



ENGINEERS & INNOVATORS

CAPABILITY STATEMENT INFRA 2023



Delhi-NCR



Mumbai



Kochi



Goa

**Frontier Geoservices Pvt Ltd**

CIN U93090DL2020PTC363403 - GST 07AAECF0658G1ZR - PAN AAECF0658G



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# Introduction

*Established in 2020, we are a pan India presence integrated engineering consultancy firm providing engineering services from dream to reality and beyond.*

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Pre-Feasibility studies	Survey & Investigation	Detailed Project Report	Project Management
Tender & Bid Management	Pre-bid Services	Detailed Design	Construction Supervision
Contract Claims Management	Maintenance Planning	Digital Engineering	Non-Destructive Testing
Infrastructure Health Monitoring		Geophysical Investigation	

# Sectors

WATER RESOURCES



INDUSTRIAL & RESIDENTIAL



SURFACE TRANSPORT



UNDER GROUND STRUCTURES



STRUCTURAL ASSESMENT



ELECTRICAL & MECHANICAL



SMART INNOVATIVE TECHNOLOGY



Quality

Fairness

Excellence

Growth

Integrity

Passion

# The Journey

Four times financial growth YoY

Underground, Water, Bridges, Buildings, Claim Management, Instrumentation Analysis & Smart Technologies sector covered

Presence at Delhi, Mumbai, Kochi, Goa

Design software and Technological Infrastructure

Largest Tunnel Design Team in India

More than 125 Kms of tunnel design (Civil & E&M)

Total Strength of 32 in April 2022

Ten projects till Nov. 2022  
Seven projects in 2021  
Two projects in 2020

Experts in Tunnel, Bridges, Structures, Building, Instrumentation, Survey, Ventilation, Firefighting, SCADA, Electrical, BIM & AutoCAD

Started with three Engineers

Incorporated on 23 April 2020

# Key Projects

## HRT by TBM & DAM Kinematic Analysis

- Location Jangi Thopan, Rampur H.P (780MW).
- Pre-Feasibility studies for 12 km TBM HRT scheme of diameter 10m & cross-sectional area 80 sqm.
- Kinematic & Slope Stability analysis of Dam site.
- Geological Mapping and Geophysical testing.
- Study of Alignments.

## Palakkad Water Tunnel (Detailed Design)

- Water Canal Project in Palakkad in Kerala.
- Detail design of two water tunnel of 680 mtrs & 300mtrs.
- D-shaped 3m dia tunnel with x-section area 7.06sqm.
- Complex geology with overburden of 18m.

## Kiratpur-Nerchowk Tunnels (Detailed Design).

- Detailed E&M Design E&M of four tunnels 6 km.
- Two lane, Twin tube road tunnels connecting Kathlight to Dhalli.
- Lighting, Ventillation, Fire fighting, Power Supply & Distribution, Traffic Management, Communication & SCADA.
- Longest Tunnel twin tube each of length 1.8 Km.

## Ramban – Banihal Pkg 3 (Detailed Design)

- Road Tunnels on NH connecting Srinagar - Jammu.
- Seven 2 x lane Road Tunnels of Length 4 km, dia 10m, X-section 100 sqm.
- Two new tunnels and five partially completed.
- Slope Stability Analysis.
- Civil & E&M detailed design.

# Key Projects

## Tunnels Talcher – Bimalagarh (Detailed Design)

- ECoR Project at Angul Orrisa.
- PMC and Design of Railway Tunnel.
- Tunnels Length 0.9 km & Slope Stability of 350m.
- Tube diameter 7m & cross-sectional area 90 Sqm.
- Civil & E&M design.

## Project Mussoorie Tunnel NH-707A (DPR)

- Feasibility and Detailed Project Report.
- Unidirectional twin tube Tunnels of Length 9 km.
- Approximately 4.5 km of tunnel with an approach of 5 km.
- Topo Survey, drone survey, DEM, ERT, SRT, etc.

## Tunnels of Bharatmala – Pariyojana (DPR)

- Economic Corridors Expressway Odisha & Chhattisgarh.
- Unidirectional Road Tunnels of Length 18.16 km.
- Tubes of 3 x lane of diameter 15m & cross-sectional area 138 Sqm.
- Civil and E&M design.
- HAM project

## Tunnels of Zaskar Valley (DPR)

- Road connectivity to Leh (Nimmu – Padam route).
- Design of more than nine tunnels 7 Km.
- Feasibility Study (FS), Detailed Project Report (DPR) and tunnel designing, Civil & E&M design.
- Tubes of 2 x lane of diameter 9m & cross-sectional area 70 sqm.

