

# NEXGEN INTEGRATED GEOSOLUTIONS

Realize the undiscovered Profits of your Projects through us

– **Dr. RM. Subramanian, PhD (IIT Madras)**  
MD & CEO

- INTEGRATED SITE CHARACTERIZATION
- GEOPHYSICAL SURVEYS ➤ GEOCONSULTING
- GEOTECHNICAL INVESTIGATIONS ➤ PILE TESTING



Our work at Mumbai Coastal Road

## WHO WE ARE



Recognizing the need for integrated geoconsulting in achieving sustainable solutions and maximizing the profit of stakeholders in construction projects, NEXGEN was founded in the year 2022 by Dr. RM. Subramanian who is well-recognized for his expertise in MASW-Geophysical Survey and Dynamic Pile Testing at national level.

We are bridging the gap with advanced approaches and technologies that mitigate ground risks, effectively characterize the ground, optimize foundation designs, and streamline construction timelines thus helping stakeholders unlock the hidden profits and scale their businesses markedly and effectively.

NEXGEN specializes in providing innovative geotechnical solutions and have worked as a nominated specialist consultant in important national projects like the Mumbai Coastal Road, Chennai Metro, Industrial plants, Refineries and solved multiple complex problems.

## WHY CHOOSE US

- **Cross-Disciplinary Expertise:** We integrate knowledge from multiple domains to develop the most viable solutions.
- **Innovative Problem Solving:** Proven expertise in tackling complex challenges in major infrastructure projects.
- **Unmatched Precision:** Our technical reports are unique and generally accepted straight by well recognized international consultants.
- **Maximized Value:** Delivering the best returns and long-term success for your business and projects.



## OUR SERVICES

### • GEOPHYSICAL SURVEYS:

- Multichannel Analysis of Surface Waves (MASW)
- Seismic Refraction Tomography
- Seismic Crosshole Test
- Seismic Downhole Test
- Electrical Resistivity Testing

*Application: site characterization - finding anomalies (cavities) - mapping problematic soil - rippability of the site - efficacy of ground improvement - deriving engineering design parameters*

### • GEOCONSULTING:

*Scope: developing geotechnical reports - data integration - slope stability analysis & design of retaining supports - pile foundation analysis & design - finite element solutions - earthquake engineering studies*

### • GEOTECHNICAL INVESTIGATIONS:

*Scope: making exploratory boreholes - insitu testing - laboratory testing*

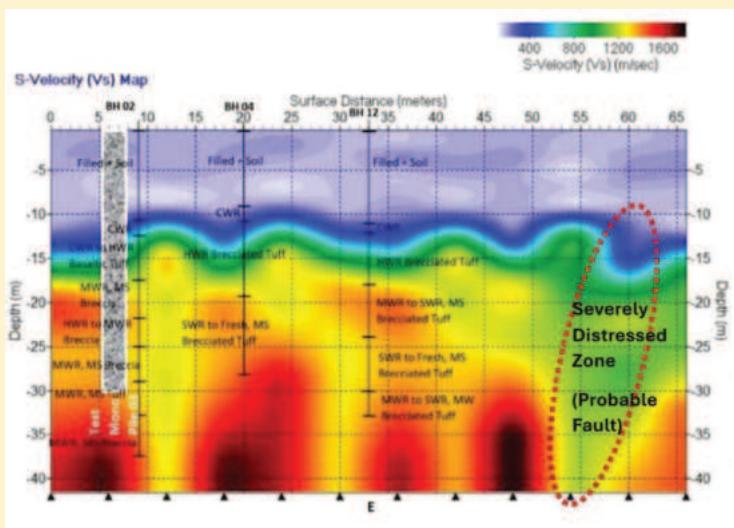
### • PILE TESTING:

*Scope: integrity - capacity (compression, uplift and lateral)*

## OUR SERVICE THEMES

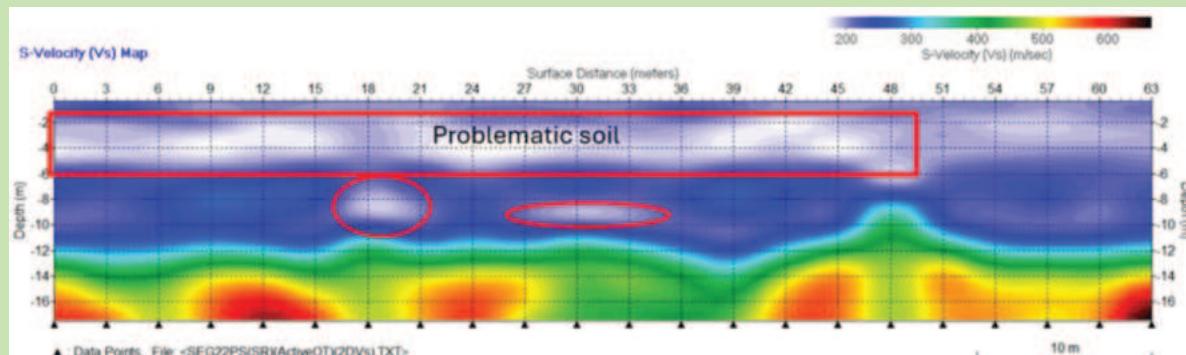
- Comprehensive Integrated Site Characterization for a New Project
- Standalone services – Geophysical, Geoconsulting, Pile Testing
- Bridging the gap between existing data and actual site conditions
- Forensic Geotechnics and Mitigation Solutions
- Offshore Geotechnical & Geophysical Client Representative

