

## Contact

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(LinkedIn)

## Top Skills

Business Development  
Construction  
Infrastructure

## Honors-Awards

First Prize for the Project "Budget Monitoring System"  
General Manager's Award  
Certificate of Appreciation (Excellent Services)  
Certificate of Appreciation (Excellent Services)  
General Manager's Award

## Publications

Civil Engineering through Objective Questions  
Sum of the factorials of the digits of integers  
Creative Puzzles to Ignite Your Mind  
Smith Numbers  
"Regirdering of Br No. 1376/1, 4/12.2+ 1/30.5 M underslung open web girder bridge at Km 1376/3-4 on JHS-MKP section of JHS division"

# Shyam Sunder Gupta

IRSE, FIE, FIPWE, Former Principal Chief Engineer, Indian Railways, Owner of Number Recreations website, Authored the books "Exploring the Beauty of Fascinating Numbers" and "Creative Puzzles to Ignite Your Mind"

Jaipur, Rajasthan, India

## Summary

IRSE Officer (Batch 1981) with experience of more than 35 years in various managerial, administrative and technical positions such as PCE/SRIy, PCE/NWRIy, Executive Director(Track Procurement) Rly Board, DRM (Bikaner Div NWRIy), CBE on NCR and NWRIy, Director(Bridges & structures)/RDSO on Indian Railways. Capable of Planning, Design and execution of construction projects of new line, doubling, gauge conversion in Railways with wide experience in tendering and contracts for project design and management. Post retirement from Railways, had excellent exposure of Metro projects while handing DDC contract of Chennai Metro and GC contracts of Mumbai metro as Director(Railways and Metros) with CEG ltd Jaipur.

My interest in Number Recreations dates back to 1978, when my first paper "Miracles of Last Digit" was published. Since then my contribution has been published in Science Reporter, Science Today, Math Education, American Mathematical Monthly (USA), Mathematical Gazette (UK), Math. Spectrum (UK), Scientia Magna (USA) and several international books.

My website [www.shyamsundergupta.com](http://www.shyamsundergupta.com) on Number Recreations is highly popular with visitors from more than 150 countries. Some of my major discoveries are EPORNS(Equal Product Of Reversible Numbers), Rare Numbers, Unique numbers, palindromic pseudoprimes, fifth-order prime polynomial, 17350-digit memorable prime etc.

I am the author of the book "Exploring the Beauty of Fascinating Numbers" published by Springer Singapore, in March 2025.

I am the author of the book "Creative Puzzles to Ignite Your Mind" published by Springer Singapore, in March 2023.

I am also the co-author of the book 'Civil Engineering through Objective Questions' first published in 1985 and now in its 4th edition, published by CBS Publishers, New Delhi. This is Amazon's bestseller rank 1.

I am available on Twitter  
@NumbersByShyam

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## Experience

Former Principal Chief Engineer  
August 2020 - Present (5 years 9 months)

Consulting Engineers Group Ltd.  
Director (Railways & Metros)  
April 2019 - July 2020 (1 year 4 months)

General Consultancy (GC) For Civil Works for Mumbai Metro Line 5 (E) (Thane - Bhiwandi) , Line 9 (E) (Dahisar East - Mirabhayandar) & 7A (UG) (Andheri - MIA) for MMRDA

General Consultancy (GC) For Andheri (East)-Dahisar (East) [Line 7] and D.N. Nagar-Mandala [Line 2B].

Consultancy Services for Carrying out the Feasibility Study for Connecting Delhi - Alwar RRTS from SNB Urban Complex to Sotanala RIICO Industrial Area Followed by preparation of Detailed Project Report.

Consulting Services for: "Detailed Design Engineering Consultancy" for the three major Projects under MUTP-3 through two separate Lots, Lot-I – Quadrupling of Virar-Dahanu Road Project (64 Km) on Western Railway.

Consulting Services for: "Detailed Design Engineering Consultancy" for the three major Projects under MUTP-3 through two separate Lots, Lot- II- Double line corridor between Panvel-Karjat (33 Km) and Elevated double line rail link between Airoli-Kalva (4 Km) on Central Railway.

