection cum suppression systems for Power car/Pantry cars. Based upon the experience gained and technical literature and market survey, RDSO has recently developed Fire detection cum alarm system for EMU and MEMU trains for both air conditioned as well as non-air-conditioned stock.

This paper explains and attempts to find out about use of point type detectors (which work on principle of smoke as well as heat sensing) for use in EMU and MEMU coaches as these detectors are relatively cheaper and easy to maintain.

1. Introduction

Indian Railways approach to passenger rail vehicle fire safety primarily relies on performance criteria for fire retardant furnishing materials such as seats, wall and ceiling panels, curtains, flooring material etc. As far as Fire detection systems are concerned, Indian Railways, to begin with, has developed Fire detection cum alarm systems for AC coaches and Fire detection cum suppression systems for Power car/Pantry cars. Based upon the experience gained and technical literature and market survey, RDSO recently has developed Fire detection cum alarm system for EMU and MEMU trains for both air conditioned as well as non-air-conditioned stock.

ARGE guidelines (Part-1) details the requirements related with choice of detection system, functional requirements as well as target time to measure detection time etc. The systems developed by Indian Railways for AC coaches are tested and certified as per these ARGE guidelines. However, as the condition inside EMU and MEMU coach is different from that inside an AC coaches and also with an aim to optimize the expenditure towards procurement as well as maintenance for these systems for EMU/MEMU stock it was planned to develop an alternate low cost Fire detection cum alarm system meeting relevant standards/specification for EMU and MEMU coaches.

This paper explains and attempts to find out about use of point type detectors (which work on the principle of smoke as well as heat sensing) for use in EMU and MEMU coaches as these detectors are relatively cheaper and easy to maintain.

2. Technologies Presently Available over Indian Railways

2.1. Fire Detection cum suppression system to RDSO/2013/CG-06

This system is provided in pantry cars and power cars. The main feature of this system is provision of smoke and heat detectors to detect fire as well as of an automatic suppression system for suppression of fire by using water-mist. The system uses high pressure nitrogen stored at 200bar for converting water into water-mist for extinguishing the fire. The fire is detected by EN 54-7 compliant point type smoke detectors (3% obs/m) and/or by EN 54-5 compliant point type heat detectors (900C) in generator/pantry area. In addition to it, LHD cable (Linear Heat Detector 105-1100C) is also provided in the roof over these areas to provide for built-in redundancy. In addition to generator/pantry area, smoke detectors are also provided in Guard area, staff area, store area in power car and pantry car etc. The activation of suppression system is automatic as far as detection by heat detector is

concerned however, in case of detection by smoke detector, activation of suppression system is manual

2.2. Aspiration type smoke detection system to RDSO/2008/CG-04

This system is used for smoke detection in AC coaches. Smoke detection is done via aspiration system that samples the air in different places and analyses it in a centralized detector. In comparison to point type smoke detector, aspiration type smoke detection systems are active smoke detection system due to which it can detect smoke at a very early stage. This system makes use of aspirator (EN-20 compliant). Aspirator is provided along with control panel and sampling points (class-A compliant) are provided in passenger and other areas. The aspirator continuously sucks the compartment air through sampling points and alerts the passengers by way of hooter/brake application in case obscurity level due to presence of smoke reaches the specified respective threshold values.

2.3. Brief advantages and limitations

S.N.	Description	Advantages	Limitations
1	Fire Detection cum suppression system to RDSO/2013/ CG-06	Cost effective system for heat/ smoke detection in non-passenger area	Less effective in non-confined spaces due to air dilution
		This is not maintenance Intensive	Detection is passive
2	Aspiration type smoke detection system to RDSO/2008/ CG-04	Active system hence takes less time for detection	Needs continuous maintenance
		Threshold levels can be adjusted as per local requirements	Less effective in non-confined spaces due to air dilution
		Can cover a large area	Difficult to determine the location of fire

3. ARGE Requirements on Fire Detection

The ARGE Guideline Part 1 'Fire Detection in Railway Vehicles' defines functional testing of installed fire detection systems on railway vehicles with the target to measure detection response to optimize the detector positioning in the vehicle. It addresses both occupied areas as well as technical areas. The defined target values on thresholds are chosen in order to establish personal safety in the railway vehicle.

Detection principle

The ARGE Guideline generally considers both smoke and heat detection. It defines the following choice:

- Potentially occupied areas smoke detection
- Technical areas smoke or heat detection

Potentially occupied areas are considered areas in which passengers or train personnel can stay, examples are passenger areas, compartments, staff compartments, restrooms, driver's cabins, restaurants etc.

Technical areas are electric cabinets in the passenger area, technical compartments on the roof or under the vehicle, engine compartments etc.

Thresholds of time

S.N.	Area	Time limit
1	Potentially occupied areas	1 min
2	Technical areas (not combustion engines)	2 min
3	Combustion engines	1 min

These times are based on the test assessment and include the time of alarm transmission. That means that the time between start of the test and the alarm signal is assessed.

4. Detection Mechanism

Generally, following types of detectors are utilised for detection of fire detection:

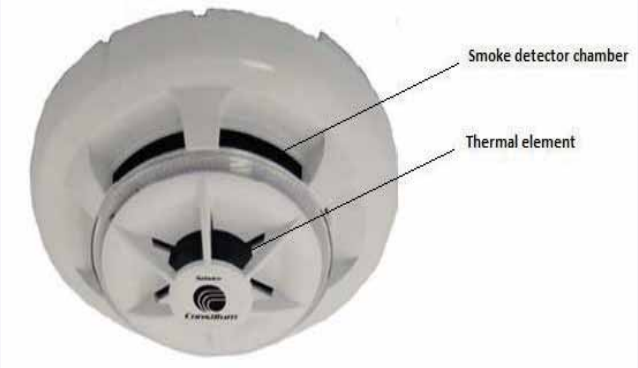
- Smoke detection
- Heat detection
- Flame detection
- Gas detection

Since the detection time is only 60 sec in passenger occupied areas hence, usually point type smoke detectors (to EN 54-7) or aspiration smoke detectors (to EN 54-20) are used in passenger areas whereas in technical areas, generally heat detectors (to EN 54-5) are used.