# USE CASE OF NEXGEN'S EXPERTISE



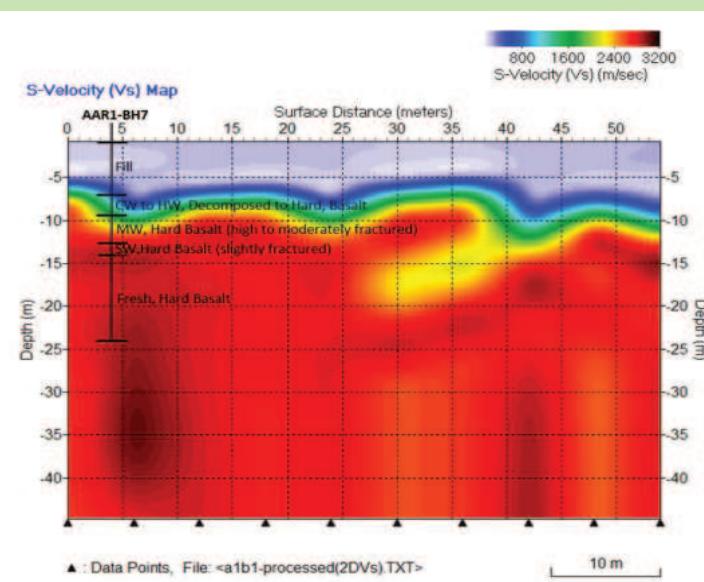
**Problem Statement:** It was difficult to evaluate the rock socketing depth of the pile from 1D geotechnical investigations, because of the complex geology (variable weathering and drastic lateral change of profile) of volcanic rock formations.

**Solution:** By performing MASW, Dr. RMS captured the Complex Stratigraphy of Volcanic Formations in 2D that aided in designing the socketing depth of pile, approval of geotechnical reports and help in the interpretation of the pile load test results.



**Problem Statement:** An industrial plant faced severe distress of floor and buildings due to underlying problematic clay soils. Previous solutions proposed from conventional geotechnical studies by existing geotechnical experts did not work. Client wanted to ensure their swift operations in their production facility with an annual turnover of about INR 1000 crores.

**Solution:** NEXGEN performed Integrated site characterization through Geotech and Geophysical studies, provided mitigation measures on a scientific basis. From MASW tests, the layers or pockets of soft zones with velocities less than 180 m/s were identified as Problematic soils. The strong technical report provided legal security to the client to negotiate terms with the developer of the project.



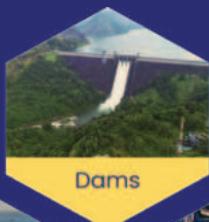
**Problem Statement:** The geotechnical drilling took enormous time to explore deeper rocks (particularly Hardrock) for the entire site and construct a 2D geological profile. Hence an alternative was looked for.

**Solution:** Dr. RMS performed MASW and obtained the basaltic rocky profile of the site at a much faster pace (1/10th of geotechnical timeline) and to significantly deeper depth. Also, the weathered rocky stratum (geohazard) was clearly evaluated with respect to excavation and design purposes.

## SECTORS WE WORK



Airports



Dams



Real Estate



Renewables



Mining



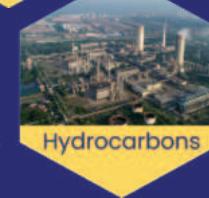
Oil & Gas



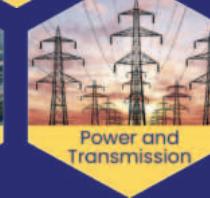
Ports



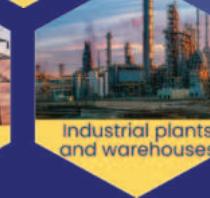
Infrastructure



Hydrocarbons

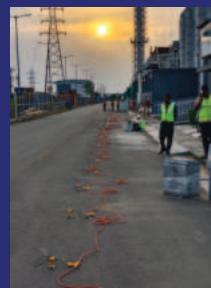
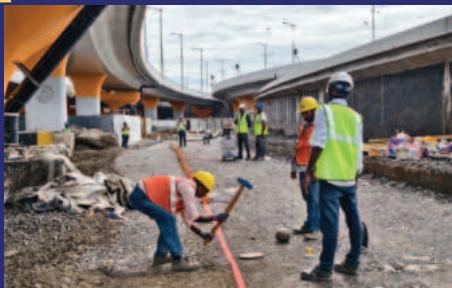