# Key Projects

## Pre-bid Services 80 Railway Bridges

- Pre-bid of 80 Major, Minor Bridges & RUB.
- Nimach – Dalauda, Ratlam M.P
- 1x Important Bridge 335 m, 13 x Major Bridges, 52 Minor Bridges, 14 X Road Under Bridge
- Design, Quantity Calculation & Cost Estimation.

## Sunni Dam Kinematic Analysis (382 MW)

- Project Location Sunni, Rampur H.P.
- Kinematic & Slope Stability analysis of Mining Area site above dam site.
- Geological preliminary studies.
- Stability solution for slopes.

## E&M Shimla Bypass Tunnel (Pre Bid).

- E&M pre-bid services of 2 packages of five tunnels 10 km.
- Kathlighat -Shakrall – Dalli section Shimla H.P.
- Two lane, Twin tube road tunnel, longest one 2.7km.
- Lighting, Ventilation, CFD analysis, Fire fighting, Power Supply & Distribution, Traffic Management, Communication & SCADA .

## Analysis of Instrumentation of Hydro Project.

- Analysis of various instruments such as Load Cell, Strain Gauges, Inclinator, Bore Hole Extensometer
- Luhri, Vyasi & Arun 3 Hydro Project located in India & Nepal.
- Detailed Analytical Monthly reports with behaviour analysis for slopes, tunnels, power house, etc.

# Key Projects

## Daspalla-Banigucha Rail Tunnels

- Pre-bid services for three rail tunnels: 800m, 1775m, and 2620m
- Geological assessment
- Civil, E&M Quantity Calculation and Cost Estimation
- Ventilation with shaft arrangement between tunnels

## Tunnels in Leh, Ladakh

- Pre-bid services for two tunnels
- Length of tunnels(500m & 420m)
- Cut & Cover type
- One minor bridge
- Civil Quantity Calculation and Lighting estimation

## Singhpora-Vailoo Tunnel

- Twin tube tunnel of length approximately 10.4km
- Approach road of length 28km
- Pre-bid services with detailed quantity calculation and estimation for Civil structures and E&M Systems

## Sudhmahadev-Dranga Tunnels

- Two twin-tube tunnels
- Total tunnel length approximately 8km
- Approach road of length 4.5km
- Pre-bid services with detailed quantity calculation and estimation for Civil structures and E&M Systems



# Key Projects

## Akhnoor-Sungla-Poonch Tunnel

- Detailed design for 2.7km single tube, bi-directional tunnel
- Unique cross-section and ventilation requirements
- Civil detailed design with analysis and drawings
- E&M detailed design with lighting, ventilation and firefighting, tunnel monitoring system, and power distribution with comprehensive CFD analysis

## Bijni-Mandi Tunnel Project

- Pre-bid services for 3.5km tunnels
- Approximately 2km approach road
- One major bridge
- Detailed quantity calculation and estimation for Civil structures and E&M Systems

## Ponta Saheb - Ballapur Bypass Road Tunnel

- Feasibility and Detailed Project Report of 1.8 km of tunnel.
- Located near Mussoorie town at Hathi Paon.
- Complex geology and terrain.

## Project Arun-3 HEP (900MW)

- Design Parameters Models & Lining Performance during & after construction.
- Impact monitoring on the surrounding environments such as ground settlement and groundwater regime.

# Key Projects

## HORC Rail Project

- Pre-bid Design of Structures for Haryana Orbital Rail Corridor Project Package - C4
- 4.7km long tunnel: 3.6km NATM; 1.1km Cut & Cover
- 5 Major Bridges and 11 Minor Bridges
- Geological assessment
- Civil, E&M Quantity Calculation and Cost Estimation

## Delhi Urban Tunnel

- Pre-bid Design of Electromechanical Systems for Shiv Murti Interchange-Nelson Mandela Marg Urban Road Tunnel
- 4.3km long twin-tube tunnel: TBM
- Requirement assessment for lighting and ventilation
- Quantity calculation and cost estimation for tunnel E&M systems

## Kodak House Settlement Analysis

- More than 100 years old Anglo-Scottish Society's heritage structure.
- Detection and location of structural defects using SHM sensors in quantifying the severity of defects.
- Complex situation of TBM vibration and Building Vibration.