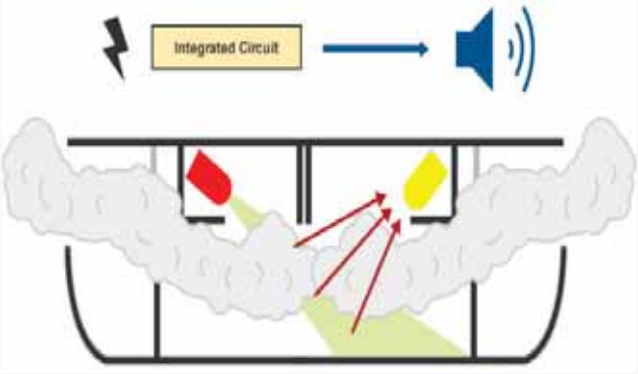
RDSO has carried out detailed analysis and literature survey to assess the requirement of a Fire detection

cum alarm system for EMU/MEMU coaches which not only should be low cost but also should be capable to meet ARGE guidelines. After a lot of deliberations and discussions with stake holders, RDSO has decided to use combined/multi detector in EMU/MEMU coaches.

Combined/Multi detectors- Combined/Multi detectors combine an optical smoke detector with a heat detector as seen below. This gives the advantages of both systems and a more reliant detector. Often the signals that activate each detector are analysed by control unit and a pre decided combination of the signals activates the detector.



Optical smoke detectors- This detector consists of a light source and a photocell positioned at an angle to each other. In normal conditions the transmitted light passes into a 'light maze' which prevents the reflection of light onto the receiver. In the event of fire, the passing fumes through the detector scatters the light onto the photocell and at a specific threshold value of light intensity the detector activates.



Heat detectors- This system uses classical heat transfer analogy; heat is transported to colder areas.

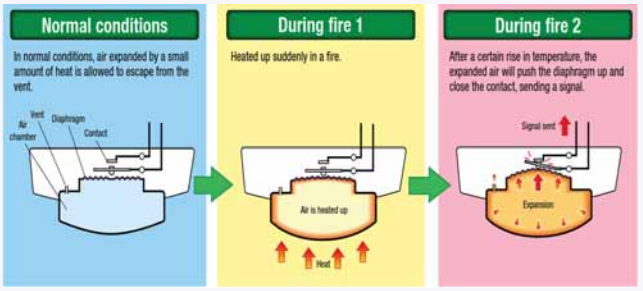
In point heat detectors, there are one or more thermal elements, which are heated when hot fumes pass through the detector. These elements have a mass and a specific heat capacity, which results in a thermal inertia when heated. Thermal inertia controls how fast a surface reaches a specific temperature for detector to bell the alarm.

Heat detectors are normally divided into two main classifications of operation:

I. Fixed temperature, which will activate once the thermal element has reached a specific temperature.

II. Temperature Rate of Rise (RoR), which will activate at a certain temperature increase rate.

Also, there are detectors that operate using a combination of both. This combination has the advantages of both detectors and has proven to be a more reliable detector.



5. Development of Specifications/Guidelines

RDSO has issued following guidelines for Fire detection cum alarm system (FDAS) for different types of EMU/MEMU stock

S. No.	Location	DMC coach	NDMC coach	TC coach
1	Passenger area	Number and location of detectors to meet ARGE guidelines		
2	HT compartment			
3	LT compartment			
4	MCB panel	1	1	-
5	ECAB panel	1	1	-
6	EWP1/EWP2/ EWP3/EWPP4 cabinet	1 in each cabinet as per availability in coach		

5.1 Retro fitment of FDAS in Air conditioned EMU stock

Air conditioned EMU is generally a 12 car rake. 3 coaches form a basic unit and 4 such basic units are used to make a train. Normally these trains run in a combination of DMC-TC-TC-TC-TC-NDMC-NDMC-TC-TC-TC-TC-DMC. The smoke-cum heat detectors are provided in various areas/cubicles as per the following table:

In addition, Fire detection and control unit (FDCU) and Driver display (HMI) are to be provided in each DMC. Other salient features of the system are as below:

1. The system should be SIL-2 compliant.
2. Provision of audio alert to running staff.
3. The system to be self-diagnostic in order to identify failures immediately.
4. FDCU must provide LED and other hardware interface with HMI for major system status.
5. On detection of a possible smoke/fire by means of suitable detection, the system shall have different levels of response (minimum two i.e. pre alarm and alarm).
6. The system to provide a dynamic two detector dependency (smoke and/or heat) in the passenger areas along with provision of drift compensation in order to decrease the risk of false, or unwanted alarm.
7. All the major events (alarms, faults etc.) to be recorded in FDCU and should be retrievable on maintenance terminal for analysing any issue.
8. All the key components of smoke/fire detection system shall comply with the relevant standards i.e. EN54-5, EN 54-7, EN 50155 etc.
9. Railways to spare 6 connections points for train control lines for communication and transmission of data between Detectors and FDCU. Any other requirement of hardware/software to make the system fully functional in the scope of supplier.

