



TCExpression

TATA CONSULTING ENGINEERS LIMITED

Volume 56, Issue 1 - June 2018



COLOURS
OF TATA AT
TCE

**SPECIAL
EDITION**

Editorial Team

Anindya Chatterji
Nookala Yajnavalkya
Upendra Joshi

Sandhya Singh
Shanmukha Kavya Vedam
Anudeep Srivastava

Ramasubramaniam R
D Geethalakshmi

Design Agency

Designed and Digitised by quadrum

Dear Readers,

This is a special commemorative issue dedicated to 150 years of Tata.

We at TCE are indeed proud of our parentage and look forward to contributing to the growth of the Group in the coming years. In this year of celebrations, we carry the message of pride and ownership to this illustrious name. I am happy to showcase the same in this issue of TCEexpression. We look forward to your feedback.

Mallika Sriraman

Reflections

Dear Friends,

This is a very special year for all of us as we mark the 150th anniversary of the Tata Group. Jamsetji Tata, the founder of the Tata Group, was a man who was far ahead of his times, and who in many ways continues to create history, through the legacy he has left behind, of pioneering businesses, social institutions and giving back to society. The group's journey over the past 150 years has been shaped by his philosophy that 'In a free enterprise, the community is not just another stakeholder in business, but is in fact the very purpose of its existence'.

Tata Consulting Engineers, with this prestigious lineage, has behind it about 56 years of experience in the engineering consulting business. We at TCE are indeed proud of our legacy and are thankful to the many illustrious men who shaped our destiny. Stalwarts such as Dr Sethna, Mr Moolgaonkar, both awarded India's top civilian award for their contribution to the nation, and many others, have lead TCE through our glorious days in helping shape the growth of our nation. This special edition of TCEExpression is a dedication to the glorious years and reminisces the role that TCE has played in the Tata saga.

The setting up of an engineering consultancy was by itself a pioneering event and we have through the years, worked hard to keep alive this spirit in our system. First of its kind projects have indeed been the hallmark for TCE and it continues to be so even today.

We look forward to the next 150 years, playing a greater role in impacting lives positively within and outside the Tata ecosystem. Hope you enjoy reading this special edition.

Amit Sharma
Managing Director



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Business Brief



TCE Triumphs



TCE Buzz



Project Patchwork



TCEndeavour



Colours of Tata at TCE





COLOURS OF TATA AT TCE



The 150 years of Tata is marked by a pioneering spirit and a vision for the nation. TCE is the brain-child of this pioneering spirit and has evolved as an entity in the past 56 years.

It is indeed a proud moment for TCE to have stood by in the nation-building initiative and an honour to be part of this great vision of the Tatas. Earmarking 150 years of Tata, we take a nostalgic trip down memory lane to tell our story - one so intrinsically linked to the rest of the Tata family. It is indeed One Tata and the colours of Tata seamlessly blend into TCE.


In the post independence era, the idea of engineering consultancy services was unheard of in the Indian subcontinent. There was a great deal of dependence on foreign technology, licence partners and foreign collaborations. The need for India to develop indigenous technologies was important and the favourable industrial scenario was very encouraging for Indian businesses. Energy was the need of the hour as it was the key to jumpstart growth and boost the manufacturing sectors. In this climate, the Tatas, pioneered the concept of a consulting company for the energy sector. In 1956-60 when the Trombay 62.5 MW Unit 3 project was being implemented with technology support from overseas, the idea of an indigenous engineering consultancy took roots. In April 1962, when the 150 MW Unit 4 in the Trombay power plant was planned, the birth of a consultancy firm, Tata-Ebasco, took place. This was a partnership between Ebasco Services, New York, USA and Tata Electric Companies. The idea was to design the Trombay Unit 4 in-house with limited foreign consultancy in specific areas. This was the start-up of the 60s which later became a division of Tata Sons and evolved into an entity that is TCE today. Tata-Ebasco, with an engineering team that was picked from the original team that worked on the Trombay project, went on to deliver several power projects for public utilities as well as for private enterprises. At the same time TCE started diversifying its business to other sectors with assignments from Richardson-Hindustan (now Procter & Gamble), Tata-Fison (now Rallis India), Shriram Fertilizers & Chemicals, Modi Rubber Ltd, etc. to name a few.

Carving a niche in the Energy Sector

Starting from engineering for the Trombay Unit 4 power plant, TCE has continuously engaged in power plant design & engineering and evolved as a premier consulting firm encompassing all forms of power generation (thermal, hydro, nuclear and renewable), transmission and distribution as well as in opex sectors.

The customer base in power sector expanded from domestic to global and varied from Owners to EPC contractors to Lenders, and ranging from government customers to private customers.



