

DFI of India



Dr. K.S. Rama Krishna
Chair, DFI of India

At the outset, I would like to thank Dan Brown, Ph.D., P.E., D.GE, DFI president, for conferring a 2017 DFI President's Award to me in recognition of my humble services to the Deep Foundations Institute. I would like to dedicate this award to all those at DFI and in India who have devoted their time and efforts to wholeheartedly support the initiatives we have undertaken in India. The work has just begun, and we must

ensure that we persist with our efforts in realizing the goals we have set to make the deep foundations industry in India very professional and on par with the best in the world.

DFI of India Office

In December 2017, we formally established a full-time office for DFI of India with a three-member team including a director of operations, executive assistant, and accounts and administration executive.



Left to Right: Prasad, Athif and Mahendran

G. Venkata Prasad is the director of operations and is handling the affairs of DFI of India. He has more than three decades of experience in construction in India and has worked in senior management positions at Larsen & Toubro (L&T) handling multiple and challenging assignments. He has a passion for analysing the complexities of the construction industry at the micro level by collecting extensive data, and in finding apt solutions to enhance the professionalism and productivity of the industry.

M. Mohamed Athif is the executive assistant to the director of operations. He has a post-graduate degree in advanced construction management from the National Institute of Construction Management and Research (NICMAR) in Pune, which is a premier institute in India. Athif has four years of experience with reputed construction companies in India.

Prasad and Athif are joined by T.S. Mahendran, accounts and administration executive.

Opportunities in India

Under the dynamic leadership of the current Prime Minister of India, the Indian government is introducing major reforms that will serve as incentives to the Indian economy. India began witnessing a phenomenal spurt in infrastructure projects during the previous one to two decades, which is providing significant potential for growth in the construction industry. The construction share of Indian GDP is hovering around 8 percent, which grew steadily from about \$43 billion to \$165 billion from 2006-2007 to 2016-2017.

Here are a few examples of construction market growth:

- Since independence, India added nearly 36,700 km of highway up to 2002 (a daily average of about 1.82 km), about 6,515 km from 2002 to 2006 (a daily average of about 3.57 km), and an additional 28,800 km from 2006 to 2016 (a daily average of about 7.9 km). Furthermore, there are more highway projects currently in planning and design.
- Indian Railways (IR) Vision 2020 was presented to Parliament in December 2009. At the time of independence in 1947, IR inherited a system with nearly 54,000 km of routes. As of 2009, IR contained nearly 64,100 km of lines, having added only about 10,000 km during those 62 years. Vision 2020 proposed to add 25,000 km of new lines by 2020, which includes the completion of a backlog of about 12,000 km of lines already sanctioned.
- Catching up with urbanization trends in India, metro cities ventured into building up urban infrastructure beginning back in the early 2000s.
- In 2017, Delhi Metro commissioned a 330 km line, which will provide a lifeline to Delhi City in terms of meeting its mass transportation needs. In addition, this year, Delhi Metro announced that the fourth phase of a 106 km line (estimated cost of Rs 55,000 cr) would commence.
- Metro line development has been ongoing or in the works in Kolkata, Delhi, Mumbai, Bangalore, Hyderabad and Cochi. Following the pace for metro line development set in these areas, other cities such as Lucknow, Kanpur, Patna, Ahmedabad, Pune, Surat, Indore, Nagpur and Bhopal are following suit.

In addition to the above examples of infrastructure projects, airport expansions and green field airports in cities such as Hyderabad, Mumbai, Delhi, Bangalore and Chennai provide opportunities to the construction industry. With the pace of urbanization picking up, future potential growth for construction industry in India is expected.

Looking Ahead

Based on figures compiled by Indian Infrastructure magazine, future projects of infrastructure construction that have been lined up for implementation in the near future have a potential of \$385 billion. However, with the backdrop of several projects incurring

time and cost overruns, many contracting companies are facing severe financial strain, which may impact the performance of future construction projects. There is an urgent need to focus on building competence, skills and professionalism to handle large projects.

Formal training programs cover less than 5 percent of the Indian construction industry, as compared to 80 percent in major economies. The Indian government's strong emphasis to improve training is somewhat stalled due to the complexities of the environment and to multiple government departments handling this important subject. Private companies are also putting no or minimal efforts in training activities; therefore, the lack of training remains grim in the near future.

Time has come now for the Indian government and private organizations to work hand-in-hand to rectify the situation on urgent basis. All India Council for Technical Education (AICTE) is planning to completely revamp the syllabus of technical courses to improve the employability of students after graduation. The new syllabus will be industry oriented and would make it compulsory for the students to spend two months in any industry every year. Using this opportunity, industry also needs to step forward to provide the best orientation to budding engineers.

Our Role

The deep foundations industry is one branch of the construction industry, and it, too, is besieged with its own problems. DFI of India intends to put its earnest efforts to professionalize this part of the construction industry by undertaking the implementation of new

technology initiatives and organizing training programs to enhance the skill levels of operators, engineers and other categories of human resources.

CFA Pile Technology Initiative

Our continuous flight auger (CFA) pile technology project, funded through the DFI Committee Project Fund, is in the implementation phase. We are thankful to Nuclear Power Corporation of India Limited (NPCIL) for providing the site, support and encouragement for implementing this project at its new project site near Delhi. We have received a considerable amount of support and collaborative efforts from members of DFI as well as from DFI of India members such as I.V. Anirudhan, Dr. Sunil S. Basarkar, Dr. Kumar Pitchumani, Prof. Shailesh R. Gandhi, Y. Harikrishna, Ravikiran Vaidya, Jaykumar Shukla, Jayson Samuel, Sanjoy Chakrabarty and Dr. B.S. Siva Rama Sarma. Recently, we completed the soil investigation and site characterization, and are in the process of finalizing the pile design, installation and concrete mix design, and testing program to be able to proceed to installing and testing six CFA piles by February or March 2018. After this demonstration project, we expect to develop guidance manuals for the use of CFA piles in India.

At this time, we are soliciting additional funding and in-kind contributions from major equipment manufacturers and other stakeholders in the industry to assist with the expenses and services needed to execute this project.

Rig Operators Training

Another initiative being undertaken is drill rig operator training. We formed a committee comprising representatives from equipment manufacturers (Bauer, Soilmec and Mait), from a few major contractors and from other organizations within the industry. The objective is to develop and implement appropriate training programs to enhance skill levels of about 3,000 rig operators (target goal) in India over time.



DFI-India 2017

India Events

Since my last report, we held our third quarterly workshop and our annual conference. The workshop, "Foundations for Power Systems: Electric Transmission and Hydropower," was held in association with Indian Institute of Technology, Madras (IIT Madras) and Chennai Chapter of Indian Geotechnical Society on October 5, 2017, one day before the DFI of India annual conference at IIT Madras, Chennai. The two-day annual conference, DFI-India 2017, was held at IIT Madras, Chennai on October 6-7, 2017, in association with IIT Madras and Chennai Chapter of Indian Geotechnical Society. Participant feedback indicated that the conference met its intended purpose and was very successful.



We are excited to announce that Traxxon Foundation Equipment Ltd. has recently signed a service partner agreement with BAUER-Pileco Inc. to provide after sales parts and service for BAUER equipment throughout Western Canada.

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