SUSTAINABILITY
IN GEOTECHNICAL CONSTRUCTION

Sustainable development is crucial for reducing carbon emissions. Geotechnical industries, as early project stakeholders, can significantly cut CO_2 emissions by selecting appropriate foundation techniques, optimizing designs, and using low-carbon materials. The choice of construction materials (steel, cement, concrete) and equipment (engine type/size, fuel type) also impacts emissions. These factors drive innovation and present numerous opportunities for reducing carbon footprints. This article highlights the impact of these drivers with case histories from India and other countries. Read more in Page No. 3.

Volume 11 Book 1, January 2025

DFI of INDIA News

Quarterly Newsletter from
Deep Foundations Institute of India
www.dfi-india.org

Volume 11 Book 1, January 2025

DFI of INDIA News

DFI of India Board

Mr. Mohan Ramanathan, Director, Chair, DFI of India
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Dr. K S Rama Krishna, Director, Past Chair, DFI of India
Dr. Sunil S Basarkar, Director, Vice-Chair, DFI of India

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Mr. Jim Morrison, Gateway Development Commission

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Mr. T S Mahendran , Manager - Accounts & Administration
Mr. Pranav Jha, Manager - Operations
Ms. P Sai Sindhu, Technical Coordinator

Sustainability in Geotechnical Construction

Cover Story

Dr. V. R. Raju, Senior Advisor, Sustainability at Keller plc, and Professor of Practice, IIT Madras, Chennai

Introduction

Sustainability involves balancing environmental, social, and economic dimensions for long-term health and prosperity. Human activities, like burning fossil fuels and deforestation, have warmed the atmosphere, land, and water, impacting weather, sea levels, and biodiversity. Given these impacts, the construction industry contributes 40% of global emissions, with foundation industries accounting for 15-23% of building's embodied carbon (Deamer 2023). Sustainable geotechnical practices can reduce environmental impacts by using energy-efficient designs, low-carbon materials, and waste reduction strategies.

Emission scopes and carbon hierarchy

As per the Greenhouse Gas Protocol (Ranganathan et al., 2004), emissions are categorized into three scopes: Scope 1 (direct emissions), Scope 2 (indirect emissions from energy production), and Scope 3 (indirect emissions from the value chain). Cement, concrete, and steel are major Scope 3 contributors. The carbon hierarchy suggests avoiding carbon-heavy foundations, optimizing efficiency, substituting with lower-carbon options, and offsetting emissions as a last resort.

Eliminate: Avoid heavy foundations and use alternate techniques

Jurong Island in Singapore hosts major oil and gas refinery plants. A traditional piling approach for one such plant involved 8,900 driven spun piles, covering 147,000 m^2, but faced challenges like high cement and steel consumption, long transportation demands, and waste generation. An alternative ground improvement (GI) approach using vibro compaction for sand layers and vibro stone columns for soft clay was proposed *(Figure 1)*. This hybrid solution densified loose sands and reinforced clayey subsoils, eliminating traditional driven piles and reducing environmental impact. The GI approach cut carbon emissions by 92%, saving 20,100 tCO_2e , from 22,000 tCO_2e to 1,900 tCO_2e *(Figure 2)*.

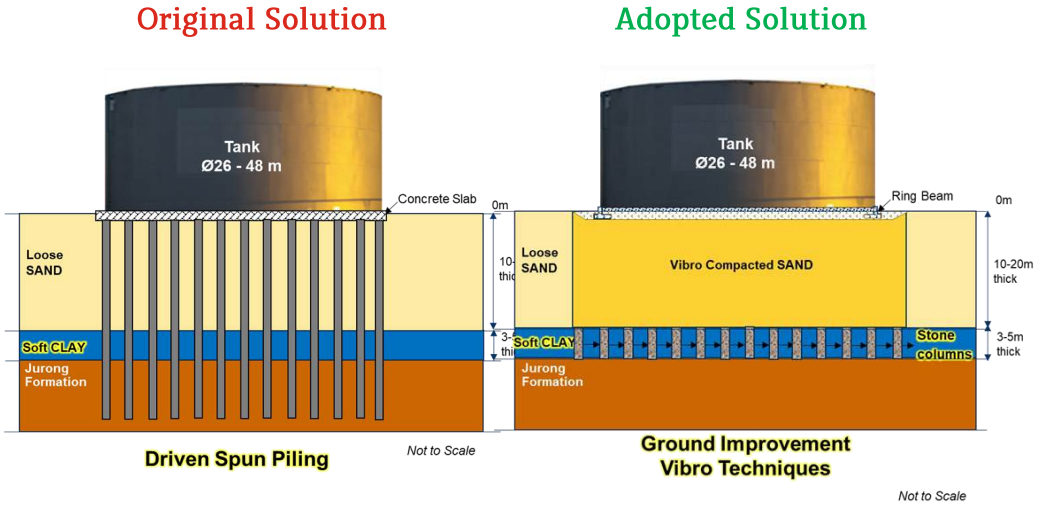

Figure 1: Comparison of Original Driven Piling Solution Vs Sustainable Alternative GI Solution

