

Resume



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Date of Birth: December 11, 1958

Thirty seven years in Indian Railway Service of Mechanical Engineers (IRSME), intensive experience in Projects, Railway operations, R&D & Technology and Rolling stock designs – including hands on, Administrative & Managerial experience, capped by the assignment as the senior-most representative of Indian Railways outside India and later as the General Manager of the biggest railway coach-building factory in the world,

I have vast experience in Railway Operations and Commercial management, Workshop and Projects. In addition, I have independently handled a large number of locomotive technology projects, both international and domestic. The most notable among all these is a series of technology developments carried out on EMD & ALCo family diesel locomotives of Indian Railways, involving a high degree of personal input at technical and managerial levels for successful implementation, involving series of interactions with such reputed players as M/s Siemens, GETS, Alstom, EMD, Bombardier, ABB, Bosch etc.; the latest being the leadership role design & development of a 5500 hp locomotive through a collaborative project between Indian Railways & EMD/USA. I can state without the fear of exaggeration that my experience in the field of Rolling Stock engineering, technology and project management is unmatched on the Indian Railways.

My journey as a railway man began way back in 1976 when I joined Indian Railways (IR) as a trainee in a four year Engineering course at the Institute of Mechanical & Electrical Engineering, Jamalpur. I started my career as an officer in eastern part of the country, in Railway divisions and workshops. Later, I have held a number of important assignments in India and abroad.

Over the years, I have reserved my special love for some diverse aspects of railways. Foremost, design of diesel locomotives, which I oversaw in my capacity as Chief Design Engineer/DLW and as Director and later Executive Director of Motive Power in RDSO. In addition, Passenger Amenities in stations and trains, and in this area, I was instrumental in starting many unique services as Additional Divisional Manager at Secunderabad and later as Divisional Railway Manager at Bangalore. I also have many successes to my name in the field of environment-management, green energy and afforestation; my recent efforts are covered in a **book co-authored by me, titled ‘Greening of a factory, verdant makeover of a factory and its habitat’**. But most importantly, my first love has been an unlikely mission, bringing art and railways together. In Bangalore, I, along with some other divisional colleagues, started the Art movement, *Safar*, in the year 2011, which is being emulated all over Indian Railways today. The experiment is chronicled in a **coffee-table book titled *Art and Railways, A Bangalore Saga*, co-authored by me** with Ms. Lily Pandeya. I later continued this experiment, even in an industrial setting, and I brought out my experiences in **my second book titled, *Reinventing the wheel, Another Bangalore saga*** and subsequently my third and fourth books on the experiences in art-related work at ICF, titled, **“A skein of trains, recounting a Chennai story”** and **“Trains Unchained, the continuing saga of art and railways, the Safar”**

I am a Fellow of the Institution of Mechanical Engineers, London (IMechE). I am known among friends and colleagues as a lover of art, theatre, comedy, rock music from the sixties & seventies and Urdu poetry. I am an avid reader and a keen sportsman.

I have been called to deliver a talk/presentation by a number of reputed organizations and institutions in recent past, including IIMs, IITs, CII, Entrepreneur Organizations, blue chip companies etc., mainly to focus on how culture, structure, environment and productivity related transformation can be brought about in a Govt. Organization.

I signed off from my railway career with the turnout of Train 18, the first indigenous 180/160 km/h train set, designed and manufactured through in-house effort of Integral Coach Factory; this train which has caught the imagination of the country as it was the first time that a rolling stock project of this magnitude was done from concept to manufacture entirely in India. I am looking to channelize the expertise and experience gained so far constructively and meaningfully in any area which I find interesting.

Key Abilities and Skills

I have been a team leader and independent in charge of railway operations and projects since early stages of my career, dealing with Manpower & Infrastructure Planning, Budgeting, Procurement of Machinery, Plant and equipment, Planning and Monitoring Operations and performance involving multi-disciplinary functions and personnel, Inventory Management for maintenance spares, Training and HRD, i.e., monitoring selection, recruitment & training Project management, integration of technical systems and administration. In later part of my career, I also acquired extensive exposure in rolling Stock design, development and field qualification.

