

TCE Expression

House Magazine of TCE

Jan-Mar 2012



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MANAGING TECHNOLOGY

Dear TCEites,

From times when “technology was changing the pace of life”, we have moved on to an era where “organisations are changing the face of technology”.

This issue of TCEExpression is dedicated to technology and its infinite facets... From the ones that are nestled deeply in the minds of people to the ones that are glaring at us squarely from their everyday perches.

Why didn't we just stop with the fire and the wheel? What made us deftly blend the two, to cause an industrial revolution? Was it discontent or was it plain curiosity that led us to apply discoveries to inventions? Is it the same itch that pushes us to innovate and urges the customer to demand? TCEExpression tries to find the answers from within and beyond TCE.

The chip, the cell, the gene and plain simple matter have a whole new universe hidden within... We are constantly reorganising ourselves to understand and align ourselves to these multiple universes. Yes, we are managing technology...

Read on to gather the thoughts, verses, experiences, beliefs, humour and more on managing technology.

We hope you will enjoy reading this issue as much as we enjoyed putting it together...

Yours Truly,

Sowmya Raghu Raman

Editor-In-Chief

Take a tour of TCE's systems and processes which support technology and the market dynamics which define them.

Corporate Communiqué Page 3

TCE's tech champs talk about Hot Tapping, Glass Technology, Rock Mechanics, Sciagraphy & more. Discover how TCEites manage technology in 3 exclusive sections devoted to technology.

Techxpertise, Techcellence & Techability Page 7

A whole new section that explores the Customer Perspective of TCE...Meet the MD of Coastal Energen Power Limited...

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Take a tour of TCE's projects & prospects and the happenings across the globe

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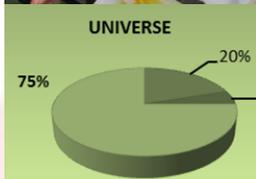
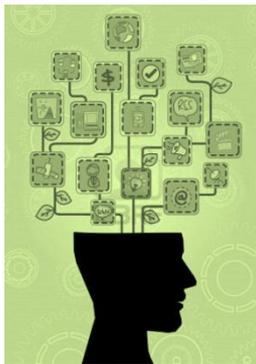
Giving back to the society , sharing knowledge, winning accolades and much more...

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The year 2012 is significant as it signals the completion of an illustrious journey of 50 golden years and the beginning of a promising future for TCE.

The last quarter was significant in terms of convergence of all minds across the company to beat the market trends.

'Collective efforts' were noticeable under the leadership of our DMD in all facets across TCE. Collective thinking also was evident at the two-day Strategy Workshop to build the growth path for the future. Beyond work, ongoing TCE days across locations showcased collective efforts of employees and their families in celebrating beyond work.

Collective effort has been TCE's strength in its transformational initiatives and will be key to building further on the foundations laid down over the years by its leaders.

The key drivers for transformation have been the following:

- The changing needs of the markets*
- The changing needs and aspirations of our employees.*

Ability to address these effectively would determine our success as we leverage our core capability of managing technology. Managing Technology has been objectively considered as the theme for this issue of TCE Expression.

Finally, in the big picture, we believe that while delivering to our customers a good external brand experience through our services, we must also stay ahead and continue to strengthen our reputation as a good quality employer.

Employment Value Proposition is where our focus will be trained for the year.

And collectively we will !

Rakesh Gupta

Senior Executive Vice President – Corporate Affairs



The cover page is an effort to align with this quarter's theme for TCEExpression - "Managing Technology".

Technology is TCE's mainstay and matter of pride.

The cover page carries icons of TCE's major areas of technology and business in power, chemical, nuclear, infrastructure, industrial, mining, metals, architecture, town planning and construction engineering.

A background of arrows woven around the world map is indicative of the technological growth which transcends geographies.



MANAGING TECHNOLOGY



TCE has carved a niche for itself in the engineering consulting space by the sheer dint of its people strengths. If managing technology is the mainstay for TCE as an organisation, it is the way of life for every TCEite. Technical knowledge has been the common thread that *binds* TCEites, *bonds* TCE with its clientele and *brands* TCE in the market. It has constantly unfolded a range of opportunities spanning business areas and geographies.

This issue of TCEExpression brings to you the technological views, thoughts, beliefs and dreams of TCEites across disciplines, businesses, locations and levels. It attempts to capture a sliver of the technological mindscape in TCE that is clearly vested in its people.

The Corporate Communique' section dwells on the much needed synergy between business and technology. Also, three new sections, **techxpertise**, **techexcellence** & **techability**, bring you profiles of senior, mid-level and young TCEites who have a lot to share about their trust with technology.

There surely is a lot more ground to cover, when it comes to technology in TCE. The forthcoming issues will have more on Managing Technology...

Mind over Matter

With its processes for learning, sharing, inventing and innovating, TCE is all set to conquer the peaks of technical excellence. The CPMC Chairperson, Dr. Malur, gives us the inside story...



With the afternoon sun streaming into his room and the fast paced Bengaluru traffic forming a dynamic collage on his window pane, Dr. Rajashekhar Malur articulated his thoughts on Technology @ TCE. As the Chairperson of TCE's apex body for technical excellence, Dr. Malur has a lot on his plate. His role as the head of a business vertical keeps him hands-on with the operational issues that need technical support and vice-versa. His career stints spanning engineering consulting and research have reinforced his belief that the only answer to market uncertainties is technical excellence.

What is the importance of synergy between technology & business in TCE?

I cannot think of technology **and** business... Technology **is** our business, I mean, we are in the business of technology – to me, these words are synonymous! Therefore, there is no business without technology and there is no growth without embracing technology!

In six sigma parlance, to quote the Kano Model, *the delighters of today will become the basic needs of tomorrow.* So we need to be continuously evolving as a technological organisation if we have to sustain or even survive.

Everything we do is Technology...Whatever we deliver is technology.

How do you think Technical Excellence is our mainstay in the market place?

During its 50 year stint in the market place, TCE has always characterized itself as an organisation which thrives on technical excellence. TCE is known for its technical focus in the market. Brand TCE **is** technical excellence and we need to sustain that at any cost. When we are delivering engineering services to build a power plant or an infrastructure project, it is expected that we provide quality engineering services... services that are current or even futuristic and that is what gives us premium in the market... that **is** our business.

So, how can we weave technology into our services?

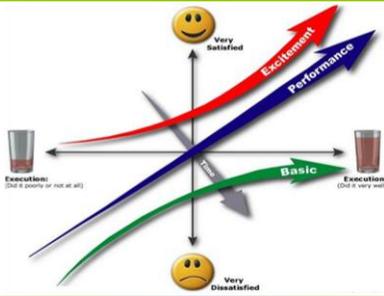
Leaving the rhetorical aside, we cannot survive in the market for long if we do not update ourselves with the state of the art and always stay current and futuristic.

Services we offer need to introduce newer technologies or be able to respond to customer requirements involving newer technologies as evidenced by our successes in some of our businesses. If we are the market leader in supercritical plants today and this is just an example – that is because we did it first and we still retain that first mover advantage .

There are no full stops for learning – at the individual level, team level and organisation level. We need to continuously keep learning the latest and of course, unlearn a few things as well – have that ability to adapt quickly. The moment we forget that and tend to be complacent and become lethargic about learning new things, we become history. And market doesn't give you another chance to rewrite history.

Does that simply mean better revenues with better technology?

Not necessarily...whenever we take a new stride and set a benchmark, it does not take long for others to catch up and so what earned us a premium soon loses its sheen. So, we are in a continuous improvement mode which not only demands that we improve on our technology offerings but also eggs us on to embrace newer technologies.



“delighters of today will become the basic needs of tomorrow”

As the harbinger of super critical technology to India for the Tata Power- Mundra Project (800MW capacity), we have had the first-mover advantage. Similarly, our recent forays into Ports & Harbours, Mining as well as Renewable Energy businesses, bear proof of our ability to adapt to new technologies.

How is TCE organised for technical excellence?

In most offices we have verticals which are specific to customer segments. In addition we have horizontals representing engineering disciplines (Civil, Mechanical, Electrical, etc). These horizontals are headed by group heads at the vertical level and discipline heads at all locations. They are technology experts and the go-to persons for their respective disciplines and are responsible for quality of execution and technical excellence.

At the organisation-level we have discipline technical committees (DTCs) which comprise of the discipline heads as members and is chaired by one of the members on rotation. The committee is responsible for sharing knowledge, resources, best design & construction practices and managing competencies across offices and business units. They are also responsible for standardisation/automation of engineering processes and norms for design and construction.

The apex body at the organisation level is the Corporate Process Management Committee (CPMC) which consists of all DTC Chairpersons as members and is led by the CPMC Chairperson.

Hence, the business focused vertical structure is amply complemented by the technology focused horizontal structure to form a symbiotic grid that promotes technical excellence.

Any examples on how the structure has promoted technical excellence?

With carbon footprint and zero-discharge being the buzz words for all projects today, the technical committees have mandated that all feasibility reports and detailed project reports adequately address this issue.

The DTCs have developed carbon footprint *calculators*. They are now in the process of developing templates to calculate the carbon footprint based on the equipment and infrastructure that comprise any project in the gamut of TCE’s engineering.

Work is on to also develop engineering standards to support our entry into metals and mining. There is a continuous effort to manage an effective symbiosis between the vertical (business) and horizontal (technical) structures, so that the learning from a project is captured and fed into the knowledge repository of the organisation.

What are the challenges in the path to Technical Excellence?

Our experience has taught us that we may be good but we must strive to keep getting better. We have grown over seven and a half times in revenue levels in a few years but we have a long way to traverse; while doing this we must not lose sight of our technical focus. Our internal processes will need to stay in tune with the times, technologically. These are part of the growth challenges. The good thing is that we know it, we understand what needs to be done and we are acting on it.

What is the way forward?

We are on an aggressive revamping mode that includes IT-enabling of knowledge management towards higher levels of technical excellence. This will enable all project stake holders to be constantly connected on a virtual platform. HR is working on e-Learning modules with the support of DTCs.

The role of specialists and technical experts will continue to be central to technological growth and the Discipline Heads will play a more strategic role in times to come with a thrust on quality and compliance. The coming year will see us embrace technology in many ways to continue to keep reinventing ourselves in our quest to be the best.

I can definitely say that exciting times are ahead!

Profile Peek

Education

B Tech (Civil), M Tech (Structures) – UVCE, Bangalore, PhD (Civil) – IIT Kanpur
Visiting Scholar, Johns Hopkins University, Baltimore, USA (research towards PhD)

Career Highlights

1994 – 2008: National Aerospace Laboratories, Bangalore, Tata Consulting Engineers, Bangalore, Electrowatt Engineering (Oman) & John F Welch Technology Center, GEITC, Bangalore

2008 onwards: Tata Consulting Engineers

Areas of Interest

Structural Reliability, Finite Element Analysis, Structural Dynamics, Earthquake Engineering

Pursuits

Literature, Music, Travel & Work- Life Balance



...AT FIRST SITE

He has been with TCE for the past 23 years. Having completed 12 major projects in India and abroad,
Mr. V S Rammohan, Dy. GM, CNBU shares

with us his technological experiences with the world's largest diesel power plant, a desalination plant which demanded perfection and hot tapping for an ultra-critical service.

Hopping between sites and holding office as the **DTC Head for Construction**, Mr. Rammohan manages to make time for volley ball, badminton and reading.

How are super-fast execution assignments handled?

We did a super-fast job for Chennai Petroleum Corporation Ltd which involved hot tapping work in the flare pipe line. Hot Tapping is a method of making a connection into an existing pipe or vessel which is still under pressure or live in a running refinery. Unlike other systems, flare system is an ultra-critical service and shutting down a flare line would have meant plant shut down and a dip in revenues. We were given a target to complete the activity in three days. All preparatory arrangements & activities were meticulously planned by our mechanical group including safety precautions and the work could be completed as scheduled, saving CPCL a fortune. This was even published in the IOC in-house magazine.

How do the TCE Construction Engineers keep abreast with Technology?

We have several hundreds of standard documents that collate construction practices and are updated regularly. Various periodicals pertaining to Construction keep us in touch with happenings around us. Availability of internet also helps be in touch with new products in the Construction Industry.

Apart from these, any new technology adopted at a site will be shared in knowledge sharing sessions. As sites are scattered all over the nation, a lot of the knowledge sharing happens during the Construction Managers Meet or through e-mails.

What should TCE do for improved focus on Technology?

European & American countries along with Japan and South Korea are known for their construction technology. TCE should have more collaboration with consultants from these countries. Also, more opportunities should be available for design & construction engineers to work together in projects along with internationally reputed EPC contractors and consultants.