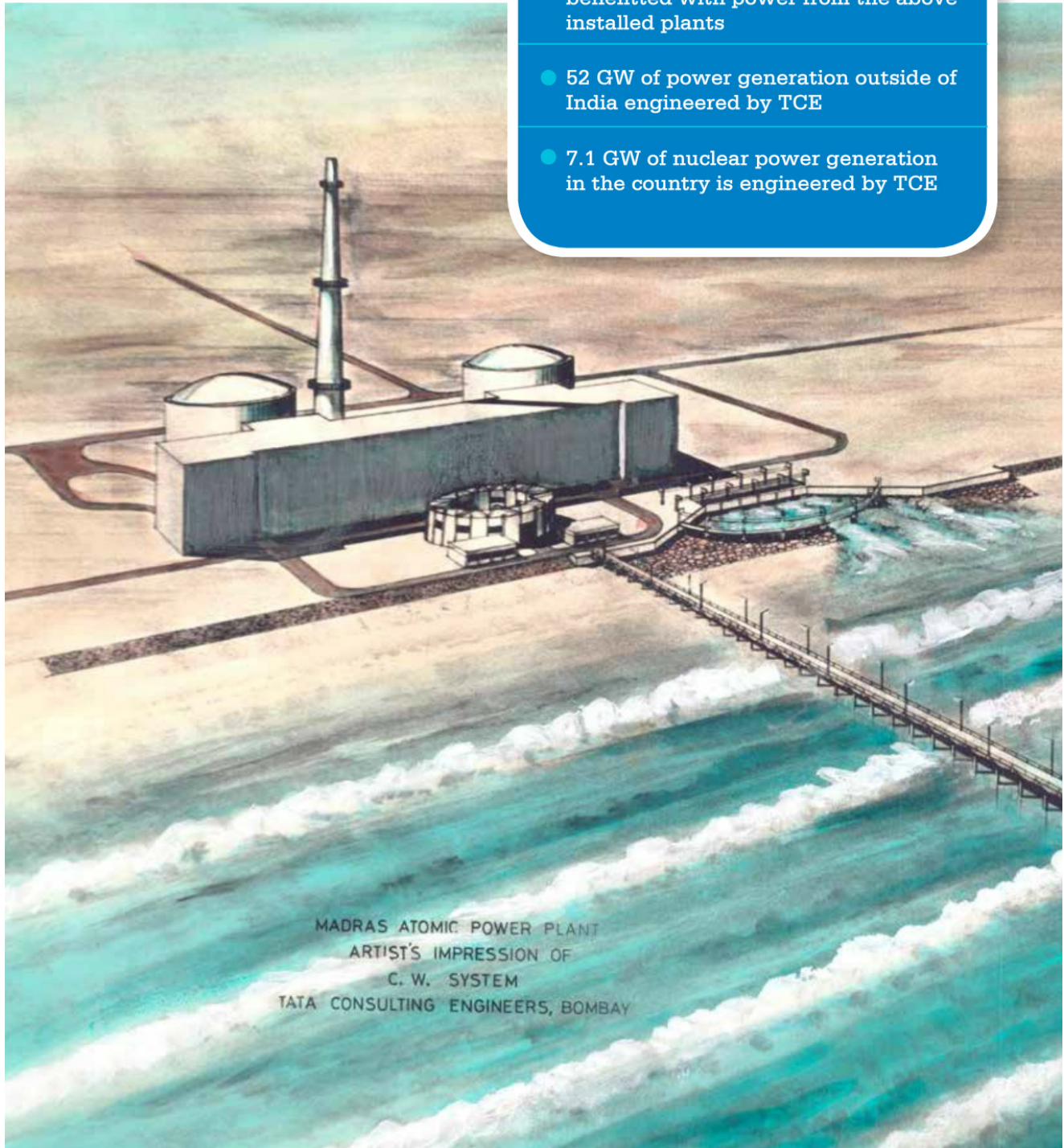


TCE supported Tata Power to install India's first of its kind power projects ranging from 150 MW to 5 x 800 MW thermal plants.



DID YOU KNOW?

- 120 GW of aggregate installed capacity is engineered by TCE
- 50 crores of people in India have benefitted with power from the above installed plants
- 52 GW of power generation outside of India engineered by TCE
- 7.1 GW of nuclear power generation in the country is engineered by TCE



MADRAS ATOMIC POWER PLANT
ARTIST'S IMPRESSION OF
C. W. SYSTEM
TATA CONSULTING ENGINEERS, BOMBAY



Nuclear energy in India

The mid 60s saw the beginning of a long standing and meaningful association with the Department of Atomic Energy (DAE), Govt. of India, which has endured to this day.

With the exclusion of India from the 1970 Nuclear Non-Proliferation Treaty, the country has powered its civilian nuclear power generation program wholly on the strength of indigenously developed technology. Public Sector Undertakings (PSUs) such as Nuclear Power Corporation of India, (Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI)), Indira Gandhi Centre for Atomic Research (IGCAR), Uranium Corporation of India (UCI), Bhabha Atomic Research Centre (BARC), and several nuclear power reactors across the country managed under the auspices of the DAE built up nuclear power generators upto 29 units as on date. These 29 units are designed with capacity of 13,620 MW, including both installed and under-construction units. Out of this, TCE's involvement to the tune of about 74% of the total nuclear power generating capacity is indeed a feat to be proud of. The relationships established in the mid 60s continue to this day. With the change in project execution philosophy adopted by nuclear power establishments, TCE has started working with EPC contractors also in recent years.

Completing the power generation and distribution cycle, TCE has engineered substations (both AIS and GIS) and transmission lines for all voltage levels from 66 kv to 765 kv in the domestic and international markets.

TCE has helped to contribute about 74% of India's nuclear energy generation.



Administrative building design for rocket launch



Being relevant after 56 years in the business

Sustenance in the business of engineering consultancy is about being relevant, getting up to speed with new technologies, new processes and new benchmarks in engineering, with particular emphasis on health, safety and the environment. There is a great responsibility today on safety and environmental sustainability. Responsible engineering is definitely the core focus for TCE.

In the mid 70s & 80s, it was more to do with embracing the revolution in information technologies for achieving technical excellence. TCE took a pioneering role from early 70s in developing computer programs to perform various analytical tasks, because such software specific to engineering consulting was not readily available. A Research & Development Group located in Bengaluru in late 70s mainly focused on the development of engineering

application programs, to facilitate computer aided design and engineering in project execution.

In the recent years, there has been a great advent in engineering design technologies and TCE has invested in globally renowned application suites and adopted 3D tools, simulation and walkthroughs to manage the engineering complexities. With expertise garnered from mid 60s till date, there has been a greater thrust into safety aspects with offerings in seismic analysis. TCE is fully conversant with seismic codes of various countries such as USA, UK, France, Germany, Algeria and Russia and has developed in-house software for dynamic analysis, which enhances the capabilities of commercially available software. Today, all projects are executed on 3D platforms. Presently, TCE is among the pioneering engineering consultants with capabilities to provide integrated Industry 4.0 solutions and Industrial Internet of Things. Increasingly, customers resort to digitalisation solutions, in the space of process engineering for their fully-automated, modernised installations. Thus, the gap between hardware and automated systems is filled in by consultants such as TCE, in order to optimise plant operations.

