TATA

TCExpression

TATA CONSULTING ENGINEERS LIMITED

Volume 53, Issue 01 - June 2015

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Editor's note

TCExpression is a platform for the expression of our key stakeholders. In this issue, we have tried to capture the nuances of what drives our relationship with customers, with particular reference to the engineering consulting business.
A special word of thanks to our location editors who have helped to compile the information. We at TCE enjoy putting the magazine together.

We welcome your comments and thoughts, so please mail us at TCExpression@tce.co.in.

Mallika Sriraman

TCExpression
Volume 53, Issue 01 - June 2015

Reflections

We begin this financial year with a greater commitment and thrust towards customer delight. While our intentions, solutions and innovations have always been centred around our customers, we hope to introduce a new vigour, focus and consistency towards the changing dynamics in customer expectations. The cover story touches upon this very aspect. This year we hope to delve deeper into customer requirements and recalibrate ourselves to get up to speed in a global environment. As an organization, we have continued to stay young with the infusion of young graduate engineers each year. With increasing dedicated engineering services and 3D solutions combined with core engineering, TCE provides a strong ground for young engineers. We hope to keep up the campus hiring process and infuse young talent. I am happy to announce the awarding of a patent for process innovation in conversion of non-edible seeds to biodiesel and the use of unique catalyst for the process. We did well in the last financial year with the highest turnover in 52 years. This was possible due to a combine of aggressive business acquisitions and prudent cost management. This edition of TCExpression throws light on the mood and spirit of the organization as we scale new heights.

Sincerely yours,

J P Haran
Managing Director
Tata Consulting Engineers

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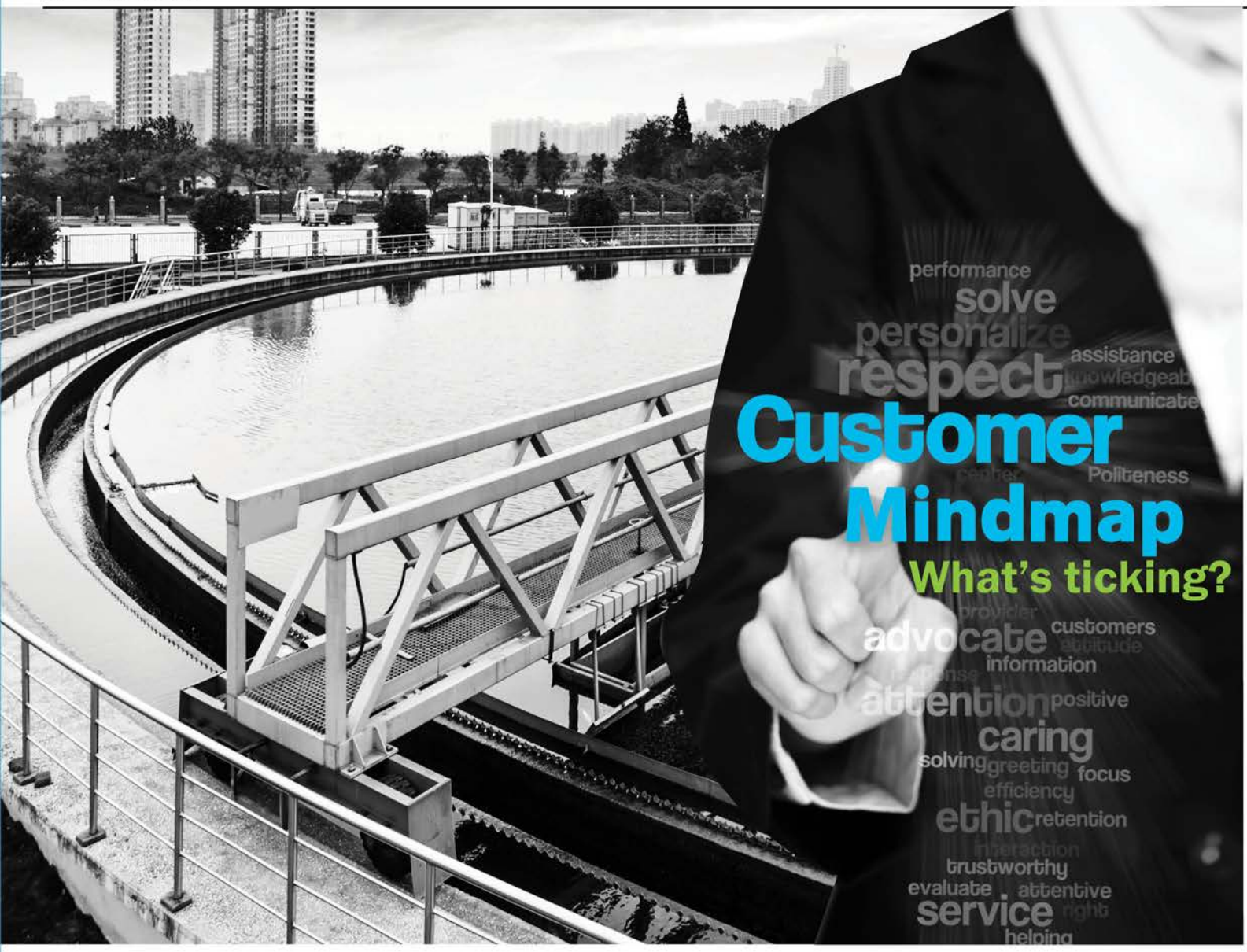


TCExpression takes a look at customer's expectations and what's ticking. No matter how diverse the customer profile, we have set benchmarks in expectations and have strived to live up to it. The feedback from our client engagements do have an underlying thread of expectations.

The voice of the customer

After 50 years of operations, Tata Consulting Engineers made a conscious decision to set forth a transformation process – an inward looking exercise that would make the organization younger, more energetic, agile and modern. Through the course of the last two years, Rhythm, a business transformation program was implemented. The company delved deep into its process and systems. Systematically, irrelevance was weeded out and modern methods were substituted. Through it all remained the steady voice of the customer – a constant pulse ticking away, defining what TCE should be and how. TCE, in the process of reinventing itself, used various touch points to feel this pulse. Through focused surveys, conducted or automated feedback mechanisms and proactive opinions through direct contact, TCE's customers have been very forthcoming to let us know what to expect.

TCExpression takes a look at customer's expectations and what's ticking. TCE's customer profile is diverse - We are consulting engineers for other Tata companies, large government bodies and international EPC players. No matter how diverse the profile, over the years, we have set benchmarks in expectations and have strived to live up to it. The feedback from our client engagements do have an underlying thread of expectations. The recognitions have been attributed to sincerity, passion, technical expertise, knowledge, managing complexities, managing unforeseen challenges, team work, etc.

Changing dynamics

TCE has time and again delivered value to customers at each stage of its evolution in various sectors. In 2003, TCE was credited for India's first 300 mld water treatment plant with pulsator and aquazur V filters for the Bangalore Water Supply and Sewerage Board. Over a decade later, TCE is working on the Gujarat Water Supply and Sewerage Board commissioned under-ground drainage works for several cities in Gujarat. 1986 saw the launch of Asia's biggest optical telescope for Indian Institute of Astrophysics which TCE was associated with. TCE participated with the same passion and rigour in the recent rocket launch by the Indian space agency, ISRO – the 630 tonne GSLV Mark III. In the changing dynamics, technology and its application has evolved. There is a need for TCE to continuously upgrade capabilities and re-align itself to the drivers of customer orientation in the face of evolving technologies.

The Need for Speed

Over time, the engineering consulting segment has turned increasingly dynamic. Global technology is more easily available and accessible for projects. For the consulting business, the dynamism has rendered project management a very complex process, especially in large projects. For customers, the need for speed is extremely critical. Resources and technology that can be accessed from a global platform comes at a cost. Speed in deliverables reduces timelines and project costs. Customers unanimously seek top speed delivery as this translates into direct cost benefit and profitability. As one of our international customers put it, "We are constantly trying to increase profit by increasing productivity and improving quality. Our expectation from engineering consultants is Speed!" However, in some instances, speed is not the only way for cost efficiencies.