What do you consider as an experience to cherish in your on-site career ?

One of my most cherishing experiences was the erection & commissioning of 200MW Diesel Power Plant of GMR which was commissioned in 1998. It was the world's largest diesel engine driven power plant and the green field project was to be completed with a tight schedule. Diesel engine of such a magnitude was being installed in India for the first time and is as tall as a five-storeyed building. The engine and generator were transported from MAN B&W Germany and ABB Spain respectively. The units were dismantled and transported in *several consignments!* The assembling as well as other works were carried out at site and the project could be commissioned *much ahead* of schedule.

Was it always the time factor that posed challenges?

Not at all...quality control is another area that never leaves the radar...Commissioning of 25MIGD Reverse Osmosis (RO) Desalination plant at Oman is another project which is etched in my memory. The Omani kingdom has stringent specifications for drinking water as well as environmental degradation. Any slight variation in the chemical parameters will automatically divert the permeate (fresh) water back to the sea. Erection, testing & commissioning activities were well documented with a continuous eye on the outfall salinity & temperature. The project was successfully commissioned and handed over to the Omani Authorities.

B B Gharat joined TCE as a trainee in 1990 and is today the DTC Head for Civil Engineering. He has a Masters Degree (M.E.) from Sardar Patel college of Engineering and has more than 20 years of work experience.

“I have been extremely lucky to be part of projects that were executed for the first time in India” says Mr. Gharat while sharing his experiences on some of the most interesting projects of his career.

Do tell us about the first time projects in your career in TCE

As a trainee, I worked as a specialist structural engineer on the Gujarat Guardian Float Glass Project and was involved in preparation of detailed analysis and design of structural steel buildings including furnace, lehr warehouse, foundations, switchyard structures etc. and review of fabrication drawings. The project used the Float Glass technology for manufacturing glass first time in India.

As a Project Manager, I coordinated for the complete detailed engineering, tendering and execution of the First Marine outfall, Mega-sized pumping stations and lagoons forming a part of the Bombay Sewage Disposal Project .

I also worked as Project Manager for India's first ever Roller Compacted concrete dams project for Govt. of Maharashtra. The project included construction of Three Roller Compacted Concrete Dams called Lower Dam, Upper Dam and Saddle Dam forming two reservoirs in the pumped storage scheme. Involved in Review of tender documents, tender

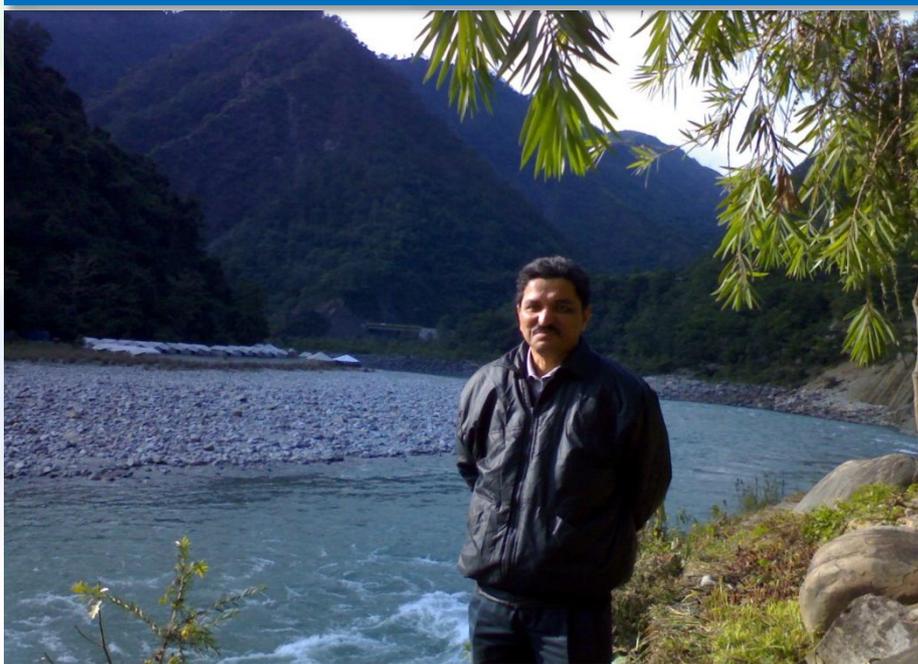
evaluation and structural designs and review for stability, seismic loading including FEM analysis and thermal study, vendor drawing review and resolution of various construction issues; coordination between client, expatriate consultants and the project team.

What do you recommend for keeping pace with technology?

It is important to evaluate the myriad technologies available and selecting the one best suited for the project rather than simply going by historical experiences.

Interacting with vendors to analyse options available in the market, attending conferences to keep abreast of novel applications and practices and updating ones knowledge by way of journals and other publications, are some good ways.

Significant Firsts



What are the prerequisites to tread on the path of technical excellence?

There is a constant need for perseverance to overcome issues during execution of new techniques / technology. This is better achieved by applying with fundamental principles of engineering and proper analysis. A receptive aptitude is a must. Continuous efforts toward knowledge mining and networking with experts are necessities .

What should TCE do to improve focus on technology?

TCE should form Expert Groups consisting of people with core specialities and discuss issues and possible solutions with the Expert Group based on customer feedback. Today we are creating more and more opportunities for channelising and disseminating core knowledge. More efforts to formalise such channels will go a long way in reinforcing technology.

The touch points between expert groups and live project teams need to be clearly defined and adhered to.

While information from vendors does get catalogued systematically, a lot needs to be done in automating the access.

Holding Forte

From the Technical Experts we move to the middle level champions of technical excellence. They do us proud by **holding forte** with their hands on approach and drive for perfection.

TCExpression brings to you a sample set from seven different disciplines...seven TCEites who are purposefully carving out a niche for themselves and the organisation...**Pratapsingh, Senthilram, Shridhar, Sukanya, Santosh, Chandak & Subbhanna.**



Top to Bottom:

Pratapsingh Jadhav, Sr. Manager, Environmental

A Senthilram, Manager, Electrical

Sridhar Khadilkar, Asst. Manager, Civil

Sukanya Chakraborti, Asst. Manager, Geology

Technical High Points

Pratap

Was a part of the project team for Design, Installation and commissioning of Sewage Treatment Plant based on Sequential Batch Reactor (SBR) process of 12.5 MLD at Goa. This was the **first STP based on SBR process** in India executed in 2004-05.

Has installed and commissioned **more than 15 Industrial wastewater recycle plants** for different industries based on Ultrafiltration and Reverse osmosis Membrane technology.

Sukanya

Geotech.Engg. and Project management for **desilting of Lakya Dam**, Kudremukh for safety & environmental reasons (KIOCL)

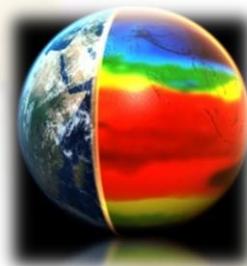
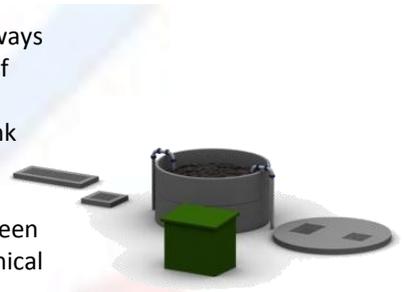
Subsidence Impact analysis under Forest Area at Ardhagram Underground Coal Block (Shyam Mineral Resources Pvt. Limited)

3D Modelling, Pit slope & dump slope stability analysis & **Geological Reports** for Coal Blocks and Dams.

Senthilram

The pool of technical expertise that I could always draw from, the culture of knowledge sharing, the excellent knowledge bank and the motivation and support to support individual talents have been reasons behind my technical highpoints at TCE.

Though I had worked for three companies before joining TCE, **I realized my true potential** only after joining here.



Shridhar

Initiated his career in designing residential & commercial buildings for various medium & high rise buildings (including ground+ 2- podium level + **42 upper floors**)

Worked on **Hyatt Aerocity Hotel** at Delhi International Airport (a flat slab system with a column free 40m x40m Ball Room area)

Worked at UAE for various **substation & hotel projects**



Keeping Pace with Technology

Shridhar

Learn & implement **new methods**, technologies & strategies with proven results.

Understanding latest technologies & methods such as pre-stress structures & pre cast concrete structural members.



Senthilram

Be mentally prepared to take calculative risks and **accept changes**. Utilize the opportunity to learn and do new things. More focused to do things differently.

Pratap

Talking to your friends about technological concerns.

Watching television news reports and specials about new advancements in various technological fields.

Reading newspapers or bookstore, browsing through various technology magazines and books.

Visiting local trade expos, to see the latest technological advancements in a particular market.

Discussing with Vendors

Sukanya

Continue research studies and paper publications Solving specialized engineering problems in the field of ground engineering

Pratap

Technology is essential to every business. It helps organisations maintain a competitive edge and build a strong presence in today's business world.



Research and Development activities are a vital component of any organisation which can demonstrate expertise.

TCE should keep developing and intensifying inhouse technology/R&D initiatives with its team of Designers to research , develop and optimize system/equipment design and model processes for rapid and efficient transfer of new technologies.

This will be useful in simulating a range of complex processes and can provide the most **innovative and value added products to the customer**.

This is a good business development tool to attract / retain new and existing customers.

Shridhar

To remain at the top TCE should leverage through investment in software tools & training.

Continued representation in international & domestic conferences & paper presentations enable knowledge sharing

Enhanced levels of design standardization would continue to further enhance efficiencies.

Sukanya

My aspiration is to develop a **dedicated team at TCE** for providing consultancy services for solving specialized engineering problems in the fields of ground engineering (covering soil and rock) and natural resource management covering stability analysis, mine pit designing , geological and geotechnical studies for hydel projects, land slide management ground water management, etc.

What should TCE do for improved focus on Technology?



Senthilram

TCE should use **vendor and client forums** to understand the technology available as well as the requirements.

We should continue to prioritise the technologies based on needs and **collaborate / tie up with expert companies**.

We should also continue to **motivate and support employees** working on new technologies.



Technology made a deep impact on my mind as early as the age of 10, when we had a black & white television assembled in our house in 1980. Since then I was fascinated with electronics, assembling my first electronic organ (piano) for my school project, further making games ,stereo systems , even assembling my first home PC. With an addiction for technology, the hunt for newer announcements in innovation is ‘always on’, be it newspapers, magazines or mails. Discovery, National Geographic, have become favorite joints, to look out for brain food.

The Beginnings



Selecting the creative field of architecture, over “ever-changing” electronics, I graduated from B.K.P.S. college of Architecture, in Pune in 1994. As a professional, I started using computers from days of Wordstar, Lotus & AutoCAD 10. AutoLISP was fun, but interests diminished since subsequent versions were getting updated with the programs we had in mind. During my career as an Architect, I worked on various residential, commercial, educational, industrial, and interior projects, with focus on getting things done “the right way”. In India and especially in the construction industry, the lesser literate constitute a majority of the workforce, and the exercise to teach them mostly goes “in the drain”.

The Sojourn



Style & Substance

Santosh Bhavan shares his childhood pursuits which have evolved into his continuous quest for technology tinged with humour

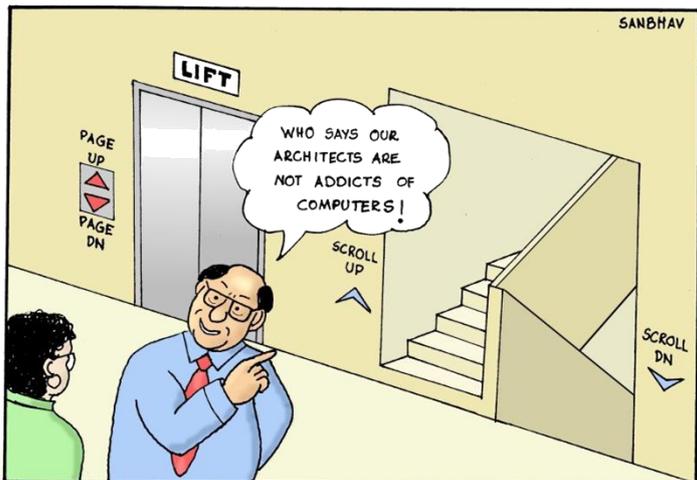
During this journey I came across like-minded people in TCE and after being associated as an architectural consultant with TCE since 2005, I decided to join TCE almost a year ago. It was a heartening experience that importance of good architecture was highlighted in TCE’s recent Workshop on Architecture in Mumbai. Architecture, if given the lead, would prove to be a good gelling agent for all engineering disciplines, providing a refined output in an attractive form. Proactive approach & positive team work, is the key to a successful design venture. Unlike other disciplines, architecture has numerous possibilities in store for design. Sometimes things fall in place instantly, whereas most of the times it requires a persistent effort to get the right mix. Design and especially aesthetics is something wherein consensus is difficult to achieve, due to personal preferences or liking. An architect has to be a fusion of an artist, an engineer, a scientist & an economist.

