Volume 6, Book 2, April 2020

DFI of INDIA News

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

DFI of India Executive Committee 2020—2021

Chairman
Dr. K S Ramakrishna, Geotechnical & Project Consultant, Chennai

Vice Chairman
Mr. Anirudhan I V, Geotechnical Solutions, Chennai

Director of Operations
Mr. G Venkata Prasad

Members
Prof. G L Sivakumar Babu, President, IGS, New Delhi
Mr. Arvind Srivastava, NPCIL Mumbai
Prof. A Boominathan, IIT Madras, Chennai
Mr. B S Srinivas, CMRL, Chennai
Mr. K Bairagi, L&T Ltd., Chennai
Mr. Harikrishna Yandamuri, Keller Ground Engineering P Ltd., Chennai
Dr. N Kumar Pitchumani, AECOM, Chennai
Mr. K Bikshapati, NAC, Hyderabad
Mr. Mohan Ramanathan, Advance Construction Technologies, Chennai
Mr. Ravikiran Vaidya, Geo Dynamics, Vadodara
Prof. Shailesh R Gandhi, SVNIT Surat
Dr. Sunil S Basarkar, Afcons Infrastructure Ltd., Mumbai
Prof. Amit Prashant, IIT Gandhinagar
Mr. Sanjoy Chakrabarty, Soilmec, Mumbai
Mr. V K Panwar, EIL, New Delhi

DFI USA

Executive Director
Theresa Engler

President
Matthew Janes

Vice President
Michael H Wysockey

Treasurer
Gianfranco Di Cicco

Past President
Dan Brown

Director Technical Activities
Mary Ellen Large

Trustee Emeritus & International Director
William F. Loftus

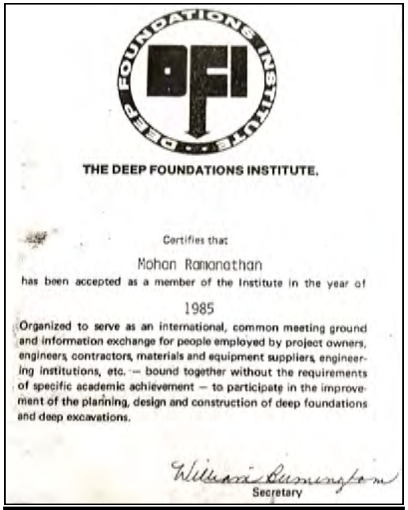
DEEP FOUNDATIONS INSTITUTE OF INDIA

Non-profit company registered under Ministry of Company Affairs, Government of India (Regn. No:U91900TN2013NPL091176)
44/17 'BHASKARA', 19 Usha Street,
Dr. Seethapathy Nagar, Velachery, Chennai, Tamil Nadu, India.
www.dfi-india.org Email: dfiindiaoffice@gmail.com

My journey with DFI Family

-Mr. Mohan Ramanathan

Based on my experience of over 45 years as a foundation consultant (in addition to my academic responsibilities at IIT Madras and IIT Delhi), I would like to share my views about improvements needed in most of the current practices in the area of Geotechnical and Foundation Engineering in India. There is much scope for improvement with regard to Geotechnical Investigations which forms the basis for the design of foundations, earth retaining structures, underground metro stations, etc.



THE DEEP FOUNDATIONS INSTITUTE.

Certifies that

Mohan Ramanathan

has been accepted as a member of the Institute in the year of

1985

Organized to serve as an international, common meeting ground and information exchange for people employed by project owners, engineers, contractors, materials and equipment suppliers, engineering institutions, etc. — bound together without the requirements of specific academic achievement — to participate in the improvement of the planning, design and construction of deep foundations and deep excavations.

Secretary

Mr. Mohan Ramanathan's DFI membership certificate from 1985

It is nice to recall my innings with DFI family and share this with DFI of India fraternity. I first became a member in the 80s when I returned to India and started a Driven Piling Business in my father's construction business. I had just graduated from the University of Illinois, Urbana Champaign, and returned to India to join the family business. When I started a business in Piling, I found that DFI was a good platform to learn many things connected with geotechnical engineering and construction. I became an Individual member in 1985 and been a member since then until now. I soon realised that this is the only platform in the world that brings all the stakeholders under one roof, i.e. the Owners, Contractors, Consultants, Manufacturers of equipment, Materials suppliers and Academia.