Regulatory compliance and green solutions

The changing dynamics for developing countries such as India is the mounting energy requirement to fuel growth. Nuclear power and thermal power are immediate requirements.

Thermal power generation using coal as feedstock has been the mainstream power generation option for India. However there is increasing concerns on the environmental impact of using coal as feedstock for thermal power. This has also provided scope for innovation for cleaner processes. India is rich in coal and TCE has provided innovative solutions for the beneficiation of coal such that the negative impact on the environment is minimised. Regulatory compliance requirements call for value engineering solutions. Here minimising the environmental impact and provide cost savings takes precedence over speedy delivery.

A case in point is the cost saving and value engineering provided for a coastal, captive power plant with a flue gas desulphurisation system that cut short the expected delay and provided cost savings. The plant was delayed due to regulatory requirements but TCE helped reduce the delay and provided cost effective solutions.

With the business responsibility for safeguarding the environment, technology improvements are imperative to provide 'green' power to fuel growth. Renewable energy and other alternative energy sources are gaining ground but still in the nascent stage. The onus on nuclear energy as the most feasible alternative to feed immediate development needs for energy rests with the nuclear power generation industry.

Cost efficiency & value engineering

Tata Consulting Engineers provides services from concept to commissioning for several infrastructure capex projects. At times the role of TCE is restricted to project management consultancy services. Expert engineers often tend to find scope for improvements in design that would provide process improvements and result in cost savings. In such instances, a delay in the project cycle is a price to pay.

TCE was appointed as consultants for a Turbine & Generator Manufacturing plant. The design consulting was provided by a European OEM company. Through the course of PMC services, several value engineering solutions were suggested which would reduce cost and provide process efficiency. TCE's suggestions for modification in design were accepted by the European consultants for the world's largest Turbine Rotor balancing testing facility with a diameter of 10.5 metres x 22m long with complex auxiliary systems like Vacuum-1 millibar, Lube Oil system, High Pressure Jacking oil system, Cooling Water System, all PLC, Control & Instrumentation. The first milestone was delayed due technical challenges beyond control pertaining to the site.

TCE was under pressure to make up for lost time in the super structure-tunnel concrete and shuttering and still complete the project on time. This was the largest cost saving for the company and the client extended TCE's scope of work to include special services.

Client testimony

Data based on client testimonies between 2013-2015

A steady pace for long-term benefits

TCE has worked closely with the Department of Atomic Energy and India's nuclear energy initiatives. Such critical projects are regulation driven. Catastrophes such as the Bhopal gas tragedy and more recently, the Fukhushima incident have made government and governing bodies extremely cautious and risk averse. Due to immediate energy requirements for India, Department of Atomic Energy (DAE) decided to go for Light Water Reactor (LWR) technology from other developed nations. India has an abundance of thorium which is a feed-stock for nuclear power generation. Uranium, however needs to be imported. India's nuclear power generation program requires reforms and legislation to fast-track the programs. TCE's long standing customer in the nuclear energy segment is the Nuclear Power Corporation of India Limited. (NPCIL). TCExpression reached out to Mr U C Muktibodh, Executive Director (Engg) at NPCIL to understand the changing dynamics in the nuclear energy segment

The challenges in implementation of a nuclear power plant:

Nuclear projects are complex projects that need technical expertise; manufacturing needs special facilities & talent. In fact one of the challenges in implementation of a nuclear power projects is the requirement of continuity in Nuclear Power Program. After the execution of the Tarapur & Kaiga 3 &4 PHWR (Pressurized Heavy water Reactor) projects there has been a gap of more than five years in launch of KAPP-3,4/RAPP-7,8 projects. This made it difficult for the industry to maintain the facilities and retain the special talent required. This aspect in my view is one of the major reasons for the delays in the supply of critical equipment for these projects. The need for continuity in the NPP is critical not only to NPCIL but also for the downstream consultants and supply chain that we are associated with.

The PHWR technology is state of the art in India. Some of the plants have registered 765 days of continuous & safe operations which is a world record for PHWR technology holders & second best of all the reactor technology in the world. In comparison to the world we are at par with the technologies used worldwide.

Technology readiness & expertise in India as compared to the world

The PHWR technology is state of the art in India. one of our plants have recently registered 765 days of continuous & safe operation, which is a world record for PHWR technology holders & second best of all the reactor technologies in the world. Many of our other units are also seeing continuous and safe operation. In comparison to the world we are at par with the technologies used worldwide. In terms of implementation of NPP, we are not technologically challenged. The bottleneck rests with the supply chain and pre-project clearances.

Expectation from partners like TCE

I would go one step ahead and say, TCE is an extended arm of NPCIL. Engineering for a nuclear plant is a very complex process.

The most important part of the project is sequencing of all the activities. Short term view should not be adopted, proper delivery mechanism needs to be incorporated. NPCIL also understands that firm inputs have to be there to get quality output. This would speed up the process of review and checking. All the integration is being done at NPCIL and we have the mechanism to monitor activities of the supply chain, engineering, erection & commissioning activities. When handling individuals like EPC contractors, and consultants, understanding of one another's genuine problems and transparency is essential. Once the project commences, all parties function as one organization. With teamwork & transparency all issues can be resolved. The nuclear energy business is a very critical one, procedures have to be adhered to and multiple reviews at various levels are extremely important. TCE has several capable engineers and we expect TCE to continue to work as an extended arm with the same commitment and responsibility as the owner organization.

> In terms of implementation of a NPP, we are not technologically challenged. The bottleneck rests with the supply chain and regulatory requirements are critical now.

Mr. U C Muktibodh,
Executive Director (Engg), NPCIL

The ringside view – Project manager's perspective

Engineering consultants, work with multiple partners with varied skill sets to deliver a complex project. International standards, processes and systems form a critical aspect. The engineering consultant plays a pivotal role in managing various specialists whose expertise is required at different stages. Balancing such technical experts and channelizing the technicalities require coordination and in depth understanding of the project.

Project heads at both the sides are the ones who balance the critical challenges that are inevitable in large projects. "People at the helm - on the client side, the consultant, the procurement companies and various contractors, are focused on optimization. In the implementation of complex engineering projects, resource optimization becomes very critical. While various stakeholders in the caucus have individual agendas, the engineering consultant plays a crucial role in balancing and channeling the focus into project execution," says a project head of a large fertilizer company.

This may seem improbable on the face it, but successful projects are those that have cohesion and a single focus. "Project management is essentially about management of conflict of capabilities. In project delivery, smart solutions are more relevant than expert solutions", says a technical head of a large international organization. Clients are on tenterhooks till

In the implementation of complex engineering projects, resource optimization becomes very critical. While various stakeholders in the caucus have individual agendas, the engineering consultant plays a crucial role in balancing and channeling the focus into project execution."

such time a project moves into the operation phase. "The decision to cut short ideation and expertise and get the project moving is very critical." The key to project execution is defining the thin line as to where technological ideation stops and practical delivery mechanisms take over.

It is at this threshold that innovation takes place. These innovations when they are backed by a business value proposition prove to be extremely beneficial to the client. In the engineering consulting business, it is not often that large teams pour over R & D work for process innovation. A cost efficient process or a solution that is environmentally resilient materialises through a spark of ideation during several stress tests in project delivery. Projection and estimation in complex project engineering is by itself a risk due to the uncertainties and anomalies that crop up during the project tenure.