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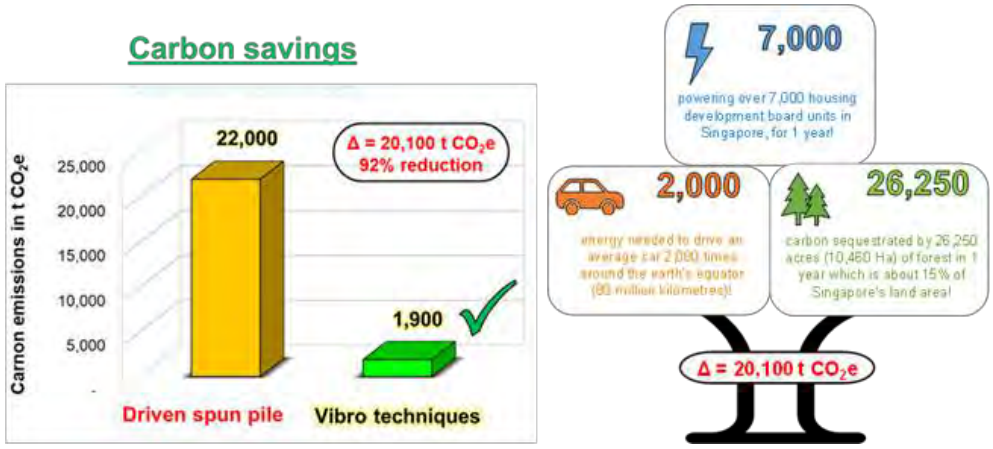

Figure 2: Carbon Reductions Achieved by Adopted GI Solution (Vibro Techniques)

Reduce: Design Optimization

Design optimization is key to reducing carbon emissions. A case study of an electric arc furnace rebar mill under construction in Punjab, India, aimed to produce net zero steel. Located in earthquake Zone IV with a shallow groundwater table, the soil was susceptible to liquefaction. The innovative solution involved vibro compaction to mitigate liquefaction and designing piles assuming no loss of capacity during earthquakes *(figure 3)*. This reduced the number of piles and pile diameter, saving 60% of concrete and 65% of steel, cutting emissions by 35,000 tCO_2e.

Additionally, optimizing the concrete mix design with Portland pozzolana cement saved 3,000 tCO_2e, and reducing cementitious content saved another 50 tCO_2e. Replacing Bentonite with synthetic polymer in BCIS piling saved 100 tCO_2e. Efficient machinery use, and mass transportation further reduced emissions by 2,700 tCO_2e and 150 tCO_2e, respectively. These measures collectively demonstrate significant carbon savings and highlight the importance of sustainable practices in construction *(Figure 4)*.

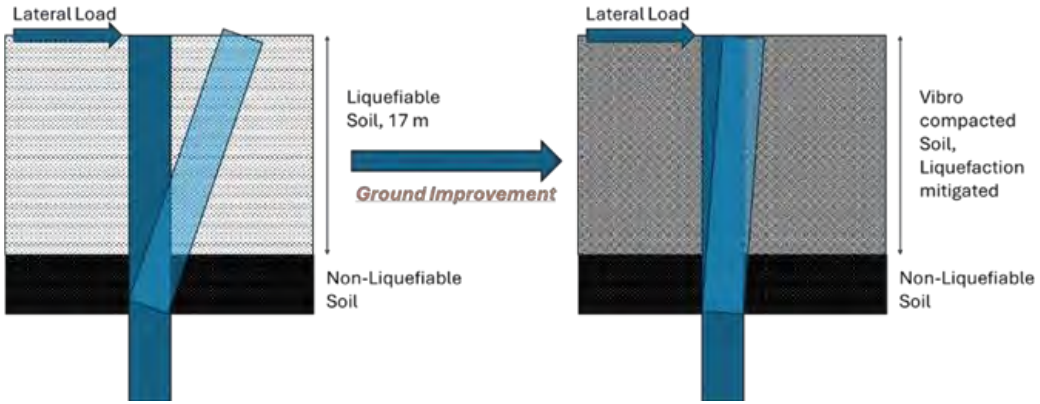

Figure 3: Keller Innovative Design in Foundation Construction for a Project In Punjab, India

Substitute: Alternate Fuel Types and equipment

Using alternative fuels like biodiesels and HVO is a promising early decarbonization strategy, as they can be used without modifying existing equipment. HVO, a biofuel from waste food or plants, can replace diesel directly, while biodiesel must be blended with standard diesel. HVO significantly reduces particulate matter (PM) and nitrogen oxide (NOx) emissions. UK trials showed HVO reduced emissions by 97.6 tCO_2e, a 98.4% saving, despite higher (HVO) fuel consumption.

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DFI Immediate Past President Message

- Mr. Gianfranco Di Cicco

Gianfranco Di Cicco

Principal, GDConsulting, LLC;

Immediate Past President, DFI

I have been asked to prepare a message, specifically for DFI of India, reflecting on my two years serving as President of DFI and future plans now, while entering in my Immediate Past President (IPP) position. Struggling to find the way to start the message, I then realized that I was in the same position when I started writing my first message for the DFI magazine in January 2023. I was not sure about what type of first message would be useful to the (few) members who chose to read it. So, I decided to start with my first message titled "And Now What?", basically summarizing my initial contact with DFI, my first not very positive impression, and then the change in my view of the organization. This happened when I realized the importance of giving back, acting as an industry representative, and advocating the improvement of safety and quality while finding common ground and connections with owners, clients, and new members.

Well, how then my involvement with DFI of India begin?

My first India visit happened while consulting in 2006. Between then and 2013, I visited multiple times your incredible country travelling to different cities and always being impressed on the steady improvement (but honestly, hoping to be on a little faster pace) and the immense opportunities. At that time, I used to say that if I had the chance to visit India when I was younger, I would have moved to India and stayed forever.

Back to my travelling in India and comparing it to my involvement with DFI in US, what was for me one of the most important events was meeting with Dr. K S Rama Krishna and to begin discussing DFI and the possible need for India's geo-foundation industry to introduce new technologies and new equipment, while also advocating for safety and quality.