Mr. Mohan Ramanathan
-Managing Director, Advanced Construction Technologies (P) Ltd, Chennai

DFI conferences are very educative and it's like continuing education for practicing engineers. I have attended several of these annual conferences in the US and India and many of the smaller workshops in specified fields. DFI has almost 20 subcommittees with each one of them working for advancements in different specialized areas of geo foundation industry. It's like having individual classes if you attend any of these workshops by the subcommittees. I had the opportunity to sit in some of these Sub Committee meetings and found the deliberations to be world-class and educative. I also attend a recent 2 day DFI event in Cincinnati, Ohio, USA on Helical Screw Piles, just to learn more about

Contd.

this new piling technology. By attending this event, I have gained enormous knowledge and networked with giants in the business. I also met Dr. Howard Perko, the Father of Helical Piles who even gifted a copy of his book, autographed. Such contacts can happen only in DFI conferences.

I also have a secret passion for personally meeting stalwarts in the Geotechnical field, just to shake hands and photographed with them. DFI conferences are a great platform for fulfilling this passion. I have met several greats like Prof. Bengt Fellenius, Dr. Brengt Broms to name a few.

When the idea of starting DFI India chapter under the leadership of Dr. K. S. Ramakrishnan and other veterans of the Indian deep foundation industry came up, I felt elated to get associated with this team by remaining part of its Executive Committee. I have a big hope that DFII can replicate the success of the US body in advancing Indian deep foundation industry with good work practices, new technologies, skill programs. After close to 10 years stint, I am happy to see the steady progress of DFI India chapter by taking up multiple activities. Its conference/workshop/seminar programs earned a name for their rich content, deliverables by global experts on technology strides and case studies at the international level that provide food for thought for Indian professionals. Therefore, DFII is able to garner support and a good response from all stakeholders in India.

DFII took a bold step to set up a full-time office commencing from 2018 for driving implementation of new technologies, skill programs and it is laudable that DFI leadership approved this proposal at first instance, when it was forwarded to them. DFII 4-member team has done a commendable job during the last two-year period by achieving significant progress on DFII's first technology initiative in India, i.e. CFA trail pile project and in developing first skill program, i.e. 3-month lab technician program. It is heartening to note that we have four committees in place comprising of Indian and global experts as members, and they are offering yeoman services in advancing geo foundation industry practices in India. I feel pride in chairing one committee for the development of hydraulic piling rig operator training program.

Mr. Mohan Ramanathan with Dr. Howard Perko in Cincinnati,USA in 2019

I foresee the scope for more committees working on many other new technologies, skills programs in the years ahead for achieving the DFII mission of elevating the Indian geo foundation industry comparable to global best.

I personally have been trying to learn about the Helical Screw Piles and wondered why it never reached India. There are only three countries in the world namely the United States of America, Canada, and Australia, where the helical screw piles are very popular, and they have their practicing codes. There are other countries also who are using helical screw piles occasionally, but in India, there is no code and there is no practice of helical piles. It will be surprising to know that there are helical pile manufacturers in India who fabricate them to designs and quality standards of the USA or Australia and export them 100%.

Contd.

These manufacturers are readily available for us if we are to bring helical screw piles in India. I volunteer my services to set up another committee driving implementation of this technology in India and well-wishers and Indian geo foundation industry professionals will soon hear good news in this direction.

Another important point worth mentioning here is DFI's archives for technical papers can be tapped for learning and there is an online library **'onemine.com**' which can be very useful for academia and practicing engineers. I strongly recommend that you all go through this host of collected papers and it's available for free for DFI members. I personally tap this library, whenever the need arises.

I welcome more Indian Geo foundation industry professionals to join the DFI India family, take active part of all its initiatives to grow professionally and in tapping business prospects through networking.

ITS Money Webinar

June 3, 2020

Online

This series of three webinars, brought to you by DFI's Testing & Evaluation Committee, demonstrate how foundation testing conducted during the design phase can provide data that optimizes foundation designs and construction procedures, thereby SAVING MONEY while increasing the quality of the constructed foundation.

The webinars are taking place on the following dates from 11:00 a.m. – 12:30 p.m. EST:

June 3
August 5

DFI Members can **attend the webinars for FREE**. Non-Members pay a nominal fee which includes DFI Individual Membership through December 31, 2021. All must register to attend. To receive a PDH certificate, attendees must register independently and login and view the webinar for the duration of the event. Partial hours will be provided dependent on your participation.

For more details visit http://www.dfi.org/dfieventlp.asp?13413

DFII Director of Operations - Message

-Mr. G. Venkata Prasad

Mr. G Venkata Prasad

At the onset, I sincerely wish that the world at large come out of coronavirus pandemic issue which has drawn much of global attention over the last three-month time. We know that different businesses will face the brunt in a very serious manner in days to come, however, we have to be optimistic that this pausing moment enables us to have a paradigm shift in our actions in handling climate change and other burning issues.

While coronavirus will impact construction industry in India too in the future ahead, it is also besieged with one problem or another for many years affecting its productivity. We all need to act united in addressing these issues by adopting global best practices.