Managing risks

The most important challenge in project implementation is risk management. When multiple entities are involved and the single-minded focus is commissioning within stipulated timelines, the consultant functions as the risk-policeman and pulls the plug on eminent risks. Early identification of risks makes mitigation a structured process and wins client's goodwill for the consultant. Mr. K Ramesh, Head of Construction BU & Mr. Sreedharan enumerate a case study wherein TCE surprised a client, a public sector undertaking, through risk identification and mitigation solutions as part of a normal consulting assignment. The client, a public sector undertaking (PSU), commissioned a Cogen power plant - Naphtha based Gas turbines with 2 Heat Recovery Steam Generators. The electrical LSTK and the Power block EPCM were awarded to private sector players while PMC, plant and civil contractors were PSUs. TCE was awarded the Power block EPCM when the ISBL of the project was 30% upfront. TCE identified the contractual and reputation risk. Several elements such as space restraints, safety hazards, Brownfield conditions, material management, unresponsive contractors and ongoing delay

(L) Mr. K Ramesh, VP - Construction
(R) Mr. Sreedharan Srinivasan HOD Construction & DCH-JSR

in handing over front end by the contractor posed a huge project risk. TCE's teams managed the risks through expert project management, innovation, alternative solutions for contractor management, safety management & quality processes. Mr. Ramesh addressing a team of specialists from leading engineering organizations said," The general myth is that consultants are insulated from financial risks of project commissioning. This is because of liquidity damages and reputation risks which consultants carry in not commissioning the plant on time. Several times, in the interest of safety and compliance, contractors have to be closely supervised for achieving the milestones. Changes often demanded additional deployment of skilled resources which translates to financial risks due to cost over-runs for the consultant. These costs are justified and absorbed only when the cost-benefit matrix and ROI is substantial. This financial risk is mitigated only with value offerings from the consultant." TCE's interventions resulted in 10 MW power made available ahead of the refinery start up. TCE was rewarded with repeat orders from the client.

Mr. Ramesh, Construction BU summarises the learning - "Need to understand the logic of commissioning - not all facilities are needed at the onset. It is important to have a plan B for project completion. In this case extreme agility in decision making and changing course as the situation warrants is critical. Combined with this is the application of innovative techniques that helps to steer the project on the right track within the said timelines. "High-end consultants have all these capabilities and the unprecedented challenges that crop up in complex projects are carefully resolved.

Engaging with the customer

Through the project cycle - some of which can extend from three years to decades - engaging with the customer goes a long way in relationship building and team effort. Continuous engagement, and involvement of senior management at critical stages from both sides – client and consultant – helps build strong customer bonding. The cherry on the cake is certainly the strength of expertise and goodwill also builds the value proposition through customer mindshare. In the changing dynamics of customer expectations there is one constant – the technological expertise at the core. While we adapt to new requirements, TCE is expected to go that extra mile to offer a first of its kind solution, each time. TCE's customers have experienced this time and again and this essentially is the benchmark that TCE has to strive to upkeep.

LET'S DEDICATE YEAR 2015 TO OUR CUSTOMERS

customer XPERIENCE

The customer Xperience contest

Do you have:
Innovative ideas to serve customers smartly, cost effectively?
Out of the box solutions to improve delivery, save time and delight customers?

As always customer satisfaction is our utmost priority.
WE welcome YOU to give ideas or suggestions for enhancing customer engagements, customer satisfaction & improving customer relationship.

The winning Customer Xperience Idea will be:
a Cost Effective, Smart & Innovative solution

How to participate:

1. You can form a team of 3 to 5 members to brainstorm & present the idea.

2. Prepare a one - slide PPT. presenting your customer xperience idea in the following format –
   - The Customer Xperience Idea
   - The cost benefit
   - Why it is a smart solution - Value proposition, key differentiator for TCE
   - Why it is an innovative solution - innovation driven by customer needs (define the customer need & innovative solution aligned to it)
   - How it can be implemented

3. Save your PPT slide with (TeamName) - CustomerXp.ppt & upload on Rhythm….
   Selection: Shortlisted teams will present ideas to an elite panel for final selection.

Power Mission

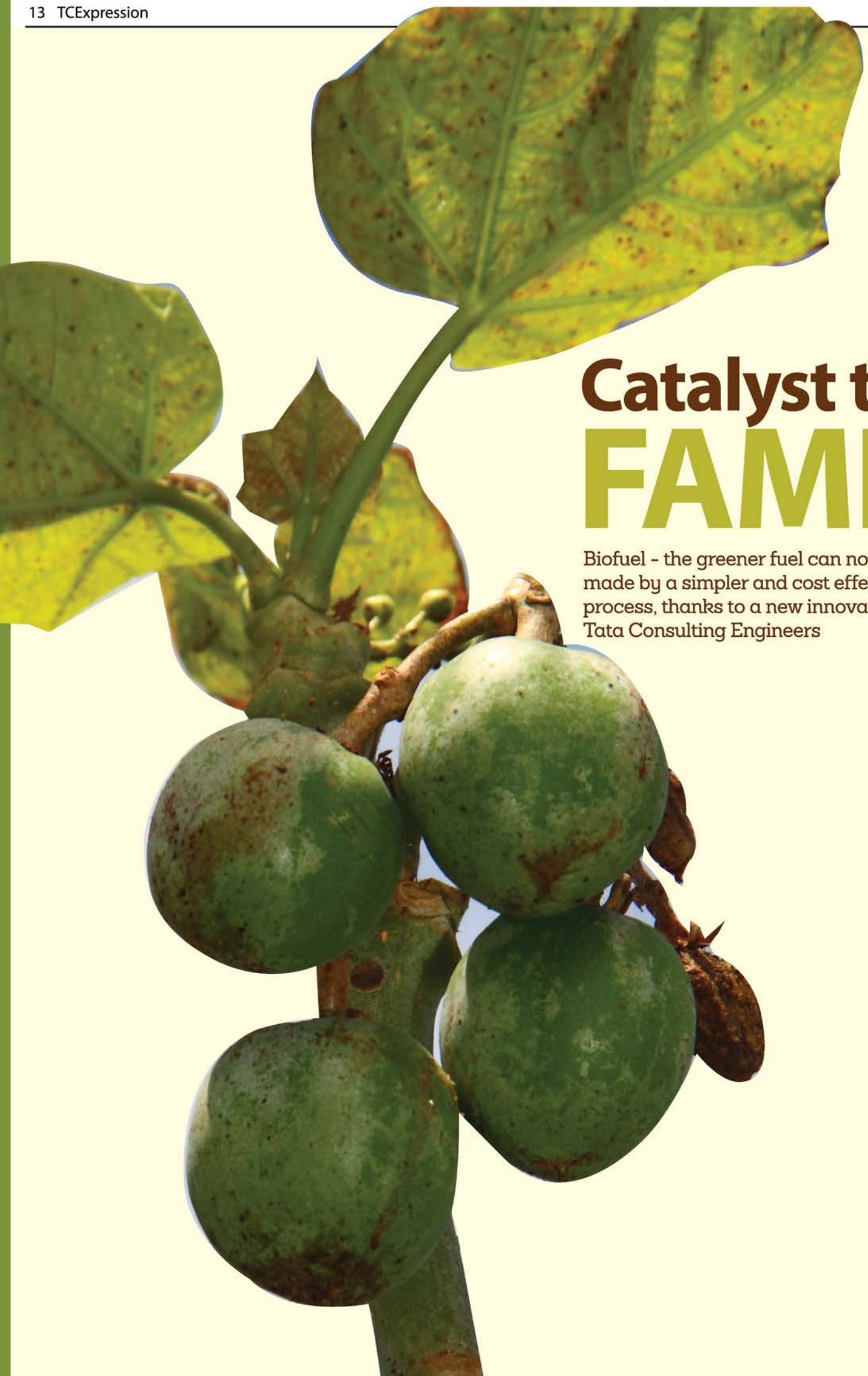
Power Mission – Staying connected with customers

TCE's Power Business Unit's marketing strategies in the Korean region fructified with several linkages established with leading EPC players in the region. Nurturing these relationships through direct interactions, Mr. J P Haran, Managing Director and Mr. S Vidyanand, Head – Power Business Unit reached out to existing partners and new contacts during their trip to South Korea recently. They met up with senior executives of internationally acclaimed EPC companies such as Daewoo, Daelim, Samsung C&T, GS, Hyundai, POSCO and KEPCO. These meetings helped to reinforce the relationship with our existing customers and to explore new business opportunities. TCE is presently offering engineering services for four major power projects for Korean EPC contractors and there are many such projects in the pipeline.

