Offshore Experiences
- A Case Study

A new port is being constructed on the East coast of India for the Thermal Power project in Tamil Nadu. It consists of a berth of 555m long and 25m wide for coal handling and is located about 8km from the shoreline to get the required draft naturally. The project also includes Asia's first offshore island breakwater to ensure tranquility within the basin during port operations.

Read more on Page no. 3.

Picture Courtesy: Cem

Volume 9 Book 4, Oct 2023

DFI of INDIA News

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

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Offshore Experiences - A Case Study

Cover Story

- *Aminul Islam, Arundeepan Vijayakumar, Theodore Paul*, ITD Cementation India Pvt. Ltd

Details of Offshore Structure

A new port is under construction at Udangudi (district of Tuticorin), in Tamil Nadu, India to serve a Thermal Power project. The project involves creation of a 555 m long and 25 m wide berth for coal handling which is located about 8 km from the shoreline for a natural draught of around 18m to accommodate a vessel of 80,000 DWT. The berth is connected with the shoreline through a 10.1m to 18m wide and 8km long approach bridge which carries coal handling pipe conveyors and a traffic carriageway. To facilitate the fishing community, the approach bridge's design was finalized with 34 m span and 7 m air gap to let fishing vessels pass through. Construction of pile foundations in deep-sea conditions presents numerous challenges, ranging from geological complexities to the harsh marine environment. The project also includes Asia's first offshore island breakwater to ensure tranquillity within the basin during port operations.

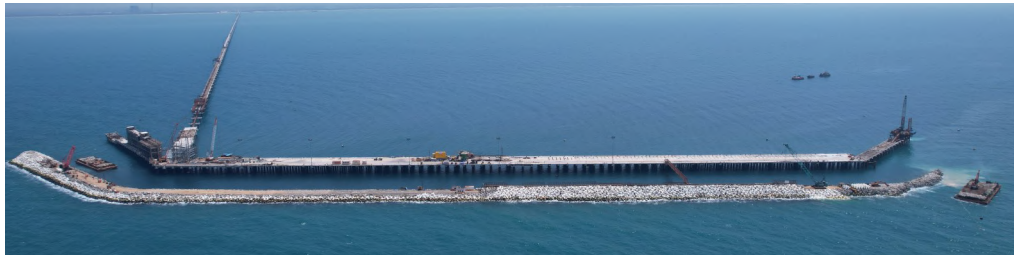

Fig. 1 Island Breakwater and Coal Jetty - 8 km away from the shore

Design Considerations & Loads

Design of the pile foundation for the berthing structure considered a multitude of loads, including berthing loads for 80,000 to 1,20,000 DWT vessels, ship unloader wheel loads of 500 tons per corner, and various environmental factors such as wind speed (20m/s operation & 50 m/s extreme condition), wave load due to significant wave height of 3.6m, and seismic zone of Zone II as per IS 1893.

Pile spacing at the berth is 6m transverse and 7m longitudinal, and it carries 645 ton of compression and 15.4 ton of horizontal forces at the pile cut off level.

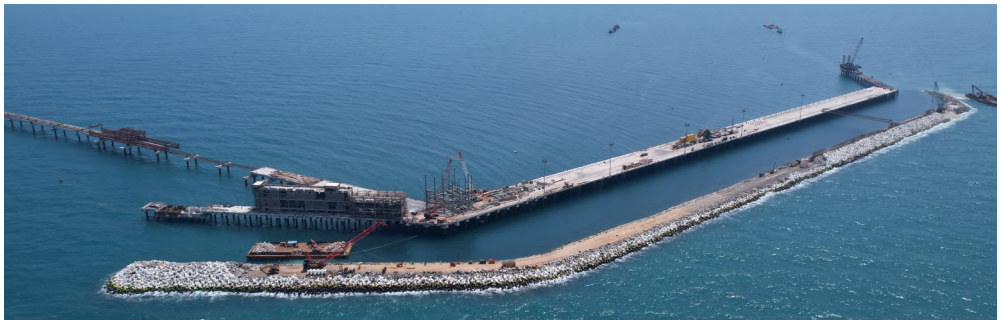

Fig. 2 View of Coal Jetty & Breakwater

Subsoil Information and Pile Foundation Design

Subsoil profile consisting of an overburden sand layer followed by weak limestone/sandstone rock deposits. The axial capacity of the rock socketed bored piles is estimated as per the Cole and Stroud method, considering SPT value of 120 for weak rock. The initial test pile result matches with this calculation. LPILE analysis, with its ability to model the pile response to lateral loads and varying conditions, proved to be useful for determining the depth of fixity. The final design of the piles concluded with, 1,200mm diameter bored piles, socketed 4.0 to 4.5 times the diameter into the weak bedrock.