I had an opportunity to attend DFI winter planning meet (WPM) held at San Diego between 19th to 21st Feb'20.

It is a practice for DFI leadership (Trustees, Committee Chairs, DFI staff, regional chapters representatives) to meet annually once over 3 days period to discuss the current status of DFI affairs and way forward. This is to achieve continuous improvement of their existing systems and offerings.

WPM Feb'20 strategic planning sessions

It was aimed at identifying 2020-2024 strategic plan initiatives that would strengthen and Improve the **DFI Community**. Five target areas have been identified for exploration of means and methods to support the strategic plan. The areas include:

- Technical Committees
- Media
- Events
- Outreach
- Membership

DFI Leadership - WPM 2020

At the Winter Planning meeting, a series of alternating breakout and group summary sessions were organized to:

1. **Define the current situation in detail** – what's going on?
2. **Identify how the current situation will change by 2024 –** what should we be doing?
3. **Develop an execution plan** – how are we going to Strengthen and Improve the DFI Community in each of these targeted areas?

Contd.

Modus Operandi

The DFI trustees and Chairs of various committees totalling to **around 40** were divided into break out groups (8-member team) and each of them was assigned one of the 5 target areas for exploration and discussions. Each of the breakout events is designed to identify ideas, opportunities, and actions concerning each of the phases identified above:

- What is the current situation or status?
- How would things likely change in the next 5 years?
- What can the DFI do to prepare or lead such change?

There is a separate 10-member team comprising of DFI staff/others who go around the respective teams with the objective of moderating the discussions. I was one among this 10-member team. The final objective for the breakout sessions was to identify the 2 or 3 best ideas (relevant, executable, beneficial) within each target area for the DFI or Committees to pursue within the Strategic Plan to strengthen and improve the DFI community.

The discussions over **two-day period (19th and 20th)** were aimed at developing an executable plan within each of the target areas (tasks/ activities, timeline, responsible parties) to achieve the goals of the Strategic Plan.

- Timetable for plan document development
- Metrics for monitoring and evaluating progress annually
- Sections in plan for annual changes/assessment
- Deployment of plan/announcement to membership

BOT meeting

3rd day was allocated for Board of Trustees meeting, wherein

- Presidential address was made at the beginning
- 3 regional chapters reports were presented by representatives from DFI Europe, DFI Middle East, and DFI India chapters.
- Presentations by Executive Director, Technical Director, Director of Programs were made.
- Treasurer report, report on Governance, and educational trust update also have been presented.

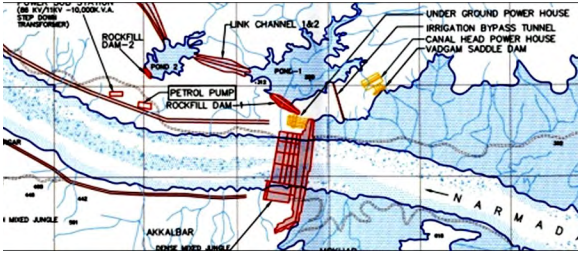
On behalf of DFI India, I made a presentation on DFII initiatives, financials, and our efforts were well appreciated by BOT and other esteemed DFI members and they reaffirmed their continuing support for the success of DFII.

DFII is putting formidable efforts to expand the **DFII community** in India region, and it is thankful to 18 member EC committee, different committees' members, other well-wishers for their support to grow this popular institute to serve Indian geo foundation industry interests. It is also entering alliances with organisations like Indian Geotechnical Society (IGS), National Academy of Construction (NAC) Infrastructure Equipment Skill Council (IESC) for making use of their organisational strengths in implementing multiple programs that will benefit Indian Geo Foundation Industry at large.

How Foundation Expolration Effects Project Planning, Construction and Life of Superstructure

-Mr. Vivek P. Kapadia, Narmada, water Resources, Water Supply and Kalpasar Department

A Very Complicated Project Executed Exemplarily Well - The Sardar Sarovar Dam Project

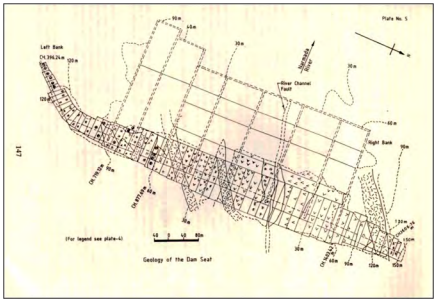


Overview of the Project

The Sardar Sarovar Project - multipurpose river valley project across River Narmada in Gujarat State located near village Navagam in Bharuch district. It has Culturable command area of 1.8 million hectare and a Gross storage capacity of 7.70 Million Acre Feet at full reservoir level at EL 138.68 m