The Technology

To make architecture a major driver for business, we need to make some radical changes. For improving in-house architectural presentation we need to infuse good talent, well versed in contemporary design software like Autodesk Revit Architecture with BIM (Building information modeling), AutoCAD, 3DS Max, Maya, Google Sketchup, to name a few. Drafting styles, templates, presentations have to be given a facelift.

Today’s generation is fortunate to get a wide exposure of software useful in architecture. One can now instantly build 3D views which used to be a cumbersome “drawing board exercise”. Hand drawn perspectives with sciagraphy (technique for shading & shadows) required real patience & talent. Newer technology (newer software) can generate interest in the otherwise run-of-the-mill procedures, and bring about the desired thrust for innovative approaches. Putting things virtually in 3D before actual execution of the project, could instantly highlight interferences and problems, saving a lot of money & efforts.

“An architect has to be a fusion of an artist, an engineer, a scientist & an economist.”



Since we are discussing about “Managing Technology”, I would like to highlight the other side too. Undergoing a course on Naturopathy & Yoga, I observed that technology was a major culprit in the deterioration of health. Faster technology is compelling you to squeeze the maximum out of time, and making you to “live on the edge”. The more responsive your car brakes are, the faster & closer you tend to drive, increasing chances of mishaps. You can make presentations within no time, but what if your PC doesn’t respond? We are relying too much on machines, increasing stress levels. It’s important to balance the use of technology and provide sufficient lee way for ‘malfunctioning’ issues. For an organisation, the right mix would be if the younger generation stretches itself to explore something new and the silver hair steer them in the right direction.

In my personal capacity I organized workshops in TCE on improving efficiency and increasing productivity in CAD. While hardware and software constraints are challenges in any set up, sheer unavailability of time to explore something new, due to work pressure is also a continuous dilemma. Since time constraint is a major driver, “essentials” are given priority and art / innovation sometimes take a back seat. Other challenges include persistent changes in hardware and software configuration. The pace at which technology is changing, a 20GB hard disk which was adequate a few years ago is replaced by a 2 TB hard disk. Newer software demands more storage and a faster system for efficient functioning.

The Pangs

The Future

Future technology in architecture is focused on environment friendly buildings & improving energy efficiency. Design simulation software would be a common thing tomorrow. Architectural presentation would be on transparent perspex screens & 3D holographic projections on discussion tables.

Watch out for mobile projectors, pen projectors, curved displays, digital newspapers, wrist band phones, transparent phones, voice activated controlling systems, eye movement controlled devices, virtual goggles, zoomable spectacles, miniature storage devices, miniature spy cams, 4D theatres with smell generators, nanobots, printable semiconductors (chips) , air / water fuelled cars and much more.

The Balance

During moments of relaxation, my favorite activity is watching English movies. Other hobbies include fiddling with gadgets, naturopathy, cooking, photography and venting creative spurts through humour & cartoons.

My favorite quip is the one to my wife before marriage, “MISS YOU” till you are “MRS ME !”

Santosh Bhavan is a Senior Manager (Architecture) at TCE Pune. He is also the lead cartoonist for TCEExpression.

INSTRUMENTATION IN FOCUS



With interests ranging from Rabindra Sangeet and Photography to Instrumentation & Control, Chandak Bera flashes a smile when recounting his adventures in engineering at TCE.

14 years of experience in Instrumentation and Control engineering associated with various process plants (Haldia Petrochemicals Ltd., Indian Oil Corporation Ltd.) and Design Firms (L&T, Foster Wheeler (I) Pvt. Ltd.) has shaped Chandak into the **Go To** person for I&C complexities at the Metals & Minerals Business Unit headquartered in TCE, Jamshedpur.

When asked about his **technical aspirations**, Chandak is quick to add that he is *living it* in TCE as a part of a global, winning team in a stimulating, creative & open ambience. His idea of an exhilarating atmosphere is a team that expects high levels of performance & commitment from its members, where individuals are on an accelerated growth path with goals benchmarked for engineering success.

Enumerating his **technical learning at TCE**, he includes Detailed specifications of the previous projects (which has been commissioned and running successfully, sound Document Management System (DMS)/ Knowledge Management System (KMS) as the primary sources. He firmly believes that TCE’s 50+ years of rich experience has been a constant source of strength along with the technological prowess of Discipline and Business heads.

Chandak Bera is Asst. Manager (Instrumentation) at TCE Jamshedpur.

The 3Ms of Engineering

A heady combination of Mechanical engineering, Music and Meditation seems to have D S Subbhanna adeptly tuned to his role as a go-to person in nuclear projects at TCE. After graduating in Mechanical Engineering from VJTI, Mumbai, the past 14 years in TCE have seen him don the roles of piping engineer and project engineer for some of TCE's prestigious projects viz., Tarapur Atomic Power Plant, Prototype fast Breeder reactor (PFBR) & Fast Reactor Fuel Cycle Facility (FRFCF) for Dept. of Atomic Energy, Govt. of India.



D S Subbhanna,
Asst. Manager,
Mechanical



Can you tell us about your technological highpoints at TCE?

I was responsible for carrying out Plant Design and Modeling Software (PDMS) activities for 20 cells which involved equipment modeling and routing 2000 lines/cell. The carpet area of each cell was 10mX10m with a height of 20m. The PDMS activities were completed within the stipulated time. MTO extracted from PDMS is to be used for site execution. PDMS was also extended to outside cell areas including service piping area of these cells.

What is your method of keeping abreast with technology?

Attending Seminars/workshops, interacting with PDMS suppliers and the specialists at other offices about latest developments in this area.

What should TCE do for increased focus on technology?

TCE should make available more platforms/opportunities for carrying out PDMS activities in Oil and Gas, Refinery and Power Sectors in both domestic and overseas Projects.

Stalls may be put up in technical workshops and exhibitions to showcase our capabilities.

Looking forward to newer challenges, Subbhanna adds "My aspiration is to become a Project Manager and work in other diversified sectors of engineering"



K. Gopalakrishnan

TCEx proudly presents a cartoon by Mr. K Gopalakrishnan.

Mr. KG has been with TCE since its inception way back in 1962...he is a force to reckon with in mechanical engineering and has been one of the foremost authors of TCE's Knowledge and Quality Management Systems...

Mr. Gopalakrishnan continues his association with TCE as a Consultant and Technology Expert and is a regular contributor to the creative clique section of TCExpression.

Foot Prints In The Sky

When **Youth** Get Together, Amazing Things... Just Happen. ...**Uppity** and reaching out to the skies, young engineers at TCE are making a mark for themselves with an **eye on tomorrow**. Here's how...



“Ever since I joined TCE as a Trainee process engineer on February 1st, 2010, life has been on the **up side of learning**. Practical application of the amassed knowledge has given me immense satisfaction as a Chemical Engineer.

Interactions with clients have proven really helpful in honing my technical and inter-personal skills. Working on a **wide spectrum of projects** including Pharmaceutical, Food, Nuclear and Oil & Gas Sectors, has exposed me to unknown horizons and in this process I find myself challenging and updating my arsenal of Technology.

Nookala Yagnavalkya,
Engineer, Chemical



Growth, personal and organisational, is always the forefront everyday, here at TCE”

BE (Chemical), Univ. of Mumbai, MTech. (IIT Mumbai)
Currently **writing a Book:** “Refinery Hydrogen Management”
Research / Professional Interests include Process Engineering (Pinch analysis, Heat Exchanger networks), Design & Simulation of Refinery modules, Heat Exchanger Design & HAZOP Studies
Hobbies & Interests : Cricket, Table Tennis, Badminton, Trekking & Nature Trails, Amateur Web Designing, Dancing, Debating and other Oratory events

BTech (Mining), ISM, Dhanbad
Paper Publications: “*Mine planning using Minex*” at proc Gemcom India User Conference, “*Importing Minex grid model to whittle*” in proc Gemcom India User Conference, “*Application of mining software*” In proc Mining Techonlogy by Mintech, “*Utilization of low grade fine iron ore*” In Proc Indian Institute of Metal Kolkata chapter) “*Pit optimization through Whittle*” In Proc Gemcom India user conference
Hobbies & Interests: Solving the engineering problems Learning new software, Playing Cricket and Yoga



Hari Narayan Pandey,
Senior Engineer, Mining

“ I learnt and gained expertise in mining software for geological modeling, mine planning and mine scheduling.

I have become adept in mining software like **Surpac, Minex and Whittle**.

In geological modeling and mine planning I truly value the special expertise gained in coal, iron ore and limestone.

My dream is to execute the mine planning and design jobs with **extensive use of available mining software** for quality output in optimum time to make TCE the best mining consultant

I also want to develop new mining software and tools which will become the point of reference in the coming years”





Energy At Work

Coastal Energen Pvt. Ltd, the Power Generating Flagship Company of the Coal & Oil Group is setting up a 1200MW coal fired thermal power plant in Tuticurin, Tamil Nadu with TCE as the Owner's Engineer.

*As guests of the MD of Coastal Energen, the TCEx team came face to face with **energy at work**. Shuttling between the power plant site tucked away in Tuticurin, his corporate office in Chennai and the rest of the world, Mr. S M Zafrulla is constantly on the move to expedite the maiden power plant of Coastal Energen.*

Taking pride in the upcoming power plant that has already begun doing its bit for the environment and society, Mr. Zafrulla talks about his vision for Coastal Energen and what needs to be done to change India's energy landscape.

What prompted the Coal & Oil group to make its foray into power generation?

C&O has been into the energy business for last 15 years and has been supplying coal to various power plants, cement industries etc. in India. As part of forward integration, it was our Founder President & CEO Mr. Ahmed Buhari's vision to logically expand its existing business venture into power generation and become an integrated energy solution provider. Also, the power deficit situation motivated the group to contribute to the nation building by becoming a major power player particularly in South India.

What is the secret of the C&O group's success, so far?

We believe in developing trust than mere business motives and firmly believe in building effective partnership with all who associate with us. And, our Human Resources play a vital role as a catalyst agent.

What is your vision for Coastal Energen?

To establish a world class power plant with a target generation of 5000 MW at our Tuticurin site and become a major power producer in South India.

How did you choose TCE over other possible associates, for your maiden power plant?

Its reputation as a leading Consultant in the Power Sector and my long association with them have definitely been the deciding factors. Also, the confidence in TCE and the technical data bank that we knew we could draw from, were motivating factors for us to choose TCE as Owners' Engineers.

What are your experiences so far, in associating with TCE?

I would like to place on record our appreciation for the TCE team that has supported the engineering of our project, so far.

With the support of Mr. Mohan Murthy and Mr. Anjan Bhattacharya, the design team (Sridhar, Madhavan, Ratnakar Hegde, Hokrani, Fathima and Rukmani) has done an excellent job in meeting our project requirements.

The TCE construction supervision team (Herle, Madasamy and others) has lived up to the expectations of Coastal Energen in meeting with the site demands.

Any further expectations from TCE?

While we respect TCE's technical strengths honed over half a century of existence, I believe that a lot more can be done to leverage its internal strengths for the client's benefit.

The wealth of knowledge that TCE has, needs to be captured and cascaded through enhanced updated knowledge management and efficient technology-transfer to new incumbents as well as on-site exposure to design personnel.

Customer delight can be better achieved by creating more touch-points for timely solutions to trouble-shooting.

What are your views on the Indian Energy Sector?

There are some key challenges facing the Power sector which include energy security, high cost of fossil fuels and issues related to environment & climate change. The magnitude of each one of these has changed in recent years. With the growing income levels, the per capita energy consumption has shot up. However, on the supply side, the shortage of domestic coal and ever increasing prices of imported coal have stunted the growth of power sector.

The other concerns in capacity addition have been the constraints in land acquisition, rehabilitation of displaced people and geological surprises.

Shortage of skilled manpower for project commissioning, contractual issues, delay in readiness of balance of plants by the executing agencies are some of the irritants. Limited available options of BTG manufacturers in India with long delivery periods and non-availability of transmission corridors in few cases are impacting capacity addition plans.

These and similar related constraints in hydro, wind and nuclear power sectors continue to pose challenges in the path to 24x7 supply.

What are your thoughts on what the Government should do to spur the growth in this sector?