Construction of Pile Foundation

The project was unprotected from severe sea conditions of wave height from 2 to 3.6m which caused immense difficulty during construction. Two advanced jack-up barges of around 30mx20m size were imported from Netherlands and they were used to install initial piles and subsequent piling was done through piling gantries by percussion method

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using a bailer & chisel.

Establishing termination criteria for rock socketing was a critical aspect, and the pile penetration ratio (PPR) was used to determine the rock level and where to terminate the piles. Additionally, SPT was also conducted in each pile to identify the rock touch level.

Two significant and unexpected challenges were encountered during the installation of piles which are presented below.

Case 1: In a specific zone, a collapsible stratum was encountered sandwiched between rock layers and the pile bore was unstable in this layer during boring operations. Permanent liner could not be advanced due to the top rock layer where the liner was getting a refusal. The issue was solved by boring up to the bottom of this 2 to 3m collapsible layer, pouring concrete of M10 grade, and re-boring the pile after waiting for 24 hours until the required termination level was reached.

Case 2: Permanent liners were driven up to the top of weathered rock. However, in some piles, the liner was further penetrating weathered rock strata at the time of boring for rock socketing. Locking the pile liner top with the piling gantry is not recommended as it could cause instability of the piling gantry itself. As a result, the liner was allowed to penetrate till it stopped sinking and the rock socket length was considered from the bottom of the liner instead of the actual rock top level. This consideration is influenced by the fact that the shaft friction of rock will not mobilize adequately where the steel liner is in direct contact with rock, therefore this portion was discarded for pile capacity calculations.

Fig. 3: Pile installation work at Berth Location

Field Load Test

Besides the pile integrity test (PIT) in all working piles, high-strain dynamic load tests were conducted on selected working piles using Pile Driving Analyzer (PDA) and analyzed using CAPWAP. These tests provided essential data for evaluating the load-carrying capacity of the piles and the distribution of resistance along the shaft and at the toe. The results confirmed that the mobilized capacity of the piles exceeded the calculated pile capacity thus providing confidence in the structural integrity of the foundation system. The table below depicts the dynamic pile load test results at the berth location.

Fig. 4: View of Approach Bridge

Pile No.	Mobilised Skin Friction (MT)	Mobilised End Bearing (MT)	Total Mobilised Capacity (MT)	Total Settlement (mm)	Net Settlement (mm)
330G	861	165	1025	8.5	1.0
376E	1274	462	1736	13.1	1.0

Conclusion

Employing advanced design methods, field quality control measures including pile tests, and practical on-site solutions for unique challenges, engineers and construction teams can certainly deliver vital infrastructure for rising demands of a rapidly developing India.

DFI of India (DFII) has a lot to be proud of; specifically, when it comes to their 12th Annual Conference on Deep Foundation Technologies for Infrastructure Development in India held from October 05-07 in the beautiful city of Vadodara, Gujarat. I'm so glad I had the pleasure of attending this year and very much enjoyed my second trip to India. The organizing committee, led by Ravikiran Vaidya, plus the DFII staff, Pranav Jha, TS Mahendran and Sai Sindhu, created an event that brought the most industry professionals since inception – over 300!

The excitement began the night before when the exhibitors set up their display in the sold out exhibit hall with their many innovative products and services. The session room was elegantly ready for the next morning with flowers across the stage and presentations ready to be made in the morning.

Message from Theresa Engler
Executive Director, DFI

I was honored to be part of the inauguration program that opened the conference and be the person to present the souvenir book. Two keynote speakers opened the first session which was sponsored by Bauer Engineering: Fadi Hadad of Bauer Spezialtiefbau and Shankar Bhosale of Brihan Mumbai Municipal Corporation. At the end of the session, I provided an overview of DFI and its activities for the attendees since many were new to DFI and its chapter in India. The day continued with a second session, this time sponsored by SANY, with presentations from other notable speakers – John Endicott of AECOM, Duncan Nicholson of Arup, Hari Krishna of Keller Ground Engineering India, Manish Kumar, ITD Cementation and past DFII chair, Anirudhan IV of Geotechnical Solutions. There was lively discussion on deep excavations between these five presenters and the audience.