Summarising, the key abilities and skills that I would highlight are:

- Project management, integration and administration, particularly railway projects
 - Railway technology – appraisals, evaluation and adoption
 - Locomotive and Train set Design, engineering and manufacture
 - Commercial projects in freight handling and passenger amenities for Railways
 - Manufacture, Maintenance & Operations of rolling stock and railway products in general. Railway systems management and administration with high level of human interaction
 - Cultural understanding and interface with key international organizations & corporate sector.
 - Human resource development for improved productivity
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Experience

Position: General Manager, Integral Coach Factory, Chennai from Aug 2016 to Dec 2018 as head of the Organization, which is a pioneer coach building unit, manufacturing 2500 coaches per year in a single factory with multifarious designs. The product range includes self-propelled coaches like 3 phase EMU, DEMUs, Metro coaches, SPART, etc., in addition to conventional passenger coaches. **The job entails** – Overall in charge of entire production activities, procurement, design and development, construction and maintenance of electrical and civil structures/equipment, HR including welfare.

Position: Chief Mechanical Engineer, Rail Wheel Factory from Nov 2015 to Jul 2016, head of Mechanical Wing of the Factory, which manufacture wheel sets for trains/wagons. **The job entails** – In charge of production and design & development activities of wheel sets.

Position: Railway Advisor (Minister), Embassy of India, Berlin, Germany from Oct 12 to Oct 15, as **the senior most officer of Indian railways outside India** for coordination, liaison and handling of projects outside India, particularly Europe, North America and far east. **The job entails** – Overall in charge of all liaison work with foreign Railways, coordination for important IR projects with Industry and railways in Europe, North America, Japan & Korea, pre-despatch inspection of equipment and materials ordered by IR outside India, development of sources for procurement of equipment and rolling stock by

Position: Divisional Railway Manager, Bangalore, India from July 10 till Oct. 12 (Overall in charge of Bangalore division of South Western Railway, which has 88 block sections in five major lines, with over 200 trains run daily (more than 170 passenger and 40 freight trains), earning more than \$ 250 million for IR per year) **The job entails** – Quite simply, this job involves complete responsibility of passenger and freight train operations, with all aspects

of Railway working like Traffic Control, Rolling stock management, Track maintenance, Signalling & Telecom, Security, safety etc.

Position: Executive Director/Motive Power, RDSO Lucknow, India from July 07 till July 10-incharge of Motive Power technology i.e. locomotive technology at the Research & development wing of Indian Railways i.e. at RDSO Lucknow. **The job entails** - Design, development and project management for new locomotives/power units and certification of rolling stock and allied systems at RDSO, Lucknow.

Position: Chief Works Manager, South Central Rly Secunderabad, India from Jan 07 to July 07 (In charge of periodic overhaul of coaching stock for South Central railway). **The job entails** - Planning and execution of periodic mechanical and electrical overhaul of coaching stock; planning, resource mobilization and upgradation of coaches for improved reliability and better passenger amenities

Position: Additional Divisional Railway Manager/Operations, Secunderabad, India from July 04 to Jan 07 (In-charge of operation and maintenance of Coaching and Freight business of one of the busiest divisions on the Indian Railways; with annual freight loading touching 50 million tonnes and over 100 freight, 150 passenger & 75 suburban trains run daily, earning more than \$ 800 million for IR per year) **The job entails** - Responsible for the passenger and freight train operations, Commercial, Locomotive and rolling stock operations, Safety, Mechanical, Track, Signalling and Security, covering all aspects of Railway working and inter-department coordination

Position: Chief Design Engineer, Diesel Locomotive Works, Varanasi, India, from Sep 2000 to June 04 (Head of all locomotive projects and designs and at Diesel locomotive Works for IR, including evaluation of locomotive designs for import as well as design of locomotives for export. **The job entails** - Design & development of locomotives & system integration of electrical and mechanical equipment/components, Extensive design & development work on loc equipment

Position: Director/Motive Power, RDSO Lucknow, India, from June 91 to August 2000 (Head of Electrical wing of Motive Power directorate i.e. Diesel locomotive technology at the Research & development wing of Indian Railways i.e. at RDSO Lucknow). **The job entails** - Design & development of Electrical and allied systems for diesel locomotives for IR as well for export