TCE is the only engineering consultant in the country presently doing seismic margin analysis for nuclear installations

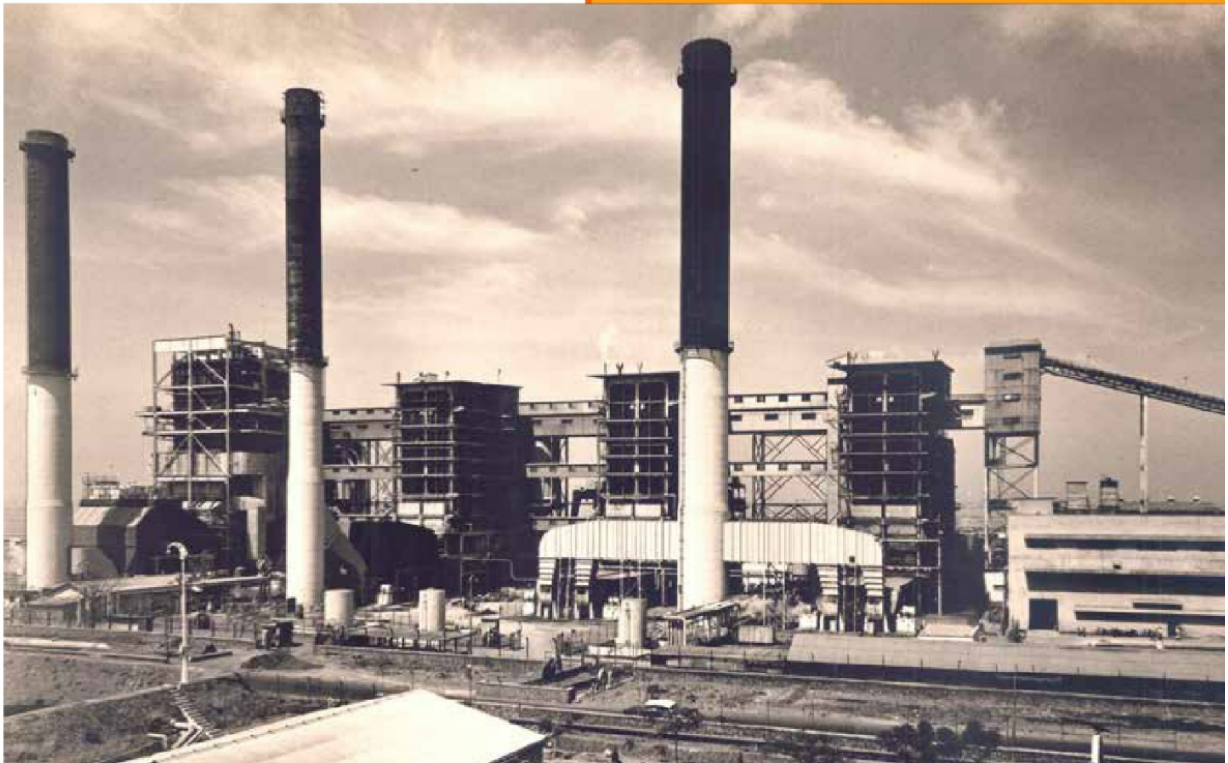
Sustainable Engineering

Different times call for different focus. Currently the focus is on clean energy. With increasing consciousness on safeguarding the environment, countries across the globe have come out with stringent regulatory measures to address climate change. The situation today calls for renewable energy generation using solar, wind, biomass and waste to energy projects and TCE is well-leveraging this opportunity. TCE is also catering to various Original Equipment Manufacturers (OEMs) in the design of foundation for wind turbine generators in line with latest regulatory requirements.

Stringent regulatory measures necessitate aging inventories of power plants to take-up modernisation and upgrades. Responding to this need, TCE's service bucket includes special services in renovation and modernisation and plant life cycle management. TCE has proved to its clients that it is possible to upgrade compliance standards by retrofitting elements to manage pollution with minimal plant down-time and capital expenditure

costs. A relevant case is that of a thermal power plant that could not be commissioned due to a regulatory fall back. TCE retrofitted a flue-gas desulphurisation (FGD) system with a unique process, which is now patented. Plant upgrade and modernisation is a challenging initiative and the key to its success is the right technology input. With simulation application in 3D, 4D and 5D, scenario-based planning is possible, making the cost of projects very manageable. This is the value-added service that TCE brings, at the end of 56 years of engineering practice!

There is a great responsibility towards safety and environmental sustainability. Responsible engineering is definitely the core focus for TCE.



TCE

- an integral part of
Tata Group's rich heritage

- S. Padmanabhan, Chairman, TCE

TCE's Past Chairmen



Dr. H N Sethna



Mr. Sumant Moolgaonkar



Mr. P M Agerwala



Mr. Syamal Gupta



Mr. Prasad R Menon



Integral to the rich heritage of the Tatas, is the success stories of many Tata companies. TCE, as an organisation has played an important role in the evolution of many of the Tata companies. TCE is indeed an amalgam of the Tata Group, as the company has evolved under the stewardship of many iconic men from Tata's pioneering organisations. Dr H N Sethna and Sumant Moolgaonkar, recipients of the Padma Vibhushan and Padma Bhushan respectively, were among the early Chairmen of the Executive Committee at TCE in its early days. Other illustrious Chairmen who contributed to TCE's success were K C Bhakle, P M Agerwala, K M Chinnapa (Vice Chairman), Syamal Gupta and Prasad Menon, who held various leadership positions in multiple Tata Companies, nurturing TCE in its evolution process. The company owes its success to these people.

Tata Consulting Engineers is an intrinsic part of the Tata Group posting continuous profits. The company certainly had its down times. However, considering the cyclical nature of the consulting business, largely dependent on the investment climate, TCE has bounced back, time and again to leap forward, adopting new technologies. In today's context, where the engineering consultancy business is going through a transformation, it is important for TCE to embark on new avenues for growth. The company is geared to Industry 4.0 solutions, the Industrial Internet of Things and new delivery models. This is the value addition and differentiator that the company brings to its customers.

"Add value to your men and value-addition to your product will take care of itself" - Mr Moolgaonkar is quoted in economist D R Pendse's book 'Giants by Any Measures: Sumant Moolgaonkar and J.R.D.'. These words of Mr. Moolgaonkar still hold relevance. TCE has the greatest congregation of engineering talent, bringing in unique skills required to manage the company's diversified offerings. TCE being a knowledge-based company, nurturing people and retraining talent will be the mantra for success, going forward.



Mr. S. Padmanabhan, Chairman, TCE

TCE has always adopted new technologies to stay relevant in changing times. This is perhaps the secret of the company's sustenance through 56 years. I envisage TCE leveraging new opportunities in India and globally. TCE has unique strengths and I will be happy to see TCE engage with the Tata fraternity. The future path for TCE lies in acquiring new opportunities and working alongside Tata Group companies to contribute to the growth of the Tata Group.