Power and Transmission



Industrial plants and warehouses

## Gallery



## Our Clients



VIBRANT  
ENERGY



AECOM



TATA  
TATA PROJECTS



L&T Construction  
Water & Effluent Treatment



L&T Energy  
Hydrocarbon



L&T Construction  
Heavy Civil Infrastructure



NEXGEN INTEGRATED  
GEOSOLUTIONS

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REGISTERED ADDRESS

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Rameswaram Road, T Nagar,  
Chennai 600 017.



### LIST OF IMPORTANT PROJECTS – ONGOING & COMPLETED

Some of the projects we have worked as a nominated specialist consultant gaining approval and acceptance of leading companies and experts include

#### Ongoing (as of 30 June 2025)

- Comprehensive Site Characterization and foundation recommendation through Geophysical, Geotechnical, Geoconsulting for a proposed office building at TVS group's Sundaram Finance site at Greenways Road, RA Puram – Chennai (**Client – Sundaram Finance Ltd.**)

#### Completed

- Representative roles for Offshore Geophysical and Geotechnical Survey Works for an **ADOC project in UAE (Client – Aries Marine & Engineering Services, UAE)**
- 2D Geophysical Site Characterization by MASW method at the ongoing Metro Construction - Perambur - UG01 TPL – CMRL, Chennai site in the aspect of understanding the Grouting Efficacy at the identified treated area (**Client – Tata Projects Limited, Chennai Metro Rail Ltd.**)
- Determining the unknown Pile Termination depth inside KMC hospital along tunnel alignment of SCO KMC through Parallel Seismic Tests (**Client - L&T Construction Heavy Civil Infrastructure, Chennai Metro Rail Ltd.**)
- Comprehensive Site Characterization and foundation recommendation through Geophysical, Geotechnical, Geoconsulting at TTK Healthcare site, SIPCOT - Oragadam – Chennai (**Client – TTK Healthcare Ltd.**)
- Establishing Relative compaction through Geophysical Methods (MASW) at Mumbai Coastal Road Package-1 (Marine) (**Client - L&T Construction Heavy Civil Infrastructure**)
- Consulting work for IOCL MAH Panipat Existing Pond lining and Flare Island work – RHCU unit (**Client - L&T Energy Hydrocarbon**)
- Towards addressing Floor Distress at an Industrial Plant, SIPCOT - Vallam – Chennai
- Seismic Site Characterization of RWR1 & 2 – Dholpur, Rajasthan through MASW Survey (**Client – L&T Water & Effluent Treatment**)
- Verification of WTG Design Basis with respect to Geotechnical Assessment and Further Recommendations at Koppal, Karnataka (**Client – Vibrant Energy Holdings**)
- Support for Geotechnical investigation report works at Greater Male' Connectivity – Male to Thilafushi Link Project, Maldives (Marine) (**Client – AECOM**)