**TEAM FGS**

**Structures**

Mr. Jitendra  
Dr. Jaswant  
Mr. S Cowshik  
Ms. Pooja  
Ms. Reeyana

**Civil**

Mr. V Shukla  
Mr. Ajit Ancheri  
Dr. R K Goel  
Mr. Rijesh  
Mr. Midhun  
Mr. Avinash

**E&M**

Mr. Hareesh  
Mr. R S Bhatt  
Ms. Prabha  
Mr. Srinath

**Survey**

Mr. Rajnish  
Mr. Aakash  
Mr. Vijay

**Geotechnical**

Dr. V K Singh  
Mr. Sreeraj  
Mr. Gowtham

**Smart &  
Innovative Tech**

Ms. Soumya  
Mr. Pranav

**AutoCAD**

Mr. Ankur  
Mr. Anand  
Mr. Sujesh

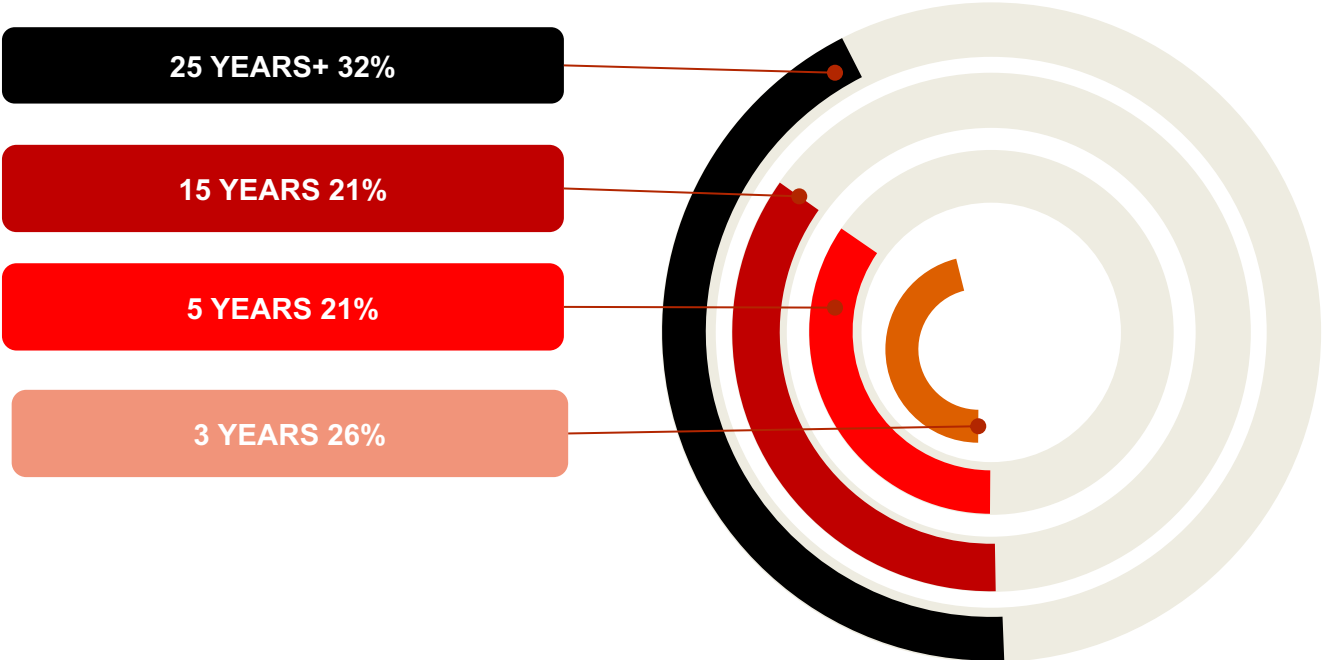
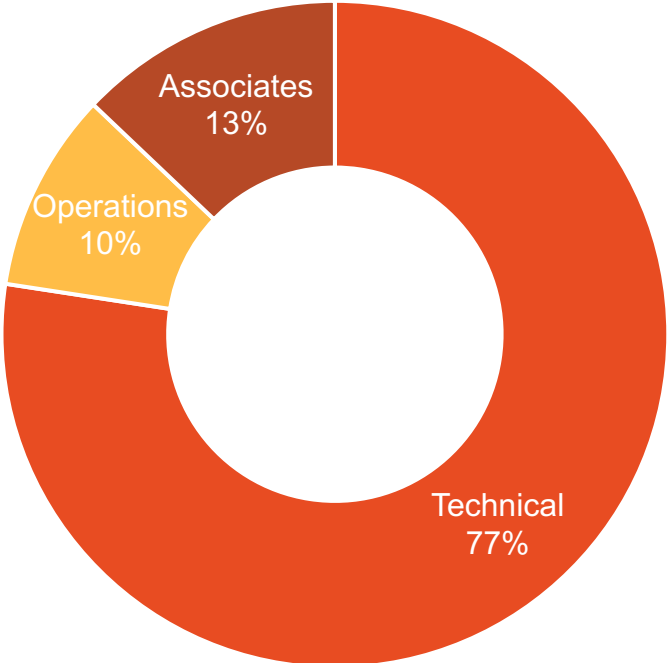
**Operations**