Signing of the contract with Samsung C&T for detailed engineering services for 2400 MW IWPP project in Qatar

From left to right: Mr. J K Hah, TCE Representative in South Korea, Mr. R. Raghavan, TCE PM – Samsung Algeria Project, Mr. Chris Choi, PM – Qatar IWPP, Samsung C&T, Mr. E S Park, Sr.EVP, Head of Plant Business Unit, Samsung C&T, Mr. J P Haran, Managing Director, TCE, Mr. S Vidyanand, VP & Head, Power Business Unit, TCE, Mr. Lee, VP – Plant Engg, Samsung C&T.

MD hosting dinner for TCE engineers based in Seoul



Catalyst to FAME

Biofuel - the greener fuel can now be made by a simpler and cost effective process, thanks to a new innovation by Tata Consulting Engineers

Tata Consulting Engineers' claim to FAME (Fatty Acid Methyl Ester, the chemical family representing biodiesel), is the process innovation in the conversion of non-edible oils to biodiesel. This magic fluid has applications in several areas such as the automobile, aviation fuel, agricultural and pesticide industry. Tata Consulting Engineers, together with IIT, Mumbai was awarded a right of patent in India for the conversion process and the use of a unique heterogeneous acid catalyst. The company conducted an R & D project through its Process and Technology (P&T) group and IIT, Mumbai.

The FAME story

Petroleum diesel exhaust generates air pollutants such as unburned or partially burned hydrocarbons (VOCs), particulate matter, nitrogen oxides (NOx), carbon monoxide (CO) in addition to carbon dioxide (CO2). These pollutants contribute to global climate change risks and also cause air pollution. Biodiesel as a fuel is a more environment-friendly option as this fuel is derived from plants i.e. from renewable source of energy. These plants consume CO2 in photo-synthesis and thus help capture CO2 emitted to atmosphere by burning fuels. Biodiesel also contains high level of oxygen content (~ 10 %) which helps in complete combustion thereby reducing carbon pollutants. Other advantages of bio-diesel include -

- *Higher cetane number & no aromatics*
- *Non-toxic & Sulphur–free*

These properties reduce the emissions of carbon monoxide, hydrocarbons, and particulate matter in the exhaust gas. Biodiesel is used as automobile fuel, aviation fuel, diesel generators, as a base in pesticides and fumigation agent in agriculture. The Indian Government announced its 'National Biofuel Policy' on 12 September 2008 with an aim to meet 20% of India's diesel demand through fuel derived from plants.

In this light, the process innovation by TCE has a strong business case in terms of process efficiency, feedstock availability and cost reduction in the end product – FAME or Biodiesel.

The Catalyst

Jatropha curcas is a species of flowering plant that can be grown in arid regions, non-agricultural lands, deserts and has seeds that contain 27-40% of rich oil. These seeds can be processed to produce a high-quality biodiesel fuel, that can be used for standard diesel engines. Yet another potential source for biodiesel is the Pongamia pinnata, a non-edible canopy plant, the seeds of which also contain high triglycerides and significant amount of free fatty acid. These plants can be grown in arid, wastelands and in rainwater harvesting pits.

While glycerides form a major content of , non-edible oil, it also contains relatively high Free Fatty Acid (FFA) with FFA content being 12% ot higher. The acid catalyzed reactions proceed with low reaction rates. While alkaline catalyst (in either homogenous or heterogeneous form) can help converting glycerides into biodiesel at relatively faster rate, the FFA content in an alkaline environment gets converted to soapy products. This not only results in wastage of a part of feed but also makes the product separation difficult. In order to counter these constraints, the conventional biodiesel process employs two stages. In the first stage, the FFA is esterified with acid catalyst and then in the second stage, trans-esterification of glycerides is done with alkaline catalyst. The requirement of two stages working in two different environments (acid and alkaline catalysts) results in high capex and opex costs. The process also requires significant amount of water for washing.

Process innovation in seed to biodiesel

TCE's innovation involves a unique process using solid heterogeneous acid catalyst. The innovation is two-fold –

1) Use of a heterogeneous catalyst –
   This coupled with high conversion makes the separation a very easy process. It also eliminates the need for a water wash.

2) A single stage conversion process using the heterogeneous acid catalyst -
   The use of a heterogeneous catalyst converts FFA and glycerides simultaneously to bio-diesel i.e. reaction of esterification & transesterification happen together in a single stage.

The simplicity of the process and its effectiveness brings about lower capital and operational costs in the biodiesel production.

Innovation based on a strong business case

This innovation by TCE has a strong business case on the strength of the biodiesel conversion process and the catalyst used in the process.

Process Strengths

Purity & Standards
The TCE patent has a strong business case as it is a single stage process which directly converts from oil to fuel at one go. There is no impurity in the end product and the biodiesel meets the specifications of European standards. This process gives a 97% yield of biodiesel.

By-product
Glycerine the by-product is of higher purity and is acceptable as industrial grade product.

Cost
From a cost perspective, the separation costs are also lower and there is no requirement for a water wash. This makes the process both cost efficient and environment friendly.

Efficiency
Several other technical efficiencies in the conversion process have also been devised to make the conversion energy efficient resulting in cost savings.

Comparison of conventional and TCE new process

Conventional Process	TCE Process
Two- stage process	Single stage process
Water wash required for product purification	Water wash not required
Suffers from catalyst loss	Catalyst reusable at several times & no deactivation
Product separations difficult	Easy product separation

Catalyst strengths

Longer lifespan and reusabilty
The heterogeneous acid catalyst used in the biodiesel production process has a longer life as it can be re-used several times and applied in the conversion process for longer duration.

Energy efficiency
Use of this catalyst makes the process energy efficient as the catalyst pellets withstand high temperatures and high pressures during the conversion process.

Wider applications
Since this catalyst can handle high FFA, it can be used with a wider range of feedstock application using more oil types such as karanja oil, palm oil and other high, free fatty acid oil seeds.

Biodiesel as a fuel can be used in farm equipments, heavy equipments in several industries and the application possibilities are wide ranging. The most important factor is the catalyst that is applicable to a host of non-edible seed varieties. These plants can be cultivated in any wasteland to generate fuel of international standards and purity levels. The cost of production of such a valuable fuel alternative can be lower than petroleum based diesel especially in high crude oil price scenarios. It can also help India save valuable foreign exchange and reduce dependence on energy imports. About 80% of the demand for petroleum and petroleum derived products in the country are imported. It serves as an environment-friendly option due to the reduction of emissions while still supplying fuel, which so essential for growth in a developing country like India. This innovation is a stepping stone towards replacement of petroleum based fuels that can provide much needed push towards energy independence.