## OUR CLIENTS



**AECOM**



**L&T Energy**  
Hydrocarbon



**L&T Construction**  
Water & Effluent Treatment

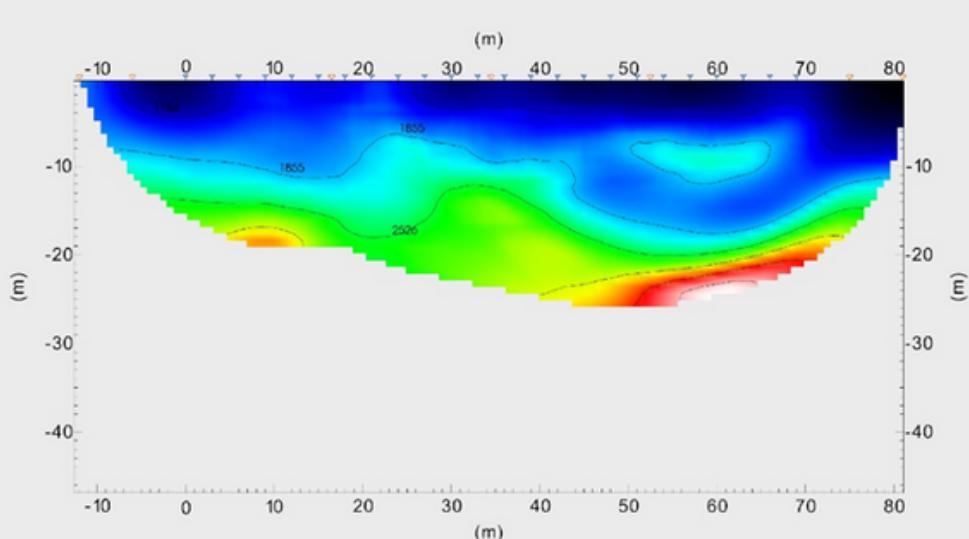


**SUNDARAM FINANCE**  
Enduring values. New age thinking.

Key Personnel: **Dr.RM. SUBRAMANIAN, PhD (IIT MADRAS)**

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Mobile: +91 9600188609

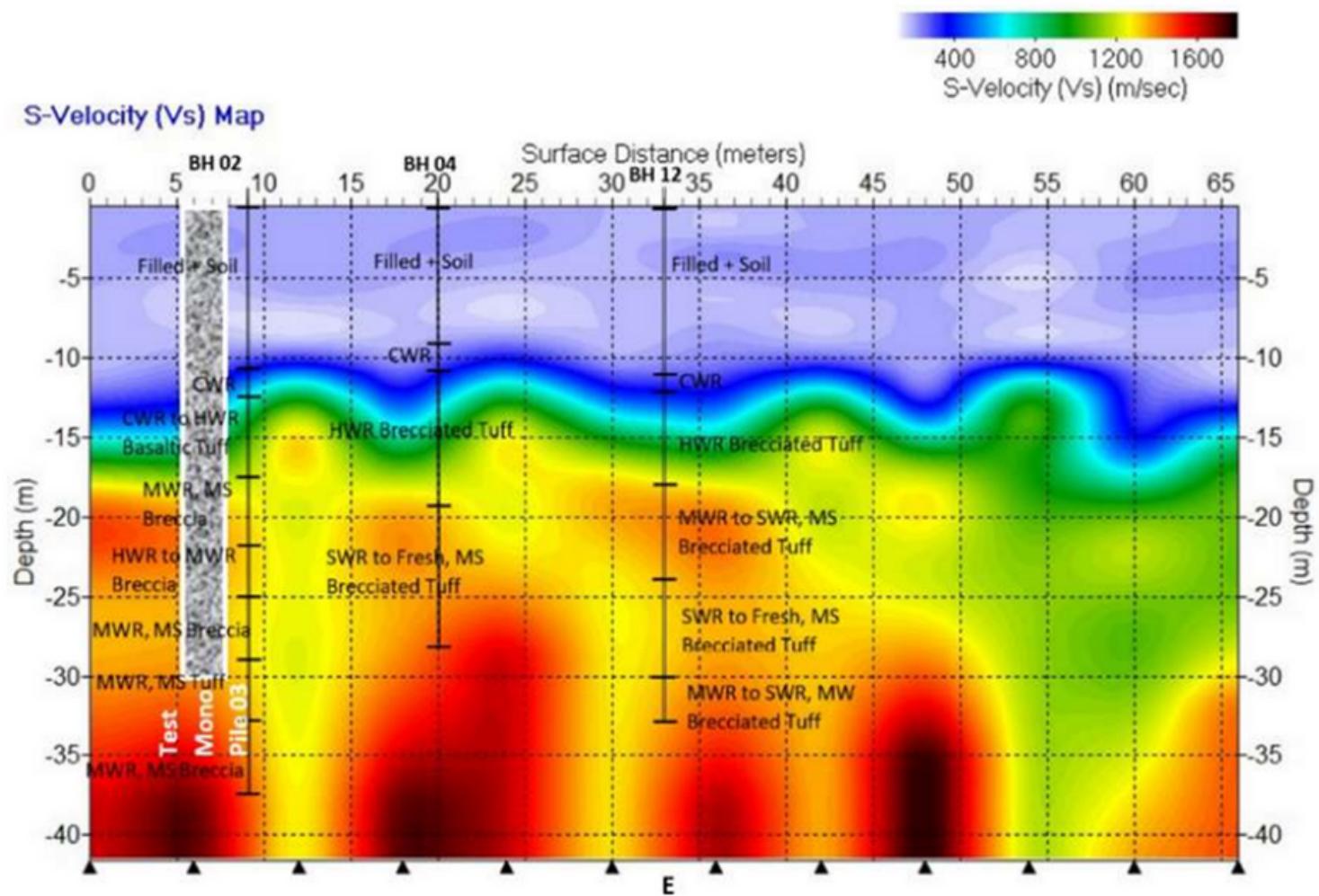


Optimization &  
Sustainability of your  
Projects starts here

# NEXGEN INTEGRATED GEOSOLUTIONS

- Geophysical Surveys
- Geoconsulting
- Integrated Site Characterization

Tapping the undiscovered Profits of your Projects  
through Expert GeoSolutions in  
PORTS, BUILDINGS, DAMS & INFRASTRUCTURE SECTORS  
by  
Dr. RM. Subramanian, PhD (IIT Madras)