Mr. Satheesan  
Ms. Anjali  
Mr. Vidyabhushan

32 Internal / Assisted with  
International and External experts

# Team FGS

Team



# KEY EXPERTS

## Dr. V K Singh

B.Sc, M.Sc, Ph.D, PD Fellowship

- *Experience - 35 years plus*
- *Chief Scientist CSIR.*
- *200 Research Papers & Reports*
- *Six Software Copyright RMR Rating, Fire Interpretation Diagnosis, Fire Simulation etc.*
- *Three Patents. Localization of Disaster, Navigational Guidance Device, etc.*

## Mr. Vinod Shukla

B.Tech, M.Tech, PGCM , PGD ADR, PGD BCL

- *Experience - 25 years plus*
- *Rail, 250km Road, 10 km Bridges, 300km Tunnels and Industrial Buildings.*
- *Co-Chairman ASSOCHAM Tunnel Council, Member IAHE Governing Body*
- *Reviewer of FIDIC Emerald Book*
- *Member of Tunnel Expert Committee in Ministry of Road Transport & Highways*
- *Visiting Faculty at IAHE, MIT-Pune etc.*

## Dr. Jaswant N. Arlekar

B.Tech, M.Tech, Ph.D.

- *Experience - 25 years Plus*
- *Designs of Townships, Buildings, Industrial Projects, Chemical Plants, Auditoriums, Printing Presses, Convention Centres etc.*
- *More than 50 projects for Structural Audit & Assessment, Restoration & Retrofitting of Factories, Buildings, Hotels, Multipurpose Halls, Printing Presses, etc.*
- *Member in various Govtt panels & IS Code Committees.*

## Dr. R K Goel

B.Tech, M.Tech, Ph.D.

- *Experience - 35 years Plus*
- *75 projects provided technical solutions to tunnelling problems*
- *Written Five Books published by International Publishers*
- *Book on Engineering Rock Mass Classification*
- *Written Eight BIS Codes .*
- *160 Research Papers / Articles published in various journals & conference*

# KEY EXPERTS

## Mr. Ajit Ancheri

B.E. (Civil), PG (Cmpt pgm)

- *Experience - 40 years plus*
- *Expert in construction, design of more than 150 km of tunnels*
- *More than 50 projects for Road over Bridges, Steel Plants, Marine Structures, Buildings, Hydel, Railways, includes several projects aided by World Bank/ADB*
- *Associated with Institution of Engineers (India), Indian Institution of Technical Arbitrators, ASCE, Institution of Valuers (India), CE (India)*

## Mr. Jitendra Gaonkar

B.E. , M.Tech

- *Experience - 25 years plus*
- *Designs of Bridges, Buildings, Industrial Projects, etc.*
- *More than 50 projects for Structural Audit & Assessment, Restoration & Retrofitting of Factories, Buildings, Hotels, Multipurpose Halls, Printing Presses, etc.*
- *Member in various Govt. panels & IS Code Committees.*

## Mr. Sumit Cowshik

B.E. Civil

- *Experience - 30 years plus*
- *Construction of Afghan Parliament and Indian Chancery Projects in Afghanistan Funded by Govt of India*
- *Also worked in Japanese Embassy, Le Meridian Hotel, A.K. Gopalan Bhawan, British Council Division, New Delhi, British High Commission, India Habitat Centre.*

## Mr Banibrata Mondal

B.E , M.Tech IIT Kharagpur

- *Experience- 35 years plus*
- *Published 3 technical papers*
- *Worked in more than 10 countries*
- *Led more than 40 projects as highway expert, design director & team leader*
- *Handled more than 1000 km of highway construction*

# KEY EXPERTS

## Mr. Rijesh Ramadas

B.Tech (Civil)

- Experience - 20 years plus
- Tunnel experience of 70 km in Himalayan Terrain
- Total tunneling experience of over 200km (DPR, Detailed Design, feasibility studies, construction supervision)
- Experience of working with CPWD, BRO, NHAI, IRCON, NFR, NHIDCL, MoRTH

## Mr. Hareesh Iyer

B.Tech, M.Tech (Mech)