Other positions early in the career: In-charge of freight and passenger operations, repair, maintenance, operations & overhaul of locomotives, manufacture of loco, carriage and wagon components etc.; **not detailed here,**

Representative Projects Handled

My long tenure as a design cum project team leader at Integral Coach Factory, Research designs and Standards organization of IR (RDSO), Diesel Locomotive Works and a previous assignment as Railway Advisor in Berlin has afforded a great opportunity to work extensively with leading multinationals like GETS/USA, Siemens/Germany, Bombardier/Sweden, Alstom/France, Bosch/Germany, Cummins/USA, Caterpillar/USA, Knorr Bremse/Germany, Faivley/France, SKF & FAG/Germany, Du Pont/USA, etc. as well as reputed international organizations in the field such as AAR & TTCI of USA, UIC/Europe, DB/Germany. These close interactions helped me acquire a unique ability to handle Railway projects of large magnitude and dimensions.

- **Development of Train 18, the first modern locomotive-less 180/160 km/h train set of Indian Railways**, matching the world standard but handled entirely indigenously as perhaps the **best Make in India** project of Indian Railways
- Development of Tejas rake, the first modern 180/160 km/h train of Indian Railways, matching the world standard
- Design and development of modern 3-phase Diesel-electric Multiple Units for Sri Lanka Railways for main land terrains
- Design and development of modern MEMUs with 3-phase IGBT under-sling electrics
- Design and development of modern air-con Emus with 3-phase IGBT under-sling electrics
- Development of Vista dome coaches for tourist traffic

- **Mission-based thrust for renewable energy to make Integral Coach Factory, Chennai carbon negative, the only such unit of IR and perhaps one of a few in the country**
- MoU with Deutsche Bahn (German railways), SNCF (French railways), OBB (Austrian Railways) and Renfe (Spanish Railways).
- Coordination and project evaluation with international organizations like UIC, AAR etc. many such projects have been given shape
- Design development and project management for 5500 hp AC-AC EMD family locomotive; leader of the project as head of RDSO in this collaborative project between EMD and IR
- Development of the technical specification and process for qualification for 6000 hp heavy freight locomotive for IR in association with international consultants and through extensive technical interaction with M/s GETS/USA & EMD/USA
- Development of the 2 X 4500 hp EMD family passenger locomotive pair equipped with capability to supply hotel load (HOG) with M/s Siemens/Germany & Medha/India
- Development of IGBT-based three-phase systems for high power freight locomotives with M/s Siemens/Germany for the first time on IR
- Development of comprehensive Microprocessor-based Controls, including sophisticated wheel slip/slide controls for ALCo family locomotives in association with M/s GETS/USA & Siemens/Germany
- Development of key equipment for ALCo & EMD family locomotives, like turbochargers, power assemblies, DC transmission equipments etc. through M/s GETS/Erie, USA
- Technical offer and build specifications of locomotives for export (more than twenty five projects) from India through DLW/RITES, e.g., Sri Lanka, Malaysia, Columbia, Thailand, Sudan, Iraq, Iran, South Africa, Vietnam and many PSUs in India
- Design development and tests and trials of locomotives supplied to Malaysia, Angola, Mali, Mozambique, Tanzania Bangladesh, Sri Lanka, Myanmar, Sudan & Vietnam by Indian Railways in the period 1995 to 2010.
- Author of the Contract specification (technical) for 4000 hp EMD (GM) locomotives to be supplied to Indian Railways in association with M/s EMD
- Rehabilitation of 2800hp diesel-electric locomotives of Syrian Railways – visited Syria and prepared the technical offer for RITES
- Rehabilitation of main line GETS diesel-electric locomotives of Malawi Railways – visited Malawi and prepared the rehab package for RITES
- Design and development of locomotives for Sri Lanka Railways for main land and up country terrains after close interaction with the Sri Lankan executives in Sri Lanka
- Extensive interaction with international experts of EMD and GETS through multiple visits for ongoing locomotive projects
- Test of AC transmission and Microprocessor equipment for heavy freight locomotives at Nuremburg, Munich and Erlangen in Germany
- Extensive interaction with Chinese rail experts of both CNR & CNR (Zhiyang, Yongjee, Dalian, Quishuan & GETS China centre for mutual cooperation, which resulted in Railway equipment development, including crankshafts for ALCos locomotives, other engine components and traction motors
- Prolonged technical interaction with SNCF for development of cab simulators and rolling stock wheel design
- Technical interaction with UIC in many collaborative locomotive projects in the period 1996 to 2000 and 2007 to 2010 as the team leader from RDSO
- Design development of an environmental-friendly multi-gen set locomotive in association with NREC/USA
- Development of three phase systems in association with Traction Systeme/Austria for Diesel-electric Multiple Units
- Development of three phase systems in association with ms ABB and Bombardier for high traction freight locomotives
- Development of computerized brake systems in association with M/s NYAB/USA & Knorr Bremse/Germany
- Development of modern braking equipment in association with M/s Faivley/Europe\