## Key Personnel - Dr. RM. Subramanian

Youngest nominee for the Indian Geotechnical Society (over 50 years old) professional award under the leadership category in 2022 for bringing innovative solutions through implementing new technologies and expertise; to a few Indian Projects of national importance

# Geophysical Surveys

- Multichannel Analysis of Surface Waves (MASW)
- Seismic Refraction Tomography
- Seismic Crosshole Test
- Seismic Downhole Test
- H/V Response Spectrum Ratio
- Vibration/Blast Monitoring
- Electrical Resistivity Testing
- Self Potential



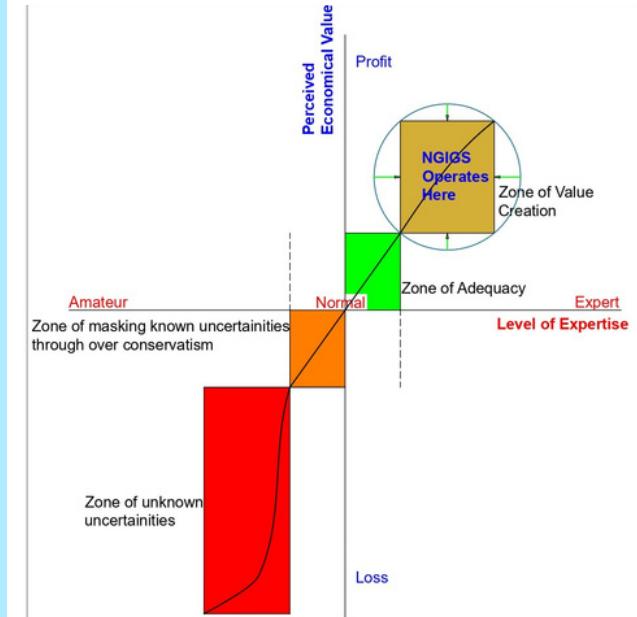
# Geophysical Applications

- Site Characterization
- Finding anomalies such as voids, cavities, location of soft clay zones and discovering uncertainties
- Depth to bedrock estimation for pile socketing and excavation
- Evaluating engineering parameters of the site
- Optimizing the foundations, ground reinforcements, earth retaining supports
- Classifying the rippability of the site
- Earth volume quantification for excavation and filling
- Checking the efficacy of ground improvement
- Input for earthquake studies

***NEXGEN - Reliable site characterization through expertise and technology***

## Geoconsulting

- Integration of geophysical and geotechnical data, developing ground models and arriving at design parameters
- Developing Geotechnical Reports
- Slope Stability analysis and design of retaining support for flood protection; deep excavations and vertical cuts
- **Finite Element solutions** for real-world complex problems to understand failure mechanisms and provide solutions through simulations
- **3D & 2D Geotechnical modelling** of the site
- Earthquake engineering studies (PSHA, GRA, Liquefaction assessment)
- Design of foundations (buildings, bridges, tanks), **Marine Infrastructures, jetties, mooring dolphins, quay walls, dredging and temporary works, dewatering systems**
- Pile Foundation Analysis and Design
  - Compression/Uplift capacity of pile foundation
  - Lateral capacity analysis of piles
  - Analysis and design of Pile Group
  - Design of rock socketed piles
  - Pile foundation design for vibratory machineries



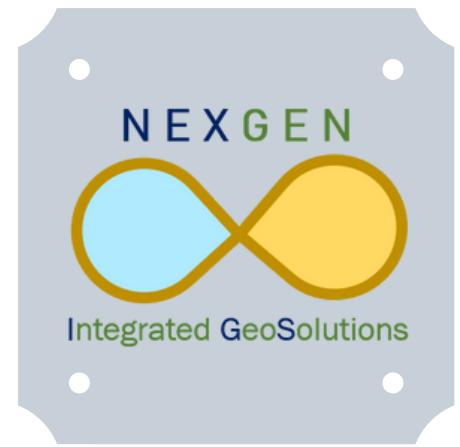
## Get Connected

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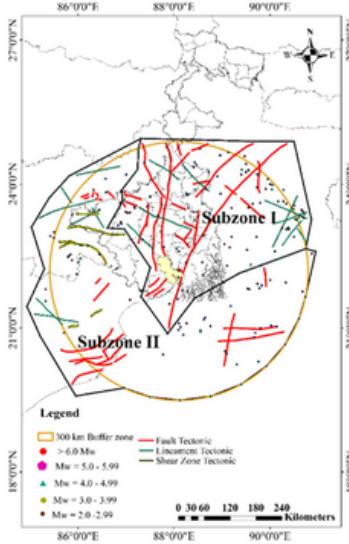
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Optimization &  
Sustainability of your  
Projects starts here