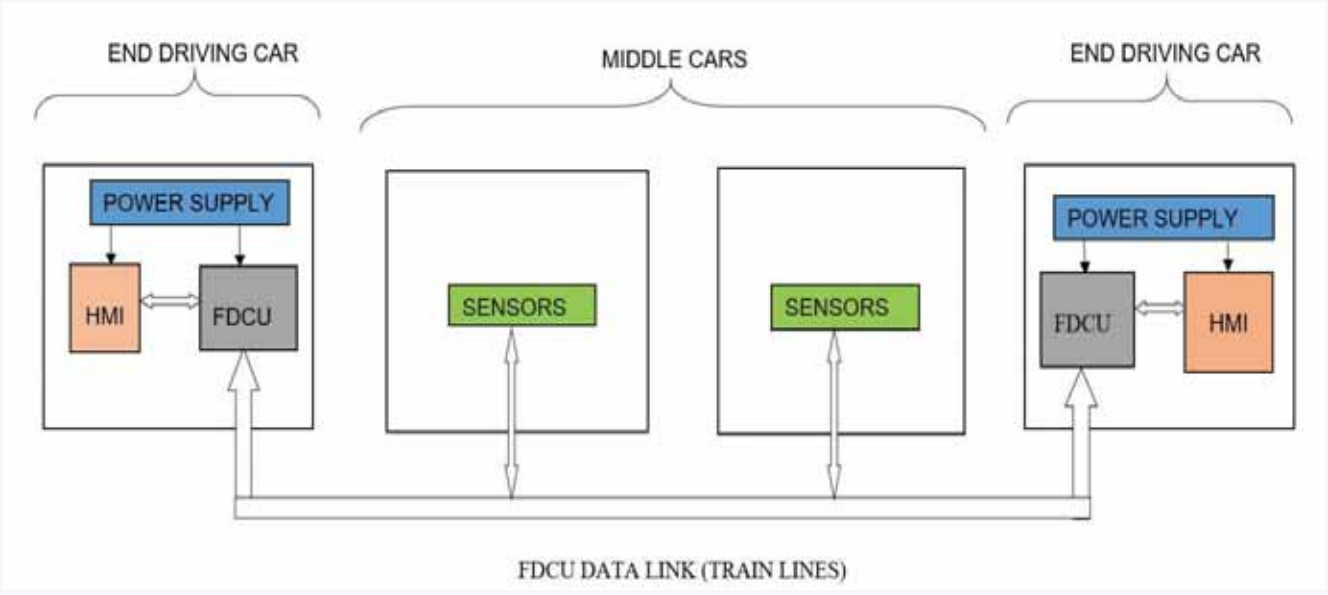
Architecture of the system

5.2 Retro fitment of FDAS in non-air conditioned EMU and MEMU stock

Non air conditioned EMU rake is typically a 12 car formation with 3 coaches constituting a basic unit and 4 basic units are integrated to form a rake. On the other hand, MEMU rake is typically an 8 car formation with 4 coaches constituting a basic unit and 2 basic units are integrated to form a rake.

The salient features of the system are as follows:

1. Provision of smoke-cum-heat detectors (to EN 54-7 and EN 54-5) in LT room, HT room and in technical enclosures/cubicles/cabinets. The sensitivity and location of detectors in LT and HT compartment has to fulfil the requirements of ARGE.
2. Provision of Fire Detection and Control Unit (FDCU) and HMI in Driving cab at both ends. FDCU must provide LED and other hardware interface with HMI for major system status.



3. The system should be SIL-2 compliant.

4. Provision of audio alert to running staff.

5. The system to be self-diagnostic in order to identify failures immediately.

6. On detection of a possible smoke/fire by means of suitable detection, the system shall have different levels of response (minimum two i.e. pre alarm and alarm).

7. All the major events (alarms, faults etc.) to be recorded in FDCU and should be retrievable on maintenance terminal for analysing any issue.

8. The system to have provision of drift compensation in order to decrease the risk of false, or unwanted alarm.

9. Railways will spare 6 connection points for train control lines for communication and transmission of data between Detectors and FDCU. Any other requirement of hardware/software to make the system fully functional in the scope of supplier.

10. All the key components of smoke/fire detection system shall comply with the relevant standards i.e. EN54-5, EN 54-7, EN 50155 etc.

11. The architecture of the system is similar to that for AC EMU coaches.

6. Conclusion

Presently Indian Railways is providing aspiration based fire detection cum alarm systems in AC coaches which are maintenance intensive. Further, Indian Railways is operating approx. 10,000 EMU/MEMU coaches over IR network therefore, requirement of a low cost fire detection cum alarm system is always desirable especially for these kind of stock being operated in day time. As the proposed system is approx. 30-40% cheaper along with added advantage of lesser maintenance requirements, it is likely to reduce the expenditure both during initial procurement and during maintenance. RDSO in association with concerned Zonal Railways have also arranged demonstrations wherein detection of fire in less than 60 seconds was also observed thereby meeting the ARGE guidelines.

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Devargudihal Lake

A Gem of Hubli Division, South Western Railway

Shri. Ajay Singh
Retd. CME/SWR



When we think about railway assets in country, railway stations, bridges, locomotives, trains, train routes comes to mind. It is very rare that a water body will come to mind when we talk about railways. South Western Railway is one of the few railways of Indian Railways system which has a lake- the Devargudihal lake at Hubli as a railway asset. Besides being an important water asset, it is also an important heritage asset.

Hubli Dharwad area is situated upon a broad ridge running north west to south east on the north Karanataka platueau inland of the Western Ghats with elevation from 600-755 m. Dharwad is on average elevation of 710 mm, whereas Hubli is situated on lower grounds at average elevation of 620m. Water supply to the Hubli-Dharwad twin cities is primarly through Malaprabha reservoir, Nirasagar lake and other tanks. Out of 200 MLD daily requirement, 160 MLD is met through Malaprabha reservoir and remaining 40 MLD from the Nirasagar lake, supplied once in five days. Neerasagar is a man made water reservoir counstructed in 1955 and located at around 15 km away from Hubli. Initially the water to the twin cities was supplied from the Unkal lake. However, excess use or rather misuse has made the Unkal lake unfit as a potable water source. The Devargudihal lake helps in augmenting the water supply to the city of Hubli by taking care of a portion of water requirement of railway establishtment.