Overview of Project Planning

The dam is a 1210 m long, 128 m high (average) mass concrete gravity structure involving placement of about 6.82 million m^3 of pre-cooled concrete. It has a mild curvature in plan having radius of 7600 m. The mild curvature results into a difference of 0.2 to 0.4 m at foundation between length at extrados and at intrados of all monoliths of the non-overflow dam, power dam and spillway. It has Service spillway with 23 gates in the river bed and an auxiliary spillway with 7 gates on left flank adjoining the service spillway. Radial crest gates are provided for the spillway for regulating floods. For the service spillway, size of gate is 18.30 m (w) X 16.76 m (h) and for auxiliary spillway size of gate is 18.30 m (w) x 18.30 m (h) to facilitate independent operation of the service spillway first.

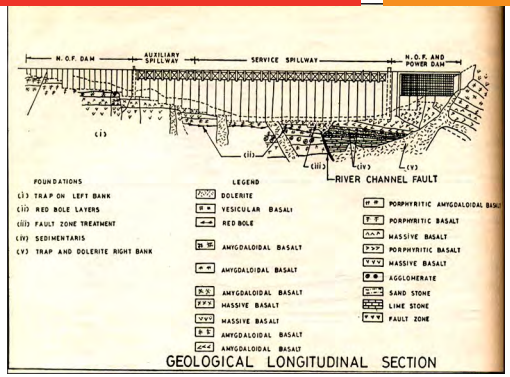


Major Geological Problem

Geological investigations showed different lava flows of Deccan trap and dolerite dykes had formed the foundation of the dam. Deccan trap flows consisted primarily of tholeiitic basalts ranging from massive, porphyritic, amygdaloidal and vesicular with flows illustrating their individual characteristics influenced by rate of cooling. Left bank comprises eight lava flows of Deccan traps. The right bank comprises five lava flows of Deccan traps underlain by sedimentaries , Lava flows on right bank are not continuous with those outcropping on left bank because of river channel fault.

Contd.

Discontinuity of lava flows and sedimentaries from one bank to the other and occurrence of crushed calcined and weathered trap as revealed by 30 exploratory drill holes, 19 vertical and 11 inclined, aggregating to a total length of 3262 m established a fault along fair weather river channel. A 0.91 m diameter calyx hole was drilled in the year 1966-67 to a depth of 36 m into the fault zone to enable visual inspection. When the fault was exposed in river channel it was found to be 5 to 7 m wide. The fault was of reverse type footwall block forming the left bank. Material obtained in fault zone was consolidated gritty material and resembled to weathered or soft rock.



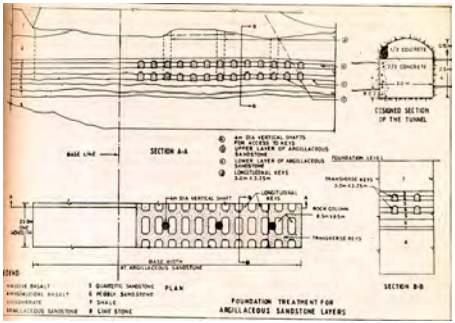
GEOLOGICAL LONGITUDINAL SECTION

Probable Effect of Major Geological Problem

- Bharuch earthquake of 23rd March 1970 – 5.4 Richter Scale
- River bed fault was local and limited on either side surrounded by relatively younger faults
- Generally, a seismic event has two aspects, viz. vibration due to shock and physical relative movements along the fault plane
- Design to withstand vibrations was carried out for an earthquake factor of 0.125 g.

Treatment

Treatment of the fault zone consisted excavation of trench to remove fault zone material, sheared rock adjoining fault zone and some rock on the hanging wall side to required depth and backfilling it with mass concrete of suitable strength.Central Water and Power Research Station (CWPRS) carried out photo-elastic studies for determining depth of plug required to be provided for treatment of the fault zone. Excavation was carried out up to EL (-)16.5 m at upstream end and EL (-)6.5 m at downstream end. The trench was extended by 10 m beyond the heel and 20 m beyond the toe. Concrete plug was provided below five monoliths as the fault traverses in a skew direction from upstream to downstream. An inspection cum drainage gallery of size 1.5 m X 2.3 m at EL +4.0 m was provided in concrete plug for fault with its alignment parallel to strike direction of fault zone. This gallery location was to facilitate instrumentation, drainage of foundation and inspection. Hammock reinforcement consisting of two layers of 36 mm dia high yield strength deformed steel bars @ 250 mm c/c parallel to dam axis in one direction and parallel to strike of fault in other direction has been provided in order to provide safeguard against settlement/displacement either due to local weak pocket or heavy stress concentration or unequal settlement which may result in tension in plug.