Those discussions were (I like to believe) part of the initial thoughts for the idea of the formation of DFI of India that was started by Dr. Rama Krishna in 2013 while leading a group of "Indian Patriots" (as I use to describe the DFI of India founders while advocating for the approval of starting the Indian chapter to the DFI Board of Trustees) and comparing "the revolutionary movement" somehow on how DFI started in the US in 1976

Since then, it has been always important for me to support DFI of India during all the Board meetings and with the Executive

Continued

Committee (ExComm) underling the achievements nevertheless the sometimes-challenging environment of the Indian industry.

Reflecting on my last two years, I can summarize that, apart from the importance of emerging financially from the DFI'S challenging pandemic situation, my main thoughts for DFI were directed on:

- sharing more information with the membership about the ExComm and Board of Trustees activities,
- suggesting clearer procedures in governing DFI
- developing new strategies for the future of DFI. Communicating on what we are doing as DFI's leadership has been particularly important, including to suggest implementing procedures required to ensure trust in the organization.

At the same time, defining how we could continue to improve the construction geo-foundation industry.

It has been for me always clear that there is a need to convince governments, owners, and clients of the benefit of partnering with DFI as a non-profit organization that includes all the geo-foundation groups (Owners/Engineers/Contractor/Manufacturers/Academia).

While we have been successful in partnering with the US Corps of Engineers (USACE) we have to recognize the challenge of succeeding internationally where, sometimes, the indisputable need to maximize safety and quality, is not recognized by the industry parties.

"And Now What?"..... for me as Immediate Past President.

Supporting James Johnson as the 2025-2026 President is, in general, what the Immediate Past President (IPP) has been doing (and knowing James, I am confident that he will be incredibly successful). However, because of the initiatives we have started during the last two years, my objectives have been expanded to ensure that the international chapters (India, Europe and Middle East) are more involved in the global DFI strategies in:

- Developing new initiatives to increase our membership numbers by making it more attractive to join DFI and remain a longstanding member.
- Participating in solving the industry's challenge of attracting people (in particular, site personnel) to enter our industry and, possibly, to join DFI.
- Defining the planning for themed international symposiums, in order to connect with more industries while finding future partners (the next one will be in October 2026 in Orlando, FL having the global theme of "sea level change").

It is immediately understandable that the above strategies may also be considered part of DFI of India's future development, and it is up to you to decide to incorporate them with your ongoing initiatives.

I personally believe that DFI of India can be a very important part of finding solutions to the global challenges of our industry and I will do my best to support your Directors, Mr. Mohan Ramanathan, Dr. Sunil S Basarkar, Mr. I V Anirudhan, Dr. Rama Krishna, the entire Executive Committee and the DFI of India team.

The **DFI-India 2025: 14th Annual Conference** is set to take place in **Surat, Gujarat,** from **September 11-13, 2025**, in collaboration with the **Indian Geotechnical Society (IGS) Surat Chapter** and **Sardar Vallabhbhai National Institute of Technology (SVNIT) Surat**.

Abstracts of original technical papers relevant to the conference theme are invited for DFI-India 2025, the 14th Annual Conference on Deep Foundation Technologies for Infrastructure Development in India.

The conference aims to advance deep foundation technologies by discussing successes and failures in construction projects. It will feature innovative research, field practices, and case studies showcasing collaborative solutions among stakeholders, emphasizing skilled workforce deployment for efficient project execution.

DFI of India invites geotechnical and foundation professionals from India and abroad to share their expertise, contributing to sustainability goals while enhancing industry productivity, safety, and quality standards.

Accepted abstracts will require full-length papers, undergoing a rigorous peer review process. Approved papers will be published in the Conference Online Proceedings, with selected authors invited to present their findings. Live presentations will also be included in Springer Nature's Lecture Notes in Civil Engineering.

This conference offers a unique platform for knowledge sharing and collaboration, fostering innovation and guiding the industry towards better practices in deep foundation construction and infrastructure development.

Call for Abstracts: DFI-INDIA 2025

Abstracts are accepted on the following themes:

Theme 1: Innovative Techniques in Deep Foundation and Deep Excavation Design and Construction for Infrastructure Development

Theme 2: Design and Construction of Tall Building Foundations

Theme 3: Ground Improvement Techniques

Theme 4: Deep Marine, Near-shore and Coastal Structures - Design & Construction of Deep Foundations

Theme 5: Deep Foundation Failures: Lessons Learnt and Best Practices

Theme 6: Cost-Effective and Sustainable Practices in Deep Foundations & Smart Foundations including Reuse of Existing Foundations

Theme 7: Advances in Geotechnical Characterization, Foundation Monitoring and Performance Evaluation; Geotechnical Data Management, Automation, AI, ML in Deep Foundation Construction

Theme 8: Modern Research, Experimental and Numerical Methods in Deep Foundations, Deep Excavations, and Ground Improvement Technologies

Theme 9: Smart Foundation Equipment; Governance and Compliance Challenges in Deep Foundations; Any other Interesting Topics in the Deep Foundation Industry

Important Dates:

Abstract Submission Opens: **January 18, 2025**

Abstract Submission Deadline: **February 17, 2025**

Submission Details:

Authors are encouraged to submit abstracts of 250–300 words online at dfi-events.org/india25/. Guidelines for preparing abstracts and full papers are available on the conference website.