Unconditional support and thrust to this sector should be the priority of the Government. A single window system to accord various clearances and statutory approvals required for Project implementation right from the Concept Stage up to Commissioning, would help reduce the project gestation periods and associated costs.

Turn to page 24 for more on the CEPL project

“The confidence in TCE and the technical data bank that we knew we could draw from, were motivating factors for us to choose TCE as Owners’ Engineers. We respect TCE’s technical strengths honed over half a century of existence”

Your Words of advice for any other organisation that plans to enter the Energy Sector?

Start activities of Power Plant after all statutory approvals are in place & coal source is tied up.

Select barren land as far as possible to put up the Power Plant to minimise land acquisition problems.

Ensure that the Detailed project report (DPR) is as comprehensive as possible considering most eventualities.

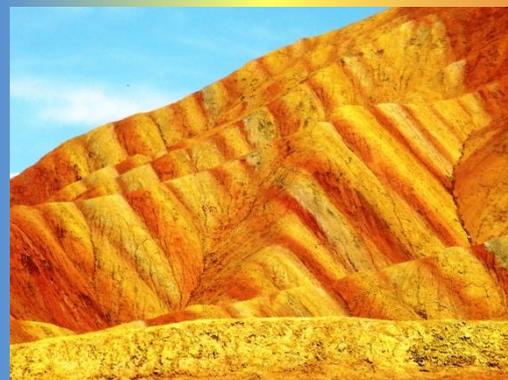
Conduct thorough risk analysis & risk mitigation plan to be adopted.

Conduct detail soil investigation of the proposed project area to avoid geological surprises.

Ensure and develop proper logistics and infrastructure.

Prevail upon the executing agencies for providing proper living conditions for the workers at the construction site.

Initiate CSR activities and green belt development well before commencement of the project for inclusive development.



Mr.S.M.Zafrulla is a veteran in the power industry and has over 41 years of hands -on experience in execution, implementation and operation of thermal and hydro power projects.

He was the Managing Director of Visvesvaraya Vidyuth Nigama Ltd. and Technical Director of Karnataka Power Corporation Ltd.

He is highly energetic, known for quick decision making and has extensively travelled worldwide.

As an avid photographer, Mr. Zafrulla is always on the lookout for interesting subjects for his lens. The above picture is a keepsake from his recent visit to China.

Delhi

Engineering Consultancy Services for preparation of Feasibility and Detailed Project Report of Jameri Hydroelectric Project in Arunachal Pradesh.

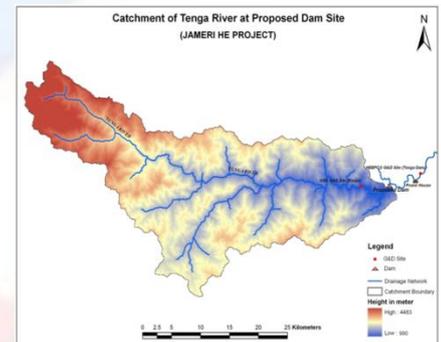
TCE-Delhi successfully completed the preparation of the Feasibility Report for Jameri Hydroelectric Project of Arunachal Pradesh, India, in January 2010. The Client, M/s KSK Energy Ventures Ltd., entrusted the task of providing consultancy services for preparation of Detailed Project Report (DPR). TCE Delhi prepared the DPR of the Project with Installed Capacity (IC) of 70 MW and is in the process of submitting the draft DPR for an IC of 62 MW.

The Project is a **Run-of-the-River** type development having provision of diurnal fluctuations of Tenga River in Kameng District. Modified horse-shoe shaped concrete lined Head Race Tunnel, a restricted orifice type Surge Shaft, and an underground steel-lined penstock, surface Power House and a Tail Race Channel constitutes the system engineering components

Detailed studies related to hydrology, topography, geology, power potential, project layout optimization, quantity estimation, costing, financial evaluation etc. as required for the preparation of a bankable DPR were carried out. Clearance of hydrological analysis of the Project has been obtained from Central Water Commission. Environmental, Forest and land acquisition clearances are currently being pursued by the Client.



View of the Tenga River from the d/s of dam axis



Digital Elevation Map of the catchment of the Tenga River

Detailed Engineering services for building 30/15kV Substation at Mali, West Africa.

TCE-Delhi is currently providing Detailed Engineering services for building **30/15kV Substation at Mali, West Africa** for Mohan Energy Corporation Pvt. Ltd.

The total plot area of the substation building is 950 m² and the layout consists of all the major electrical equipment placed on ground floor and control panels on first floor control room. Supervisory Control & Data Acquisition (**SCADA**) System is employed for monitoring and control of entire substation. Protocol IEC 61850 is imposed for the data exchange between the various sections of the station. Civil works are under progress and are expected to be finished by April 2012. All the major electrical equipment are expected to be shipped at site by May 2012.

Consultancy Services for Internal Development of Sector 20 (Part) & 18 (Part) of Yamuna Expressway Industrial Development Authority (YEA).

The project is a part of development of Yamuna Expressway Industrial Development Authority (YEA) area and is a part of proposed Sector 18 and Sector 20 located in Gautam Budh Nagar. The total project area is approx. 1328 ha. In the year 201, TCE-Delhi had developed the **Master Plan for Water Supply, Sewerage and Drainage** facilities including Rainwater Harvesting. Present scope of work includes Preparation of Design & drawings for residential and commercial area, along with Topographical survey. The main project features include:

- 215 Kilometres of Water Distribution network
- 193 kilometres of Waste water collection network
- 275 kilometres of Storm water drainage system



Sub-Station Foundation work in progress



Verification of survey benchmark pillars by TCE team

Engineering Consultancy services for the seat manufacturing facility at Manesar, Gurgaon, Haryana.



Raft Work in Progress

Bharat Seats Limited (BSL) has entrusted TCE with a job of Detail engineering along with Construction supervision services for setting up a **seat manufacturing facility** at IMT Manesar Haryana. This facility is envisaged to mainly cater to Maruti Suzuki India Limited.

The Civil drawings up to first floor have been completed and construction work has already been started. Expected date of completion is September 2012.



Pouring of Concrete for Retaining Wall

Engineering Consultancy Services for preparation of Techno-Economic Feasibility Report for green field cement plant in Ethiopia for Birla Corporation Limited.



View of cement plant at Gurba Gurachha

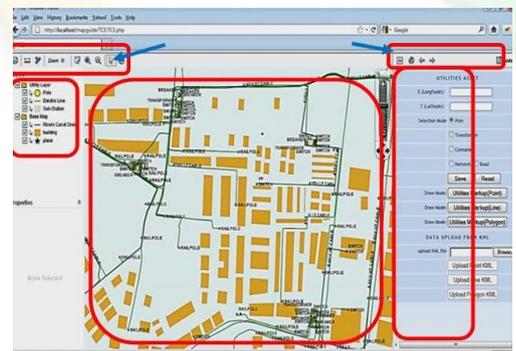
TCE-Delhi has successfully completed the Techno-Economic Feasibility Report (TEFR) for setting up a green field cement project having 1.0 MTPA clinker manufacturing capacity with cement grinding units at two locations Dejen and Sululta.

This is **TCE's First International assignment in the Cement sector** covering demand & supply as well as logistic optimization which included macro economic analysis aligned to the applicable norms in Ethiopia. The techno-commercial solutions were offered and delivered an International standard Report for the project .

Master planning and Study of existing JUSCO's power distribution system for its modification and augmentation.

Tata Steel through its agency JUSCO shared with TCE, its desire to publish an **electrical network** of the City of Jamshedpur on **World Wide Web**. Aligned to the customer needs , TCE's solution comprising the web-GIS System will have the following features:

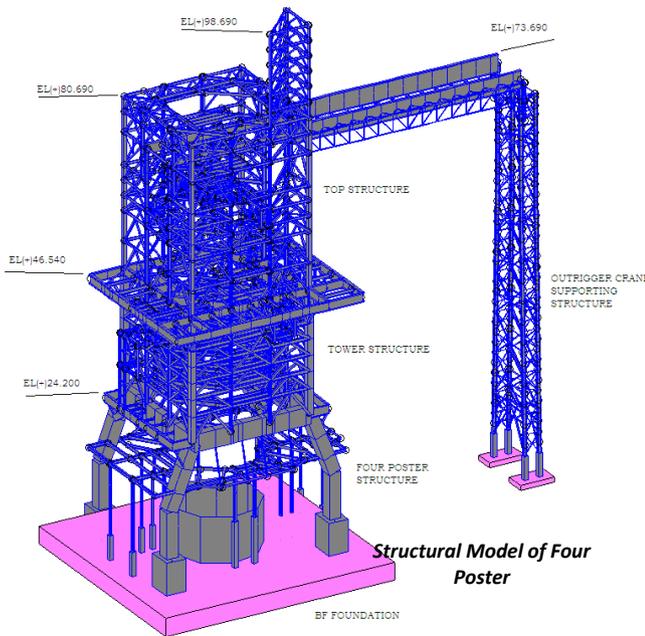
- Quick information retrieval
- Digitally driven reliability, security & efficiency
- Planning and visualization of future power demand
- Provision of timely information and control options to consumers
- Transparency in operational governance
- Smooth operation & maintenance



Snapshot of the Web-GIS

Kolkata

Engineering Consultancy Services for NMDC BLAST FURNACE #1, Nagarnar, Chhattisgarh.



NMDC Limited, a Public Sector Unit under Govt. of India, as a part of integral steel plant of Nagarnar, Chattishgarh, India, is installing a state of the art 4506 m³ volume Blast Furnace (BF) to produce 3.325 MTPA hot metal for steel making process & pig iron. The blast furnace will be designed for production of 9900 tons per day with the state-of-art refractory and soft water closed loop system. The blast furnace (BF) will have a **Bell Less Top Charging Equipment and Pulverized Coal Injection** to reduce the operating cost to improve the furnace performance.

TCE - Kolkata is providing engineering consultancy services for BF & its allied structures, cast house along with various auxiliary and ancillary facilities.

Jamshedpur

Project Management and Construction Management services for 6 MTPA Integrated Steel Plant of Tata Steel at Kalinganagar in Odisha.



Raft for Load Block Sub station, Sinter Plant

The Construction at Kalinganagar site is in full swing. Tata Steel Limited has appointed Tata Consulting Engineers Limited for rendering **consultancy, project management, site supervision** job for this project. The first quarter, Q1-2012 saw the accomplishment of major civil foundation work for PDS (Power Distribution System) for Kalinganagar Project.



Cable Tunnel under construction

Mumbai

120 MW ITEZHI Hydropower – Zambia.



Itezhi-Tezhi Power Corporation Limited (ITPC), Zambia is developing a **120 MW project** for which TCE is providing Project Management Consultancy Services. This is one of the major overseas assignments for TCE, in **the hydropower sector**. This plant will utilize water resources of the Kafue river from the existing Itezhi-Tezhi reservoir. The proposed plant was conceptualized in the late 1990s and is currently under execution. TCE has been actively involved in the project since its conceptualization stage.

Incidentally, ITPC is a Joint Venture company promoted by TATA Africa Holdings Limited and ZESCO, the power utility company of Zambia

ITER (International Thermonuclear Experimental Reactor)

ITER is an international fusion reactor which is being constructed under the collaborative efforts of seven participating countries namely **European Union, United States of America, Russia, Japan, Korea, China and India**. The main objective of ITER is to demonstrate the scientific and technical feasibility of a controlled fusion reaction by producing about 500MWth of fusion power by Deuterium - Tritium Plasma at Cadarache, France.

ITER-India has entrusted TCE the responsibility for detailed engineering of the project for **Component Cooling Water System (CCWS), Chilled Water System (CHWS) and Heat Rejection System (HRS)**. TCE's scope of work ranges from Design basis report and system optimization to Tender specifications along with Reliability, Availability, Maintainability and Inspectability analysis (RAMI) and Failure Modes, Effects and Criticality analysis (FMECA).



EPIC of Flexible Intermediate Wax Tank at ORYX GTL, RLIC For M/s Doha Petroleum Company Limited, (DOPET)

ORYX GTL is a **synthetic fuel plant** based in Ras Laffan Industrial City, Qatar, owned by Qatar Petroleum and Sasol. It uses gas to liquids (GTL) technology for converting natural gas into liquid petroleum products. The capacity of ORYX GTL is 34 thousand barrels per day ($5.4 \times 10^3 \text{ m}^3/\text{d}$) of oil. When commissioned, it will be the world's first commercial-scale GTL plant.