The second day provided options for the attendees between two tracks, broken up with plenary sessions by three other keynotes: Raj Chinthamani of Mueser Rutledge Consulting Engineers, another presentation by John Endicott and one from the conference chair, Ravikiran Vaidya of Geodynamics. Topics ranged from seepage

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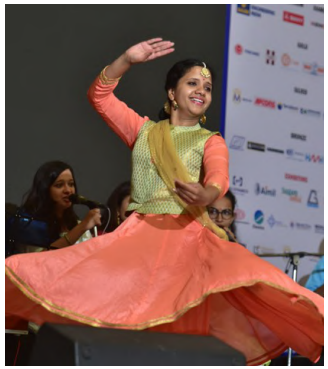
control and cut-off walls, bored piles, ground improvement, slope stabilization, geothermal energy piles and many case histories. A highlight of the day was the Women in Deep Foundations session with a powerful presentation by Sushmita Ghosh of L&T Energy Power who related her experiences as a woman in her career, titled Women in Power, which included startling statistics on the low percentage of women in top level positions and the reasons women are poorly represented in the construction world. She also provided advice for women in the field of how to speak up for themselves and build their support system and their confidence.



Probably my favorite part of the event occurred that evening which was the cultural programme and banquet dinner. The dancers were graceful, the musicians talented and the music and dancing a lot of fun. I was also thrilled to be wearing traditional Indian dress each day of the conference. They are so beautiful.

It was difficult to realize the event was coming to an end on the last half-day of the conference but it ended strongly with keynotes from Brent Robinson of Pile Dynamics and Andrey Sbitnev of COWI. The day ended with awards for the best paper and the winning student as well as recognition of all the sponsors/exhibitors. I made so many great connections during the conference and can see that those in attendance learned a lot and appreciated the knowledge exchange that occurred.

Some of us visited the Statue of Unity (tallest statue in the world) and throughout I thoroughly enjoyed the traditional food of the region and the hospitality of everyone I met. I even came home with a painting done by Alpana Vaidya, wife of Ravikiran (conference chair) as she displayed many of various construction sites and bridges along with one painting done by Anirudhan IV which was a nice touch during the event. I thank all who showed me around the area, gave me gifts, and made me feel at home and welcome throughout my stay.

I'm excited to go back next year when the planned location is Goa. I'm sure the number of attendees and sponsors/exhibitors will continue to grow each year thanks to the dedicated DFII staff with the help of the many volunteer members who are involved and see the value of participating in an industry association where ideas are shared, and knowledge is gained.

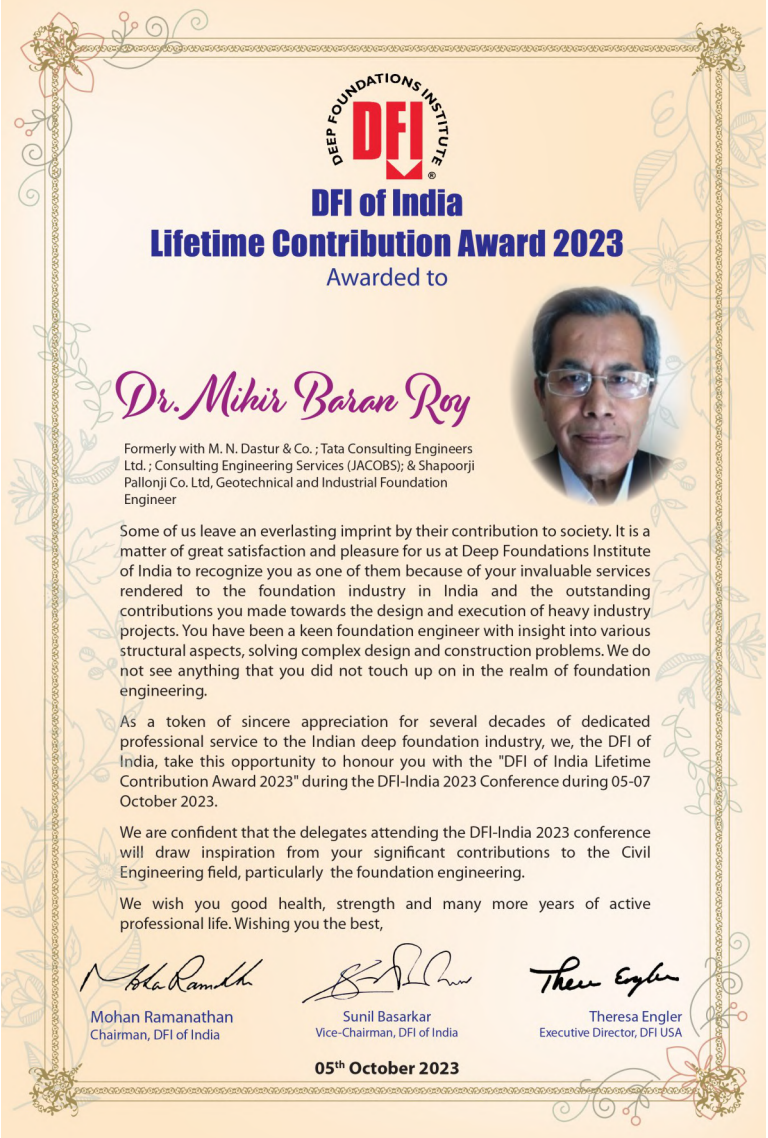
DFI India Life Time Contribution Award 2023