Contd.

Comprehensive scheme of instrumentation for concrete plug has been evolved in consultation with CWPRS which consists of embedding instruments ranging from stress meters, strain meters, joint meters, uplift pressure cells, inverted pendulum and extensometers in different locations to obtain data for monitoring performance of fault zone concrete plug. One red bole layer and two layers of argillaceous Sandstone were identified that required treatment to ensure adequate shear resistant through foundation. Weak layers of argillaceous sandstone were encountered below foundation rock on right bank side and one red bole layer was encountered on left bank side of deep river channel. Stability calculations had shown that the dam was not satisfying criteria as laid down in Indian Standard Code for design of solid gravity dams in connection with factor of safety against sliding. To achieve the desired factor of safety against sliding it was necessary to provide suitable system of concrete shear keys both for treatment of argillaceous sandstone layers on right bank and red bole layer on left bank. Treatment carried out was on similar lines provided on the Itaipu Project in Brazil. The treatment covered the area by providing a grid of concrete shear keys parallel and perpendicular to the axis of dam along the argillaceous sandstone layers and rod bole layer. Each shear key, longitudinal as well as transverse were 3m wide. The treatment consisted of a grid of minimum 10 shear keys or more parallel and two shear keys perpendicular to the axis of the dam as per the design requirements. Average thickness of argillaceous sandstone was about *2.5* m for both the layers. The shear key was 4.5 m 2.5 m + 2 m) in height. Complete treatment was provided by using concrete in 2/3 height of the keys and colcrete in the remaining 1/3 height in the crown. With this method, satisfactory concrete-rock contact was achieved. For the two argillaceous layers at different levels, one of the issues was to decide regarding the location of the upper layer grid with respect to the layer of the lower level grid, i.e. whether to have the upper grid located exactly vertically above the lower layer or alternatively to stagger the upper and the lower grids. Foundation treatment was carried out in consultation with Dam Design Review Panel (DDRP) Members, CW&PRS, Pune, CWC and Geological Survey of India. Functioning of River Bed Hydro Power was ensured to be flawless by the said foundation treatment along with the safety of the dam.

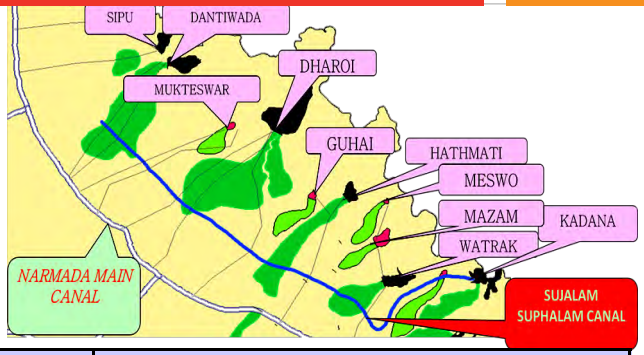
Sardar Mansarovar Dam on Narmada river

Contd.

A Very Simple Project Executed Simplistically - Sujalam Sufalam Canal

Introduction

- Length – 337 Km
- Estimated Cost – Rs. 458.5 Crore
- Estimated Duration – 2 years (From 2004)
- Spreading channel – simplest work, mostly excavation
- No. of Structures – 373
- Geological reports, a few trial pits, etc.



Increase In Quantity And Cost Of Structure

Chainage	AA		RAA		Enhancement in Rquirement
	Nos	Amount Rs. in Crore	Nos	Amount Rs. in Crore	
0.00 to 27.00 K.M.	34	27.29	66	85.85	Dsy - 2 increased to 31 Escape - 3
27.00 to 74.00 K.M.	69	26.74	93	81.58	Dsy - 5 increased to 31 Escape - 4
74.00 to 119.00 K.M.	53	27.04	93	71.92	DSY-2 increased 23 Escape-5 VRB/MDRB-25 increased to 30 Inlet - 3 increased to 16
119.00 to 158.00 K.M.	53	31.11	69	67.24	DSY-1 increased to 8 Escape-5
158.00 to 228.00 K.M.	79	52.1	127	102.53	DSY-8 increased to 10 VRB/MDRB-7 increased to 10 Escape-6
228.00 to 274.00 K.M.	31	37.16	105	59.13	
274.00 to 337.00 K.M.	47	18.94	65	54.09	VRB/MDRB- NHRB-Inlet
Railway Crossing	7	4.4	7	23.55	
Total	**373**	**224.78**	**625**	**545.89**	

Contd.