The ORYX GTL plant is composed of different units. The wax produced in Unit 30 contains aluminum in the form of carboxylates. The aluminum contamination in the wax causes blockages on the Product Work-Up Hydrocracker. The intent of Unit 45 is to remove the aluminum contamination from the wax & feed to Unit 50 where it is hydro cracked and processed to diesel fuel.

Right from start-up of ORYX GTL, Unit 45 has experienced operational problems that prevented it from operating continuously and reliably. This was due to **absence of a hold-up buffer downstream of Unit 45**.

Hence, a new Flexible Intermediate Wax Tank (183-TK-008) to provide **flexibility to switch service between units** was proposed and this enhances the operational philosophy to optimize throughput and profit. TCE has provided bid-evaluation & procurement assistance to ORYX GTL, along with Residual & Detail Engineering and Project Management services.

The project helped TCE gain insights into International customer needs. While Project Kick Off Meeting was conducted on 19th Sep 2010 the system got commissioned in Jan 2012.



Basic and Detailed Engineering for 15 KTPA Poly Plant (PVC) at Chemplast Sanmar Ltd. Mettur, Tamilnadu.

Chemplast Sanmar Ltd. (CSL) is setting up a new **15 KTPA Poly Plant (PVC)** at their facility in Mettur, Tamilnadu. The plant configuration needed to be modified to **increase production efficiencies**. TCE is appointed as an engineering consultant for the same. TCE's scope of work involves basic and detailed engineering, preparation of enquiry specifications, procurement assistance and erection / construction / commissioning assistance.

As a part of this project, two main process units i.e. **polymerization and spray drying section** shall be installed. Existing utilities are being augmented with new chilled water plant, cooling tower, plant & instrument air compressor and hot water system to cater additional requirements of new facilities. The Plant is expected to be commissioned by Feb 2013.



Tyre Manufacturing Facility for Balkrishna Industries Limited, Bhuj, Gujarat.



Plant- Layout



Tube Production

Balkrishna Industries Limited (BKT) is installing a new 232 TPD Pneumatic Tyre, 10 TPD Solid Tyre & 10 TPD Tubes Manufacturing facilities at Bhuj, Gujarat. The proposed project also comprises of **20MW Lignite / Imported coal based Cogeneration Power Plant.**

TCE Scope of services includes PMC with Detailed Design & Construction Supervision of Raw Material Storage Building, Mixing Building with Extruding Section & Calendar Section, Main Manufacturing Plant with Sections such as Stock Preparation Section, Tyre Building Section & Tyre Vulcanizing Section , Tube and Solid Tyres Manufacturing Plant , Bonded Storage Room , Captive Power Plant, Non Plant Buildings , Utility Plants, Raw Water & Fire Water Tank, Bachelors Accommodation, Guest-House & Infrastructure facilities.

The project had kicked off on 3rd September -2010 and expected to be commissioned by Aug-2012.

Detailed Engineering for 41600 MTPA Chloromethanes plant (CMS) at Shree Rayalaseema Alkalies and Allied Chemicals Ltd., Kurnool, Andhra Pradesh.



Shree Rayalaseema Alkalies and Allied Chemicals Ltd. (SRAACL), is setting up a new **41600 MTPA Chloromethanes Plant**, adjacent to their existing Chlor-Alkali Plant at Kurnool, Andhra Pradesh.

TCE is carrying out **basic engineering of Hydro chlorination and detailed engineering of entire plant facilities** consisting of hydro-chlorination, thermal chlorination, product rectification, HCl absorption, tankages for feed, product & intermediates, cooling tower, refrigeration plant, thermal oxidizer, chlorine vaporizer, PSA nitrogen system, plant & instrument air compressor & dryer, methyl chloride compressor and tanker loading & drum filling systems for products. A 3D PDMS model is being prepared by TCE for entire new facility.

The plant is expected to be commissioned by March 2013.

Pune

Project: Mahindra & Mahindra - Farm division-Tractor manufacturing facility at Zaheerabad, Andhra Pradesh.



The world's biggest manufacturing facility under one roof, producing more than one lakhs tractors per year. The overall plant is spread across 80 acres. TCE is involved in detail engineering and construction supervision services covering land development, civil/ structural, MEP including ETP / STP facilities.



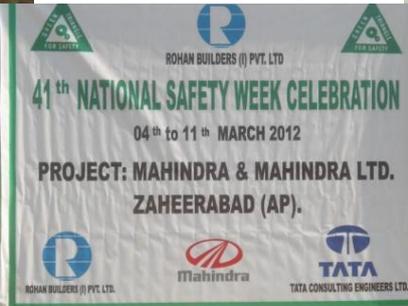
Facilities for manufacturing 47 hp to 110 hp engines include engine assembly, engine testing, transmission assembly, pre and post painting chassis paint shop, testing track, Tyre and rim storage and an export tractor shed. Presently utilities are at augmentation stage with process equipment erection under progress. Production is planned from June 2012.

Construction

The site office teams across the country achieved a host of milestones in various projects. *Catch* glimpse of the major highlights:



Team TPCL Maithon achieved Unit - 2 Full load on 23rd March 2012 at 03:55 Hrs.



Mahindra & Mahindra Limited, Zaheerabad, Andhra Pradesh Achieved 1103329 safe man hours up to February 2012.



NDCT 1 & 2 with Connecting Channel

Kalisindh Thermal Project at Rajasthan is progressing with the BTG, STG and connecting channel installations.



GSPC Pipavar Power Ltd. Kovaya Placement of LP rotor, Steam Turbine – Unit 1



Five Million LTI Free Safe Man Hours Nestle India Ltd. Tahliwal Project

Chimney Erection



Bangalore

Maithon Thermal Power Project 2X525 MW Dhanbad, Jharkhand.

Maithon ('Mai ka Than) meaning "**Mother's Abode**", is the site for Tata Power's 2 X 525 MW coal fired power plant. Maithon is located on the Right Bank of the River Barakar, Dhanbad, Jharkhand. The power plant is a joint venture of Tata Power and Damodar Valley Corporation (DVC).

Services for the project provided by TCE included basic engineering, procurement services starting from issue of specifications, to Signing of Contract for seventeen (17) packages, and subsequent detail engineering including release of more than 600 civil construction drawings and vendor drawing review totaling about 5000 documents. TCE also posted their engineers at the project site, for documentation control, quantity surveying, and safety management at project site.



Maithon Thermal Power Plant overview

Some of the important features of the project are :

- BTG enhanced rating of 525 MW derived from BHEL proven design of 500 MW.
- Shore based raw water intake system
- Both track hopper and wagon tippler system for unloading coal, which allows use of both BOX-N and BOBR type of wagons. Additional facility to unload coal supplied by Trucks.
- Complete CW piping concrete encased and shop fabricated instead of site fabrication.
- Open / Partially open buildings to reduce cost of civil works.

TATA Power Mundra Ultra Mega Power Project (UMPP) highlights and achievements.

Here's a visual Coverage of the Celebrations of India's first ultra Mega Power Project (UMPP) in Mundra, Gujarat.



Successful Completion of Commercial Operation Test on India's First 800 MW Super Critical Unit-1

Mundra -Unit 1 Achieves Full Load Operation



Visit of our Group Chairman Mr. Ratan Tata, Deputy Chairman Mr. Cyrus Mistry and Dignitaries to Mundra UMPP site



Coastal Energen Private Limited 2 x 600 MW Thermal Power Plant Tuticorin, Tamil Nadu.



3-D View of Main Power House

Coal and Oil (C&O) Group is an Integrated Energy group with interest in coal trading, mining, shipping and logistics. Coastal Energen Pvt Ltd (ENERGEN), the Power Generating Flagship Company of the C & O Group, is setting up a 2X600 MW coal fired thermal power plant in Tuticorin district, Tamil Nadu.

TCE is the Owner’s Consultant for the project, providing Engineering services from Concept to Commissioning which includes executing the project on multiple packages basis for all major systems. Detailed civil design engineering for Main plant system, Sea water intake/outfall system, CW system and all non plant buildings is being undertaken by TCE. Scope also includes construction supervision.



Actual Construction view

Highlights of the project are:

- 2 x 600 MW coal fired units with Boiler Turbine Generator (BTG) supplied by Harbin Power Engineering, China.
- **Plant Water system:** Fresh water from a Reverse Osmosis plant for Boiler. Sea water for condensor cooling, conveyed from an intake well installed in the sea and pumped to the plant through **4 km long pipe line.**
- **Cooling water system:** Sea water based recirculating type cooling system with FRP based Induced Draft cooling towers.
- **Coal handling system:** Provison made for Road/Rail/External Conveyors
- **Ash generation:** scrapper chain conveyor and belt conveyors for bottom ash; fly ash hoppers; Options for further disposal slurry/dry form.
- **Environmental aspects:** **Single multi flue stack** common for two units of 275 m height through ESP’s to control particulate emission. Provision for FGD in future. Complete Reuse of all fresh water based effluents in the plant.
- **Electrical Systems:** 400kV Gas Insulated Switchyard (GIS) installed by ABB.
- **Special Architectural design** and **landscaping** for the plant.



Architect’s Perspectives of the Landscaping, Control Room and Green Belt

Zuma Energy Nigeria Ltd. - 600 MW Coal based Thermal Power Plant at Itobe, Kogi State, Nigeria

Zuma Energy Nigeria Limited (ZENL), a Nigerian company, is developing a 1200MW coal fired thermal power plant, in two phases near the town of Itobe in Kogi State, Nigeria. Each phase consists of 2x600MW TPP with 4x150 MW units having circulating fluidized bed boilers. ZENL has retained the services of TATA Consulting Engineers (TCE) as Technical Advisor for the 600MW Pre-Contract Phase of the Project.

TCE will work with ZENL right from review of project development studies to review of bankable project report, tenders specifications, providing amendments and corrections to the specification, setting-up process of tendering, review of EPC bids and up to financial closure of the project as well as finalization of EPC Contractor.



Borelog Data Collection at site by Geotech Agency



Trishuli Galchhi Hydro Electric Plant, Nepal

Siddhakali Power Limited, a private hydropower company, has awarded TCE to offer consultancy services for the 75 MW Trishuli Galchhi Hydro Electric Plant in Nepal, 56 km from Kathmandu. The project site is located at river Trisuli in Nuwakot and Dhading district. The scope of services will include the revalidation and compiling a bankable DPR, preparation of tender documents, detailed design and engineering of civil works, detailed drawing and engineering of hydro-mechanical works, coordination with E&M vendor for incorporation of E & M details.

TCE's Scope is covered under 2 phases.

Phase-I includes Reviewing the existing Detailed Project Report and Updating the Detailed Project Report. Preparation of Bid Documents (Civil, HM and E&M works)

Phase-II will involve Detailed engineering and construction supervision

Establishment of Iron Ore Mining & Steel Production Facilities at Shire-Mentabteb, Ethiopia



Efforts are on to conduct a feasibility study of the Shere-mentabteb Iron Ore Deposit, located at Northwestern Tigray zone about 300-400 km far from Mekelle. TCE in association with Tata Steel UK Consulting Limited, UK and CISDI Engineering Limited, China have been awarded the feasibility study for the identified project.

The Scope of work includes:

Resource evaluation and raw material study / supply of raw materials, Technological and engineering study for mining up to beneficiation and process up to steel making plant, Location & site study, Implementation schedule, Project organization and operation, Financial evaluation, Economic evaluation and Recommendations



Chemical

IMC Limited has appointed **TCE-Chennai** for Detail Engineering Services for Propylene Oxide tank at ETTPL terminal near Chennai in Tamil Nadu.

Industrial

TCE-Chennai will be providing PMC Services for **Toshiba – JSW Turbine & Generator Private Limited** for their manufacturing plant at Manali in Tamil Nadu.

Tube Investment of Indian Limited Proposed Greenfield Project for TIDC India near Chennai in Tamil Nadu. **TCE-Chennai** will play the role of Owner's Engineers.

Balakrishna Industries Limited intends to execute the Phase II expansion of the OTR Tyre plant at Bhuj. **TCE-Raj Plaza** will carry out Detailed Engineering, Procurement Assistance and Construction Supervision services.

Infrastructure

Trans Tech Turnkey Pvt. Ltd has engaged **TCE-Pune** as a consultant for providing design engineering services for six non plant buildings as a part of Mangala Processing Terminal at Barmer, Rajasthan for the ultimate client **M/s. Cairn Energy India Pty Limited**-Operator of Oil fields in Rajasthan.

Pharma & Food Processing

COLGATE PALMOLIVE INDIA LTD is setting up 150000 TPA Capacity Toothpaste & Mouthwash Facility in Sanand near the Tata Nano Facility. The Project is known as Project Atlas. First Phase would be 50000 TPA. **TCE-Raj Plaza** will provide Engineering Consultancy Services for the proposed plant.