For further inquiries, contact **Pranav Jha**, Manager - Operations, DFI of India at activities@dfi-india.org or via WhatsApp at (+91) 9182452620

Ground Improvement Requirement for TBM Launching under Shallow Overburden in Close Proximity to Sea Shore

Dr. Tanumaya Mitra, Sudip Kumar Koley, Padma Tiruvengala, Naru Raju, Prodyot Kumar Ray, ITD Cementation India Limited

Tunneling under shallow overburden is always challenging aspect due to possibility of blow out because of application of higher face pressure or segment uplift as there are always certain lengths of tunnel linings located in the unsolidified grout. As a result, the buoyancy induced by unsolidified grout and hydrostatic pressure may be higher than the lining gravity, which leads to the lining uplift tendency. The presence of high water table complicates the situation even more. In the current project, TBM launching site was very close to the sea shore line, water table is almost at ground surface. Soil cover above the TBM tunnel is varying from 4m to 6m for about 70 m length from the launching shaft. The soil profile consists of 6.0 m thick loose to medium dense silty sand (Navg = 8) followed by 5.5 m thick loose silty sand (Navg = 3-4) layer underlain by 4.5 m thick, soft to very stiff sandy clay layer (Navg = 22) and silty sand layer, respectively. The combination of low soil cover, presence of high water table and loose silty sand makes the TBM launching a daunting task. Prediction of ground movements is an essential task prior to TBM tunnelling. Hence, assessment of predicted ground movements using 2D and 3D numerical analysis, simulating the field conditions was done.

3D Numerical Modelling of Tunneling Using EPB TBM

The steps include application of face pressure, excavation of soil slices, tail void grouting, advancement of TBM with thrust force from hydraulic jacks and installation of tunnel lining segments. Slurry wall was considered in front of the TBM launching area.

2D Numerical Modelling of Tunneling Using EPB TBM

2D analysis was also carried out using the same parameters to simulate the field condition.

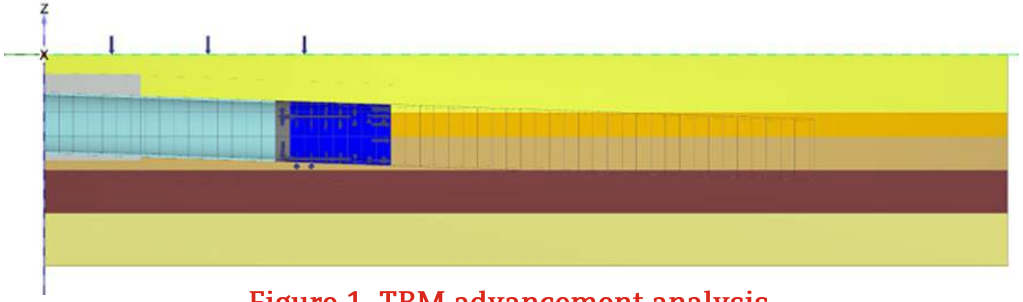

Figure 1. TBM advancement analysis

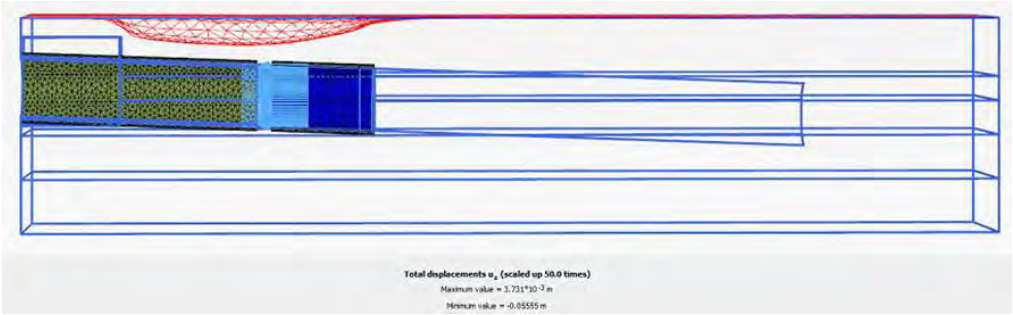

Figure 2. Ground deformation profile

Table 1. Maximum ground deformation above tail of TBM shield obtained from 3D Numerical Analysis

Description	Maximum Ground Deformation (mm)	
	Without Surcharge	With Surcharge (25 kPa)
50.0 m of TBM advancement	25.25	55.5

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Maximum ground settlement obtained from the 2D analysis is presented in Fig. 3 and Table 2.

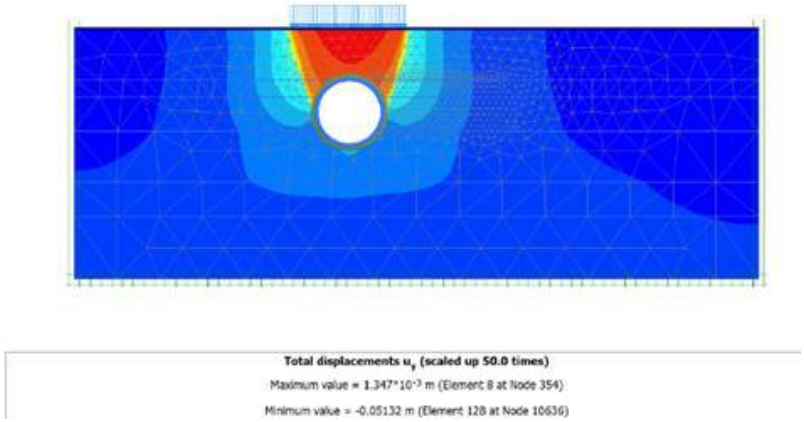

Figure 3. Maximum settlement 51.3 mm

Table 2. Maximum ground deformation obtained from 2D Numerical Analysis

Description	Maximum Ground Deformation (mm)	
	Without Surcharge	With Surcharge (25 kPa)
50.0 m of TBM advancement	26.0	51.3

Proposal of Ground Improvement Scheme and Requirement of Ground Improvement for Initial Drive

M10 concrete PCC panels of 10.0 m Length and 2m below the tunnel invert level

- For preventing inflow of groundwater in the launching shaft
- For limiting the potential settlements, to avoid excessive loads on D/Wall

Permeation grouting / TAM grouting

- For preventing the running ground / cohesionless soil with water into cutter head during the initial drive after passing through the PCC panels.
- For reducing the permeability of the sandy soil.
- For minimizing ground movements during the initial drive under shallow overburden.