Fame catalyst Pellets

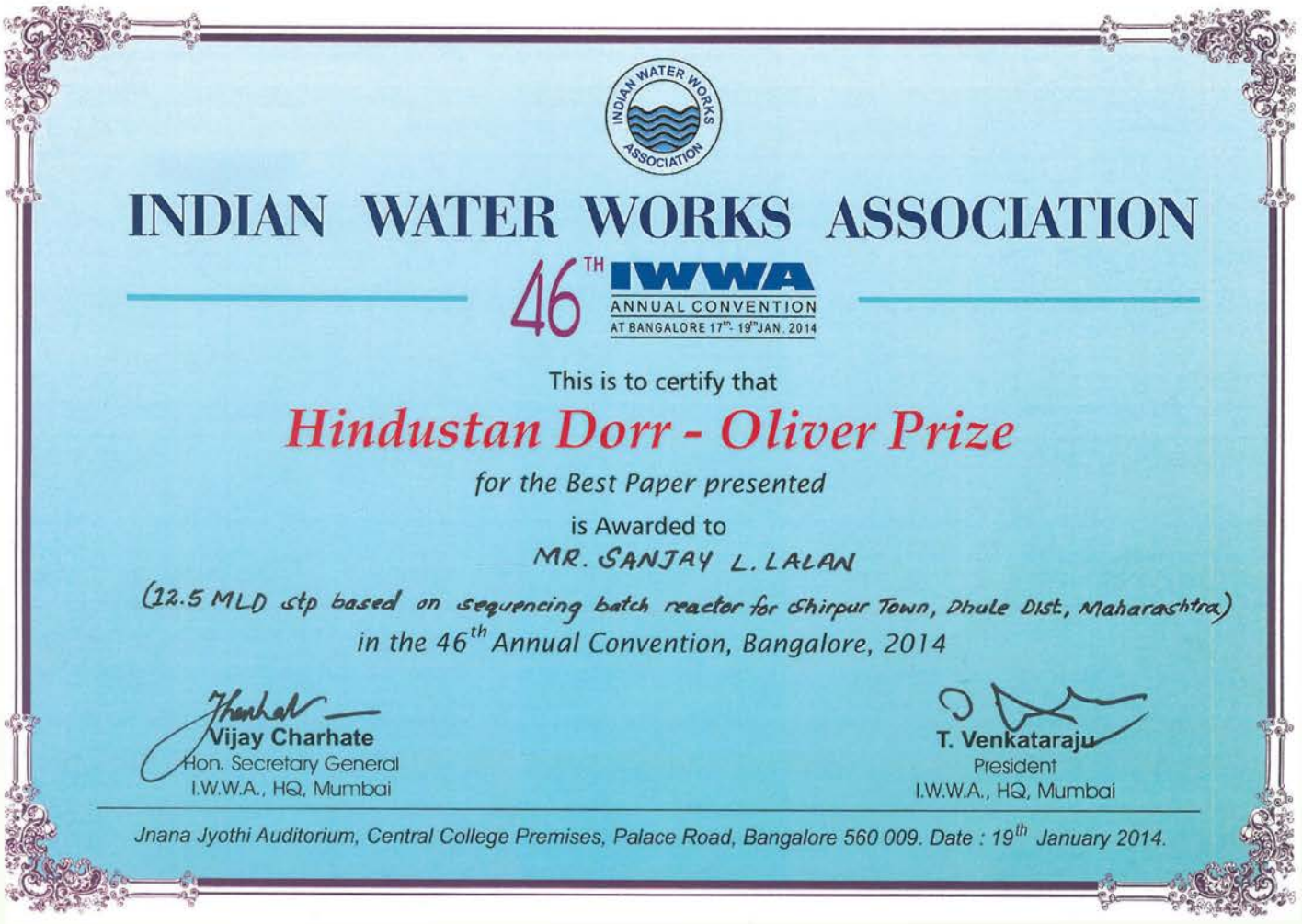
Congratulations to the TCE team that was led by Mr P.D. Gupta, Mr. J. D. Singh, Dr. S Sakthivel and, Dr. Sudipta Halder. TCE also acknowledges significant contribution of Prof. Sanjay Mahajani of IIT, Mumbai and his team in this endeavour.

Yet another innovation brainchild from Tata Consulting Engineers.

Additional technical information is available at the following web links

- http://www.tandfonline.com/doi/abs/10.1080/15435075.2012.727365#.VSYGpEjrbZ4
- http://www.tandfonline.com/doi/abs/10.1080/01430750.2012.740422#.VSYGpEjrbZ4
- http://www.tandfonline.com/doi/abs/10.1080/00986445.2012.762627#.VSYGq0jrbZ4
- http://www.qscience.com/doi/pdf/10.5339/qfarf.2011.egp16

TCE Triumphs



INDIAN WATER WORKS ASSOCIATION

46TH IWWA ANNUAL CONVENTION AT BANGALORE 17TH- 19TH JAN. 2014

This is to certify that

Hindustan Dorr - Oliver Prize

for the Best Paper presented

is Awarded to

MR. SANJAY L. LALAN

(12.5 MLD stp based on sequencing batch reactor for Shirpur Town, Dhule Dist., Maharashtra)

in the 46th Annual Convention, Bangalore, 2014

Vijay Charhate
Hon. Secretary General
I.W.W.A., HQ, Mumbai

T. Venkataraju
President
I.W.W.A., HQ, Mumbai

Jnana Jyothi Auditorium, Central College Premises, Palace Road, Bangalore 560 009. Date : 19th January 2014.

TCE's Sanjay Lalan was awarded the Hindustan Dorr - Oliver Prize for the best paper presented at the 46th Indian Water Works Association Annual Convention held in Bangalore in January this year. The paper presented covered STP with a case study on 12.5 mld sewage treatment plant based on sequencing batch reactor.

TCE Buzz

TCE day across locations

TCE-Day is an annual event held across all locations, providing a platform for TCE-ites to show-case their talents in the performing arts. This is an event that brings TCE employees and their families together for an evening of entertainment. The show put up by the employees was spectacular and this is an event that every TCE-ite looks forward to each year.

Bangalore

Chennai

Delhi

Kolkatta

Pune

Mumbai


Mumbai


Jamshedpur
TATA
ENGINE
PINATION
imagination to the

Running fit

Seven engineers form TCE Bangalore Participated in the TCS world 10KM marathon

Employees from Mumbai and Kolkata office participated in the Standard Chartered Mumbai Marathon Dream run and Mini marathon organized by TCS- fit 4-life in Kolkata.

Flash mob to drive Swachh Bharat Abhiyaan

On a Friday evening when most youngsters head for their weekend jaunts, a group of Tata employees including young TCE-ites headed to the Churchgate station in the heart of Mumbai to spread the message of health, safety and hygiene through a flash mob.

The grand finale of the month long Tata volunteering week-III of CSR volunteering culminated in this event. Skits, mime acts, song and dance carried the important social messages to a curious and enthusiastic crowd that milled around the performers, just before the Friday evening peak-hour rush. The performance, a well-coordinated event by Taj Hotels, TCE, Tata Teleservices, Starbucks, etc., was received with a resounding applause from the crowds.

"It was amazing to have 60 volunteers from across different Tata Companies join hands to spread awareness on the importance of hygiene and sanitation. Doing a flashmob was absolutely worth it – not only did it provide volunteers to learn and engage with one another but also provided them with an opportunity to stand up in front of strangers to spread awareness about a cause that is close to everyone's heart. Look forward to doing many more such unique volunteering engagement in a joint collaborative manner".
- Zoha Karmali, Taj Hotels

For the enthusiastic TCE volunteers it meant practicing for the coordinated dance numbers and skits till late evening as they balanced their regular work commitments. The Flash Mob was followed by a cleanliness drive in and around Churchgate station.

Business Brief

Tech Talk

What can technology experts do to get their mojo each day? Tech talking, of course! Ms Anita Joshi, Sector Head, Transmission & Distribution, Power Business Unit at the Mumbai office hit up on a novel idea to raise the bar on the technical knowledge of her team members by creating a platform for knowledge sharing.

'Tech Talk' is a daily morning routine, lasting 10 to 15 minutes wherein team members in rotation present technical topics published in magazines, papers or other technical sources. The topics presented are varied with technology at its core. Tech Talks include a wide range of topics such as new technologies, technical challenges, drafting challenges, project experiences and learning's, site experiences, problems & solutions, etc.

To optimize on time these talks are conducted next to the work stations and are fashioned as stand-up meetings. The very simplicity of its structure has contributed to its success such that it has become a routine activity ensuring new learning every morning.

"Tech Talk has unleashed the power of sharing, grown beyond discipline and is helping team to stay abreast with the latest technology."
- Ms.Anita Joshi

This initiative encourages reticent team members to present in front of a large audience, brings about new learning each day, provides an avenue for sharing knowledge and interactions with like-minded experts. Most of all, it helps bonding among team members and the teams look forward to this intellectual pursuit each day. The best tech talk of the month receives special appreciation from Ms Anita Joshi.

- Reported by Dr. Jyoti Prabha

Foundation stone laid for South Asian University Project

TCE now moves to the construction phase for the prestigious South Asian University. The project moved forward with the foundation stone being laid by Smt. Sushma Swaraj, India's External Affair Minister at the ground breaking ceremony held on the 3rd of June 2015. The campus sprawled over a 100 acres in Maidangarhi, New Delhi involves the SAARC Countries, there is an involvement of Ministry of External Affairs (MEA), DPCC, NGT, CPWD, MOEF, NAA, DUAC etc and incorporates green practices with waste management as part of the approved plan. Delivering the vote of thanks the Vice President of SAU made a special mention of TCE's involvement and contribution to the esteemed project, which is expected to stand out as a world class university campus.