Oil & Gas

CRL Terminals Pvt. Ltd (Vopak) is setting up new business in India and acquiring existing petrochemical and vegetable oil storage and distribution. **TCE-Raj Plaza's** scope of services includes assessment, basic & detailed engineering along with preparation of one consolidated Procurement & Construction Tender for their terminal in Kandla, Gujarat.

Bharat Petroleum Corporation Limited (BPCL) has set up a facility for unloading, storage and transfer of refrigerated LPG at their Uran LPG bottling Plant. **TCE-Raj Plaza** shall carry out the basic & detail engineering for Blending of Propane & Butane at LPG Plant as per the recommendations of DFT.

Power

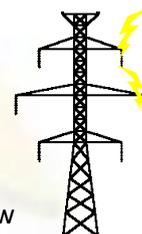
TCE-Bangalore is working on up-gradation of fire fighting water line at Sabarmati power station for **Torrent Power Limited**.

TCE-Bangalore is playing the role of Owners Engineers for **IFFCO Chattisgarh Power Limited (ICPL)** along with inspection and site supervision services for 2x660 MW Thermal power plant at Salka.

EMCO Energy Limited has appointed **TCE-Bangalore** for Additional Engineering services for 2 X 300 MW coal fired thermal power plant in Warora, Chandrapur district, Maharashtra.

TCE-Bangalore is involved in appraisal of the Technical Capabilities of the short listed EPC Contractors for the proposed 50 MW Solar Photo Voltaic (PV) power plant under **JNNSM** Phase - i Batch - ii in the state of Rajasthan, India.

Rajasthan Rajya Vidyut Utpadan Nigam Limited (RRVUNL) has entrusted **TCE-Bangalore** with consulting engineering services for implementation of additional raw water storage reservoir and river water system from chhapi dam along with associated civil, mechanical, electrical and I&C works for Kalisindh Thermal Power Station.



TECHNICAL CONTRIBUTIONS



TCE co-sponsored the 21st International Conference on Structural Mechanics in Reactor Technology (SMiRT) held in New Delhi. **K V Subramanian, S M Palekar, H A Mapari, Atul Sandhan, R Balaji, Saleem Ahmed, Ajit Deshmukh, and Rajiv Iyer** represented TCE and participated in the conference. Mr K V Subramanian was the Division co-ordinator of Division IV on 'Characterisation of Loads' and chaired two technical sessions titled 'Tsunami and other ground motion considerations' and 'Seismic Response and Design Analysis'. **Mr S M Palekar** also chaired a session on 'Design and construction issues'. TCE engineers presented five papers in the various technical sessions of the conference. Mr K V Subramanian also delivered a talk on 'Challenges in seismic design of civil structure for Nuclear Facilities' at the post-SMiRT conference held in Mumbai on November 14, 2011.

Mr. M. Parekh, Engineer – Civil, delivered the opening keynote address on behalf of Mr. D. Bose, DGM – Ports at the 2nd Annual Conference on Dredging in India organized by Indian Infrastructure in Mumbai. TCE's involvement in Channel Deepening Project at Jawaharlal Nehru Port Trust (JNPT) and Ennore Port Limited (EPL) was highlighted. JNPT project has received PIB clearance from North Block

Dr. Poonam Ahluwalia, Sr. Manager-TCE-Delhi at various forums:

Presented paper on "Possible Strategy for prevention of Ground water aquifer contamination from percolation of rain water" at 'Rain Water Harvesting & Artificial Ground Water Recharge' seminar organized by Bureau of Indian Standards.

Presented papers on "Managing Sick Building Syndrome through Building Management system" and "Sludge Treatment and disposal: Options, Opportunities and Challenges" at 62nd Annual National Conference of Indian Association of Occupational Health organized by Indian Association of Occupational Health.

Presented paper on "Urban Planning to Combat Climate Change: Role, Challenges and Way Forward" at First Biennial International Congress on Urban Green Spaces 2012.

Published Membrane Fouling: Mechanism and Control Sludge Treatment and disposal: Options, Opportunities and Challenges, in Water Today technical magazine.

Mr. Arun V Ashtikar from 247 park Mumbai, delivered a 2 hour lecture for 60 students in the third year of engineering at GV Acharya Institute of Engineering & Technology is an Institution of the Teachers by the Teachers for the students.



A Success Story for Reference

CNBC TV18 Infrastructure Excellence Awards Best Design Project of the Year Award for TCE Infrastructure Business



TCE's design excellence for the Rajasthan Urban Infrastructure Development Project (RUIDP) qualified for CNBC TV 18's Infrastructure Excellence Award in the category for *the Best Design Project of the Year Award*.

While the dust has settled down on the excitement of receiving such a prestigious award, what remains is a case for a great example of project management excellence, the learning from which reverberates across TCE.

The questions arise – what makes a project cut above the rest? What was the magic formula that worked to take a project? What were the nightmares, pains and trepidations that the team faced? Here is an account of the inside story....

Project management excellence, brilliant design, innovative solutions, great team work and the tremendous value the project generated to the public put TCE's Infrastructure business in the national spotlight on CNBC TV 18

The Challenges

The sheer scale and scope of the project was a great challenge. TCE has been appointed as Design and Supervision Consultant for the infrastructure development of two cities, **Jodhpur and Bikaner** in Rajasthan and commissioned by the Government of Rajasthan under RUIDP. The sectors earmarked for development were . Water supply, Sewerage, Storm water drainage works, Solid waste management, Slum development, Roads, bridges, Fire fighting, Heritage and Emergency health services.

The project had components from different disciplines and necessitated the deployment of experts from various fields. TCE had to provide consultancy services along with three associate consultants; apply its singular expertise in individual sectors in one large area, calling for a lot of coordination and precision in planning.

The Labour and its Fruit

Road sector Traffic studies and solutions for single lane, two lane and four lane carriageway; bituminous and concrete roads and construction of bridges over railway crossing were proposed.

The drainage sector: The plan for construction of 52 km length of drains and re-sectioning / strengthening of existing drains, providing solutions for flood prone areas of Jodhpur and Bikaner proposed.

Solid Waste Management: Centralised solutions for collection of waste using modern equipment and disposal through landfills was proposed.

Slum Improvement Area development works like roads, sewerage, drains and water supply facilities in slum areas of Jodhpur and Bikaner.

Water & Sewerage Sector: A water treatment plant, two packages for transmission network, distribution network strengthening and NRW management, water distribution stations, construction of new pumping station, refurbishment of existing

pumping machineries, raw water earthen impounding reservoir, technology solutions for distribution of water, ELSRs/GLSRs, sewerage collection network and outfall sewer, a 20 MLD sewage treatment plant, technology solutions for sewage management was proposed.

Fire-fighting Systems: Fire station buildings consisting of four garages in each fire station along with Drill Tower for training was proposed. Fire service equipment for six cities was tendered. TCE's solutions helped put safety systems in place in the towns.

GIS and Mapping A database in ACAD covering details of existing water supply, sewerage pipelines and proposed utilities under different contracts is prepared for Jodhpur and Bikaner.

Heritage The proposal included environmental improvement of water bodies and conservation/restoration of old heritage sites.

Emergency Health Services Construction of advanced medical facilities and improvement/extension of satellite hospitals and dispensaries in Jodhpur and Bikaner were proposed. People living in the area around Khatarnak Puliya and Raikabagh in Jodhpur were relieved from the water logging menace thanks to the drainage solutions provided by TCE. 112 Kachchi bastis of Jodhpur and Bikaner were benefited by the slum improvement solutions. WATERCAD & SEWERCAD were the technology solutions applied for such a large scale endeavour and it was a first of its kind.

A paper was published in the GIS magazine by Mr. Dilip Sonwane. 20,000 households in Bikaner came under the property connections network and 33000 households in Jodhpur came under the sewerage collection network bringing a source of revenue for the Bikaner and Jodhpur townships.

The proposed water system was planned keeping in mind climate change concerns and a focus on reducing the carbon foot print. The total cost of energy for the existing system was Rs 2.12 per Kl. After re-organisation of the water system, the energy cost for the combined system came down to Rs 1.41/Kl. This has resulted in total energy cost saving of Rs 222 lakhs per annum.



An E18 Event

VU E18 EAGUE

The rehabilitation of slums, makeover of an abandoned lake, increase in revenue by bringing consumers in the fold of the water and sewer disposal network, flood and water logging solutions, etc., benefitted nearly 1,90,000 people.

The Success Factors

A change in mind set, looking both at the trees and the forests in totality was the key success factor. A consultancy approach rather than a vertical design and management approach brought in greater efficiencies.

High levels of quality control mechanisms ensured efficient fund management with no cost overruns. This was indeed a great impetus for customer delight.

A well-coordinated, multidisciplinary approach resulted in judicious planning of the roads and utilities.

Concurrent execution of utilities packages helped in avoiding frequent damage to roadwork. Most important of all was the efficient planning ensuring precise execution and on time delivery.

The Benchmark for the Award

TCE qualified for the award due to the following factors:

- The size and scope of the project delivered
- Comprehensiveness of the services provided
- Precise execution and on-time delivery
- No cost over-runs and delivery within fixed budgets.
- Human Resource management especially resources at the sites
- Use of technology to provide efficient solutions
- High level of quality standards and controls
- Safety performance
- Positive environmental impact
- Business impact, generating revenue for the townships
- Social impact, benefitting over 1,90,000 people

Going Forward

For a bunch of smart people, projects such as the RUID project is no rocket science. The key lies in working smart. Taking a cue from the above benchmark, TCE can look forward to and qualify for more awards in the coming months.

Good luck Team TCE!

“BEHAVIOURALLY SPEAKING”

LEARNING AT eASE

What’s this TATA HMM email? Have you asked yourself this question lately? Surely you would have found your answer in the form of Training Module you have been looking for.

While Skills, Knowledge and Expertise are critical for the survival and sustainability of an organization; what also plays an important role in an employee’s growth and success, is Attitude and Behaviour (Soft Skills).

Understanding this as one of the vital contributors for overall growth of the organization; and to foster our TCE Value of “Organisational and Individual Growth”, an e-learning drive has been initiated at TCE. This focuses on the Soft Skills Training & Learning.

The objective is to contribute towards strengthening the 50-year old foundation laid down to build a Learning Culture at TCE.

In collaboration with TATA Management Training Centre (TMTTC) and Harvard Manage Mentor (HMM), TCE has provided an easy-access link (Tata-HMM) for accessing short e-Learning modules. The course modules are aligned to the training needs indicated by many TCEites in PRISM.

This e-Learning platform provides Ease and Flexibility to the Learner. The learner can define his/her own schedule, to start and finish the course, at a chosen pace. Each course module has been designed for 2 to 3 hrs which can be completed in any number of sittings chosen by the learner. The learner can complete these courses either from office (on-site/off-site) or home.

The Learners covered by this program are spread across TCE locations (all offices India and Abroad), covering all Business Units, Disciplines, Roles and Grades. The Learner’s participation for this initiative has been quite exhilarating.



Learners Speak

This e-learning program in which I participated has been very interesting in terms of the course content as well as the learning pathway. The program was very much suited to my free times (early morning hours), when the environment is very calm.

It was indeed a very exciting course. I thank HR for arranging this in a very structured way. This e-course is much simpler & better compared to two (2) full days in a seminar hall on similar topics.

Thank you for giving me an opportunity. I would like to request you to arrange more such training modules in future.

Thanks for nominating me for the on-line Training course on ‘Stress Management’. The training was very interesting. I have given both the pre and post assessment tests. I doubled my score after course completion and am glad to be awarded the e-Certificate.

This e- course is very useful for Construction Engineers and those who are deputed at sites to learn through internet with self- timing / flexibility.

The course was very useful and interesting. I sincerely thank the management for this initiative.

Dr. Arivalagan Arumugam
General Manager - Mechanical
Chemical & Industrial BU, Mumbai



Ranjit Kangralkar
Asst. Manager – Civil
Power BU, Bangalore



Sachin D. Agnihotri
Sr. Manager - Civil
Chemical & Industrial BU, Chennai



Gautam V Chheda
Assistant Manager - Civil
Construction BU
Construction Site



S Ravichandran
Manager – Mechanical
Construction BU
Construction Site



Poonam Ahluwalia
Senior Manager – Environment (Civil)
Infrastructure BU, Delhi



Lateral



"Mechanical Aspects of Thermal Power Plant" sessions conducted by Mr S.R Nayak, External Faculty (ex Tata Power employee) at Bangalore from 20-02-2012 to 02-03-2012.