# NEXGEN INTEGRATED GEOSOLUTIONS

Tapping the undiscovered Profits of your Projects through Expert GeoSolutions in  
OIL & GAS - UPSTREAM, MIDSTREAM & DOWNSTREAM  
by Dr. RM. Subramanian



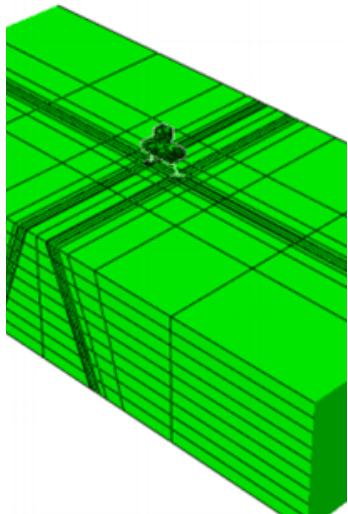
- Integrated Site Characterization
- Geophysical Surveys
- Geoconsulting
- Pile Testing

**Contact us**

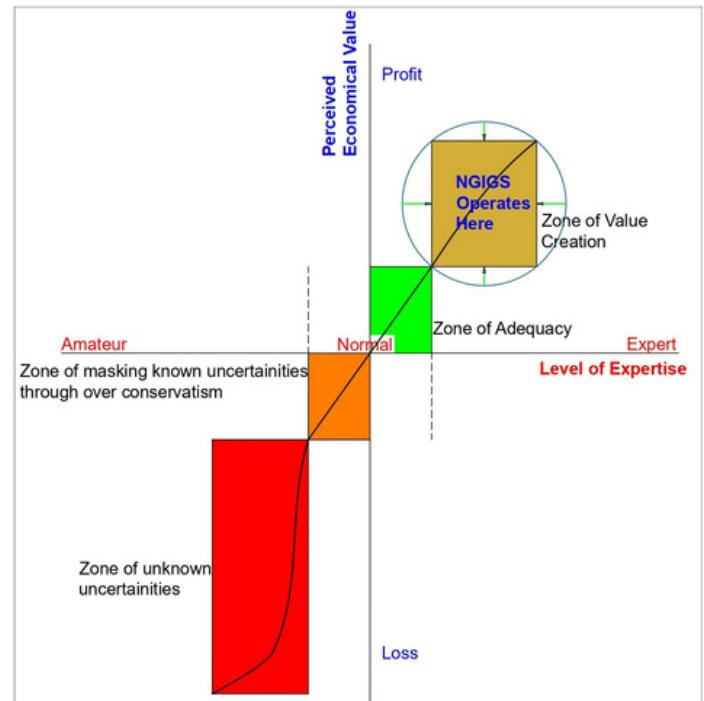
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Position in the supply chain	End facilities for which our Expertise is required
Upstream (offshore, onshore)	offshore Platforms, Onshore well pads
Midstream (offshore, onshore)	Pipelines, Storage Terminals, LNG Tanks, Oil Tanks, Ports, Ship Berthing structures, Roads
Downstream (onshore)	Pipes, Tanks, Boilers, Structures, Open Pits & Underground facilities etc



## Clients



## OUR SERVICES

- Verification of structural design basis with respect to geotechnical assessment
- Geotechnical reporting integrated with Geophysical data (factual, interpretative, design)
- Geohazard identification and mitigation recommendations, forensic studies and resolution (leakage and subsidence, tilt, stability)
- Geotechnical design of foundations (monopiles, tripod, suction caissons, gravity bases, jacket, moorings, TLP, Anchors, etc), Leg penetration analysis (Spudcan).
- Soil resistance to driving analysis (SRD), Pile Self Weight penetration and stick-up analysis, Pile drivability studies, Offshore pile monitoring (for select cases), CAPWAP analysis, Dynamic and cyclic lateral load analysis on piles, third-party review of pile testing reports.
- Geophysical survey (MASW, Seismic Refraction, Seismic Crosshole & Downhole, H/V Response Spectrum Ratio, Vibration/Blast Monitoring)
- Seismic studies – PSHA, GRA, Liquefaction/cyclic softening analysis,
- Pile Soil and Cable Soil Interaction Studies (PSI/CSI), Pipe burial assessment
- Tank settlement estimation and remediation measures
- Condition assessment of Berthing Structure through Finite Element Simulations (Analysis),
- Ground Engineering (improvement), Design of Dewatering systems
- Slope stability and retaining support design, Forensic studies (seepage, failures, settlements etc), Solving complex problems through Finite Element Simulations