Paper presented on Petrochemicals from Coal

Mr. Mahesh Marve, CTO presented a paper on 'Petrochemicals from Acetylene using Coal / Petcoke as feedstock' at the Lovraj Kumar Memorial Trust Workshop – 2015. TCE presented a case for manufacturing PVC using coal as feedstock. With TCE's expertise in coal handling and availability of coal as feedstock in India, the paper through up a panel discussion to explore possibilities of clean technologies for using coal as feedstock.

TCE Construction site engineers don uniforms

TCE provided its site engineers at the international and domestic construction sites with uniforms. The jackets and are trousers designed for safety with visibility bands in a contrasting colour. The TCE team at the Kalinganagar Project Office are seen here posing proudly in their new uniforms.

International Conference on "Sustainable Clean Ganga Mission

International Conference on " Sustainable Clean Ganga Mission " was held on 12 December 2014 in Delhi, organized by Everything About Water. About 150 delegates attended the conference including the officials from Ministry of Water Resources and Ganga Rejuvenation, Upper Yamuna River Board, Embassy of the Kingdom of the Netherlands, Central Water Commission and IIT Kanpur.

TCE made a presentation in the conference on the topic " Planning and Design of Sewers using Advanced Techniques for Proposed Sewerage System of District- I for Kanpur City under National Ganga River Basin Authority Project ". Technical presentation was presented by Mr. J. K. Singh. Mr. Dheeraj Kaushik, Mr. J. K. Singh and Mr. Sanjay L. Lalan participated in the conference. TCE's presentation and presence was well recognized in the conference.

Project Patchwork

Mumbai

TCE has been awarded the contract for Engineering Consultancy Services and Project Management for CEAT 2/3 Wheeler project at Nagpur & Specialty Tyres Project in Ambernath. This plant will be constructed as a Greenfield project over an area of approximately 50 acres.

Henkel Adhesives Technologies India Pvt Ltd is coming up with 74000 MTPA Adhesives (AIL) & Surface Treatment (MPT) project at Kurkumbh, Maharashtra and TCE has been awarded the contract for Project Management Consultancy.

Bangladesh Petroleum Corporation (BPC) is coming up with One Hundred Thousand MT/year capacities LPG Import, Storage & Bottling Plant project at Mongla, Bagerhat. BPC has awarded the contract to TCE for Detail Engineering, Design, A Drawing, Estimate and Construction Supervision.

DMICDC to develop Dholera in Gujarat as part of the Smart Cities project, supported by next generation technologies. TCE is contributing to the process of making this vision turn into a reality through its designs, detailing and inputs. TCE Architecture team, designed a complex which would house, among other things, the main Office building of DSIRDA and a Business and Exhibition centre. As this Office building would define the very beginnings of the Dholera City, it has been appropriately nomenclature as "ABCD" building - Administrative and Business Center of Dholera. Also, with the foresight that this would eventually flower into an active and vibrant space, the Architecture team has planned space around so that the expansion shall be a seamless process.

Tata Consulting Engineers Limited (TCE) is providing engineering services to Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune for carrying out the feasibility studies for evaluating sites for construction of LIGO-India project. LIGO-India is a national mega-science project to construct a 4 km long baseline Laser Interferometer Gravitational-wave Observatory (LIGO) for detecting gravitational waves. This project is under Indo-US collaboration involving the LIGO-USA laboratories in Caltech & MIT and three lead institutions - IPR, RRCAT and IUCAA in India. TCE's scope of services include the feasibility studies for evaluating sites for selection of the Primary site and Secondary site based on the data to be provided by IUCAA and site visits. This project is being executed by TCE's Nuclear, Special Projects & Advanced Technology BU.

Delhi

Detailed engineering of Khutani Hydro-electric project (21M), Uttarakhand

Tata Consulting Engineers Limited (TCE) is providing consultancy services for preparation of tender documents and detailed design and engineering for Khutani small hydro Project of 21 MW in Uttarakhand. Khutani Power Company Private limited (KPCPL) the owner of this project, is entrusted with implementation of the project on 'Build, Own, Operate and Transfer' (BOOT) basis by Government of Uttarakhand.

The project is involves a concrete gravity dam across the Sarju River in the Pithoragarh District located in the Kumaon region of Uttarakhand. Other features of the project comprise of an approach tunnel, de-silting chamber, 4 km long Head Race Tunnel (HRT), surge shaft, penstock and surface powerhouse accommodating 3 units of Francis turbine synchronized with matching generator of 7 MW each.

2 x 300 TPH CFBC Steam boilers at Guru Gobind Singh refinery, Bathinda-Punjab

HPCL-Mittal Energy Ltd. (HMEL) owns and operates 9MTPA Guru Gobind Singh refinery at Bathinda in Punjab. The power Plant had process steam requirement being met from captive co-generation power plant. In order to optimize the fuel consumption and reduce the operating cost, HMEL proposed to install pet coke and coal fired steam generators.

HMEL entrusted Tata Consulting Engineers Limited (TCE) to provide engineering services which include EPCM consultancy of Project (2 x 300 TPH, 110 Kg/Cm2(a), 510+5 Deg.C CFBC Steam Generators & its Associated Auxiliaries at Guru Gobind Singh refinery, Bathinda-Punjab.), Detail design of Civil & Structural -Chimney, Vendor Drawings Review, Pre-bid and Post-bid Engineering of E- BOP and M-BOP System.

PMC for 0.66 MTPA clinkering plant and increasing grinding capacity from 1,350 TPD to 2,200 TPD on OPC basis at Dumkibos

Chaudhary Group (CG), A large corporate house in Nepal, palns to set up 1950 TPD (0.64MTPA) clinkerization plant at Palpa and expanding the Dumkibas cement grinding plant from current 1,350 TPD (OPC basis) to 2200 TPD (OPC basis). CG entrusted Project Management Consultancy services to Tata Consulting Engineers Limited.
TCE scope of services includes Revalidation of TEFR, Basic Engineering, Review of Detail Engineering and of various drawings to be received by suppliers and consultants. TCE shall be the nodal agency for issuing all IFC drawing. TCE is responsible for Project planning, scheduling and coordination from conceptualization stage to commissioning of plant and conducting performance guarantee tests.

Elevated view of the clinkerization plant at Dumkibas, Nepal.

Graded Site view of the clinkerization plant at Dumkibas, Nepal.

In this project, TCE offered a cost effective solution by recommending alternative site away from the valley and nearer to the limestone mines location thereby reducing the overall cost of overland conveyor belt by about 56 crores. TCE also suggested adoption of waste heat recovery system to meet the shortage of coal and power availability in Nepal which was accepted by the client.

Railway track plain line design for Tata Steel Projects, United Kingdom

Tata Consulting Engineers Limited (TCE) is awarded the railway track plain line design for Tata Steel Projects (TSP), United Kingdom (UK). The task involves realignment of plain line in a two step process which includes verifying the existing design for geometry and clearances and proposing the new alignment after verifying the design in accordance with Network Rail, U.K specifications.

The uniqueness in this project in India's perspective is checking the clearances using 'Kinematic Profile' of the stocks instead of considering 'Static Profile'. In countries like India with 1.25% population growth rate, consideration of Kinematic Profile of vehicle can eliminate the overestimated factor of safety and can benefit in saving area for other purposes. With Indian Railways having 1,15,000 km length of its rail network, Such can prove Beneficial in India.

Kolkata

Dyke strengthening for Green River facility of Tata Chemicals (soda ash) Partners, (a subsidiary of Tata Chemicals North America (TCNA)), Wyoming, USA

TCE Kolkata team is engaged in a project for the Green River facility of Tata Chemicals (soda ash) Partners, a subsidiary of Tata Chemicals North America (TCNA), situated at about 13 miles west of Green River, Wyoming, USA. The Green River facility consists of an underground trona mine and a processing plant producing Soda Ash from the trona ore. The facility also includes a series of ponds, to cater for waste water and slime storage, solid particle settlement and water recirculation, evaporation etc.