Situated at a distance of 12 km from the railway facilities at Hubbali, the lake is a man made water body work on which was commenced in 1907 by the Madras and Southern Maharatta Railway. The work on the lake was completed by 1917. The lake is one of the largest water bodies in Indian Railways with a water spread of 278 acres and an area of 382 acres, with a water holding capacity of 1935 million litres. The calm and serene environs of the lake is a bird watching site, with 31 species, including ducks, terns, stork, herons, kingfisher, prinia, babbler etc sighted here. The lake being in an isolated location is not frequented by visitors in large numbers. Few locals visit the lake for fishing and water for their livestock. On weekends visitors from city also come here for excursion. Quality of water in the lake is so good that locals drink the water straight from the lake.

Coming back to the heritage, the origin of Railways in Hubli Dharwad region was as famine relief work. Construction of Railways was undertaken as a large scale measure which would not only provide immediate relief to people by "food for work" as well as it will create infrastructure for transportation of food grains to the famine affected regions. Southern Mahratta Railway was incorporated on June 1, 1882 as a famine feeder line. The first section of Bellary-Hospet opened in March 1888. By 1890, connectivity from Goa to Vijaywada via Guntakal was established.

Hubli was an important junction on the network. A central workshop was also established by end of December 1891. Steam traction, coupled with workshop, township and station facilities at Hubli necessitated reliable water supply. Hubli Dharwad was a water stressed area, specially Dharwad. This was one of the reasons the headquarters of the SMR was established at Hubli instead of Dharwad. Hubli was under Bombay Presidency and water supply for Hubli was entrusted to the irrigation branch of Bombay Public Works Department. The development of the Devargudihal lake and the associated waterworks was undertaken by Madras and Southern Maharatta Railway.

The Madras and Southern Mahratta Railway Co Ltd invited tenders for construction of a dam across Devargudihal Nalla, outlet, waste weir, subsidence basin, filter house and pump shed, masonary storage tanks, quarters for driver and firemen and other works in connection with "Water Supply from Devergudihal tank to Hubli". The tenders were to be received by 2pm on 10th June 1924.

Even though the lake was ready by 1917, it appears that water supply system was commissioned after 1924. This is based on the fact that a tender notice was published in "THE BOMBAY CHRONICLE" of 12th May 1924. Extract of the tender notice is given in the box.

THE MADRAS AND SOUTHERN MAHRATTA RAILWAY CO., LIMITED.
(Incorporated in England).

NOTICE.

(1) Tenders are invited for the construction of a Dam across Devargudihal Nalla, Outlet, Waste weir, Subsidence Basin, Filter house and Pump shed, Masonry Storage tanks, Quarters for Driver and Firemen and other works in connection with "Water supply from Devergudihal Tank to Hubli." Plans can be seen at Chief Engineer's Office Park Town, Madras, or at the Office of the Executive Engineer, Hubli, Dharwar District. Tenders should be addressed in a sealed cover to the Chief Engineer, M. & S.M. Railway Co, Ltd., Park Town, Madras, superscribed "Tender for water supply from Devargudihal Tank to Hubli" and will be received upto 2 p.m. on 10th June 1924. No tender which is not on the prescribed form (which can be obtained from the Chief Engineer's Office or Executive Engineer's Office on payment of Rs. 2) will be considered. Each tender must be accompanied by an earnest money of Rupees one hundred only which will be returned to the unsuccessful tenderers, but which will be forfeited by the successful tenderer, if, on being called upon to execute agreement, he fails to do so. Deduction of 10 per sent will be withheld from bills paid to the successful tenderer as security for the due performance of the contract.

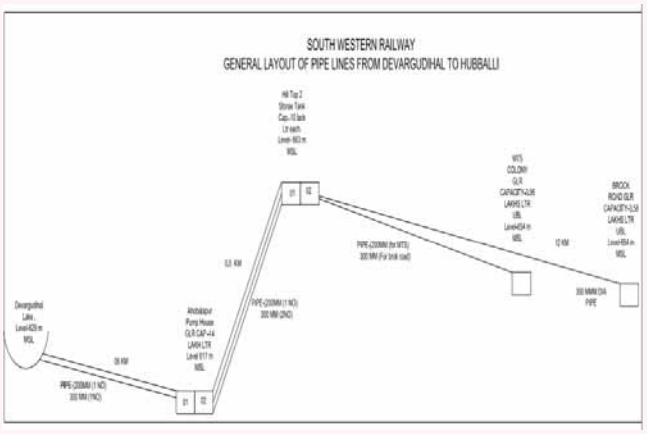
(2) Contractors who have not previously worked for this Company should enclose copies of their testimonials for reference. The Company does not bind itself to accept the lowest or any tender.

C19628

Devargudihal waterworks project would have commenced earliest in 1924. Most probably the project commenced supplying water to Hubli in 1927.

Water flows from the Devargudihal lake to the Ahobalpur pumphouse, which is 8 km downstream from the lake, through two pipelines by gravity- with the lake being at 629 m elevation and waterworks at 617 m. At the pumphouse water is filtered and stored in ground level reservoirs of 14 lakh litres capacity before being pumped to two storage tanks of capacity 10 lakh litres each on the nearby hilltop, which is half a kilometer away at an elevation of 663m. Currently, electric pumps are deployed for pumping water upto the hilltop. Originally the pumping was done using steam pumps. The lake





was source of water for Railway facilities in Hubali till 2014 after which it has dried up. The dried up period from 2014-2019 and disruption to water supply from the lake led to damages to the pipeline as well as pumping arrangement.

In the year 2019 the lake was filled up again. This led to efforts to revive the water supply system starting September 2020. The revival involved repair and restoration of engineering and electric works at the lake, pumphouse as well as on the hilltop and all the pipelines. The restoration took place through the Covid period and the restored lake was inaugurated on 1st of January 2021. The lake is now full of water and the water supply system has been restored.