Application of Surcharge in the form of sand filled muck box

- For preventing blow out due to accidental high face pressure
- For preventing segment uplift

Figure 4 shows the Plan of the TAM grouting area divided into six areas. The outer periphery is for Curtain grouting. The plan of the TBM launching and initial drive zone along with the provisions of PCC panels and muck carts is depicted in Fig. 5.

Groutability check was done using the criteria proposed by Huang et al. (2007). Initial Trial field works were carried out. Based on the observations of the Trial works, modification in terms of grout quantity and the methods was decided. Curtain grouting was carried out using the combination of Sodium silicate and OPC grout at 1.0 m c/c all around the periphery of the area considered for the grouting. Primary grouting carried out using 1:1 mix using OPC and water and later secondary grouting and tertiary grouting carried out based on the requirement.

6 Number Field Permeability Tests carried out pre & post TAM grouting. 3 number test results at 5m to 6m test depth had to be discarded for comparison as Ground Water Table was affecting the test results.

Instrumentation and Monitoring was done by placing Ground settlement markers along different arrays to monitor the ground deformation due to tunneling . The maximum settlement at the chainages mentioned in Table 4 is 54.0 mm and 60.0 mm under an overburden of 4.5 m to 5.1 m. Table 5 presents the comparison of ground settlement values obtained using Numerical analysis and I & M Data.

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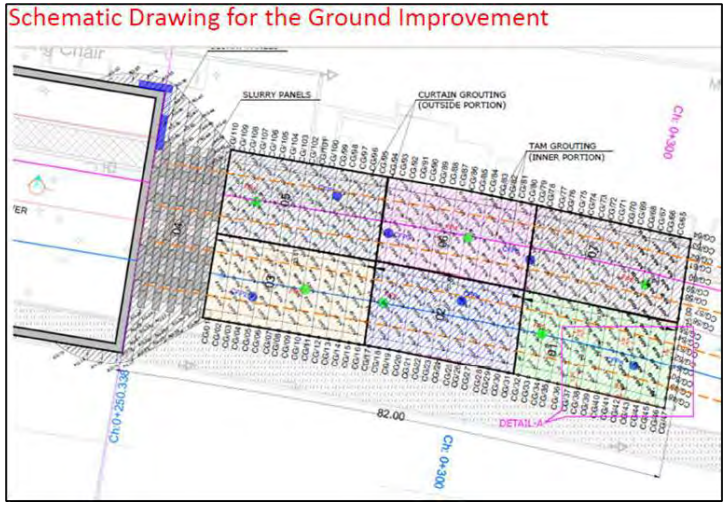

Figure 4. Plan of Ground Improvement using TAM grouting

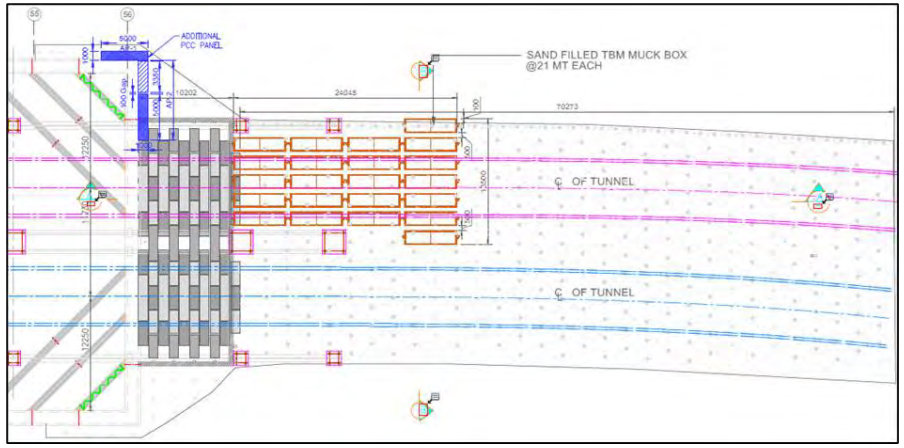

Figure 5. Plan showing the TBM launching area with the provisions of PCC panels and Muck box

Figure 6. Instrumentation and Monitoring Layout

Table 3. Pre and Post Grouting Permeability of Soil

Test No.	Depth (m)	Field Permeability Test before TAM Grouting	Field Permeability Test after TAM Grouting	% Reduction
		Permeability (k) in cm/s	Permeability (k) in cm/s	
FP - 01	11.0-12.0	4.35E-05	2.39E-05	45%
FP - 02		6.78E-05	5.25E-05	23%
FP - 03		8.26E-05	2.93E-05	65%

Table 4. Instrumentation and Monitoring Data

Maximum settlement of Ground Settlement Marker (GSM)						
Sl. No	Array	Chainage	Over Burden (m)	GSM Point	Settlement Value	Volume Loss (K=0.35)
1	E01	225	4.5	GSM 7	-54mm	1.04
2	F01	275	5.15	GSM20	-60mm	1.23