TATA CONSULTING ENGINEERS LIMITED

150 years of Tata – TCE steps in time

Tata Computer
Centre-Trombay



The Taj Mahal
Palace Hotel



Tata Iron & Steel
Company Limited
(Township)



Tata Trombay
Thermal Power
Station



Tata Steel Limited



Tata Iron & Steel
Company Limited



Tata Power
Company Limited



Tata Power
Company Limited





Tata Consultancy
Services

Videsh Sanchar Nigam
Limited now
(Tata Communications
Limited)

Tinplate
Company of
India Limited

Tata Chuo Spring

Tata
Consultancy
Services

Tata Medical Centre

Tata Yazaki
Autocomp Limited

Tata Consultancy
Services

Tata Steel Limited
(Coke Oven Steel Plant)

Sikorsky -Tata
Advanced Systems
Limited

Tata Projects Limited
(ONGC)

TATA CONSULTING ENGINEERS LIMITED

150 years of Tata – TCE steps in time

Tata Iron and Steel
Company Limited
(New Boiler)



Ginger Hotels



Rallis India Limited
(Buthachlor/
Alachlor Project)

Tata Institute of
Fundamental
Research & Giant
Metre-wave Radio
Telescope



Tata Steel CRM
BARA Phase-II



Tata Power
Company Limited



Tata Power Company
Limited (150 MW
Pumped Storage
Hydro Power Plant)

Tata Motors (FIAT Facility)



Coastal Gujarat Power Limited (4000 MW
Super Critical Thermal Power Plant)





*National Centre for
Performing Arts
(Revolving Stage)*



*Tata Chemicals
North America*



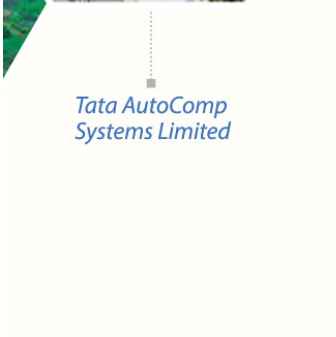
*Tata Lockheed Martin
Aerostructures Limited*



*Tata Management
Training and
Development Centre*



*Tata Boeing
Aerospace Limited*



*Tata AutoComp
Systems Limited*



*Tata Chemicals
Limited*



*Itezhi Tezhi Power
Corporation Ltd.*

TCE Buzz



*Mr. Harish Bhat, Brand Custodian, Tata Sons Ltd.
at the launch of TCE anthem*

Colours of Tata – TCE anthem inauguration

The spirit of One Tata

Tata Consulting Engineers (TCE) celebrated 150 years of Tata at TCE, by launching an anthem “Colours of Tata”. Mr. Harish Bhat, Brand Custodian, Tata Sons launched the anthem at a program held in TCE’s new office at Airoli, Mumbai. Mr Amit Sharma, MD, TCE and Mr Bhat addressed the employees. Mr Bhat appreciated the immense engineering talent within TCE and commended the pioneering projects managed by them. He also highlighted the pioneering spirit of the Tata Group and the many landmark initiatives over time. In his address he stressed on two key points that needed focus – a) The changing needs of customers and hence great attention to customer centricity and adoption of digital technologies. b) Consciousness to climate change and sustainability was also very important and this had more

relevance to TCE as engineering consultants.

Mr Bhat’s presence at the program was highly motivating for all TCE employees. The anthem was launched and employees hummed along. The song drives home the spirit of one TATA and TCE’s STEM talent available to serve

as engineering consultants. The anthem was composed and sung by an in-house team that comprised of Mr Sahadeo Raut, Mr Budhaditya Das Sharma and Ms Deepthi Gopinathan. The anthem was launched at all other locations of TCE to celebrate 150 years of Tata.

Mr. Harish Bhat described the newly launched anthem as “a wonderful and motivating song, set to elevating music.”

He conveyed his best wishes to team TCE for continued growth and prosperity.





TCE dedicates exhibition on Jamsetji Tata to celebrate 150 years of Tata

Tata Consulting Engineers sponsored the 8th edition of the Mobile Exhibition on Jamsetji Tata, in association with Tata Central Archives, Tata Services. The exhibition was held from 22nd to 25th January, at LD College of Engineering, Ahmedabad. The inauguration of the event was graced by Mr. F.N. Subedar, Tata Industries Ltd., Mr. Amit Sharma, MD, TCE and Dr Vadodaria (Principal, LD College of Engineering), and guests from other Tata companies in Ahmedabad. The launch of the exhibition commemorates the celebrations of 150 years of Tatas. The exhibition was inaugurated by Mr F.N. Subedar. Around 2000 school students visited the exhibition.



Mr. Vikram Bapat, Infrastructure BU & Mr. F.N. Subedar



(Left to right: Dr. Vadodaria, Principal, LD College of Engineering, Mr. F.N. Subedar, Tata Industries Ltd., Mr. Amit Sharma, MD, TCE.)



Road Safety Campaign

In continuation with the road safety campaign launched last year, the second phase was launched by The Tata Group to create awareness on road safety amongst all and its importance amongst all the employees and family members within the Tata group.

"Safe T", the campaign mascot endeared employees, who posted their pictures wearing seat belts, helmets along with the safety messages on the microsite. The awareness was spread through contests and interaction on the microsite.



TCE employees at the construction site display their selfies with Safe-T



TCE Triumphs



Amit Sharma receives the award

Distinguished Alumnus Award to MD, TCE

A proud moment for Tata Consulting Engineers as MD, Mr. Amit Sharma was awarded the Alumnus Distinguished Award during the Annual Convention 2017-18 held at Sardar Vallabhbhai National Institute of Technology (SVNIT) College. The awardees are leaders in their chosen fields who make significant contributions benefitting their nation, state, community and university.

Best lecture award by IWWA

TCE's Mr. Dilip Sonwane, Senior General Manager, has been honoured with the best lecture award by Indian Water Works Association during 50th annual IWWA conference held at Goa on 20th February, 2018. This felicitation is for the lecture delivered by Sonwane on "Water Loss

Management – A need for Smart City Planning" at Indian Water Works Association, Nagpur Centre. During the lecture, he spoke on the urbanization trends, infrastructure planning, source and demand side management, water leakage scenarios in Indian context, global bench marks and its relevance for smart city planning.