At the lake restoration involved cleaning of the intake well, stone pitching, renovation of the lake cabin room, mass tree plantation and a creation of vantage selfie point. At the pumphouse, a full structural and aesthetic renovation has been undertaken, including repair of the filtration equipment, cleaning and roof sheeting of the tanks and improvement of surrounding areas. At the hilltop, repairs have been undertaken of both the reservoirs. The tanks have been cleaned, the old valves have been renewed, roof sheets of the tanks and pipeline connection have been replaced, and the surrounding areas have been improved. In addition, the damaged and lost pipelines – up to 700 over a span of around 16 km – from the lake to the city, including the diversion of the pipeline over the critical location of Desai Crossbridge in Hubballi. Three pumps have been installed to provide water from the lake.

With the renewal of the Devargudihal lake, the Ahobalapur pump house supplies 10 to 12 lakh litres water to Railway colonies, coaching depots, station and the workshop at Hubli. Besides reducing the load of water on the Hubli Dharwad municipal water supply, this also leads to monthly savings of about ₹9 lakh in water bills. This will go a long way in providing water self-sufficiency for the railway township of Hubli.

The team which restored the lake and the water supply system was led by SWR General Manager Shri Ajay Kumar Singh and Shri Arvind Malkhede, Divisional Railway Manager, Hubballi with valuable technical and project inputs from Shri PK Mishra, Additional General Manager and Ms Roopa Srinivasan Financial Advisor and Chief Accounts Officer. The project execution team comprised of Shri P Mahender (Senior Divisional Engineer/ Coordination), Shri Vamshi K Budarapu, Shri P Ashtikar (Senior Divisional Electrical Engineers), Shri Pawan Adewad (Senior Divisional Telecom Engineer), Shri J V Ramana Rao (Senior Divisional Engineer), Shri Ishan Shrivastava (Divisional Engineer), Shri HT Prakash (Assistant Divisional Engineer) and Shri Sanjay Kumar (Senior Section Engineer).

Disclaimer : Views expressed by the author is his personal views.



7 decades of Indian Railways

Dr. Sopan Kasinath
Associate Professor in Commerce,
Railway Degree College



Introduction :

In any economy there are three sectors i.e. primary sector, secondary sector and tertiary sector. Service sector plays an important role in the economic growth and development of the economy. Transport sector is one of the service sectors.

Indian Railways is one of the means of transport of bulk goods for longer distances and commuters in India. Indian Railways is the lifeline of India. Indian Railways is one of the biggest employers by employing 12.52 lakhs of employees in the world. Indian Railways carried 1250 million passengers annually. Indian Railways is one of the World's Largest Railway networks comprising over a route of 68,103 km and 7,337 Railway stations. Apart from the PKMS in Indian Railways are 2,31,126 millions while NTKMS in Indian Railways is at 7,19,762 millions during the year 2020-21 .The Electrification network in Indian Railways is at 44,802 km while the Net Revenue in Indian Railways is at ₹2547.48 crore during the year 2020-2021, Hence, the present study proposes the 7 decades of Indian Railways with the help of the core objectives:

1. A brief history of Indian Railways.
2. Organization structure of Indian Railways.
3. Physical performance of Indian Railways.
4. Financial performance of Indian Railways.
5. Productivity in Indian Railways.
6. Human resources in Indian Railways.
7. Medical services in Indian Railways.
8. Security and safety of Indian Railways.
9. A few suggestions.

The Research methodology of the present study aims at the core objectives cited above. The data is collected from the secondary source. The study period is confined to 7 decades from 1950-51 to 2020-2021. The statistical data is applied in accordance to the needs of the study i.e. percentage and ratios.

The first Railway built by the Great Indian Peninsula Railway (GIPR), was opened in 1853. The first train ran between Bombay and Thane on 16th April 1853, a landmark in the history of British India.

In the years between 1854 and 1860, British India had eight Railway Companies – Eastern India Railway, Great India Peninsula Company, Madras Railway, Bombay Baroda and Central India Railway, Scindia Railway, Eastern Bengal Eastern Railway and Calcutta and South Railway Company. In the years between 1869 and 1881, the British government took up the responsibility of laying Railway lines in India from the East India Company.

The Nizam's Guaranteed State Railway was a Railway Company in India from 1879 to 1950, and was owned by the Dominion of Nizam or better known as the Hyderabad State. The Nizam state Railway ruled for about 71 years in India.

Indian Railways is an Indian state-owned enterprise, owned and operated by the Government of India through the Ministry of Railways since 1951.

Indian Railways is governed by three tier vertical organization structure for effective and efficacy in management. The delegation of authority will flow from top to bottom. Hence, Indian Railways is Headed and Governed by Union Minister of Railways, two Ministers of State for Railways, and the CRB and CEO of Railway Board.

The Railway Board consisting of Chairman Railway Board and CEO and Member experts in their arenas, etc. Finance, Infrastructure, Traction, Operations and Business Development The CRB and CEO is the brain and eyes of Indian Railways.

The Zonal Railway is governed by the General Manager. He is assisted by expert team members' i.e. AGM, SDGM and Principal heads of the departments i.e. CCM, COM, CE, CME, CEE, CPO, CMD, CSO, COS, CSTE and FA & CAO and Audit. There are 17 Zones in Indian Railways.

The Division is headed and managed by the Divisional Railway Manager. He is assisted by his active team consisting of ADRM, SrDE, SrDEE, SrDME, SrDOM, SrDPO, SrDCM, SrDMO, SrDSO, SrCVO, SrDOS, SrDSTE, SrDAO. There are 68 divisions in Indian Railways.

Apart from the above 17 Railway zones and 68 divisions, there are Productions Units, Public Sector Undertakings and Corporations and other units, and there are seven Centralized Training Institutes to cater the training and development needs of the officers under the purview of Indian Railways. The Organization Structure in Indian Railways depicts vividly the superior and subordinate relations in a crystal-clear manner. The organization structure helps in efficiency and effectiveness in the organization.