A group of 20 Mechanical Engineers attended these sessions.

Young TCEites from campus all set to begin full fledged engineering after their extensive training. Graduation Day saw them receive training completion certificates from the Dy MD.

Training on the go!



Campus



At TCE we have a clear focus on building the most admired brand and a sustainable business model and this forms the very core of our people management processes.

We are committed to developing a superior workforce to effectively service our clients and ensure that employees get every opportunity to maximize their potential and shape their career.

Leadership Acceleration Process (LAP) is a structured leadership development initiative, launched in Oct' 2011 aligned to our goal to continue to offer useful, relevant, and timely learning for all TCEites.

LAP provides TCEites with opportunities for skill enhancement, capability building & increasing proficiency levels in the current job. It also ups the probability of assuming higher responsibilities in the future.

The developmental approach of this 5 days residential program is committed to building a *best in class* leadership team. The program is facilitated by a combination of internal & external faculty and mainly focuses on the softer aspects of leadership/management. Through the structure of the program participants are actively involved in assessing/ identifying their own competencies/ behaviours that they need to acquire or develop for personal development.



LAP



The LAP program has a **4 tier structure** with different programs for people at different levels.

In phase-I TCE has launched a customised program for employees in the E4-E6 & A4-A6 grade group (mid-senior levels) . The LAP's developmental model gives an individual a developmental experience through it's 3 imp facets i.e. Assessment, Challenge & Support. This developmental experience acts as a resource & motivates an individual in his/her leadership journey.

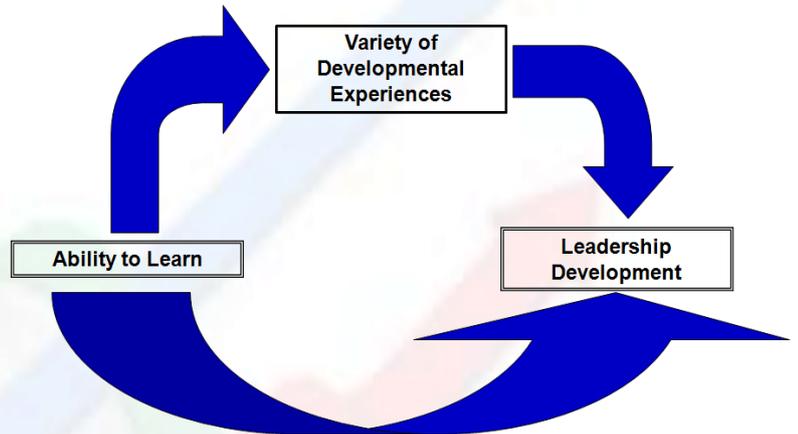
During the program participants are actively involved in assessing/ identification of their own competencies/ behaviours that they need to acquire or develop as part of their leadership journey.

Over 50 TCEites attended the 2 batches of the LAP Program and the program was well-accepted and appreciated by all participants and they gave the overall rating of 6 (on a scale of 1-6).

The third residential program is scheduled from 10th April 2012 to 14th April 2012.

4 Tier LAP Structure		
Tier	Grade Group	Context
IV	E8-E7	Contributing Strategically (Organizational Leadership)
III	E6-E4	Contributing thru Others (Team Leadership)
II	E3-E2	Contributing Independently (Self Leadership)
I	E1	Contributing Dependently (Self Leadership)

LAP - Developmental Model



HR is, as HR does...



An HR meet was held in Mumbai on 1st and 2nd March'2012 wherein all the location HR Heads came together to discuss and learn a host of people management issues.

The session was inaugurated by Mr.Rakesh Gupta (Sr. EVP) who presented the HR strategy for the upcoming years and the role of the location heads was redefined to align with the business requirements. The objective was to enhance the role of the HR function as a business partner.

A training session was conducted in order to improve the utilisation of the HRIS in TCE (EPICentre).



50 years...

Engineering a better tomorrow...



TCE Day across offices was marked by TCE's Golden Jubilee celebrations.

"Looking back we can see, with a sense of pride, a big trail of very successful and landmark projects engineered by us"

J P Haran
Dy MD



Kolkata
15th Dec 2011

Jamshedpur
16th Dec 2011

Bangalore
7th Jan 2012



With the commemorative '50 years' logo forming a backdrop for the cultural extravaganza, TCEites across locations put up a grand show with dance, drama and more...

Mumbai
11th Jan 2012

Pune
20th Jan 2012

Delhi
3rd Feb 2012

SAFETY WEEK



Safety Pledge @ Pune Site



Safety Pledge by TCEies @ Delhi

Safety week was held across TCE offices, employees took pledge to follow the safety norms in order to make TCE a better place to work



Safety Week, addressed by Dy.MD @ 247 Park, Mumbai



TCE Mahindra Site Team – Start Of Safety Week Celebration



Safety committee members of TCE Delhi participated in mock drill organized by Delhi Disaster Management Authority (DDMA)



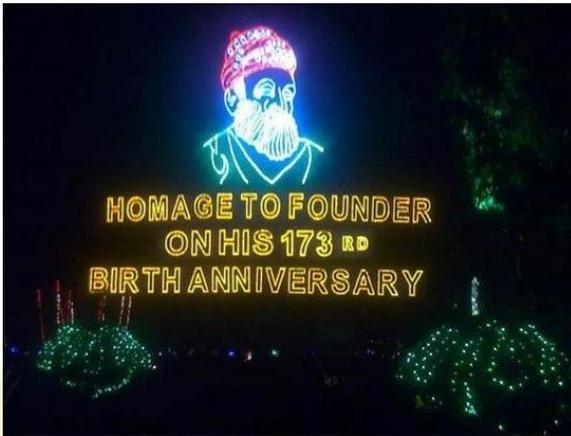
Safety Pledge @ Jamshedpur



Safety Pledge @ Bangalore



A Salute to the Founder



Jubilee Park at Jamshedpur illuminated with fountains and laser show to mark the occasion



Employees @ 247 Park gather on Founder's Day



Mr. J.P.Haran (DMD) and Mr. K.S Thimmaiah (VP&OH) paying homage to our founder Jamsetji .N.Tata @ Jamshedpur



Remembering our Founder @ Bangalore



Founder's Day Celebration @ Raj Plaza, Mumbai



Founder's Day Celebration @ Chennai

Women's Day'12 @ TCE



A diverse team always makes a better team. TCE celebrated International Women's Day which marked 100 years of declaration and observation this year. All offices across TCE made this day special to show gratitude, respect and appreciation to all women employees.

Competitions, Fashion Shows & Cake Cutting marked the women's day celebrations and Lady TCEites had a blast.





TCEites spread the joy of Holi @ TCE – Pune, Delhi & Bangalore



To continue the tradition of **engineering, energy conservation, employee engagement and innovation (3e+i)** in a single event, TCE Bangalore organised a kite making contest for Sankranti. The objective was to design & build a kite which can harness wind energy...

Sankranti @ TCE

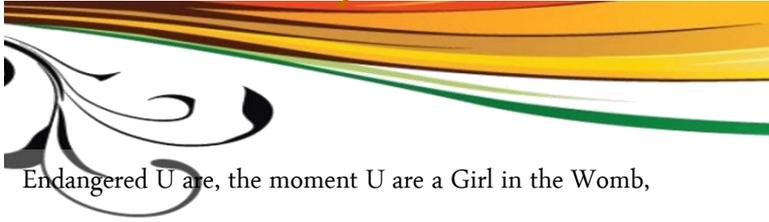


Tata Sangam is a unique event organised by the Tata Sports Club (TSC), celebrating the Tata spirit by bringing together employees of Tata companies in Bangalore, in a sports and cultural extravaganza. This year nearly 6,500 people — including senior Tata executives, Tata employees, their spouses and children — congregated under one roof for this mega cultural event.

TCE's presence at the event was showcased by Ms Sujayalakshmi Nagendra as the Secretary of TSC, a dance performance by the ladies of TCE - adjudged the best of all programs and by C Chandrika as the Co-host of the program.

The highlight of the event was the lucky draw selection of Raffle prizes. — the biggest attraction being the Tata Nano, which was won by Mr. K TV Swamy of TCE (BWSSB project office).

One Soul, Many Roles – Woman



Endangered U are, the moment U are a Girl in the Womb,
 Fighting for Ur Rights, Woman U are, till U reach Ur Tomb.
 As a Beloved Mother, U bring me in to this World,
 Fighting against the Trials, U become my World.
 As a Loving Sister, U shower Ur Love,
 Fighting against Injustice, U make me Bow.
 As a Sharing friend, U are more than a Kin,
 Fighting against the odds, U make me Win.
 As a beloved Wife, U are bliss of Life,
 Fighting against the Time, U share Ur Life.
 As an Old Granny, U make the Rules,
 Fighting for the Family, U keep the Life on Wheels
 Endangered U are, the moment U are a Girl in the Womb,
 Fighting for Ur Rights, Woman U are, till U reach Ur ... Tomb.



Abdul Bari Mohammed, Engineer-Civil- TCE-B



What makes us untire
 And proceed like fire
 What takes us further?
 Making us hardier

What makes us willing
 To take life's full filling
 Get's us out of the blue
 And give us all the clue

It is nothing but—A Goal

What is life without any goal?
 Nothing but a haunted hole
 What motivates & soothes soul?
 Only a worthy goal!

Charles Chettiar, TCE- Raj Plaza



The winter is chilling in Jamshedpur and a noon walk around the picturesque Jubilee Park is a big lure . Couple of months back on a normal bright winter afternoon, as usual we were out for a short walk, around the office after lunch to enjoy the warmth of sun. While crossing the road I really don't remember what exactly my friends were discussing, I was absorbed in enjoying the nature as **though** everything **had been** picked and placed at the right place where I would like it to be, the trees, the grass, the chirping birds, the dry leaves walking along with me on the road , everything happy and pleasant. Just around the corner of the road , in the park, a scene grabbed my attention, a group of five children were sitting in a circle, aged

between 2 to 6 years, three girls and two boys, dressed in patched clothes, faces smeared with dust, hair matted and noses running. The scene was so interesting, that slowed down and stood still for a moment.

At the center of the circle there was a fire lit up with wooden sticks and an earthen pot was kept on it. On close observation I found out that eldest girl among them was cooking their meal and all others were looking at her curiously while she was describing the intricacies of the cooking. She was cooking rice with the potatoes , with limited amount of spices kept on an old poly bag. It was obvious that they had received this food due to some one's mercy. The last word , which I could understand, before I moved on, in their discussion was that the girl was boasting about her cooking skills“This is nothing, you know, the rice will be tastier if we put cauliflower and beans and you can put pure ghee also” ..., hearing this the eyes of all the kids were filled with happiness & hope and they came closer to hear more.

This moment touched me profoundly and a vivid mental picture was shot and saved in my memory forever. There were lots of reason for these kids to be sad and still they chose to be happy. Their eyes were full of hope and faces full of happiness.

The happiness visible on their faces was so pure that it made me ponder , what actually is happiness ? Is it a collection of material goods that we keep chasing all through our life or purely a mental state? After observing this, it looks like our mind is a real fool and we can fool it to be happy with anything we get or anything we don't get ! I again looked at them, all were innocent and they were not discussing the problems of life. I felt that the main cause of all the

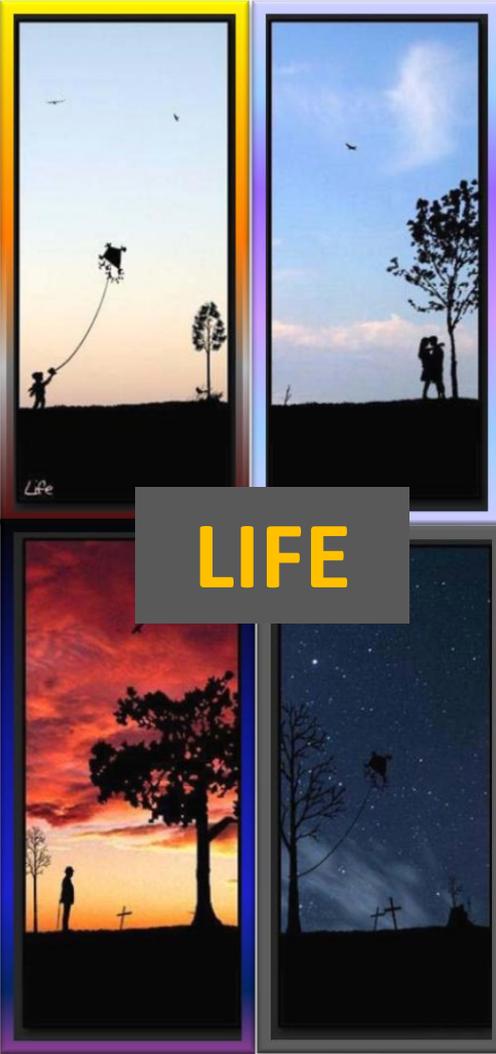
distress is the loss of Innocence. Just as with the time all the equipments are subjected to loss of efficiency, similarly as we grow up we suffer from the loss of innocence and immensely disturb our H.I , Happiness Index.