Mr. Dilip Sonwane, Infrastructure B.U., TCE, receiving the award for Best Lecture

BUSINESS Brief

TCE provides design engineering to cutting-edge aerospace facility for Tata Lockheed Martin Aerostructures Ltd

Tata Lockheed Martin Aerostructures Limited (TLMAL –M2M), a joint venture establishment between Tata Advance System Limited (TASL) & Lockheed Martin Limited, successfully set up a 4,700 sq.m metal-to-metal bonding and composites facility. This is a step towards cutting-edge capability to the Indian aerospace industry.

This newly established facility is a first of its kind in India, thus increasing indigenisation and enabling TASL to use this technology across manufacturing programs for complex aero structures.

The facility was inaugurated on 18th April, 2018 by Mr. Jayesh Ranjan - Principal Secretary, Government of Telangana, George Shultz- Vice President & General Manager from Lockheed Martin and Mr. Sukaran Singh, MD, TASL.

TLMAL appreciated all partners and presented mementos to all those associated with the project with special emphasis on TCE's contribution to this project.



Left to right: Mr. Schultz, TLMAL, Mr. Kedar Nivargi, Project Manager, Infrastructure, TCE, Mr. Vikram Bapat, B.U. Head, Infrastructure, TCE, Mr. Abhay Paranjape, CEO, TLMAL, Mr. Ramkrishna Kodamarti, Head of Operations, TLMAL

TCE engineered BALCO Medical Centre for cancer treatment inaugurated

The BALCO Medical Centre was inaugurated by Chhattisgarh Chief Minister Dr Raman Singh on 25th March, 2018 in Naya Raipur, the newly founded capital of Chhattisgarh. The hospital is set up by Vedanta Medical Research Foundation (VMRF) with Tata Consulting Engineers as engineering consultants. TCE involved Tata Medical Centre as knowledge partners to provide expertise to the project. Speaker of Chhattisgarh Legislative Assembly Gaurishankar Agrawal, Navin Agrawal, Chairman of Vedanta Limited, Dr. Mammen Chandi, Chairman of Tata Medical Centre Kolkata, Jyoti Agrawal, Chairperson, Vedanta Medical Research Foundation, were among several dignitaries present at the inauguration. Mr. Vikram Bapat, Infrastructure BU Head, TCE received a memento from Ms Jyoti Agarwal.

The state-of-the-art facility is a Greenfield hospital built on an area of about 50 acres. This is a totally integrated facility with TCE providing concept to commissioning services covering architecture, structural engineering, MEP engineering and Project Management Services. The 170-bedded cancer facility is in the process of LEED certification for Gold rating. The



facility is complete with rainwater harvesting, zero discharge, solar power and other sustainability features.

The building plan was made on "Safety in Design" (SiD) principles. Completely developed on 3D simulations, the virtual model was used for clash detections of all the utilities on the 3D visualization model. TCE provided design and detailed engineering for specialised hospital services (speciality hospital for cancer treatment) in procurement management and commissioning support for medical equipment, IT infrastructure and hospital management systems.



TCE in Indo-Dutch Forum on Smart & Sustainable Port Development

'Indo-Dutch Forum on Smart & Sustainable Port-led Development' was conducted on 23rd May, 2018 at Mumbai. TCE's Mr. Devdatta Bose, Senior General Manager was a delegate for the event and presented on the topic "Sustainable Port Development—with focus on Digitization of Ports for Ease of Doing Business" discussing aspects like best practices in digitization of ports, ease of doing business, cyber security, etc.

The key note address was given by H.E. Mrs. Cora Van Nieuwenhuizen, Minister of Infrastructure and Water Management, Netherlands & HON. Mr. Mansukh Mandaviya, Union Minister of State for Shipping, India. The event was also attended by eminent people of various capacities from Port of Rotterdam, Port of Amsterdam, Major Dredging firms across the globe etc.

Smart City Solutions exhibition in Guwahati

TCE participated at the Smart City exhibition held in Guwahati during the month of February 2018. At this exhibition TCE showcased its Smart City Solutions being executed through 3-D visual effects giving visitors an over view of the ongoing projects. Mr. Vikram Bapat, Infrastructure Business Unit Head interacted and highlighted various Smart City technology to Mr. Amitabh Kant - CEO Niti Aayog at the event.



Bhopal Smart City Housing Phase-1 Project inaugurated

Bhopal was nominated amongst the first 20 cities under the Smart City Redevelopment projects and Tata Consulting Engineers Ltd was appointed as the Project Development and Management consultant to provide consultancy services for preparations of smart city plan.

The first phase of the Bhopal Smart City Housing project was inaugurated by Chief Minister Shivraj Singh Chouhan at Bhopal. TCE prepared the master plan layout for the Area Based Development (ABD) of Bhopal City.



TCE provides design engineering for Tata Boeing Aerospace Limited facility in Hyderabad

It was a proud moment for TCE, as the Tata Boeing combine facility to manufacture Boeing AH-64 Apache helicopter fuselages was inaugurated. TCE provided architectural and design engineering services for the facility. The project was completed three months ahead of the scheduled completion time. TATA Boeing Aerospace Limited (TBAL) plant was inaugurated on 1st March, 2018 by Defense Minister Smt. Nirmala Sitaraman in the presence of



Mr. Ratan Tata, Mr. Banmali Agrawala, President Infrastructure and Defense, Tata Sons, Ms. Leanne Caret, Executive Vice President, the Boeing company & President & CEO (Defense, Space & Security) and Mr. Sukaran Singh (M.D. TASL).

The defense minister, in her speech praised the world class facility and appreciated the fact that the facility was completed ahead of schedule. Boeing's CEO praised the world-class, state-of-the-art facility and reiterated

that Boeing will invest further in India. TBAL appreciated all partners and presented mementos to all those associated with the project with special emphasis on TCE's contribution to this project

Tata Boeing Aerospace Limited (TBAL) is a joint venture establishment between Tata Advance System Limited & Boeing, to co-produce Boeing AH-64 Apache helicopter fuselages.



Inauguration of Smart City Command Control Centre (CCC) at Ahmedabad

The Ahmedabad smart city project reached an important milestone with inauguration by CM of Gujarat, Vijay Rupani at Ahmedabad on 22nd Feb, 2018 of the Command Control Centre. TCE was appointed as the Project Management and Development Consultant for this project. The command centre will be the nodal point for city's safety and security management, solid waste collection data, city utility maps, traffic management from this center. Around 6,000 smart street lights of the city will be controlled from this centre.