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Detailed design consultant (DDC) for the works and services of the detailed design and drawings for the alignment, civil, structural, architectural, MEP, TVS, VAC & track works covering the alignment and underground stations from Madhavaram Milk Colony to Thousand Lights ch: (-)383 to ch: 15742, in corridor 3 of phase- II of Chennai Metro Rail Project.

Detailed design consultant (DDC) for the works and services of the detailed design and drawings for the alignment, civil, structural architectural, MEP, TVS, VAC & Track works covering the alignment and underground stations from thousand lights to Taramani Road Junction (excluding Thousands Lights UG Station), ramp & elevated stations from Nehru Nagar to Sholinganallur (ch: 15742 to ch:35,414) in corridor 3 of phase- ii of Chennai Metro Rail Project.

### North Western Railway, Indian Railways

Principal Chief Engineer

July 2016 - March 2018 (1 year 9 months)

Jaipur

Management and Maintenance of fixed infrastructure (Track, Bridges, service & residential buildings) over entire North Western railway (5586 route Km) covering the state of Rajasthan, Haryana, Punjab and Gujarat

Management/Maintenance of fixed infrastructure i.e. Track, Bridges, service and residential buildings over entire North Western railway (5586 route Km) covering the state of Rajasthan, Haryana and a small portion of Punjab and Gujarat. Laying down policy framework for maintenance of assets, management of manpower and track machines. Control of Plan and Non-plan Expenditure, generating finance from Non-conventional sources. Planning and prioritising of Track Renewal works. Sanctioning and monitoring progress of works for addition, improvement and replacement of assets. Budget monitoring and control. Restoration of infrastructure, damaged during floods of July-Aug'2017. All lines restored within short span even by building temporary bridges.

Co-ordination with Railway PSU like RVNL, DFCC, RLDA and State Govts.

### Southern Railway

Principal Chief Engineer

September 2015 - July 2016 (11 months)

Chennai, Tamil Nadu, India

Management and Maintenance of fixed infrastructure (Track, Bridges, service and residential buildings over entire Southern railway (5080 route Km) covering the state of Tamilnadu, Kerala, Pondicherry, Andhra Pradesh and Karnataka

Management/Maintenance of fixed infrastructure i.e. Track, Bridges, service and residential buildings over entire Southern railway (5080 route Km) covering the state of Tamilnadu, Kerala, Pondicherry and a small portion of Andhra Pradesh and Karnataka. Laying down policy framework for maintenance of assets, management of manpower and track machines. Control of Plan and Non-plan Expenditure, generating finance from Non-conventional sources. Planning and prioritising of Track Renewal works. Sanctioning and monitoring progress of works for addition, improvement and replacement of assets. Budget monitoring and control. Restoration of infrastructure, damaged during floods of Nov'2015.

All lines restored within short span by diverting resources and building temporary bridges.

Co-ordination with Railway PSU like RVNL, RLDA and State Govts.

Management of Engineering Workshop Arakkonam spread over an area of 12 acres (annual turnover worth 50 crores) and Track machines maintenance workshops.

**Railway Board, Indian Railways**

**Executive Director Track (P)**

October 2012 - September 2015 (3 years)

New Delhi, Delhi, India

Planning and Procurement of Rails, Weldable CMS Crossings and Thick Web Switches.

Review and Revision of Rail specification IRS T12 as per requirement.

Policy matters regarding Flash Butt Welding, AT Welding, USFD testing of Rails and Welds, Switch Expansion Joints (SEJ) and Glued Joints.

Monitoring and measures to Control Rail/Weld failures. Reduction in asset failure – Sustained yearly improvement.