Physical Performance Analysis

The Physical Performance in Indian Railways is projected through the following core parameter, etc.: Route kilometers, Number of Railway Stations, Rolling Stock and Electrification network.

The Network of Indian Railways is depicted through the Route kilometers. The Route kilometre in Indian Railways is at 68,103 km during the year 2020-21 in contrast to 53,596 Route kilometres during the year 1950-51. The Route kilometers have increased significantly by 27.9 percent during the above study period.

The new railway lines may be expanded in the highly potential arenas to tap the commuters' demand across the Indian Railways, a few examples are as follows, etc. Pune to Aurgangabad, Parliviajnath to Beed, Vizag to Simhachalam, Tirupati to Tirumala, Solapur to Tuljapur and Pandharpur. Kurnool to Srisailam, Riagir to Yadadiri and so on.

The socio–economic development in India is highly correlated with the development of Railway Stations. The number of Railways Stations in Indian Railways is at 7,337 during the year 2020-21 in contrast to 5,976 Railway Stations during the year 1950-51. The number of Railway stations has increased by 22.5, per cent during the above study period. However, the number of Railway stations may be further increased in the interest of the commuters and nation.

The core Rolling Stock in Indian Railways is Diesel Locomotives, Electric Locomotives, Wagons and Passenger carriages and vehicles. The number of Diesel Locomotives is at 51,08 during the year

2020-21 in correspondence to 17 Diesel Locomotives during the year 1950-51. The number of Diesel Locomotives has increased by 355.82 fold over the study period. The Diesel Locomotives are faster and cheaper in fuel cost when compared to the Steam Locomotives.

The number of Electric Locomotives in Indian Railways is at 7,587 during the year 2020-21 in contrast to 72 number of Electric Locomotives during the year 1950-51. The number of Electric Locomotives has increased significantly by 84.15 fold during the above study period. The Electric Locomotives are eco-friendlier, cheaper and faster when compared to the Diesel Locomotives. Hence, the number of Electric Locomotives may be further increase for rendering the best services to the commuters in India.

The number of passenger carriages in Indian Railways is at 58,760 during the year 2020-21 in contrast to 13,022 passenger carriages during the year 1950-51. The number of passenger carriages has increased by 4 fold during the above study period. The passenger carriages should be much more comfortable, safer and fire proof in the interest of the commuters.

The wagons turn the wheel of profits in Indian Railways. The number of wagons is at 3.02 lakhs during the year 2020-21 in contrast to 2.05 lakh wagons during the year 1950-51. The number of wagons has increased significantly by 1.40-fold during the above study period.

The Electrification network in Indian Railways is at 44802 kilometres during the year 2020-21 in contrast to 388 kilometres during the year 1950-51. The Electrification Network in Indian Railways has increased substantially by 88.45 fold during the above study period. The percentage of Electrification network to the total route kilometres Indian Railways is at 65.78 percent during the year 2020-21. However, the Electrification network should further enhance to cent percent in order to render the best services to the commuters from Secunderabad to Manmad route via Nanded and Bidar route and also in the potential arenas across in Indian Railways. (TABLE-1)

Productivity in Indian Railways

The Productivity in Indian Railways is depicted through Total traffic Output i.e Passenger kilometres (PKMS) and Net Tonne Kilometres (NTKMS).

The PKMS in Indian Railways are 2,31,126 millions during the year 2020-21 in contrast to 66,517 PKMS in millions during the year 1950-51. The PKMS in Indian Railways has increased substantially by 17 .39 fold during the above study period.

The NTKMS in Indian Railways is at 7,19,762 millions during the year 2020-21 in contrast to 37,585 NTKMS millions during the year 1950-51. The NTKMS has increased substantially by 19.15 fold in Indian Railways during the above study period. Thus, the productivity is highly substantial in Indian Railways. However, due to Covid 19 the productivity in Indian Railways i.e. PKMS has declined during the year 2020-2021 when compared to the previous year. (TABLE-3)

PHYSICAL PERFORMANCE IN INDIAN RAILWAYS

Table No. 1

YEAR	ROUTE KMS	NUMBER OF RAILWAY STATIONS	ELECTRIFI-CATION NETWORK IN KMS	NUMBER OF DSL LOCOMO-TIVES	NUMBER OF ELECTRIC LOCOMOTIVES	NUMBER OF WAGONS IN LAKHS	NUMBER OF PASSENGER CARRIAGES
1950-51	53,596	5976	388	17	72	2.05	13,022
1960-61	56,247	6523	748	181	131	3.07	20,062
1970-71	59,790	7066	3,706	1169	602	3.83	24,591
1980-81	61,240	7035	5,345	2403	1036	4.00	27,410
1990-91	62,367	7100	9,968	3759	1743	3.46	28,677
2000-01	63,028	6843	14,856	4702	2810	2.22	33,236
2010--11	64,460	7133	19,607	5137	3825	2.20	45,089
2020-21	68,103	7337	44,802	5108	7587	3.02	58,760
ANALYSIS	127	123	115FOLD	300FOLD	105FOLD	1.47FOLD	4.5 FOLD

Source: Indian Railways Annual Accounts and Report and Indian Railways Year Books from 1950-51 to 2020-2021

Financial Performance Analysis

The Financial Performance of Indian Railways is evaluated through the following core parameters, etc. gross revenue, net revenue, total cost, human resource cost, and operating ratio.

The Gross Revenue in Indian Railway is at ₹1,40,783 cr. during the year 2020-21 in contrast to ₹263.30 cr. during the year 1950-51. The Gross Revenue has enhanced tremendously by 723.53 fold during the above study period.

The passenger earnings in Indian Railways are ₹15,248 cr. while the freight earnings are ₹1,15,738 cr. during the year 2020-2021. However, due to covid 19 the earnings in Indian Railways has declined during the year 2020-2021. The freight earnings has a lion's share in the earnings in Indian Railways.