TCE signs MoU with Arcadis

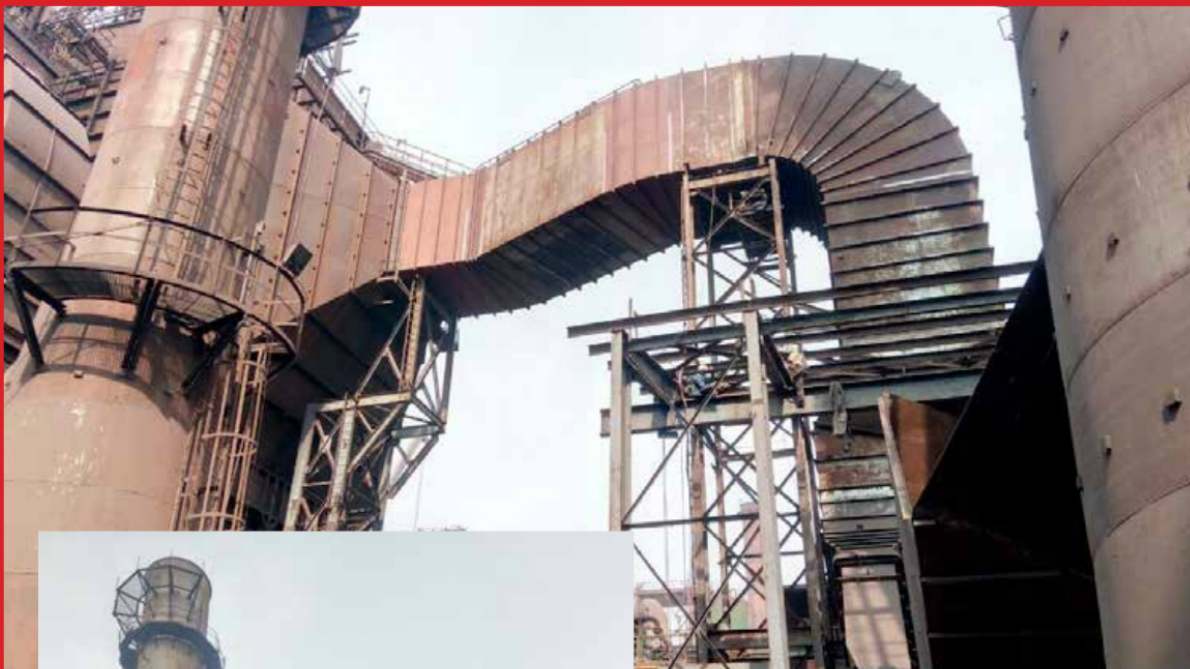
TCE's success in Europe has gained momentum with strategic partnership with Arcadis Netherlands for projects in India. The existing MoU was extended for business relationships with Netherland-based companies. TCE

extended the MoU between TCE and Arcadis on a variety of water management and ports and waterways related projects which was signed during the recent Netherlands Trade Mission to India in the presence of H.E. Mark Rutte, Prime Minister of Netherlands.



(Left to Right: Mr. Rob Stein , Arcadis, H.E. Alphonsus Stoelinga, Ambassador from Netherlands, Ms. Cora van Nieuwenhuizen, Minister for Infrastructure and Water Management, H.E. Mark Rutte, PM of the Netherlands, Ms. Sigrid Kaag, Minister for Foreign Trade & Development, Mr. Rajat Kaushal, TCE & Mr. Hans de Boer, President ,VNO-NCW).

PROJECT Patchwork_____



JAMSHEDPUR

Up-gradation of Air Pollution Control Systems

TCE is providing consultancy services for up-gradation of Air Pollution control system of various plant units at Tata Steel Jamshedpur works since 2008. Major areas covered under this project are Blast Furnaces (both Cast house and Stock house), Sinter plants, Lime plants, LD shops and Raw Material Bedding & Blending plants. Apart from this, HT and LT Power augmentation for the additional power requirement which includes two HT substations.

TCE's scope of services includes basic engineering, detail engineering, procurement services, review of vendor documents, inspection services, site supervision and project management services.

Coke Dry Quenching facilities at Coke Oven batteries 10 & 11 and CDQ Power Plant

TCE is providing engineering consultancy services including design engineering and project management services for setting up of Coke Dry Quenching facilities at Coke Oven batteries 10 & 11 and CDQ Power Plant at Tata Steel Limited Jamshedpur works along with their enabling / relocation / modification / miscellaneous work from conceptualisation till commissioning and handing over.

Also the engineering has been done in such a manner that project is being managed using existing structure and facilities.



PUNE

Nand Ghar Project at various districts, Rajasthan, India

TCE is responsible for technical and planning services, tendering and procurement for design build tenders, construction management, commissioning, closure, etc. for Nand Ghar Project for Vedanta Foundation. These Nandghars are constructed using a factory made (PEB) concrete wall construction system. Since it is a PEB structure, it takes about 45 days to complete one Nand Ghar. We are also developing a state-of-art Management Information System (MIS), which is web-based and real-time dashboard for the Nand Ghar Project. This dashboard will serve as a tool for project monitoring, reporting, review, maintaining the project information database, handover and can be accessed for database post handover too.



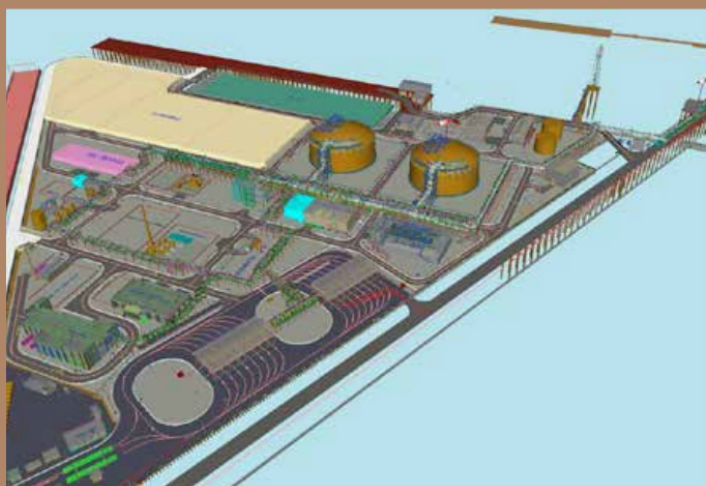
The Nand Ghar project, is an extension of the existing anganwadi initiative of Vedanta Foundation. Nand Ghar project aims to provide quality education for children and skill development for women.