DFI of India acknowledges several veterans' immense contributions to geotechnical engineering in the field and academia. We are proud to honour one of them during every annual conference with our Life Time Contribution Award and are pleased to present the 2023 award to **Dr. Mihir Baran Roy.**

Born in 1946, **Dr. Mihir B. Roy** spent his entire professional lifetime serving as an illustrious foundation engineer. After graduating in civil engineering from Bengal Engineering College, now IIEST, Shibpur in 1966, Dr Mihir took his master's degree in Soil Mech. & Foundation Engineering from Indian Institute of Technology, Kanpur in 1970. He carried out his research at Purdue University, USA from 1971 to 1975 under the direct guidance of G. A. Leonards, M. E. Harr and W. R. Judd and earned his doctorate degree in Geotechnical Engineering in 1975.

Dr. Mihir B. Roy worked in reputed consulting engineering companies in India putting more than 45 years of dedicated service in the fields of Geotechnical & Industrial Foundation Engineering. He planned and prepared valuable technical reports, geotechnical design documents apart from design supervision of foundations for Major Industrial Projects in India and abroad. His experience covers industries like Steel & Thermal Power Plants, Raw Material Handling System, Raw Water Reservoir, Ash & Tailing Storage Ponds and Marine Projects. Dr. Roy carried out Geotechnical Consultancy, Forensic Engineering and Restoration guidance for Major Industrial projects in India and abroad.

During his illustrious carrier, he worked in McClelland Engineers Inc., Houston, Texas; Gammon Nirman Ltd.; M. N. Dastur & Co. (P) Ltd.; Fugro-KND Geotech Limited, (JV with FUGRO of The Netherlands); Shapoorji Pallonji Co. Ltd. (EPC Project Div.); Tata Consulting Engineers; Consulting Engineering Services (now JACOBS) and others.



DFI members can post their professional achievements, corporate achievements, awards, other news related to geotechnical profession here. Please send the details 15 days before every quarter, April, July, October and December to technical@dfi-india.org

Women in Deep Foundations (WiDF) India DFII2023 Annual Conference Session Report

WiDF India is the Indian chapter of WiDF group and was formally launched during the DFII2018 conference in IIT Gandhinagar. The goal of DFI's Women in Deep Foundations Committee is to increase networking opportunities and improve retention of female professionals in the deep foundations industry. The group is actively working towards the goal of empowering women in the industry, educating and encouraging the young professionals about different prospects and opportunities, connecting academia and industry, etc.

The WiDF India committee conducted an empowering session in the recent DFI-India 2023 Conference. The Session was chaired by Dola Roychowdhury, GCUBE Consulting Engineers LLP and moderated by Sangeen Naik, Keller Ground Engineering India. The session had two speakers Theresa Engler, Executive Director, DFI and Sushmita Ghosh, L&T Energy Power.

Theresa started the presentation by thanking the WiDF India DFII2023 session sponsors Dola Roychowdhury, GCUBE Consulting Engineers LLP, Annapoorni Iyer, Engosym Consultants, and Lucky Nagarajan. She highlighted the increase in the participation of females in DFI events as conference attendees, speakers & authors, and also in various technical committees.