Table 5. Comparison of Ground settlement obtained using Numerical analysis and I&M Data

Method	Max. Ground Settlement (mm)
PLAXIS 2D	51.3
PLAXIS 3D	55.5
I & M	60.0

With profound sadness, we mourn the loss of Mr. K Bairagi, whose contributions will forever be cherished

Er. Kondapalli Bairagi

Kondapalli Bairagi joined in L&T–ECC as a Post graduate engineer in 1997 after he completed his Master's degree (M. Tech) in Geotechnical Engineering from NIT Warangal in 1997. He was an Expert in geotechnical engineering designs, detailing and execution guidance. He handled all kinds of Geotechnical designs for Power plants, Steel plants, Water treatment projects & Infra structure projects with his technical management of geotechnical engineering efforts, widely recognized as an experienced geotechnical engineer in the field of onshore construction projects. His expertise in the field and personalized approach to design, resulted in significant project savings in L&T Construction.

He worked as the head of Geotechnical Engineering design team to provide the conceptual designs, comprehensive recommendations, detailed engineering and economic alternatives pertaining to the foundations for various structures in Water supply projects, Sewage treatment projects, Industrial projects & Irrigation Projects for L&T Construction. He published a few technical papers in the field of geotechnical engineering in National wide conferences.

He also served as an Executive Committee member of DFI of India for 2 years from 2018 to 2020.

Our heartfelt condolences to his family and loved ones.
May his soul rest in peace.

DFII & DFI Upcoming Events

Event	Date	Venue
Conference on Foundation Decarbonization and Re-Use	March 25 - 27, 2025	Amsterdam, the Netherlands
PFSF-DFI Piling & Ground Improvement Conference	May 19 - 20, 2026	Sydney, Australia
DFI / EFFC Geotechnics Reimagined	May 21 – 23, 2025	Bruges, Belgium
SuperPile '25	June 18 - 20, 2025	Cleveland, OH
S3 '25	Aug 5 – 7, 2025	Madison, WI
DFI-India 2025	Sept 11-13, 2025	Surat, Gujarat
DFI50	Oct 20-23, 2025	Nashville, TN

DFI of India Technical Committee Members 2024-25

DFI of India Continuous Flight Auger (CFA) Pile Technology Implementation Committee

- Dr. Sunil S. Basarkar, S&R Geotechniques ***(Committee Chair)***
- Mr. Anirudhan IV, DFI of India
- Mr. Manish Kumar, ITD Cementation India Ltd.
- Mr. V.V.S. Ramadas, Keller India
- Dr. Jaykumar Shukla, Geo Dynamics
- Dr. K V Babu, L&T Hydrocarbon
- Mr. Jagrat Jariwala, LANGAN
- Mr. M Kumaran, L&T Geostructure

DFI of India Committee for Geotechnical Characterization for Foundations (DCGCF)

- Dr. C R Parthasarathy, Sarathy Geotech and Engg. Services Pvt. Ltd. ***(Committee Chair)***
- Mr. Sorabh Gupta, Cengrs Geotechnica Pvt Ltd ***(Committee Vice-Chair)***
- Mr. Anirudhan IV, DFI of India
- Dr. Yogini Despande, Renuka Consultants
- Mr. Aloke Samanta, Fugro Geotech
- Dr. Ravi Sundaram, Cengrs Geotechnica Pvt Ltd
- Dr. A Murali Krishna, IIT Tirupati
- Dr. Sreevalsa Kolathayar, NIT Surathkal
- Mr. Jitendra Kumar, NCRTC
- Dr. Arindam Dey, IIT Guwahati

DFI of India Helical Pile Technology Implementation Committee

- Mr. Mohan Ramanathan, Advanced Construction Technologies ***(Committee Chair)***
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- Dr. Balakumar Venkatraman, Consultant
- Prof. Sumanth Haldar, IIT Bhubaneshwar
- Ms. Annapoorni Iyer, Engosym Consultants

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- Mr. Anirudhan IV, DFI of India
- Ms. Annapoorni Iyer, Engosym Consultants
- Dr. N Kumar Pitchumani, AECOM
- Mr. Sridhar Valluri, Keller India
- Mr. Aminul Islam, ITD Cementation India Ltd
- Dr. K. Muthukkumaran, NIT Trichy

DFI of India Training Committee on Foundation Technologies

- Mr. Ravikiran Vaidya, Geo Dynamics Engineers LLP ***(Committee Chair)***
- Mr. Anirudhan IV, DFI of India
- Mr. PVSR Prasad, Keller India
- Mr. Rajith Kumar, L&T Construction
- Dr. Makarand Khare, Terranova Consultants
- Dr. Jaykumar Shukla, Geo Dynamics Engineers LLP

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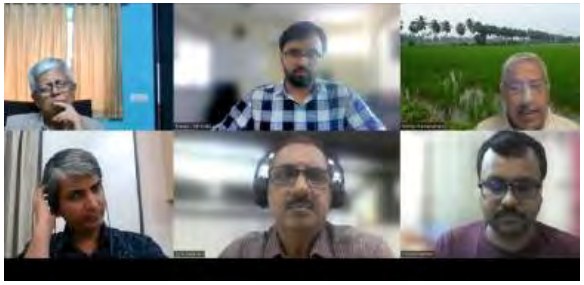
Women in Deep Foundation (India)

- Ms. SriLakshmi Nagarajan, *Geocomp, Inc.*
- Ms. Annapoorni Iyer, Engosym Consultants
- Ms. Theresa Engler, DFI
- Ms. Dola RoyChowdhury, GCUBE Consulting Engineers LLP
- Ms. K Geethanjali, Engineers India Limited
- Dr. Yogini Deshpande, Renuka Consultants
- Ms. Sangeen Desai, Keller India
- Ms. Akhila Manne, Unirac Solar India LLP
- Mr. Matthew Glisson, DFI



HAVE YOU RENEWED YOUR DFI MEMBERSHIP FOR 2025 YET?