The Net Revenue is the contribution of the Indian Railways to the Indian exchequer. The Net Revenue in Indian Railways is at ₹2547 cr. during the year 2020-21 in contrast to 47.56 cr. during the year 1950-51. The Net Revenue in Indian Railways has increased substantially by 78.49 fold during the above study period.

The Total Cost in Indian Railways is at ₹1,38,236 cr. during the year 2020-21 contrast to ₹215.74 cr. during the year 1950-51. The Total cost in Indian Railways has increased substantially by 865.55 fold during the above study period.

Human Resources cost is one of the total costs in Indian Railways. The Human Resources cost in Indian Railways is at ₹15,6731 cr. during the year 2020-21 in contrast to ₹113.8 cr. during the year 1950-51. The Human Resources cost in Indian Railways has increased substantially by 1,180.70 during the above study period. The Human Resource cost to the total cost is at 113 percent in Indian Railways revealing vividly a lion's share in the total cost during the year 2020-21.

The Operating Ratio is the yardstick for the efficacy of the management in Indian Railways. The operating ratio and the profits are inversely related. The operating Ratio in Indian Railways is at 97.4 percent during the year 2020-21 in contrast to 81 percent Operating Ratio during the year 1950-51. The higher the Operating ratio, the lower the profits and vice versa.

The Operating Ratio in SNFC is at 65 percent, Indian Railway should learn the lessons from France Railways. The Operating Ratio is very high in Indian Railways. Hence, the strategy should be deployed to control the Operating Ratio. The Operating Ratio may be controlled through rightsizing the manpower strength on one hand and the manpower cost and other costs on the other in Indian Railways. Apart from introducing sophisticated technology in Indian Railways. (TABLE-2)

Human Resource Analysis

Among all the resources in the Human resources are the real resources in Indian Railways. Hence, the study of Human Resources in Indian Railways is highly paramount.

FINANCIAL PERFORMANCE IN INDIAN RAILWAYS

Table No. 2

YEAR	GROSS REVENUE RS IN CRORES	NET REVENUE RS IN CRORES	TOTAL COST RS IN CRORES	HUMAN RESOURCES COST RS IN CRORES	OPERATING RATIO IN PERCENT
1950-51	263.30	47.56	215.74	113.8	81
1960-61	460.42	87.87	372.55	205.2	79
1970-71	1006.95	144.73	862.22	459.9	84
1980-81	2703.48	127.49	2575.99	1316.7	96
1990-91	12451.55	1113.78	11337.77	5166.3	92
2000-01	3601095	1071.23	34939.72	18841.4	98.34
2010-11	94535.63	6346.14	90334	51776.57	94.59
2020-2021	140783.55	2547	138236	156730	97.4
ANALYSIS	534.60 FOLD	133.4 FOLD	640 FOLD	1377 FOLD	

Source: Indian Railways Annual Accounts and Report from 1950-51 to 2020-2021

HUMAN RESOURCES AND PRODUCTIVITY IN INDIAN RAILWAYS Table No. 3

YEAR	TOTAL HUMAN RESOURCE IN LAKHS	PRODUCTIVITY PKMS IN MILLIONS	PRODUCTIVITY NTKMS IN MILLIONS
1950-51	9.13	66,517	37,585
1960-61	11.57	76,665	72,333
1970-71	13.74	1,18,120	1,10,696
1980-81	15.72	2,08,558	1,47,652
1990-91	16.51	2,95,644	2,35,785
2000-01	15.45	4,57,022	3,12,371
2010-11	13.28	9,78,508	6,25,723
2020-21	12.52	231126	719762
ANALYSIS	137 PERCENT	3.47 FOLD	19.15 FOLD

Source: Indian Railways Annual Reprt and Accounts from 19950-51 to 2020-21

In Indian Railways the Human Resources are classified into four groups i.e. group A and B, consisting of officers cadre, while group C and group of D as non-gazette cadre.

The Human Resource strength in Indian Railways is at 12.52 lakhs during the year 2020-21 in contrast to 9.14 lakhs during the year 1950-51. The Human Resources strength in Indian Railways has increased significantly by 1.34 fold during the above study period.

The Human Resources cost in Indian Railways is at ₹15,6731 cr. The Human Resources cost to Total Cost in Indian Railways is at 113 percent during the year 2020-2021. The human resources cost control is a must in Indian Railways. (TABLE-4)

The number of women employees in Indian Railways is 98,540 during the year 2020-21. The number of women employees to the total employees in Indian Railways is at 7.48 percent during the year 2020-21. Hence, the number of women employees may be enhanced to 33 percent of the total employees in Indian Railways.

Medical and Health Services

Indian Railway Medical and Health Services were primarily constituted to take care of the medical and health services of Railway employees. However, the medical services to the family members of the employees, retired employees and their family members as the per pass rules was also considered.

Indian Railway Medical Services provides not only medical and health services but also the preventive, promotive, occupational and industrial health, public health services and health care services for patients with corona virus in April 2020.

In Indian Railways, the strength of Medical Officers is at 2,559. It is the largest industrial health services in the world. The medical services are rendered with the help of 129 hospitals and 586 health units spread across the Indian Railways. Indian Railways provide medical treatment through 400 private registered hospitals in the year 2020-21.

Indian Railways cater to total OPD cases are the 1,35,65,600 with the network of 37,087 paramedical staff. A step in right direction taken up for medical and health services of the employees and their families in Indian Railways. The health and medical services rendered were tremendous to cater the needs of the patients during the Covid 19 year 2020-21.

Safety and Security

The safety and security is one of the important core objectives in Indian Railways in order to instill confidence in commuters. The train accidents per million train kilometers is the yardstick for an index of safety. There were 21 train accidents in Indian Railways in 2020-21 as compared to 165 train accidents in 2009-10. The train accidents per million kilometers have reduced 0.03 in 2020-21 in comparison to 0.17 during the year 2009-10. A healthy trend is depicted.