Theresa made a special mention about the professional development grant opportunities for women involved in design and construction of deep foundations by the DFI Educational Trust and the Deep Foundations Institute (DFI) Women in Deep Foundations Committee. This was started in the year 2015 with one grant per year, 2016 – two grants, 2017 – four grants, 2018 to 2023 – five grants per year. The total funding till date is around $68,250. The locations of Grant Winners are USA, South Africa, India, Canada. She narrated the other activities of WiDF Program including Lectures, Networking Receptions, Regional networking groups, (NYC, Pittsburgh, Mexico, India), Professional development workshops, Industry-Academia Partnerships, Webinars/Podcast, Magazine Articles, Lanyards, etc.

She briefed WiDF India activities i.e. WhatsApp Group, Connect & Grow Webinar Series, Panel Discussion to address sensitive topics, etc.

The other invited speaker for the session was Sushmita Ghosh, Senior Deputy General Manager, L&T Energy Power. She has an experience of 23 years in L&T Sargent & Lundy and L&T Energy Power in various civil engineering roles majorly in the engineering of industrial structures. She is currently looking after the Supply Chain Management in L&T Energy Power.

Sushmita started her presentation with describing the

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core competencies required for working in an EPC Company (Engineering, Procurement, and Construction). It is a spectrum which covers from inception to physical completion as it is delivered to the client. For civil engineers there are varied roles and responsibility in each of these brackets. Based on the competence and passion one may choose the best suited profile.

She talked about the Civil Engineering Prospects in Global Market and Indian Market highlighting the Market Size Value in 2023, Revenue Forecast in 2030, and Growth Rate from 2023 to 2030. She went on to present the statistics on women participation in various stages of Civil Engineering with below **highlights:**

Education: 43% Women enrollment in STEM, 14% pursue career in Engineering & R&D.

Civil Engineering: 16.4% Women enroll for Civil Engineering.

Women In Civil Engineering: 40% of women never enter or leave the field.

Top levels: 3% of Women Engineers take up C-suite positions.

Board Room: 17% Women have board seats, 3.6% Chair such boards.

Current Situation: Shortage of over 70,000 civil engineers every year.

Sushmita further presented the distribution of women workforce in various fields compared to construction, reasons for low representation in construction, and why gender diversity shall be promoted.?

She closed her presentation with her experience in the corporate world, her success factors, and way forward for women empowerment in construction industry.

The session was widely appreciated by the delegates.

Youth Corner - WiDF India

Understanding and Leading Large Foundation Sites - An Experience Worth Sharing:

Vimala C., is an experienced young geotechnical engineer who started her professional journey with Keller Ground Engineering India Pvt. Ltd (Keller India) in 2014. Today, she holds the position of Geotechnical Manager and has been assigned with the pivotal role of Lead Design Engineer for a substantial design and build project.

Choice of Foundation System on Complex Ground conditions

Large diameter crude oil storage tanks are to be built in an oil storage tank farm in the East coast of India. The subsoil in the proposed site consists of very soft to soft silty clay and followed by alternate layers of medium dense to dense silty sand and medium stiff to very stiff silty clay. It is decided to adopt deep foundations in the form of bored cast in-situ piles, to ensure the project's success and meet stringent performance requirements. This choice was made after careful evaluation of the subsoil conditions, marking a crucial step in the project's development.

Pile Load Test

Given the scale of this design and build project, it is decided to conduct an instrumented pile load test on a sacrificial pile. This pile load test helps to understand the load vs settlement behavior under stagewise load and provide confidence to the

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Technical photo feature of relevance are invited from the readers. The feature shall preferably illustrate a modern technology or testing procedure. Please prepare the feature with six to eight good quality pictures with brief and crisp description.

design engineers. Leading this critical aspect of the project, Vimala has done a detailed plan for the initial pile load test, starting with a preliminary budget estimation, conducting a dedicated borehole at the test location, pile installation, selection of suitable instruments, and the execution of a vertical pile load test.

Instrumentation Expertise

Vimala's dedication to her role shines through in her commitment to sourcing and implementing the most advanced instrumentation. She engaged in extensive discussions with her senior colleagues and external consultants (Mr. Anirudhan, M/s Geotechnical Solutions) and testing agency M/s Geo Dynamics to gain insight into the most suitable instruments and their usage. This led to the selection of vibrating wire strain gauges and tell-tale rods, strategically placed at different levels based on subsoil variations. Each level was equipped with four strain gauges to monitor strains, while tell-tale rods at three different levels were employed to assess the elastic modulus of the concrete.