Scope of TCE includes study and engineering for seepage control and strengthening of a dyke, situated between two ponds (known as: Pond 2 & Pond 3). The two ponds are for storage of slurry (tailings) water and storage of dry Sodium Decahydrate respectively. The objective is to ensure safe excavation from pond 3 and optimum recovery of the dry Sodium Decahydrate which has good economic value. The construction activity has to be carried out, with minimum hindrance of the regular plant operation.

Technical DATA study of Nchhanga Copper smelter plant, Zambia

KCM is having its headquarters in Chingola, a KCM centric mining town in the copper belt province of Zambia, having a border with Democratic Republic of Congo. The region is located in the highly copper mineralized zone around the Lufilian Arc.
TCE team visited the smelter and conducted a 'useful life study' of the same. The study was done as a part of auditor's (DELOITTE) requirement which was very well appreciated by both DELOITTE and Vedanta management.

Biswajit Bhattacharya, Sutapa Mozumder, Koustav Das

Chennai

M/s. Nestle has awarded TCE with the engineering services for the project of "Replacement of line 2 of coffee extraction cell plant" coming up in Nanjangud Industrial estate at Mysore, to enhance the production capacity from 8500 TPY to 12000 TPY. TCE's scope includes basic engineering design, procurement, and detailed engineering services for civil & architectural. The challenge here is to design & execute the job considering all required modification of the existing services.

Bangalore

LARA STPP- Stage I (2 x 800 MW) Coal handling package plant at Lara, Raigarh District, Chattisgarh

Tata Projects has awarded TCE with the detail engineering services for Civil, Structural and architectural works for NTPC's Coal Handling Package Plant at Lara, Raigargh district, Chattisgarh.

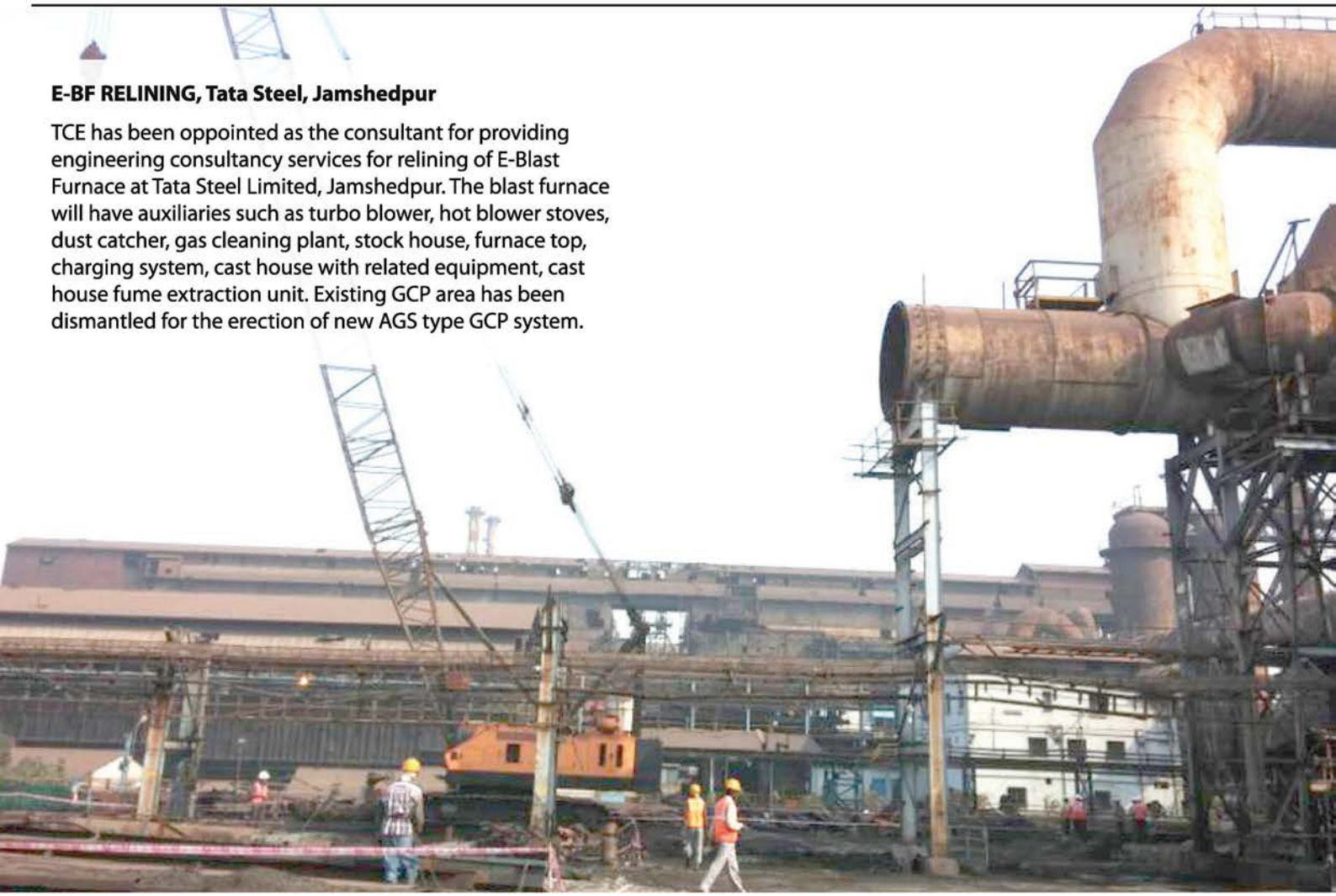
Jamshedpur

Power distribution System Tata Steel Kalinganagar project

Major milestones achieved are charging of 220 KV line, charging and energization of 132/33KV line in MSDS and Charging of 200 MVA Transformer.

E-BF RELINING, Tata Steel, Jamshedpur

TCE has been oppointed as the consultant for providing engineering consultancy services for relining of E-Blast Furnace at Tata Steel Limited, Jamshedpur. The blast furnace will have auxiliaries such as turbo blower, hot blower stoves, dust catcher, gas cleaning plant, stock house, furnace top, charging system, cast house with related equipment, cast house fume extraction unit. Existing GCP area has been dismantled for the erection of new AGS type GCP system.



TATA Steel Kalinganagar Project-COBP-Phase-1

The Coke Oven Project is being set up in two phases; Phase-I of capacity 1.5 MTPA gross coke by setting up of two 5 m tall stamp-charged batteries (consisting of 4 blocks, each block of 44 ovens) to be designated as Battery Nos.1 and 2 with associated facilities. In Phase-II, the other two similar batteries, Battery Nos. 3 and 4 will be set up of same gross coke production capacity 1.5 MTPA, with associated facilities totaling 3.0 MTPA.
Propane line for heating up of battery 2 has been completed. Also, Mechanical Erection of Battery#2 has been completed and Chimney Heating has started on 14/05/2015. On 19-05-2015, Battery 2 heating up was effectively done. COBP KPO team is looking onward to the charging of Battery 2 following 3 months

Reported by: Dr. Jyoti Prabha, Ms. Kavita Mudgal, Ms. Kanchan Ghuge, Ms.Moanaro AO, Ms. Rashmi L, Ms. Priya V, Dr. Sandya Singh, Dr. Sukanya Chakraborti.

TCEndeavour
Care-Share-Restore

Rain water harvesting tank at Jawhar

Last quarter, the construction of the rain water harvesting tank at Korchipada village was complete. A pump was fixed to the tank and the facility was handed over to the Gram Panchayat. The villagers were taught purification techniques. The tank filled with purified water is expected to last during the summer months. With the oncoming monsoon, the tank will be replenished with fresh water. The village's need for potable water during the summer is solved. TCE will continue to the next stage of addressing the non-potable water requirements through a check dam and well.