Get it now if you have not already. DFI offers multiple benefits to its members for their technical as well as professional development. Learn, Network and Grow with DFI.

Check DFI membership categories, benefits, fee and renew here: https://dfi.org/members/

Hurry up!!! Join DFI of India today and connect with a network of geotechnical professionals driving innovation in deep foundations

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DFI members have free, unlimited access to more than 140,000 technical papers at OneMine.org the Global Digital Research Library for the mining, tunneling and deep foundations construction communities.

- Download DFI's archived documents including conference proceedings, technical manuals, reference documents, magazine articles and journal papers
- Download documents from related industry organizations
- Search by keyword, title, author or participating society
- Sign in as a DFI member at www.dfi.org and be automatically logged in to OneMine.org

DFII Technical Committee News & Reports

DFII Committee for Geotechnical Characterisation for Foundations

DCGCF committee conducted three events in 2024, which includes one 5-days workshop on 'Geotechnical Investigation laboratory Testing' at L&T Chennai, and two webinars in the series "Practices for Efficient Subsurface Characterization" to address the critical aspects of subsoil investigation and characterization, which are fundamental to the success of any construction project involving deep foundations. These webinars were delivered by the committee chair Dr. CR Parthasarathy, Sarathy Geotech and the committee vice chair Mr. Sorabh Gupta, Cengrs Geotechnica. second webinar is successfully conducted on 14 Nov'24. The committee will be back with more 5-day workshops and the third webinar soon.

DFII Training Committee on Foundation Technologies

DFII Training Committee has conducted five training programs till date with four online programs and the last one being a hybrid event on the topic 'Ground Improvement for Foundation construction' on 18 May 2024. These events have seen increasing interest from the industry and academia with participants from different parts of the country.

The Committee is planning the first event of 2025 by March-April'25. The topics being discussed are Geotechnical software, D-Walls, Working Platforms, Tool Management for Construction Equipment, etc.

DFII Student Outreach Committee-Groundwork

DFII Student Outreach Committee conducted three Groundwork online webinar series in 2024, and the Annual Student Awards 2024 Competition for Best Masters Project and Best PhD Research awards. In 2025 the committee has plans to bring more interactive sessions to benefit students in technical as well as interpersonal skills like interviews, CV preparations, etc. First webinar under Groundwork 2025 webinar series will be conducted in Feb'25 and the details will be out soon.

CFA Pile Technology Implementation Committee

The committee successfully conducted a workshop on CFA Pile construction in collaboration with IGS Kolkata Chapter in March 2024. Several national and international experts presented during the program. It received excellent feedback from the participants. The program was attended by more than 250 online delegates.

The committee is also playing a pivotal role in Panel 20 sub-committee under CED 43 which is drafting the BIS code for CFA Guidelines. The guidelines document is currently under review and is expected to be out in 2025.

Women in Deep Foundations India

WiDF India group conducted an inspiring session in the DFI-India 2024 Conference featuring Ms. Odetta Da Silva, the first women chief engineer of PWD, Goa. The team met recently to start its preparations for 2025 activities. Details of WiDF India program in DFI-India 2025 annual conference will be released soon

DFII Strategic Conclave 2025

DFI of India conducted its first Strategic Conclave on 24th and 25th Jan 2025 to discuss and finalize future strategies for the Deep Foundations Institution of India (DFII), identify key initiatives, and outline required support. This online meeting was joined by the DFII Executive Committee members and a few invited experts from the industry. DFII received inputs and suggestions from the participants and will mold its initiatives accordingly.

Follow DFI of India on social media for updates & announcements

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Electric construction equipment, such as piling rigs from Bauer and Liebherr, is becoming globally available. For a metro project in Oslo, electric rigs were used to install secant piles using city power, which are from Norway's near-zero emission electricity due to hydro power.