**North Western Railways**

## Divisional Railway Manager

September 2010 - October 2012 (2 years 2 months)

Bikaner, Rajasthan, India

Operation and Maintenance of railway services in Bikaner Division with a route km of about 1700km

Head of a Multi-disciplinary team to ensure operation and maintenance of railway services in Bikaner Division with a route km of about 1700km (Largest Division of Indian Railways in terms of route km) to the best satisfaction of customers. Management of train operations including maintenance of fixed infrastructure and rolling stock. Monitoring and control of asset failures to ensure safety and punctuality in train operations. Co - ordination between Railways and State Government, Business development and industrial relations. HR management for a manpower of more than 11000 people working in the division. The idea of setting up a rail museum at Bikaner was conceived by me and more than 350 exhibits collected from various stations/ offices were utilized to set up Bikana Rail Heritage Museum on 18 th Oct 2012. With lot of personal initiative and monitoring an innovative idea of construction of RUB's at trespassing locations under NREGA was undertaken in Bikaner Division for the first time on Indian Railways.

## Railway Board, Indian Railways

Executive Director Vigilance (Engg.),

September 2008 - September 2010 (2 years 1 month)

New Delhi, Delhi, India

Overall co-ordination, dealing with complaints and prevention of corruption, co-ordination with CBI, Central Vigilance Commission and Union Public Service Commission etc.

Spreading awareness through presentations on various aspects of tendering and contracts along with case studies to Indian railway officials.

Detailed Technical and Financial appraisals of high value tender cases of Civil Engineering over Indian Railways.

Finalizing Guidelines for system improvements especially for Tenders and contracts on Indian Railways.

## North Western Railways

Chief Bridge Engineer

May 2006 - September 2008 (2 years 5 months)

Jaipur, Rajasthan, India

Planning, executing and monitoring of Strengthening, regirdering and rebuilding of bridges. Maintenance and health monitoring of all Railway bridges falling in the jurisdiction of North Western Railway.

Headed North Western Railway's team in planning, executing and monitoring of Strengthening, regirdering and rebuilding of bridges. Responsible of maintenance and health monitoring of all Railway bridges falling in the jurisdiction of North Western Railway. Restoration of infrastructure, damaged during floods of July'2007. All lines restored within short span by diverting and allocating required resources and building temporary bridges. Many important Road Over Bridges like Jagatpura ROB, Hasanpura ROB (near Railway station) was completed and commissioned.

### North Central Railway

Chief Bridge Engineer

August 2003 - April 2006 (2 years 9 months)

Allahabad, Uttar Pradesh, India

Planning, executing and monitoring of Strengthening, regirdering and rebuilding of bridges. Maintenance and health monitoring of all Railway bridges falling in the jurisdiction of North Central Railway.

Headed North Western Railway's team in planning, executing and monitoring of Strengthening, regirdering and rebuilding of bridges. Responsible of maintenance and health monitoring of all Railway bridges falling in the jurisdiction of North Western Railway. Restoration of infrastructure, damaged during floods of July'2007. All lines restored within short span by diverting and allocating required resources and building temporary bridges. Many important Road Over Bridges like Jagatpura ROB, Hasanpura ROB (near Railway station) was completed and commissioned.

### South Eastern Railway

Chief Engineer (Construction)

December 2000 - August 2003 (2 years 9 months)

Kolkata, West Bengal, India

Planning, Procurement, Execution and Monitoring of Important Projects in South Eastern Railway like Construction of New Line from Mahendra Lal Nagar to Amta, Panskura - Haldia Doubling, Ranchi – Lohardaga Gauge

Conversion with extension to Tori (113km), Bankura – Damodar River Valley (BDR) Railway Project (97 km).

The Projects also involved massive Earthwork, Construction of buildings, Construction of large number of Bridges and ROB's.

### Research Design and Standards Organization

Director (Bridges and Structures)

January 1998 - December 2000 (3 years)

Lucknow, Uttar Pradesh, India

Developing new standards and Designs for Indian Railways like design of Plate Girders, Composite Girders for standard spans, design of steel structures like Foot Over Bridges, Platform Shelters. Have been instrumental in revision and modification of IRS codes like Bridge Rules and introduction of heavy axle loads on Indian Railways.