Extensive Co-ordination

To ensure the seamless execution of the instrumented pile load test, Vimala did a proactive role in coordinating with the Keller's site team, the testing agency, and external consultants. She meticulously finalized the schedule for the installation and testing of the pile.

Core Stewardship

Vimala's commitment extended beyond the planning phase. She made several site visits to witness and monitor all the site activities. Firstly, she visited the site to monitor the borehole works at test pile location and to understand the actual subsoil conditions. She made a second site visit during pile installation to verify that the instruments were installed in accordance with the design specifications and to ensure the quality of the pile installation. Also, she was present during the pile testing phase, actively monitoring progress and providing valuable guidance to the team to ensure the successful completion of the load test.

Summary

Being a woman engineer, she has taken a leadership role in this large volume design and build project. She skillfully navigated and overcame the challenges to complete this instrumented pile load test successfully. She encourages young women engineers to take a lead role in every opportunity and wishes them success. She extends her heartfelt gratitude to Keller India Management, Keller site team, Consultants and her family for their support and guidance for this achievement.

Keller Ground Engineering India is a Corporate member of DFI of India.

SuperPile'24

Piling Design & Construction Conference

San Francisco, California

In partnership with ADSC

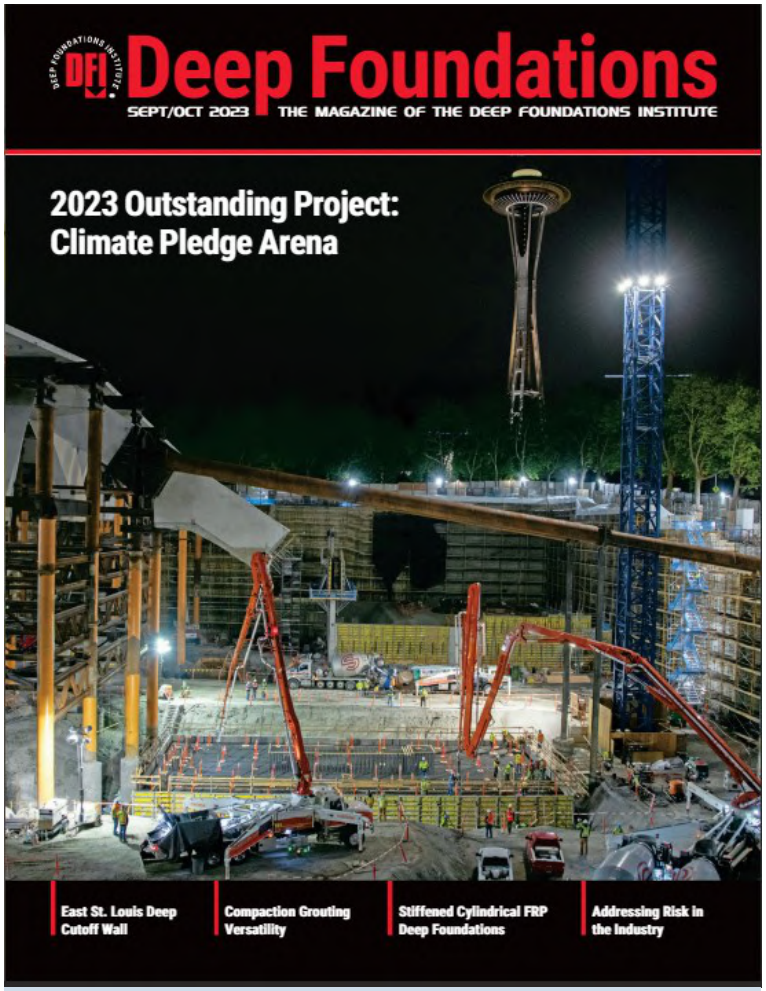
June 12-14, 2024 | San Francisco Marriott Marquis

Technical committees of DFI and ADSC combine their industry expertise to organize DFI SuperPile'24. The three day event will include technical committee meetings along with presentations on the latest developments in piling foundations. Invited and selected presentations will highlight advancements, innovations, and challenges in design and construction of deep foundations, particularly related to piling solutions.