Skill building program for youth from Antarang foundation

The Tata Engage Volunteering week program helped TCE identify key stakeholder needs such as skill building programs for the youth from disadvantaged backgrounds. Working with youth from Antarang Foundation, TCE Mumbai commenced a basic AutoCAD course for the young adults who have not completed formal education. The students have shown remarkable enthusiasm to learn the tools and have been quick to grasp the basics. About 10 students have enrolled in the program and this is a pilot program to assess their capabilities. The volunteering trainers from Nuclear Business Unit train the students after office hours and guide them in their practice.

Autocad course for ITI students at Pune office

Pune organized training in Autocad to second year students of a local ITI college in Dec 2014.
23 students who attended the training and cleared a test were presented with certificates.

Tata Engage Volunteering Week-III Pan India TCE activities

Tata volunteering week III was launched on the eve of Founder's Day Celebration across all Tata group companies.

Founder's Day – Blood Donation

TCE **Mumbai, Bangalore & Delhi** organized blood donation camps. In all, 209 bottles were collected from these locations.

Children – Remedial Classes

14 volunteers from TCE Mumbai office in association with Angelxpress Foundation helped children with their ongoing studies during their exams at Angelxpress centres in Andheri & Bandra. The volunteers were joined by some of their family members too.

This program at Andheri & Bandra is being continued from Tata Engage Week I & II for about 60 children with their studies also distributed snacks and chocolates amongst all the kids at both the locations.

"It was a great experience teaching such underprivileged children. It was inspiring to meet these children. The best part was love and respect that the kids expressed. I felt very happy and satisfied to teach them because I could share with them my knowledge and I could give back to the society, since I think a good education is the greatest gift you can give yourself or anyone else." –Ms.Alka Gupta wife of Mr.Manoj Kumar, VP CBU, TCE

Safety, Health & Hygiene

Pune:

TCE Pune office joined hands with Door-Step school, an NGO that runs schools on wheels (buses as classrooms) for educating children of the laborers at the construction sites. 10 volunteers conducted safety and health awareness program. Door Step School found the Safety awareness session informative and thanked TCE for celebrating the TATA volunteering week with their children. They also expressed the wish to work with more volunteers from TCE in the future.

"The volunteering activity with Door-step School by itself was enriching, an experience like this instills a sense of humility in us, makes us more appreciative of people and also makes us aware of our responsibility towards society."—Neil Parmar, TCE, Pune

Mumbai:

TCE Mumbai office in association with Taj Hotels conducted a hygiene and sanitation campaign at Colaba Municipal School for the children of std 5, 6, 7. Total of 300 children were benefited from the health & hygiene awareness program

Delhi:

15 volunteers from Delhi conducted cleanliness drive at NGO premises and at Battle Honor mess road along with Taj Hotels

Chennai:

50 volunteers from Chennai office collaborated with Taj hotels for Marina Beach Cleaning and spreading the message of Swach Bharat Abhiyaan in the city.

"It was a wonderful experience, with good participation involving many seniors. I was humbled by the whole experience and motivated to involve consistently in more volunteering activities". - K.V.Seshan Senior GM- DCH Chennai & HOD-Nuclear.

Youth – Skill Building & Mentoring

Mumbai:

50 youth from Antarang foundation attended a 2-day skill building program as part of TVW-III in Mumbai. This program is the second of its kind that has benefitted a new batch of students who have dropped out of school. The first batch targeted 60 youngsters over three-day sessions during TVW II.

On the first day Dr. Rajan and Mr. Bhat (GEC Members) interacted and motivated the youth through personal experiences & stories. The youngsters interacted by sharing their dreams and asking a number of questions to Dr. Rajan, Mr. Bhat & Mr. J.P. Haran, MD, TCE. By the close of the program there was a change in their mindset and they felt an increased level of confidence. Post the counseling sessions, TCE volunteers trained the youth in preparing resumes, email addresses and connecting to the internet for information.

Tata GEC members- Mr. Harish Bhat(L) & Dr. Mukund Rajan(R)

Ms Anita Elavia from Taj Hotels briefed the youth on opportunities in the hospitality industry and explained the minimum requirements in educational qualifications and vocational training available for a career in the industry. The collaborative effort serves as a prelude to take the skill building program to a larger scale and make a difference through skilling and employment.

"I had the privilege to give a talk on career prospects in the Hospitality Industry at TCE office. I had expected a small group of students who I would have to speak to, but here was a class full of enthusiastic, focused, and motivated students all ears to what I was saying. This I must say is because of the very well organized program that had been done for the students exposing them to an array of career opportunities. Having a career of 32 years in hospitality still did not prepare me for the hospitality extended by TCE to these under privileged students. Kudos to TCE for your initiative, Will be a pleasure to volunteer whenever needed"
– Ms. Anita Elavia- Taj Hotels

Mr. Hemant Gandhe from Tata AIG counseled the youth on the advantages of a career in the financial services industry and elaborated the various options and skills required.

Dr. Shwetaleena Bidyadhar from Tata Interactive Systems highlighted the nuances in the multimedia industry. Students posed questions on animation, scripting, and scope for illustrations required in the multimedia industry.

"It was great to meet the youth from Antarang and present the eLearning industry as a career option. They were curious about qualifications required, educational institutes offering relevant courses etc. and were excited about elearning as a career option.

Their appreciation of Tata Interactive's demos reinforced my pride in our work and reenergised me. Thank you TCE for this wonderful opportunity!" — Dr. Shwetaleena Bidyadhar, Tata Interactive

Several TCE senior management members addressed the students on various aspects. Mr. Manmohan Soman, Head of the Nuclear & Special Projects BU spoke to the students about drafting, 3D modeling etc. Mr. Vikas Manohar & Mr. Shantanu Apte addressed the students' queries pertaining to BPO jobs, IT industry and goal setting. The program helped to broaden the horizon of the youth making them aware of ground realities in various industries and career streams and how to set goals based on their inherent skills and aptitude.

"It was a very satisfying experience at the volunteering sessions with the students. The realisation dawned on me that regardless of who we are or what we do, we can always make some contribution to others' lives".
— S.V.Pai- Sr GM-Mechanical, TCE

BANGALORE:

Bangalore office conducted skill building programs at St.Patricks School providing training on IT skills and career counseling for students from the marginalized communities. TCE also donated computers to the school and followed through with the IT skill building program. TCE volunteers have been associated with this school for over three years, with volunteers helping the students with tuitions during the exam.

OLD-AGE HOMES & ORPHANAGE

Kolkata volunteers spent time at the orphanage and old-age home spreading the joy and happiness amongst the elderly and the orphan kids. The association with the oldage home began with the first Tata Engage Volunteering week and TCE continues the engagement with the home.

Tata ProEngage Skilled Volunteering Program

Tata ProEngage is a group level initiative to provide professional expertise to non-profit organization. ProEngage is a skill based volunteering program that enables volunteers to lend their skills & expertise to non-profits and communities for capacity building in specialized functions like HR, Finance, Business Planning, Marketing etc during this free time.

"As part of the TATA Pro-Engage 2015, I've been assigned the task of "Creating Fund Raising Strategy" for the NGO, Door-Step School, which provides educational infrastructure & learning aid to children at Labour Camps of Construction Sites in Pune. My primary objective is to make meaningful and tangible contribution to the NGO, I also wish to add a significant dimension to my personal & professional life through my interactions, experiences, challenges & accomplishments during the course of this project."

-Neil Parmar,
Construction
Business Unit

"Being associated with the group level activity Tata ProEngage was a unique experience on a different front. I was involved with Tata Strive along with volunteers from other Tata companies for the development of content, which will be used by facilitators to impart training to underprivileged youth during their 3-month skill building program. This unique project included volunteers from remote locations (Noida, Patna, Jamshedpur and Denmark) and the common binding factor for volunteering zeal and being part of Tata family made us feel that we were no strangers. We have been fortunate to be a part of concept development and were allowed to choose the modules for developing the content. "

-Jitendra K Singh,
Assistant General
Manager-Environment

TATA

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TCE Corporate Communications

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