### Key Personnel - Dr. RM. Subramanian

- Youngest nominee for the Indian Geotechnical Society (over 50 years old) professional award under the leadership category last year for bringing innovative solutions through implementing new technologies and expertise; to a few Indian Projects of national importance worth billions of dollars.
- Achieved ADVANCED ranking in High Strain Dynamic Pile Testing making him one among the 300 professionals globally

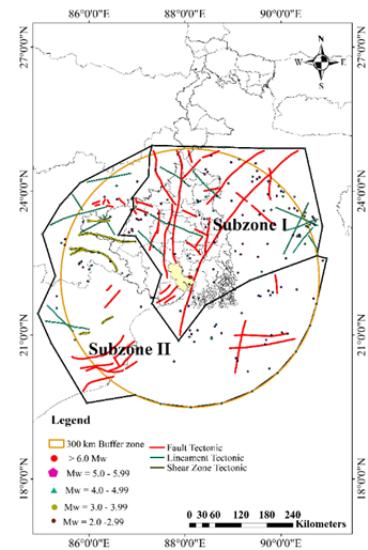
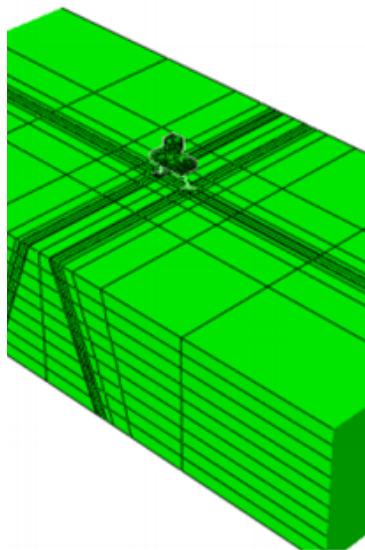
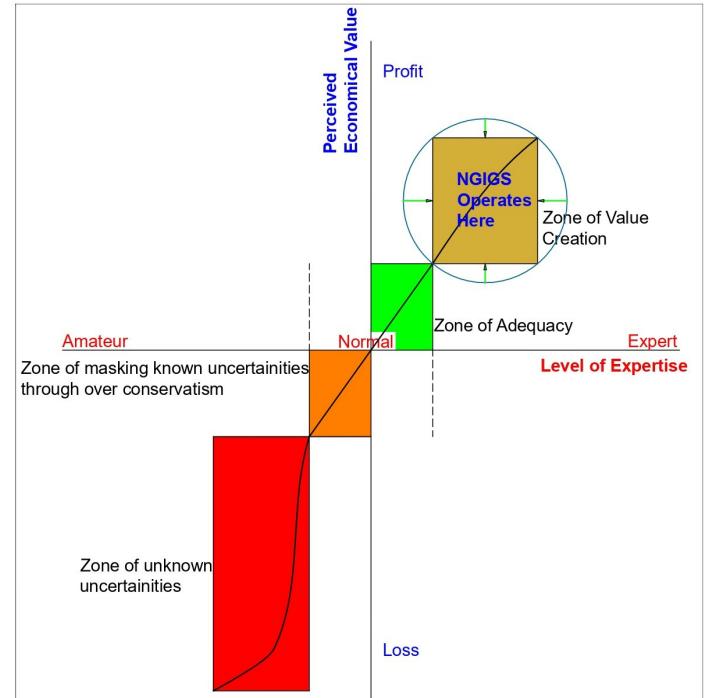


# Optimization & Sustainability of your Projects starts here

# NEXGEN INTEGRATED GEOSOLUTIONS

## **Tapping the undiscovered Profits of your Projects through Expert GeoSolutions in OFFSHORE & ONSHORE WIND**

by Dr. RM. Subramanian



- **Integrated Site Characterization**
- **Geophysical Surveys**
- **Geoconsulting**
- **Pile Testing**

## Contact us



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# Clients

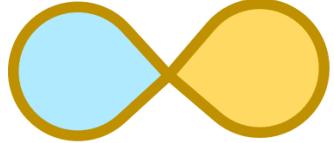
**AECOM**

  
**LARSEN & TOUBRO**

  
**VIBRANT**  
ENERGY

Your partner to increase your profitability through identifying potential ground risks, proper ground engineering and foundation optimization enabling swift operations for you to scale