SuperPile '24 Call for Abstracts Open: Deadline Wednesday, December 6, 2023

Visit the conference website for more details: https://www.dfi.org/superpile2024

Event	IFCEE 2024	Conference on Foundation and Decarbonization and Re-use	SuperPile 2024	S3 2024	DFI49
Date	May 07-10, 2024	May 28-30, 2024	June 12-14, 2024	Aug 6-8, 2024	Oct 07-10, 2024
Venue	Dallas, Texas	KIT, Amsterdam, Netherlands	San Francisco,	Aurora, Colorado	Aurora, Colorado



Read latest DFI Magazine Sept-Oct'22 issue here: https://www.nxtbook.com/dfi/DEEP-FOUNDATIONS/september-october-2023/index.php#/p/Intro

Deep Foundations Institute of India is regularly conducting workshops and conferences in association with other organizations with similar interests

Recap - DFI India 2023: 12th Annual conference

After a huge success of DFI India 2022 Annual conference at Tirupati, DFI India's most awaited 12th Annual Conference on Deep Foundation Technologies for Infrastructure Development in India was held between 05 Oct'23 to 07 Oct'23 at Hotel Grand Mercure Vadodara Surya Palace, Vadodara Gujarat.

The event consisted of a two-and-a-half-day conference programme including a half-day special session on the topic **'Deep Excavation'.**

The Conference was chaired by Ravikiran Vaidya, Principal Engineer, Geo Dynamics. The co-organizer of the conference was IGS Baroda Chapter.

The Conference received a tremendous support from industry through Sponsorships and Exhibition. More than 300 delegates attended the Conference representing various Organizations.

The Conference started with an inauguration session on day 1 (05 Oct 2023). Shri Giridhar Rajagopalan, Deputy Managing Director, Afcons Infrastructure Ltd. was the Chief Guest at the inauguration.

Dr. Mihir Baran Roy was the recipient of Lifetime Contribution Award 2023. Dr. Sunil S Basarkar read out the Citation.

Mr. Rajagopalan, the chief guest inaugurated the exhibition by untying the ribbon.

Keynote Presentations

Several national and international experts delivered keynote lectures during the Conference.

Keynote 1: **Mr. Fadi Haddad** - *Sustainable Methods and Techniques in Special Foundation Engineering*
Keynote 2: **Mr. Shankar J. Bhosale** - *Success Story of Monopile First Time in India*
Keynote 3: **Mr. Raj Chinthamani** - *Design and Construction Challenges of Marine Foundations for Little Island, NY*
Keynote 4: **Prof. John Endicott** - *Large Diameter Piles and Very Long Piles*
Keynote 5: **Mr. Ravikiran Vaidya** - *Forensic Studies and Engineering Assessments with Deep Foundation Testing*
Keynote 6: **Dr. Brent Robinson** - *Revisiting Initial Assumptions from Field Testing Data*
Keynote 7: **Dr. Andrey Sbitnev** - *An Overview of Practical Applications of Ground Improvement Techniques using Mechanical Energy*

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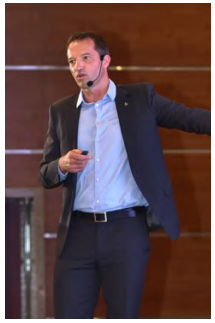
Special Session on 'Deep Excavation'

A Special Session session on 'Deep Excavation' was conducted during Day 1 Session 2 of the Conference. Dr. Jaykumar Shukla, Geo Dynamics chaired the session. Total five topics were covered during the session. They include:

1. Evolution of Codes of Practice for Deep Excavations
   - Prof. John Endicott, AECOM Asia Ltd
2. Observational Method and CIRIA Guideline Updates
   - Mr. Duncan Nicholson, Arup
3. Overcoming Ground Engineering Challenges of Excavation Pits in Complex Ground Conditions
   - Mr. Hari Krishna, Keller Ground Engineering India Pvt. Ltd.
4. Finite Element Modelling of Deep Excavation Problems
   - Mr. Anirudhan IV, Geotechnical Solutions
5. Recent Developments in Deep Excavation Support Systems – An Indian Perspective
   - Mr. Manish Kumar, ITD Cementation India Ltd.

Contributory Papers:

For the conference, total 133 abstracts were received and 58 papers were published in the conference out of which 34 contributory papers were



presented live and 16 papers were presented as poster presentations during the conference .