Others

- Development and successful operations of modern 3-phase Electric Multiple Units (EMUs) with air-conditioning, wide gangways, automatic doors and comprehensive PIS (Passenger Information system) etc. for Mumbai and other suburban areas

- Development and successful operations of modern 3-phase Main Line Electric Multiple Units (MEMUs) to replace old DC system-based MEMUs
- Development and successful operations of modern 3-phase Diesel-electric Multiple Units (DEMUs) with modern features like GOLD etc.
- Upgradation of LHB type coaches with improved features like, ACP panelling, FRP toilets with vacuum evacuation, wide windows, fire-protection etc.
- Modernization of Bangalore City and Bangalore Cantt. stations
- Introduction battery-operated as well as modern hand carts at Bangalore station, replacing the age-old trollies in Railways; first of its kind on IR
- In addition to above, implemented many “first on Indian Railways” projects like Emergency medical facilities at railway stations, commissioning of relaxation lounges, “May I Help You” centres, Rail Heritage gallery, Rail Art gallery, Development of Murals & Public Art etc.
- Development and successful operations of Distributed Power (Locotrol) on EMD locomotives for heavy freight operation for the first time on IR
- Development of the 4500 hp twin cab high speed EMD family locomotive
- Design development and tests & trials of as many as seven ALCo family locomotives in the power range of 1400 to 3600 hp locomotives, viz., 3100 hp WDM2C, 1400 hp WDS6(AC), 2300 hp WDP1, 3100 hp twin cab WDP2, 3100 hp WDG2, 3400 hp WDM3D, 3500 hp WDM3E & 3600 hp WDM3F; all in successful service now
- Development of indigenous IGBT-based invertors for 4000-4500 hp locomotives manufactured at DLW
- Development of indigenous comprehensive Microprocessor controls, including wheel slip/slide controls for ALCo family locomotives
- Development of “Great Indian Rover”, the tourist train of IR.
- Project report and initial blueprint for Rs 95 crore modernization project of Lallaguda Coaching workshop on South Central Railway
- Modernization of Bangalore City Railway station
- Introduction of computerized train control charting on Secunderabad division
- Introduction of mechanized parcel handling at Secunderabad station; first on IR
- Development of a complex automated vehicle parking system at Secunderabad station; first on IR
- Comprehensive computerized and paperless driver’s booking point at Sanatnagar on South Central railway; first on IR
- Introduction of mechanized cleaning and housekeeping on all major stations of Secunderabad division; first on IR
- Development of components made of composites for use on Railways and other industries – Working member of AMC formed by TIFAC & Dept. of Science & Technology, Govt. of India.
- Standardization of insulation scheme for traction motor armatures.
- Design & Development of locomotives
- Development of 700 hp & 1400 hp high-acceleration Diesel-electric multiple units (DEMUs).
- Development of many sub-systems like self-cooled rectifiers, efficient ventilation system, high –performance traction machines, elastomeric components for traction machines.
- Expansion of diesel locomotive shed, Burdwan in early part of the career.
- Modernization of Jamalpur Diesel Workshop under Indo-Japanese cooperation programme.