Safety and security of commuters in Indian Railways is taken care by the Railway Protection Force and the Government Railway Police for better protection and security of railway property and commuters.

High Speed Rail is the order of the day. Hence, the Indian Railways should change in accordance to the changing scenario to tap the potential demand on one hand and to provide the best services to the commuters on the other.

Indian Railways is on the path of bullet trains in India. It will change the entire fabric of the nation needs in the near future. A right step in its direction.

The CRB and CEO is the brain and eyes of Indian Railways. The organization structure in Indian Railways depicts vividly the superior and subordinate relations in a crystal-clear manner. The organization structure helps in efficiency and effectiveness in the organization. Safety and security of commuters in Indian Railways is taken care by the Railway Protection Force and the Government Railway Police for better protection and security of railway property and commuters. The performance of Indian Railways during 7 decades is highly superb.

GROUP WISE HUMAN RESOURCES IN INDIAN RAILWAYS

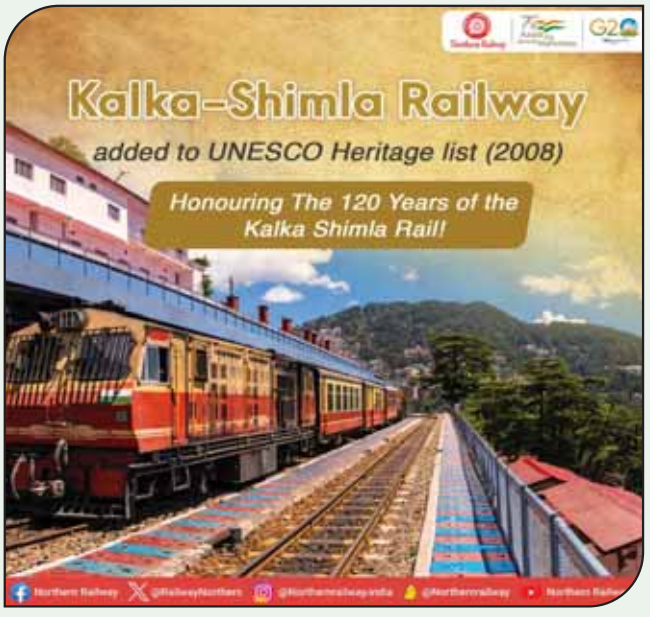
Table No. 4

YEAR	A&B OFFICERS IN INDIAN RAILWAYS	GROUP C EMPLOYEES IN INDIAN RAILWAYS	GROUP D EMPLOYEES IN INDIAN RAILWAYS	TOTAL HR IN INDIAN RAILWAYS IN THOUSANDS	TOTAL HR COST IN INDIAN RAILWAYS ₹ IN CRORES	TOTAL COST IN INDIAN RAILWAYS ₹ IN CRORES	PERCENTAGE OF HR COST TO TOTAL COST IN INDIAN RLYS
1950-51	2.3	223.5	687.8	913.6	113.8	215.74	53
1960-61	4.4	463.1	689.5	1157	205.2	372.55	55
1970-71	8.1	583.2	782.9	1374.2	459.9	862.22	53
1980-81	11.2	721.1	839.9	1572.2	1,316.7	2,575.99	51
1990-91	14.3	891.4	746.1	1651.8	5,166.3	11,337.77	46
2000-01	14.8	900.3	630.2	1545.3	18,841	34,939.72	53
2010-11	16.9	1079.2	235.9	1332	51,776.6	89,474.22	60
2020-21	18.6	1233.7	0	1252.3	1,56,730.29	1,38,236.06	113

Source: Indian Railway Annual Report from 1950-51 to 2020-2021.

Disclaimer : Views expressed by the author is his personal views.





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Test Your Knowledge

1 Between which two stations the first steam heritage train running in Gujarat has been started?

(a)	(b)	(c)	(d)
Ekta Nagar - Ahmedabad	Ekta Nagar - Surat	Ekta Nagar – Gandhinagar	Ahmedabad – Vadodara

2 The Hon'ble President has recently laid the foundation stone for the redevelopment of which station?

(a)	(b)	(c)	(d)
Tatanagar	Rayaranpur	Badampahar	Shalimar

3 The headquarters of North Central Railway is located in which city?

(a)	(b)	(c)	(d)
Lucknow	Prayagraj	Varanasi	Chennai

4 What is the name of the Operation run by RPF for fight against human trafficking?

(a)	(b)	(c)	(d)
Suraksha	Pakkad	Manav Taskari	Aahat

5 What is the name of the railway station located at Kevadiya?

(a)	(b)	(c)	(d)
Ekta Nagar	Kevadia	Vadodara	SVP Railway Station

6 What is the name of the Rail Coach Factory located in Kapurthala?

(a)	(b)	(c)	(d)
BLW	MCF	RCF	ICF

7 Since which year the Railway Budget is not being presented separately in the Parliament?

(a)	(b)	(c)	(d)
2022	2016	2002	2014

8 How many passengers can book in single unreserved ticket?

(a)	(b)	(c)	(d)
4	6	8	2

9 On which river is the country's longest rail cum road bridge built?

(a)	(b)	(c)	(d)
Brahmaputra	Ganga	Sabarmati	Kaveri

10 What is the name of the monthly magazine published in English by the Ministry of Railways?

(a)	(b)	(c)	(d)
Rail Bandhu	Bhartiya Rail	Indian Railways	Bhartiya Railways

Right Answers

1- (a)	2- (c)	3- (b)	4- (d)	5- (a)
6- (c)	7- (b)	8- (a)	9- (a)	10- (c)



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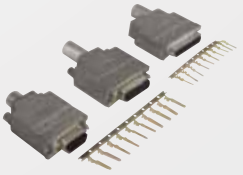
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