EPCM consultancy for fuel station in Gujarat

TCE is the first Indian consultant (EPCM) appointed by SHELL to set up fuelling station. SHELL intends to set up fuelling stations across 5 states (Karnataka, Gujarat, Tamil Nadu, Andhra Pradesh, Telangana) in the next 3 years. TCE has been appointed as EPCM consultant for all of the fuel stations in Gujarat, Maharashtra and Andhra Pradesh, which constitute of 150 fuel stations (50% of overall program). In addition to these new fuel outlets, there will also be value addition projects undertaken by SHELL on their existing stations, which are also a part of TCE's EPCM scope. Value addition projects mainly include light masts, RVI, upgrading fuelling systems, electrical system, rain water etc. Feasibility report for approx. 60 sites shall also be done in 2018 which shall be executed during FY-2019.



MUMBAI

LPG Terminal at Mundra, Gujarat

TCE is providing detailed engineering services to Mundra LPG Terminal Limited - Adani Group is setting up LPG terminal at Mundra to handle Domestic LPG, Automotive LPG, Propane and Butane. This project is to set up first phase 1A to send out 1.34 MMTPA LPG from Mundra Terminal out of total capacity of 3.56 MMTPA.

TCE is also providing services for the hydrocarbon areas, UG facilities and fire fighting for the project.

Urban Services Improvement Program, Madhya Pradesh Urban Development Company Limited



M.P. Urban Services Improvement Project (MPUSIP) an Asian Development Bank funded project which is being executed by M.P. Urban Development Company Limited (MPUDC), have engaged Tata Consulting Engineers Limited (TCE) in JV with JPS associates as program management consultant, wherein project scope includes design, build & operate (10 years O&M) which intends to provide sustainable water supply to citizens in 64 towns along with sewerage scheme in 2 towns; scattered all over the state of M.P. Total of 18 packages (55 towns) have been awarded out of 23 packages (64 towns).

Interlinking the data of GIS / MIS / Door to Door Survey / Gender awareness / community management & effective communication apart from technical data, enabled the field staff to successfully execute the schemes across the project towns. TCE's role as PMC, enabled client to achieve optimal utilization of available resources, ensuring quality service & deliverables within the given time frame by reviewing the DPR & assisting in finalization of design and thereby establishing Project Monitoring system over G-MIS/SAP that would further enable the client to comprehend the project progress and take appropriate decisions accordingly.



CHENNAI

Sri Sathya Sai hospital, Kasargod, Kerala

TCE has been appointed as architectural and engineering consultant for "Sri Sathya Sai Free Hospital for women and children" at Kasargod district of Kerala. The vision

for the hospital is to provide free-of-cost medical facility primarily to women and children who were affected due to the earlier uncontrolled use of endosulfan. The design philosophy of the project is based on Kerala architecture such as sloping roofs, mangalore tiles, stepped entrance with decorative columns, laterite blocks etc.



An external and internal walk-through was developed for the project and presented to the client.

TCE also received the work order for providing architectural

and engineering consultancy services for Sri Sathya Sai Free Dialysis Hospital as an additional scope of work and repeat order post the hospital project.

PSLV Integration Facility, ISRO, Sriharikota, AP

PSLV Integration Facility (PIF) is an augmentation project to existing First Launch Pad (FLP) of Indian Space Research Organization (ISRO). The prime intent of this project is to increase the PSLV launch frequency from 6 to 15 per year. Realization of this facility is of greater national importance and pride to ISRO.

This prestigious project was awarded to TCE and the scope involves complete detail engineering of mechanical special equipments, civil, electrical and air conditioning systems of the facility.

The project involves realization of Integration building for assembling of PSLV stages, Mobile Launch Pedestal (MLP) and bogie for transporting the vehicle to FLP, service building for refurbishment activities of launch exposed MLP, rail track between FLP and PIF building for transportation of MLP along with integrated vehicle for launches and modification at the FLP to anchor MLP and



facilitate movement of MLP and bogie over the existing Jet Deflector Duct (JDD) which is primarily used for guiding the exhaust jet gases during launch.

TCE has submitted conceptual design report for this entire project and is now involved in design finalisation phase of the project.



Warehouse Facilities, Hosur

TCE has been awarded the work for engineering assistance to TVSI for the warehouse facility envisioned at Hosur with a builtup area of 6.65 Lakhs sq.ft.

TVSI further entrusted TCE for engineering assistance for warehouse facility in Bhubaneswar, Hyderabad, Mysore, Nelamangala, Jaipur and Hosur.



DELHI

Commercial Complex (Signature Tower), Bhopal

TCE is appointed as consultant to build the first commercial complex i.e., The "Signature Tower" in the Bhopal area primarily catering to the relocated shops, offices & retail establishments. It is the trendsetting building to come up in the ABD area, based on new "TOD" & "Urban design guidelines" wherein the concept of walkable pedestrian access for local population is incorporated with access to physically challenged people.

The "Signature Tower" is expected to become a contemporary building design model, advancing the ideas of sustainability and ecology. The project en-compas-

ses the inherent core principles of a building for an ideal Smart City. Design embodies the principals of green buildings sustainable, futuristic, aesthetically appealing with use of latest technology & building materials, Hi- Tech & Smart elements.

The building shall have latest security system like CCTV, Solar led lights, rooftop solar panels etc.

The building configuration consists of a basement with parking, ground & first floor are retail oriented which acts as a podium. The tower is pushed backward as per urban design guidelines which consist of sangrahalayas, museum & office spaces etc., as required. For safety purposes all mandatory codes have been followed with provision of fire detection, fire hydrants, ventilated fire staircases and refuge balconies at strategic locations.

New Dussehra Ground, Bhopal Smart City

The New Dussehra Ground in the ABD area, Bhopal Smart City, is a rejuvenated version of the existing ground with area more than 14 acres. It is a multipurpose public activity area designed to cater to the aspirations of local population.

Smart features: Art & sculpture plazas including special installations, solar lighting, CCTV cameras, wifi zones, charging points, water fountains with special lighting etc., landscaping with pollution resistant trees and seasonal flowers etc., for colour / fragrance.