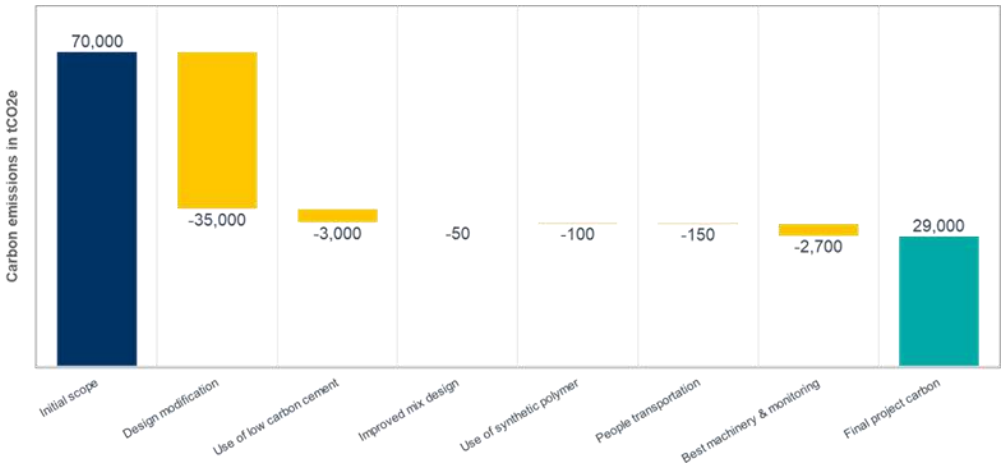
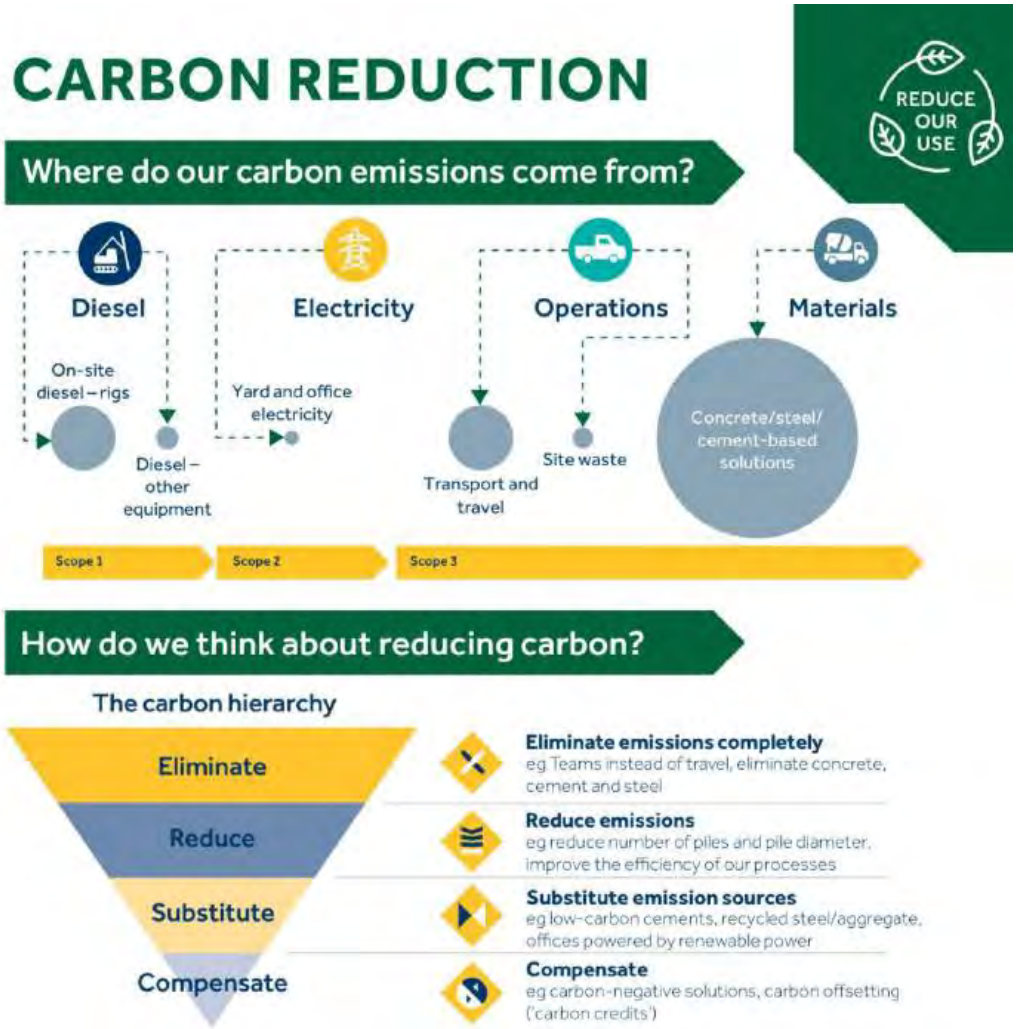


Figure 4: Stages of Carbon Reduction from Foundation Construction Project

Conclusions

In the Anthropocene, where human impact on the planet is undeniable, sustainable geotechnical construction is not just a choice but a necessity. Construction significantly contributes to global greenhouse gas emissions but also offers reduction opportunities. Adding a sustainability lens to conventional design fosters innovation and carbon savings. Following the carbon hierarchy (Avoid, Reduce, Substitute, Offset) systematically maximizes impact, with material reduction/substitution offering the greatest savings.



WHAT CAN DFI DO FOR YOU?

Overview

DFI is an international association of contractors, engineers, suppliers, academics and owners in the deep foundations industry. For more than 40 years, we have brought together professionals for networking, education, communication and collaboration. As a member, you help create a consensus voice and a common vision for continual advancement in the planning, design and construction of deep foundations and excavations.

Find Common Ground. Become a Member of DFI

- Network with thousands of members and industry professionals worldwide
- Get involved locally through DFI's active presence in Europe, India and the Middle East
- Strengthen your knowledge base and obtain practical information at seminars, short courses, workshops and conferences
- Collaborate with colleagues by joining one of 25 plus active Technical Committees, Regional Chapters or a DFI group
- Gain visibility with a corporate member listing on the DFI website, which has 20,000 views each month
- Connect and communicate with industry peers through social media such as DFI's LinkedIn Groups
- Access OneMine.org and download up to 145,000 articles, technical papers & books from DFI & organizations all over the world - at no cost

50th Annual Conference on Deep Foundations – Registration Open!

Oct 20th - Oct 23rd, 2025

Be part of the 50th Annual Conference on Deep Foundations (#DFI50), to be held during October 20-23, 2025, in Nashville, Tennessee. The theme of this international conference is "Celebrating 50 Years," focusing on the evolution of the industry. We will explore advancements in industry practices, techniques and project delivery through perspectives, case histories and research-based papers and presentations.

Don't miss this landmark event-register now to secure your place

For details, visit : http://dfi-events.org/dfi50/

This e-newsletter of DFI of India is available at DFI of India website: https://dfi.org/india/

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