Women in Deep Foundations India (WiDFI) Session

The WiDF India committee conducted one hour empowering session in the DFI-India 2023 Conference.

Read more about the session in the session report on page no. 8.

DFII Student Awards 2023

The winners of DFI India Student Awards 2023 were **Keerthi Raaj S**, IIT Madras (PhD Research category) and **Vishnu Venugopal**, IIT Roorkee (Masters category). DFII congratulates both the winners.

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DFII 2023 Best Paper Awards

The Conference technical chairs selected two best papers among the 58 contributory papers. They were 1) ***Performance of Oil Storage Tank Foundations: A Case History*** by Tanmay Gupta, Madan Kumar Annam and 2) ***Assessment of Pile Verticality and Pile Profile using SHAPE (Shaft Area Profile Evaluator)*** by Brent Robinson, Ravikiran Vaidya, Sujan Kulkarni.

Overall, the Conference was a grand success with the support from Industry and Academia. DFI of India thank all the guests, sponsors, exhibitors, and delegates for their attendance; and the co-organisor IGS Baroda Chapter for their humongous support in organizing the event successfully.

DFI India 2023 Conference Sponsors, Exhibitors and Supporters

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DFII Technical Committee News & Reports

DFII Committee for Geotechnical Characterisation for Foundations

DFII conducted two 5-days workshop for Geotechnical Investigation laboratory in the year 2023, first being at NAC, Hyderabad during 14—18 June'23. The second workshop is conducted at CENGRS Geotechnica Pvt. Ltd., Noida during 06—10 Sept'23. The program received a great appreciation with a total participation of 34 attendees all across India. More workshops are planned in different regions of India. Upcoming programs are planned at NAC, Hyderabad, L&T, Chennai, etc.

An online bi-monthly webinar series is also planned by the Committee to emphasize proper geotechnical investigation and good work/tender practices. Details will be rolled out soon.

DFII Training Committee on Foundation Technologies

After the training program on support fluids, DFII Training committee successfully conducted another online training program on 'Tremie Concrete for Deep Foundations' on 16 Sept'23. This training program was conducted with assistance from DFI and its collaboration with the European Federation of Foundation Contractors. It was supported by EFFC-DFI Concrete Task Group. It was the fourth training program overall by DFI of India. Six internationally reputed speakers delivered presentations during the program. The program received more than 150 registrations. More training programs are planned on topics like Working Platforms, Tool Management for Construction Equipment, etc.

DFII Student Outreach Committee—Groundwork

DFII Groundwork committee continued the Webinar series and conducted the 5th webinar for 2023, a panel discussion on the 'Challenges of Working at an Underground Metro Site'. The program was moderated by Dr. N Kumar Pitchumani, AECOM and the panelists were Mr. Palwinder Singh, Project Manager, L&T and Mr. J. Srinivas, Associate Director, AECOM. The format was interactive and the speakers received more than 45 questions from the audience member. The webinar series will be resumed soon.

Groundwork Committee also called application for DFII Student Awards 2023 under two categories, Masters Project and PhD Research. Winners were awarded during DFII 2023 Annual Conference in Vadodara.

CFA Pile Technology Implementation Committee

For the year 2023-24, the DFII CFA Pile Committee is planning to conduct few technology promotional webinar programs for different stakeholders. It is encouraging to know that the CFA piles are already being constructed in multiple Indian projects.

BIS Guideline for CFA piling under CED 43 committee is under progress. DFII is hopeful that the BIS Guidelines will help consultants, contractors, and owners, to adopt the CFA piling technology in India.

Follow DFI of India on social media for updates & announcements

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 30 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 15 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 130,000 articles, technical papers & books from DFI & organizations all over the world - at no cost

49th Annual Conference on Deep Foundations

Oct 07th - Oct 10th, 2024

Join us for DFI's 49th Annual Conference on Deep Foundations in Colorado and network with the largest gathering of international practitioners specializing in cutting-edge technologies and risk management for deep foundations, ground improvement, earth retention and excavation support. The goal of the conference is to create a forum for discussion and knowledge exchange amongst industry professionals, government agencies, and academia on the challenges and solutions for water, resiliency and infrastructure.

Call for Abstracts is open!!! Deadline Jan 08 2024

For more information, visit: https://www.dfi.org/annual2024

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