HAAT (The cultural symphony)–Bhopal Smart City Development Corporation Limited

Located at the junction in vicinity of TT Nagar stadium, this site of little less than 2 acres is the cultural hub for the ABD area, designed on the principals of typical "Traditional Mandi" of local villages, consisting of permanent & semi permanent shops / kiosks more than 550 in various sizes. There are different zones dedicated to different activities eg, food street, art & craft lanes, textile zone, jewellery zone, metal crafts, terracotta, wood works, vegetables market etc.

There are road side shops for general merchandise ranging from electrical goods to gifts shops etc. The different zones are fluidly connected to each other in a free flow. Various smart installations solar panels for shading the courtyards, CCTV, smart parking etc., have been used.

The Haat, is planned on podium with two level parking below. Various shops have been planned in the basement

along the roads with ample sunlight and ventilation placed adjacent to roads.

A special concept of "Vicinity body shop for cars" is designed wherein the auto repair shops are located adjacent to parking, wherein services can be provided during the parking time interval. The double basement can cater to around 350 cars.



BENGALURU

Hassyan clean coal power plant-phase 1 (4X600MW)

TCE is appointed to provide full range of services to NOMAC the Hassyan clean coal power station, an ultra-supercritical (USC) power plant being developed in SaihShuaib, Dubai, United Arab Emirates. Upon completion, the project is set to be the first coal-based power plant in the region. The power station will be fully-operational by 2023. The project supports the Dubai clean energy strategy 2050, which is aimed at producing environment-friendly energy.

The range of services provided by TCE includes design review engineering services from operability, maintainability, safety and reliability perspective, HAZOP and RAM engineering services, corrosion study and advisory support engineering services, quality assurance services at Hassyan plant and at vendor location.



KOLKATA



Asset integrity management (AIM) for EOT cranes for a steel major

A steel major has engaged TCE to set up an Asset Integrity Management framework for EOT cranes, finalize the Inspection strategy including checklists, assist company inspectors for identification of the inherent risks, prepare the Inspection Reports for manning review, knowledge sharing / transfer during Inspection and classroom program. TCE will add value through the development of training materials to enhance the skill set of the crane inspectors and crane champions.



Water–The first step towards sustainable livelihood

TCE's intervention in Khoripada, Palghar district is slowly coming to fruition. What started as a small initiative to build a rainwater harvesting tank in this water-starved hamlet has evolved into a sustainable livelihood program. The key issue was water and the retention of the monsoon rain water for sustenance through the year. Today, Khoripada is well on the road to self-sufficiency in terms of water. A multi-pronged approach was taken – water retrenchments through farm ponds and ground water enhancements; rainwater harvesting; group wells; solar-powered pump for drip irrigation to distribute water across the hilly, rocky terrain of the region. Today, the dynamics of the village has changed with simple interventions. There is hope of etching out a decent living with basic agriculture, floriculture and horticulture as livelihood means. The establishment of Self Help Groups (SHG) for the women, the youth and the village level SHG has put the control in the hands of the villagers. The youth SHG is a very positive lot today. They have learned the skill of drip irrigation mechanism and solar panel maintenance which has proved to be a successful entrepreneurial venture. TCE hopes to scale up this program to include more such hamlets and put the residents of this region on the road to self-sufficiency.



Jasmine cultivation



Solar panels to power irrigation pumps

A story of team-work

TCE volunteers join Shramdaan

“Our efforts have borne fruit. There is a huge difference from our earlier visits. Villagers have become keen to develop themselves. There are more pucca houses. Dustbins have been installed.”

- Payel Jana, TCE Volunteer



“The first thing we did when we volunteered in the village was shramdaan for the rainwater harvesting tank. The construction material had been dropped outside the main village and we had to carry it inside. All of us worked hard. At the end of 4-5 hours, when we completed the task, it was heartening to hear a villager come and say, ‘Sir, you have done a whole week’s job for us in one day.’”

- Anindya Chatterji, CSR Implementation Committee Member, Sustainable Livelihood

“When we got the wadi two years ago, we were happy and contented. We decided we should not go out of the village for work, but stay here and grow the mogra and mango saplings provided. Over the past two years, we haven’t migrated much for work. We can plan vegetable cultivation and start farming early because we have water now.”

Vinayak Lakshman Kongin, Villager in Khoripada



“My land is on top of a hill, furthest from here. Earlier, I used to carry water up the hill to water the dry land. Now, because of the solar powered pump, water is pumped all the way up there. We never imagined it would be possible for water to reach so high up. The whole village has benefitted from the solar pump.”

Ashok Vishram Vangad, Khoripada



“The self help group has been a big help. We save money through the self help group; once a week we contribute some money. It is deposited in the bank and when we need money it is loaned to us. We also manage our village affairs through the 'sanstha'.”

Parvati Narayan Chouthe (beneficiary)



“We got a lot of benefit from the project. We got water. We have mogra plants and the mango trees. It's just the beginning. We will work hard and we will profit from it. We will have money to support our families and the education of our children.”

Dwaraki Govind Gavit, Khoripada



“Water has come closer home. Earlier, we had to carry water a long way, after water came to our village, we get more time to spend with our children and for housework. Once the wadis start yielding fully, we will have regular income and water at home.”

- Sunita Harishchandra Vangad (beneficiary)



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REMEDIAL CLASSES AT ST. PATRICKS



TATA VOLUNTEERING WEEK 9

3rd March – 4th April, 2018

WASTE MANAGEMENT TECHNIQUES



ACTIVITIES FOR CHILDREN



SELF DEFENSE TRAINING FOR WOMEN



BLOOD DONATION DRIVE ACROSS TCE LOCATIONS



YOUTH DEVELOPMENT PROGRAM-AUTO CAD TRAINING & CAREER COUNSELLING



FIELD TRIP FOR SPECIALLY ABLED CHILDREN



INNOVATIVE CANDLE MAKING TECHNIQUES



AWARENESS ON WOMEN HEALTH AND SANITATION





TATA CONSULTING ENGINEERS LIMITED

Registered Office: Matulya Centre A, 249 Senapati Bapat Marg,
Lower Parel (West), Mumbai - 400 013

Corporate Office: Unit No NB 1502 & SB -1501, 15th floor,
Empire Tower, Cloud City Campus, Opp. Reliable Techpark,
Thane Belapur Road Airoli, Navi Mumbai - 400708.

Email: mail@tce.co.in | **Website:** www.tce.co.in

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