Increase in Overall Cost

Details	Amount of Original AA in Crore	Amount of Revised AA in Crore	Difference
A- Preliminary	1.11	2.18	1.07
B- Land	17.8	35.49	17.69
C- Works -Earth Work	161.78	278.66	116.88
Structures Including lining and Railway Crossing	225.58	545.63	320.05
K- Building	0.27	1.28	1.01
M-Plantation	0.25	0.25	0
O-Miscellaneous	0.24	0.25	0.01
P-Maintenances	0.33	2.71	2.38
Q-Special Tools and Plants	0.66	0.91	0.25
R- Communication	0.5	0.5	0
Distribution	49.98	43.33	-6.65
Total	**458.5**	**911.19**	**452.69**

Sardar Mansarovar Dam on Narmada river

Lessons

- Spending money and time on investigation assures the functional performance and long life .
- Not spending money and time on investigation – foundation, hydrology and hydraulics - costs manifold to the project
- Same organization in both the projects – attitudes different and the outcome as well
- Every engineering activity is important and should be done in right spirit – investigation, design, material selection, construction, quality control, etc.

DFII Committee for Geotechnical Characterisation of Foundation (DCGCF) - Progress Update

- DFII is working with National Academy of Construction, Hyderabad to introduce 3-months course on Soil Investigation Laboratory Technician.
- Course curriculum is finalized by 10 member committee and draft course material is prepared.
- DFII and NAC approached National Skill Development Corporation (NSDC) & Construction Skill Development Council (CSDC) to include this as NSDC approved job role to have a pan India Implementation.
- CSDC wants to ascertain employability of such trained technicians, and asked for Validations from Industry. DFII is giving appropriate replies.
- NAC has identified lab equipment to be procured, and in talks with equipment manufacturers to procure it.
- DFII is developing a plan for Geotechnical Field Supervisors training program. A sub-committee has been formed.
- DFII is also working on implementing good work practices, standardising tender process. DFII is in contact with major govt. and private owner companies to give due importance to good practices.

DFII CFA Pile Technology Implementation - Progress Update

- DFII CFA trial Piles testing was completed during Nov'2019.
- All tests revealed that ultimate capacities are 15% to 20% higher than the estimated capacities.
- While this is a very positive outcome of our trials, an upward revision of design input parameters may be recommended only after more pile load tests in the future.
- DFII's CFA Technology Implementation Committee has prepared a manual about the design and Construction, installation, load testing results of CFA piles.
- CFA pile guidelines document is under preparation. These documents will be soon circulated to all major stakeholders for facilitating adoption of this technology in India.
- For more information about the DFII CFA pile load test, read the January 2020 DFI of India eNewsletter http://www.dfi.org/update/DFI%20India%20News%20Jan%202020.pdf

DFII Student Initiative - Progress Update

- DFII is planning to launch Student initiative program which will have several opportunities for students to learn more about the types of careers available in the deep foundations industry, create professional relationships with leaders in your chosen field, and gain exposure to current technologies and practices so you can get your career off to a strong start. Few of the benefits to students are:
    - Free DFI Student Membership for Geotechnical students
    - Future Leader Program: Industry interaction, Internship and employment opportunities
    - Free Onemine.org access for unlimited technical paper and journals
    - Student Chapters and Paper Competitions

Upcoming DFI Events*

Conference Overview

Join us for the DFI of India's (DFII) 10th Anniversary Conference. This conference series on Deep Foundation Technologies for Infrastructure Development in India has been held in various cities across India these last 10 years and this year we are pleased to be returning to the Indian Institute of Technology Madras (IIT Madras), Chennai, Tamil Nadu, India on November 19-21,2020.

Come celebrate our 10 years of progress and the future of the Indian construction industry as we work together to advance our knowledge and implement it into our daily practice.

View Call For Abstract here http://www.dfi.org/update/FINAL%20CFA%20DFI-India2020%20v3.pdf

DFII 10th Anniversary Conference - 2020*

Conference Registration Fee

3-day Conference	INR
DFI Member	8,000
IGS and IGSCC Member (includes DFI membership through Dec. 31, 2021)**	9,700
Non-Member (includes DFI membership through Dec. 31, 2021)**	10,200
Student	4,500
Spouses	3,500

Author discount

One author per paper can avail a discount of INR 1000 on all the categories above. Multiple discounts are not allowed.

Add INR 500 to each category of on-site registration

**membership effective after the conference

Delegate registration closes on 14 November 2020.

Consider sponsoring this prestigious conference to gain exposure for your company, product and services; make contacts and build relationships; and understand the trends and technique that are shaping the industry.

Explore the various sponsorship options here http://www.dfi.org/update/DFIIndia2020Brochure-A4-W.pdf

Questions?