**NEXGEN**

  
**Integrated GeoSolutions**

## OUR SERVICES

OFFSHORE	ONSHORE
<p><b>Site Investigations</b></p> <ul style="list-style-type: none"> <li>• Tender/investigation <b>scoping</b> for geotechnical and geophysical surveys</li> <li>• Geotechnical Investigation Support Management</li> <li>• Geotechnical Data Management</li> </ul> <p><b>Geotechnical Engineering</b></p> <ul style="list-style-type: none"> <li>• Data assessment &amp; validation</li> <li>• Geospatial data assimilation</li> <li>• <b>Geohazard identification</b> and mitigation</li> <li>• Integration &amp; Interpretation of Geophysical &amp; Geotechnical data (<b>GIR</b>)</li> <li>• Developing <b>geotechnical design parameters</b> (static &amp; dynamic)</li> <li>• Developing &amp; <b>verification of WTG design basis</b> with respect to geotechnical assessment</li> </ul> <p><b>Foundation Engineering</b></p> <ul style="list-style-type: none"> <li>• Foundation recommendation and geotechnical design (<b>monopiles</b>, tripod, suction caissons, gravity bases, jacket, moorings, TLP, Anchors, Rafts, Piled rafts, etc)</li> <li>• Foundation Design through combined analytical and <b>finite element</b> approach</li> <li>• <b>Cyclic &amp; Dynamic soil structure interaction</b> studies - estimation and accommodation of natural frequency of wind turbines within the specified range, cyclic degradation of soil and damping evaluation</li> </ul> <p><b>Piling</b></p> <ul style="list-style-type: none"> <li>• Pile Self Weight penetration and stick-up analysis</li> <li>• <b>Pile drivability studies</b></li> <li>• Offshore pile monitoring (for select cases)</li> <li>• <b>CAPWAP</b> analysis, Dynamic and cyclic lateral load analysis on piles</li> <li>• Third-party review of pile testing reports</li> </ul> <p><b>Leg Penetration analysis</b></p> <p><b>Cable Soil Interaction Studies &amp; Cable burial assessment</b></p> <p><b>Seismic studies – PSHA, GRA, Liquefaction/cyclic softening analysis</b></p>	<p><b>Site Investigations</b></p> <ul style="list-style-type: none"> <li>• Tender/investigation <b>scoping</b> for geotechnical and geophysical surveys</li> <li>• Geotechnical Investigation Support Management</li> <li>• Carrying out Geophysical Survey - <b>MASW, Seismic Refraction, Seismic Crosshole &amp; Downhole, H/V Response Spectrum Ratio, Vibration Monitoring</b></li> <li>• Geophysical and Geotechnical Data Management</li> </ul> <p><b>Geotechnical Engineering</b></p> <ul style="list-style-type: none"> <li>• Data assessment &amp; validation</li> <li>• Geospatial data assimilation</li> <li>• <b>Geohazard identification</b> and mitigation</li> <li>• Integration &amp; Interpretation of Geophysical &amp; Geotechnical data (<b>GIR</b>)</li> <li>• Developing <b>geotechnical design parameters</b> (static &amp; dynamic)</li> <li>• Developing &amp; <b>verification of WTG design basis</b> with respect to geotechnical assessment</li> <li>• Ground Engineering (improvement), Design of Dewatering wells</li> <li>• Slope stability and retaining support design, Forensic studies (seepage, failures, settlements etc)</li> </ul> <p><b>Foundation Engineering</b></p> <ul style="list-style-type: none"> <li>• Foundation recommendation and geotechnical design (<b>rafts</b>, rigid inclusions, <b>rock anchors</b>, piles, piled rafts, stone columns, hybrid solutions, etc)</li> <li>• Foundation Design through analytical and <b>finite element</b> approach</li> <li>• Cyclic &amp; Dynamic soil structure interaction studies - estimation of natural frequency, cyclic degradation of soil and damping evaluation</li> </ul> <p><b>Seismic studies – PSHA, GRA, Liquefaction/cyclic softening analysis</b></p>

### Key Personnel - Dr. RM. Subramanian

Youngest nominee for the 75 years old Indian Geotechnical Society professional award 2022 under leadership category for bringing innovative solutions through implementing new technologies and expertise; to a few Indian Projects of national importance

## NEXGEN's capability to increase the profitability and scalability of Industry Stakeholders through

1. Identifying Geo Risks
2. Assessing and Evaluating Risks in terms of structural and financial standpoint
3. Propose Risks mitigation strategies in terms of criticality relevance and absorb them into design
4. Enhance stakeholder's profitability through value addition in design, schedule and finance.

### NEXGEN's Philosophy

- NEXGEN considers a holistic approach to its projects and essentially addresses the project from the standpoint that its services should reflect benefits and advantages to their clients in engineering, schedules, and financials, innate with sustainability and scalability of our clients' businesses in the long term.
- We consider everyone and company unique to their knowledge and evolution of their individual & collective group consciousness and accept them as they are and work.
- **Considering the entirety of the project during its lifetime, we aspire to provide the best price to value ratio and best price to perceived value ratio (operational efficiency of your projects and scalability of your business). We are original, sustainable, and impactful.**

### OUR CLIENTS



**Be assured of significant ROI partnering with NEXGEN**