Achievements and Honours

- The no. of awards and accolades I got during my stint as GM/ICF are too long to record here; suffice it to say that the ministry capped it all by awarding me the Transformation as well as Environment award in 1917-18.
- Project Management shield in my last assignment in all fields of Rly. Technology at RDSO
- Director General’s cash award for completing a record no. of locomotive projects at RDSO
- Three special awards; Railway Board first prize & medal in 98-99 & 99-2000 and Iyengar medal in 2000-01 for papers published in Journal of Institution of Engineers, India
- Special medal by BHEL for AG reliability project.
- Appreciation for improved POH outturn of diesel-electric locomotives and manufacture of diesel & C&W components as Deputy Chief Mechanical Engineer, Jamalpur.
- General Manager's Certificate of Merit and Cash Award in April'88 for outstanding work carried out as Divisional Mechanical Engineer/Diesel (In-charge) at Burdwan shed of ER.

- Appreciation for improved reliability and availability of diesel-electric locomotives as Divisional Mechanical Engineer, Burdwan thrice.
- Appreciation for improved operations and maintenance of locomotives as Divisional Mechanical Engineer, Sealdah.
- Appreciation for improved POH out-turn of wagons as Assistant Works Manager/Liluah.

Articles, Paper and Presentation

- I have been making presentations on the transformation done at ICF regularly.
- Paper titled **“Development of light passenger locomotive”** published in proceedings of international **seminar by UIC on “User-Producer interface”** in Nov’96 at Teheran.
- Paper titled **“Development of train simulation software”** presented in **international seminar Rollstock’96** by **IRSE & AAR** in Nov’96 at New Delhi (included in proceedings)
- Paper titled **“AC-AC transmission system for diesel locomotives”** published in Nov’97 issue of **Journal of Institution of Engineers, India.**
- Paper titled **“Pattern of failures on traction motors”** presented in international conference by BHEL on **“Electric Drives & Controls for Transport Systems”** in Jan. 97
- Paper titled **“Development of WDG2 locomotive- A design for heavy freight operation”** presented in joint international conference by ERRI & IR on **“Bilateral cooperation in Railway Research”** in Feb’98 at New Delhi.
- Paper titled **“Correlation among test quantities for insulation of traction machines”** published in June’98 issue of **Journal of Rail & Rapid Transport of I.Mech.E., London.**
- Paper titled **“Development of efficient ventilation system for diesel locomotives”** published in Nov’ 98 issue of **Journal of Institution of Engineers, India.**
- Paper titled **“Development of a light passenger loco”** published in May’2000 issue of **Journal of Institution of Engineers, India.**
- Paper titled **“Choice of traction-Unmasking misconcepts”** published in Jan-March’2001 issue of **Journal of the Institute of Rail Transport, New Delhi.**
- Paper titled **“Mechanized Handling & Cleaning at Railway Stations”** published in the July 07 edition of Indian railways magazine published by Railway Board
- **Two other articles** on **improved maintenance of electrical** systems of diesel locomotives and **development of high-speed light-weight traction motor** are ready and awaiting approval for publication. In addition, nearly twenty-five presentations made in various high level fora connected with Railways in general and locomotives.

Education

- Special Class Railway Apprentice (SCRA) – Premium Ranking institution for mechanical engineers for class I Railway Officers, for which one is selected after intermediate. I was student of 1st year in Metallurgical Engineering at IIT/Kanpur and subsequently Electrical Engineering at Roorkee the same year when I left to join SCRA. Completed the following during the four-year course at Jamalpur:
 - **Graduate in. Mechanical Engineering**
 - **Graduate in Electrical Engineering**

Other Information

- Carried out nearly fifty technical and managerial studies; all these studies are well documented in form of, either official reports (for studies done in Zonal Railways) or numbered publication of RDSO (for studies done at RDSO)
- I have prepared nearly five hundred (500) technical publications at RDSO, comprising of Maintenance Instructions, Investigation/Project Reports, Test Protocol reports, Guides, Specifications etc.
- I have wide experience of handling computers and information technology. I have been closely associated in development and commissioning of sophisticated database and engineering software, both in diesel sheds and RDSO.
- I have always been interested in cultural and heritage issues; have tried to do my own bit on all the jobs that have handled. I am a socially active sports-loving person with

proficiency in Dramatics, Compeering, Aquatics, Squash & Tennis. I am also a culturally inclined person, with special interest in compeering shows and acting in plays.

- Languages - Proficient in spoken and written English, Hindi & Urdu. Proficient in spoken and working knowledge of Bangla. Basic knowledge of German.