Contact - Mr. Mohamed Athif, DFI of India, Phone: +91 8870130850

Email: mma@dfi-india.org, Website: www.dfi.org/India2020

The executive committee members of DFI of India represent all the stakeholders in the foundation research, design and construction. The members will express their views about the role of DFI and other similar organizations in the development and transfer of modern technology for infrastructure development of India

DFI 45th Annual Conference on Deep Foundations*

October 13 - 16,2020

Gaylord National Resort & Convention Center National Harbor, Maryland, USA

Join us for DFI's 45th Annual Conference on Deep Foundations (#DFI45) at the Gaylord National Resort & Convention Center. The theme is People. Purpose. Passion. This conference will showcase a profession at the top of its game, highlighting the hard work, passion, connections, technologies and professionalism that drive the deep foundations industry worldwide. For more information please visit www.dfi.org/annual2020

Registration is open.
Phone: (973) 423-4030

***COVID-19 (coronavirus) Update**
We at DFI recognize the concern the current coronavirus outbreak is generating. As a result, we are actively monitoring the recommendations from the World Health Organization (WHO), the US Centers for Disease Control and Prevention (CDC), and the health authorities of those countries in which we are scheduled to have conferences and other activities. DFI will continue to monitor the situation and will keep you updated on the status of our events.

Event	SuperPile '20	S3: Slopes, Slides and Stabilization	International Symposium for Offshore Geotechnics	45th Annual Conference on Deep Foundations	DFI India 2020 - 10th Anniversary Conference	DFI-PFSF Piling & Ground Improvement Conference
Date	June 18-19, 2020	August 4-6, 2020	August 16-19, 2020	October 13-16, 2020	November 19-21, 2020	March 10-12, 2021
Venue	Virtual Conference	San Francisco, California	Austin, Texas	National Harbor, Maryland	Chennai, Tamil Nadu, India	Sydney, Australia

DFI India members - 2020

Corporate Members

AECOM India Pvt. Ltd. - Class IV

Kumar Pitchumani
M Jeevan Reddy
Deepak Ganesh K
S Parimala
S Muthu Ganesh
Venkata Nagaraju N
Anjana Kadni
Buddha Varma N
Gouri Krishna
Gayathri MS
Sandeep Pattnaik
Dillip Panda
Ankit Kachhal
Sareem Sandeed
Manish Kumar Agrahari
Himanshu Sharma

IRB Infrastructure Developers Ltd. - Class IV

M L Gupta
Rajpaul Sharma
Jaiprakash Nandi
Ram Prakash
Jayker Mehta
Abraham Varghese
Mehul Pandya
Prashant Dongre
K Bhaskaran
Sushil Pandey
Sachin Satre
Venkatesh Babu
Vijay Madankar

Afcons Infrastructure Ltd. - Class IV

Basarkar S Sunil
Anandani Jiten
Joshi Sarita Giridhar Rajagopalan
Gupta Anil Kumar
R Anantakumar
Rajbhoj Shashank
Chandrakant Vikas R
Raje Mihir
Valiveti Ramamurty
Bansod Prakash
Javalikar Gokul
Patil Avinash
Laxman Patil Shailesh
K S Aditya
Honey Rohit

L&T - Class IV

Jeyson J Samuel
S N Rajan
A Vetriselvan
K V Sivannarayana
Kondapalli Bairagi
Surath Shilpa
Visagan
Mangal Sandeep G
M Kumaran
Kanappan Subbaiya
Purantharan
V Dhamodar
Chinta B V K Mohan
P Sivaprasad
V Jaya Pragash
B Sivarama Sarma

Keller Ground Engineering India Pvt. Ltd.- Class III

Y Hari Krishna
Ramadas Vvs
Madan Kr Annam
Vimala C
Sangeen Naik
Govind Raj
Saday Kumar Misra
Arun Kumar S
PVSR Prasad
Sridhar Valluri
Jai Sai Krishna
Mehul Vats

General Individual Members

Mohan Ramanathan - Advanced Construction Technologies Pvt Ltd
K S Rama Krishna - DFII
I V Anirudhan - Geotechnical Solutions
Ghananeel Molankar - Liebherr India Pvt Ltd
Nirav Modi - Spectrum Techno Consultants Pvt Ltd
K Beema Narayanasamy - Time Institute For Materials Testing