- Experience - 14 years plus in the field of electro-mechanical systems, ventilations and fire fighting in infrastructure domain.
- More than 150kms plus of E&M design.
- CFD Analysis
- IRCON, NFR, NHAI, MORTH, Shapoorji & Pallaonji, NHIDCL, WSP
- Author of "Advanced Mechanics of Solids: Handbook of Equations ISBN: 978-93-5279-4539"
- Six Publications & Conference Proceedings

## Mr. Midhun C K

B.Tech (Civil), M.Tech (Structural Engineering)

- Experience - 6 years plus
- More than 75 km tunnels.
- Kinematic analysis of slopes
- Holds expertise in Numerical modelling, finite element analysis and alignment studies.
- Designed tunnels in various geographies- Himalayas, Chhattisgarh & Odisha under Bharatmala Pariyojana

## Mr. Gowtham Banda

B.Tech (Civil), M. Tech (Geotechnical Engg.)

- Experience – 3 years plus
- More than 50km tunnels
- Expertise in Geotechnical design and analyses
- Expertise in Tunnel Design, Slope Stability Analysis, Finite Element Analysis, and other Geotechnical designs
- Well verse with software like: Rocscience RS-2 & Slide, Plaxis, Staad Pro and Geo5.

# KEY EXPERTS

## Mr. Sravan Kumar G

B.Tech, M.Tech, MBA (Finance)

- *Experience - 7 years plus*
- *Expertise in Highway Designs, Traffic Analysis, Road Safety Audits*
- *Expertise in Highway Designs, Traffic Analysis, Road Safety Audits*
- *Well versed with software like Civil 3D, Auto CAD, MS Office*
- *Experience of working with NHAI, MoRTH in DPR & Feasibility Projects*

## Mr. Dinesh

B.Tech (Civil), M.Tech (Highway Engineering)

- *Experience – 7 Years plus*
- *Expertise in Highway Designs, Geometric Designs – Horizontal & Vertical profile*
- *Well versed with software like Civil 3D, MX Roads & Open Roads*
- *Experience of working in DPR & Feasibility projects for NHAI & MoRTH*

## Mr. Rajnish Shukla

Dip. (Surveyor), BE (Civil)

- *Experience - 11 years plus*
- *Expertise in survey and investigation and has worked for projects in railway, roadway, bridge, tunnels, waterways and industrial buildings*
- *Some major projects include Atal Tunnel (Rohtang), Mussoorie Tunnel, Talcher-Bimalagarh.*
- *Well verse with software like: Civil 3D, AutoCAD, STAAD Pro, 3D Max*

## Mr. Ankur Singh

B.Tech, Dipl (Civil)

- *Experience - 8 years plus*
- *Surveyed more than 70 bridges, 28 railway station buildings and 122 rail gate lodges*
- *Author of pocketbook on AutoCAD*
- *Expert in AutoCAD (2D + 3D), Revit Architecture, 3DSMax, StaadPro, Staad Foundation & Staad RCDC.*



# KEY EXPERTS

## Mr. Anand Rai

Dip (Mech)

- *Experience - 7 years plus*
- *Expertise in 3D modeling, design drawing of Tunnels, Highways Buildings, and Interior design*
- *Well versed with software - AutoCAD, Civil 3D, Revit, Solidworks*
- *Experience of working with NHAI, MoRTH in DPR & Feasibility Projects*

## Ms. Soumya

B.Tech, M.Tech, Ph.D\* (Electronics)

- *Experience - 10 years plus*
- *Research Scholar in Microwave Imaging.*
- *Scada, Communication, Electrical Experience in tunnel design.*
- *Design of ECOR Angul Tunnel, Shimla Bypass, Zanskar Tunnel, OD7, OD8 & CG, Mussoorie bypass etc.*
- *Structural Health Monitoring of Kodak house, Mumbai*

# KEY SUPPORT TEAM

**Mr. Sujesh** *BE (Civil)*

**Ms. Prabha** *B.Tech, M.Tech (Electrical)*

**Mr. Sreeraj** *B.Sc, M.Sc (Geology)*

**Mr. Srinath** *B.Tech (EEE), M.Tech (IE&M)*

**Mr. Pranav** *B.E (Mech)*

**Miss Pooja** *BE (Civil)*

**Miss Reeyana** *BE (Civil)*

**Mr. Avinash** *Dipl (Civil)*

# OUR CLIENTELE



East Coast Railway



DINESHCHANDRA R. AGRAWAL  
INFRACON PVT. LTD.





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