Responsible for coordinating Bridges and Structures Standards Committee meetings. Dealt with Cases Concerning Speed Clearances of Rolling Stocks, Schedule of Dimensions, High Speed, Loading Standards, Heavy Axle loads, LWR on Bridges etc. Represented Railways in many Code Committee meetings like IRC, BIS codes.

### Western Railways

13 years 4 months

Deputy Chief Engineer

July 1997 - January 1998 (7 months)

Udaipur, Rajasthan, India

Responsible for Chittaurgarh – Udaipur (115 Km) section of Gauge Conversion work. After completing all initial activities like mobilising staff and resources, office setup, surveys, finalization of drawings of bridges, L-sections etc, Tenders for Major bridges were invited and finalised. Work of Major bridges was started.

Deputy Chief Engineer

September 1994 - July 1997 (2 years 11 months)

Abu Road, Rajasthan, India

Responsible for Abu Road – Nana (61 Km) section of Gauge Conversion Project of Ajmer to Mehsana. After completing all preblock activities like acquisition of land for diverted alignment, Earthwork in formation and Cutting, strengthening/modification/replacement of 8 Major Bridges and 98 minor

bridges, Station Buildings and allied works for 8 Railway stations etc, the section from Abu Road to Nana was closed for conversion from 15-12-1996 and Linking of Main line was completed in a record time on 11-01-1997. During the period work of Banas Cement siding was executed. Work of Binani Cement siding was coordinated and monitored.

#### Deputy Chief Engineer

February 1993 - September 1994 (1 year 8 months)

Alwar, Rajasthan, India

Responsible for Khairthal – Rajgarh (62 Km) section of Gauge Conversion Project of Rewari to Jaipur. After completing all preblock activities like acquisition of land for diverted alignment, Earthwork in formation and Cutting, strengthening/modification/replacement of Major Bridges and minor bridges, Station Buildings and allied works, the section from Khairthal to Rajgarh was closed for conversion and Linking of Main line was completed in a record time of 21 days.

#### Deputy Chief Engineer

March 1991 - February 1993 (2 years)

Jaipur, Rajasthan, India

Coordination of all activities of Gauge Conversion Project of SawaiMadhopur to Jaipur. In addition also responsible for Sanganer – Durgapura terminal section for Gauge Conversion. After completing all preblock activities like acquisition of land for diverted alignment, Earthwork in formation and Cutting, strengthening/modification/replacement of Major Bridges and minor bridges, Station Buildings and allied works, the section from Sanganer to Durgapura was closed for conversion and the work was completed before target of March 1993 and super fast train from Durgapura to Mumbai started on the first day of opening the section in Jan 1993.

#### Deputy Chief Engineer (Design)

August 1989 - March 1991 (1 year 8 months)

Mumbai, Maharashtra, India

As a head of design works he was responsible for Finalizing designs of important structures including Road Over Bridges falling in Western Railway.

#### Divisional Engineer

July 1988 - August 1989 (1 year 2 months)

Mumbai, Maharashtra, India

Divisional Engineer, Western Railways, Indian Railways

#### Divisional Engineer

January 1987 - June 1988 (1 year 6 months)

Rajkot, Gujarat, India

Divisional Engineer, Western Railways, Indian Railways

Executive Engineer

July 1986 - January 1987 (7 months)

Mumbai, Maharashtra, India

Executive Engineer, Western Railway, Indian Railways

Works Manager

April 1986 - June 1986 (3 months)

Sabarmati, Gujarat

Works Manager, Western Railway, Indian Railways

Assistant Engineer (C)

October 1984 - April 1986 (1 year 7 months)

Bhuj, Gujarat, India

Assistant Engineer (C), Western Railway, Indian Railways

Indian Railways

IRSE Probationer

March 1983 - October 1984 (1 year 8 months)

India

IRSE Probationer, Indian Railways

CPWD Govt. Of India

Assistant Executive Engineer

March 1982 - March 1983 (1 year 1 month)

New Delhi, Delhi, India

Assistant Executive Engineer, CPWD

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## Education

Malaviya National Institute of Technology Jaipur

BE(Hons) Civil, Civil Engineering · (1975 - 1980)