Corresponding Individual Members - Conference 2019

Lakshmana Mantri - Afcons Infrastruture Limited
Boris Even - Arcelor Mittal
Amruta Vijayan - Arcelor Mittal
Shreedhar Revankar - Basf India Limited
Rishi Agarwal - Cera
Rajiv Pandey - DSI-Bridgecon India Private Limited
Sanjoy Bhowmik - Engineers India Limited
Vijay Panwar - Engineers India Limited
Anurag Sinha - Engineers India Limited
Kiran Pujari - Esc Group
Harish Indukuri - Fouge
Nidhin Madhu - Geo Foundations And Structures Pvt Ltd
Gurrammahesh Choudary - L&T Construction
Jinu Jacob - L&T Construction
Siva Patnala - L&T Construction
Venkata Sambasivarao Kancharla - L&T Construction
Rahul Vaidya - L&T Construction
Pankaj Dhawale - L&T Construction, Chennai
Pankaj Kumar - Panasia Project Consultancy Pvt
Naveen Kallam - Radise India Pvt ltd
Alekhya Kiran - Radise India Pvt ltd
Reshma Illuri - Radise India Pvt ltd
Lyric Gupta - Radise India Pvt Ltd
Depa Niranjani - Roads & Buildings Department
Pratap Patlolla - Roads And Buildings Department
Manilal Gupta - Sarathy Geotech & Engineering Services
Kiran N - Sarathy Geotech & Engineering Services
V Ravi Raju - Saritha Infra & Geostructures
Animesh Pandey - SMEC
T G Bhaskar - T & G Consultants
Srinunaik Banavathu - Tata Projects Ltd
N Ramakrishna Raju - Tata Projects Ltd
C R Eswara Prasad - Tata Projects Ltd
Dimpu Chindappa - Tensar Geosynthetics India Pvt ltd
Brahmareddy D - TSTRANSCO
Suresh K - TSTRANSCO
Rambabu Tadepalli - UR Groung Engineering Pvt Ltd

Contd.

Corresponding Individual Members

Prasath Rajan - Pavai Infra Geotech
Srinivas Yadugani - Vatsal Con Pvt Ltd
Praveen Arumughan - Radise International
Amol Shewale - Anandjiwala Technical Consultancy
Kanniappan Ilamparuthi - Anna University
Narayan Agrawal - Rvr Projects Pvt Ltd
Amol Shingarey - Geotech Services
Kamlesh Kumar Mishra - Paras Overseas
Keshav Agarawal - Paras Overseas
Boominathan A - IIT Madras
Kotamarty Hanumanulu - Saritha Infra & Geostructures
Vijayakumar Levin Daniel - Harii Infra Services
Manos De - Tata Consulting Engineers Ltd
Chandramohan Pattuparambil - Navayuga Engineering Company Ltd
Abhishek Bhosale - Reliance Industries Ltd
Venkata Prasad G - Deep Foundations Institute Of India
Vidya Sagar Kongubangaram - WS Atkins
Manohar Pakade - National Highway Division
Nehal Desai - Unique Engineering Testing & Advisory Services
Ramesh NJL - Ashhirwaad Analytical Laboratory
Ravikiran Vaidya - Geo Dynamics
Bhiva Parab - Royal Haskoning Dhv
Subramanian Ramanathan - National Institute Of Ocean Technology
Tadepalli Satya Murthy - Singa Engineerings And Trading
Sanjay Dave - Hincon House
Sudhir Kumar - Aarvee Associates
Jayakumar Shukla - Geo Dynamics
Arun B - Royal Haskoning DHV
Vidyaranya Bandi - Bauer
Pavan Kumar PVSN - Guru Nanak Institutions

Corporate Individuals

Chiranjib Sarkar - AECOM

Govt. Individuals

Sanjeeva G - Panchayat Raj Engineering Dept
Venkateshwarlu Godolla - Panchayat Raj Engineering Dept
Dhanya J S - IIT Madras
K Ranga Swamy - NIT Calicut
Vikas Kumar - Madan Mohan Malaviya University of Technology, Gorakhpur
Tripathy Lakshmi Kanta
Venkata Subrahmanyam Dronamraju - Railway Vikas Nigam Limited
Akshay Kumar Jha - South Central Railway

For any membership related enquiry or query
Contact: Mr. TS Mahendran
Mobile: 9710222444
E-mail: dfiindiaoffice@gmail.com

One page is allotted for the Corporate Members of DFI of India to showcase its capability in the field.
Please contact DFI of India at dfiindiaoffice@gmail.com for including your company profile.
This is more than an advertisement since it carries your mission statement.

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

DFI 46th Annual Conference on Deep Foundations

October 12 - 15,2021

MGM Grand
Las Vegas, Nevada, USA

Join us for our 46th Annual Conference on Deep Foundations in Las Vegas, Nevada, 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. Attend special lectures featuring our world-renowned keynote speakers, share experiences and lessons learned and discuss the advancements and innovations in the state-of-practice, research, materials and equipment.

This e-newsletter of DFI of India is available at http://dfi.org/enews.asp?india

Editorial team: Mr. Pranav Jha, Mr. Mohamed Athif & Mr. G V Prasad