As we tread along in life , we realize that there is a purpose behind everyone we meet. These kids surely have awakened something in me , something that will now compel me to think , maybe in the oft repeated methods in the quest of happiness !!!

“ Happiness ! ? . “



Nitin Gupta , Asst. Manager , SMBU , Jamshedpur



A gift wrapped in a box anxious to unfurl,
Delighting the beholder, clutching carefully in a curl.
Oblivious to the world outside, yet not willing to hide.
Yes, I'm Life, possessing scintillation of a pearl.

On unraveling I'm welcomed and hugged by my fellow being,
Elation paramount, while they have me incessantly seeing,
It feels I'm always riding on the moon, they say my innocence is my biggest boon,
But, my tenderness once noble soon starts fleeing.

The once lustrous gift, now no more holds the sheen,
My query goes unanswered, "What's changed from what once I'd been?"
Why do they get bored, of the prize they erst adored,
Am I no more worthy, or my mould is no more clean.

I then hear a clamorous uproar, jubilation all over again,
"While I'm wrecked and they are festive," I wonder, "have they all gone insane?"
A box along a mirror draws in my gaze; it certainly holds a distinct blaze.
Looking at us together, my lament then seems to go in vain.

The comeliness of the new box was beyond my comparison,
While I was crawling dusty low, it sailed through the horizon.
My glorious moments were over, reminded my tattered cover,
I'm now to be disposed-off; they're waiting for a befitting season.



Atul Prakash, Engineer, TCE-B

Knowledge => Sustainability

How did the human race reach to the present level?.. it's by the continuous contribution of conscious intelligentsia whose primary goal was well being of the human race and the welfare of the society. The seeds of major inventions like exploration of space, airplanes, railways, electricity and computer were based on the enthusiasm of innovators. The entrepreneurship of an individual and the conducive atmosphere of the society have played equally important roles. Organizations with a technical knowledge base must try to contribute to the society by transferring/sharing their knowledge as part of their Sustainability Initiatives.

As a global citizen the responsibility lies with the individual / organization to give back to the society in the form of knowledge. There may be an argument that the daily work we do does contribute towards the society, but apart from this one should realize that he is blessed with "*Akshyapatra of Knowledge*" which can be utilized for the betterment of the society. Think about your dreams during school and college days and now the routine you encounter during your professional journey. At the end of the journey you should be a proud owner of self fulfillment.....still confused?...think about the problems faced by the physically challenged and the needy in the society.

As a technical expert have you ever thought about the possibility of solving the challenges faced by the society? If you do, you would literally stepping into the dream world of possibilities called *innovations*. The world famous *Jaipur foot* is one such example to quote. Similarly, if somebody could develop affordable automatic prosthesis hands (even this is beyond the reach of lower middle class today), there could be many more like a low cost commode for the person without hands low cost house for the homeless...the list is endless. If you give it little thought about, YOUR contribution may go a long way in solving real-life problems and surely can bring lots of smiles to the needy. It would stimulate the others around you and make this world a better place to live. "***Almighty has given you the opportunity to help the needy...Grab It***"

S.M.Ali, Officer Admin, TCE Bangalore

LIFE AT A GLANCE

What is happening in the world? Actually at matter level (10 to the power of minus sixteen) nothing is happening! It's just hallucinations of 100 billion neurons of the brain. All matter is made up of protons, neutrons and electrons and what we see due to the capacity (rather limited capacity) of the brain is different combinations and feel that things are happening. When we do a project we move some iron particles in the mines of Dhanbad which goes to some steel plant and comes and settles down in some building in a city. At matter level it is just a transfer. So what is acquisition and accrual ? It is facilitating movement of matter and increase in turnover is that we have facilitated movement of more matter. When we will reach 1000 Cr turnover, it will be like churning out more and more transfer of matter in India and across the globe. An industrialist makes thousands of people to run around and create more and more transfer of matter.

And who are we, a bunch of matter ourselves which is again ever changing and moving. Every person in this world from his entire journey from cradle to grave is facilitating movement of matter . What we call as "Me" at matter level is getting replaced 100% every 7 years. My body today and the one 7 years back are 100% different. So at physical level my body of 7 years back is Dead in today's context because it doesn't exist. At matter level we are dying every 7 years. Everything is getting interchanged and nothing is yours permanently.

All are performing apparently different roles in the cosmic drama. Each role is important. For example, a 1000HP motor cannot perform the role of 1HP motor. Both are equally important and required to produce the final output, each performing the same role at matter level. The diversity and differentiation is necessary otherwise the system will collapse. So there is nothing like first and last or Owner and peon. All are just bunches of the same interchangeable matter performing the same role only scales being different.

V V Barve, Dy. GM, TCE- Pune



Towards TCE's Sustainable Business

Musings from Business Development

One more eventful year ends amidst some tremors in the business environment. TCE has been showing remarkable resilience. However to maintain the overall company growth path even for a vastly spread, and therefore reasonably hedged, operations of TCE, continued and larger value business acquisitions must be strategized in every single sector of our operations. **The role of Business Development (BD) cannot be undermined in any sustainable business.**

BD is not the sole purview of a small team of people in the local BD/ Commercial Dept. Much as in a project, it is TEAM work comprising the basic Holy TRIO of Business - Marketing, BD/commercial and Operations. It is observed that in recent times, due to the turbulent business and financial scenario in India with ripples from abroad, some key announced projects are either not taking off in full steam or are in long abeyance.

In such a scenario there may be among many, two important methods to reach out and maintain sustainability:

- **DIVERSIFY** within our main Domain Expertise, both in terms of project type and in Geographical footprint.
- Shift to **GOVERNMENT TENDERS**, for getting rather more consistent and larger opportunities esp. when private investment is hard to come by

Both these initiatives require us to take fresher look at the various RISKS-REWARDS equations.

When we strategize to "grow aggressively" we cannot afford to continue to operate in our Comfort Zones and keep taking a conservative cocoon approach. Our recent decision at National BD level to "Go Out" with a fresh look at the risk assessment and risk mitigating plans, will go a long way in making our dreams of higher accruals year on year come true.





CLIENT RELATIONSHIP (CL)

Business sustainability is hinged very clearly on providing robust service in terms of Quality and Time, the two cardinal characteristics that can make or mar even the most cordial client relationship.

Good personal relationship at individual levels is important. It takes a company that far and no further in terms of sustainable business. Company to company relationship begins with good tender / proposal preparation, with respect to both technical and price proposition.

Preparing a good proposal is akin to preparing a good CV. It is no rocket science; just the commitment and winning attitude makes all the difference. Like GEP (Good Engineering Practices) the responsibility of the commercial team is to follow, what can be termed as, "GPP" (Good Proposing Practices). There are basic principles in tendering / proposal making. It involves winning tender writing skills, conceiving up front preliminary effective negotiation stands, and addressing innovatively the perceived risk management strategies.

Except for many Govt tenders, a well devised tender-terms help in reducing inherent project risks. Assessing the competitors' strengths and weaknesses greatly helps in creating a winning proposal. Client may have excellent relations with TCE but competitors also vie for the same or better relationship. Under estimating competitors' position is the main pitfall bordering on overconfidence which will lead to disappointments in business acquisition.

PROJECT MANAGEMENT

Just winning jobs does not ensure sustainable business. The client must be taken through delightful experience during the progress of the project through timely and error free deliverables laced with various value additions / savings / innovative solutions. This alone will be the most important criterion for winning a customer over to the extent that the customer is willing to continue the relationship for their next projects. Such a situation causes much desired entry barriers for our competitors. Hence developing and following "GPMP" (Good Project Management Practices) is the ultimate stroke in the process of developing sustainable business model. Critical project related activities are defining EDDR (for deliverables / work breakdown), scheduling, cost management and the ubiquitous risk management. All this can only be orchestrated by the Project Manager (PM). For a project to be successful the PM must have the desired technical skills and the necessary knowledge to plan and control the project through its various phases. Project Management can only be effective if the nominated project manager and people working on a project understand the critical factors and the client requirements to achieve project objectives. One can even safely say that the PM is also one of the risk points.

RISK

Finally a word on risk. Risk occurs at every decision point on the project. It is in drawings/ deliverables, in contracts, in RFIs and instructions, in variation notices /change orders. A lose Change Order Management, for instance, quite simply can be a big drain on the project profitability. In cases of poor change management the project is sure to see rough weather and poor margins. We end up with extra work that are prevailed upon but are technically outside of the defined scope. Without a robust framework for capturing decisions on a project, facts remain "transient, deniable and hard to locate" when problems arise. Thus tracking and locating decision points is fundamental to managing project risk.

The BD Team is committed to maintaining a sustainable acquisition strategy that will see TCE propel to greater heights and earn greater respectability as an International, reliable engineering consultant.

Dr. BPJ Patel, BD Head, Raj Plaza.

Pindari : Unforeseen Challenges In A Frozen Paradise



The Ardent Rovers of 17 members (14 members from TCE, Jamshedpur) headed by Mr. Abhijit Banik (TCE JSR.) undertook a trek to the Pindari Valley, Kumaon, Uttarakhand in the most challenging of seasons - January, 2012 (from 13th to 26th January 2012). The team was ably supported by a guide, a cook and 6 porters. A detailed plan was drawn out and the members were divided into teams/individuals with varying responsibilities ranging from meal preparation to environmental impact assessment.



Prior to the trek, rigorous preparation was done with emphasis on the cardiovascular system, legs and the back.



Backpacking, Navigation, rationing, tent pitching, route finding, etc. were all part of this venture, the preparations for which took nearly four and half months.

Regular preparatory treks and rock climbing sessions were organized at Jamshedpur, for developing physical and mental toughness. A balanced and nutritious diet chart was prepared with special consideration for extreme weather conditions and high altitude. A medical check-up was also organized at TCE, Jamshedpur.

The trek began at Loharkhet (1760 m), which the team reached after a long journey (300 Km.) through the Tatanagar-Lucknow- Bhojipura (via rail)- Haldwani- Bageswar- Song (by road) route. At Dhakuri-Top (6850 m) with a clearer view of the peaks and another 6 km scenic march, the trek ended at Ragarda . Enduring mixed weather conditions, ranging from sunny to heavy snowfall with min. temp. of -9°C , the group had to travel 66 Km by foot carrying 250 Kgs of ration and 150 Kg of equipment .

In undertaking such ventures one realizes the kinship with nature . It is the immutable laws of the universe that only through striving and suffering shall man learn to realize his self, to gain awareness, to enlarge his moral stature, to discover truth and joy. The trek provided the thrill to the Rovers to come close with Mother Nature in her full virginity and equally sensitized them to the environmental issues that challenge our existence today.

Ardent Rovers Team : Abhijit Banik (Captain), Abhijit Das, Ajay Raghavan, Jayram Naikar, Kallol Das, Krishanu Choudhury, Lohit Gupta, Nadeem Kamal, Rajat Patra, Saptarshi Samanta, Shuvranshu Kumar Rout, Surajit Debnath, Tridib Mandal from TCE Jamshedpur, Mainak Chatterjee, Nitish Gayen, PV Kiran Kumar, Subhajit Das.

Amit Choudhary, Dy GM, TCE-JSR

Travel Guide to South Africa

Introduction

The Republic of South Africa is located at the southernmost tip of Africa and is flanked by Atlantic and Indian oceans. The Tata Africa team has an office in Johannesburg and has compiled this short write up to help travelers acclimatize to South Africa. Stay arrangements may be made at Guest houses in Johannesburg, Witbank or Middelburg. All guest houses and alternate accommodations are equipped with amenities such as DSTv, free internet connection, parking, remote entrance, breakfast, lounge, etc.

Several power plants are scattered in the vicinity of Witbank, a little town dotted with shopping malls, guest houses and hotels. Middelburg is almost a twin city of Witbank, but smaller. Both cities are very clean despite their close proximity to the coal mines.

Weather

Summer ends by April upto which the temperature may vary from 23 degrees to 34 degrees (highs) and lows of 12 to 18 degrees celsius. Rains and thunder storms are common. Winter spell starts in April with temperatures dropping below zero requiring warm clothing, umbrellas and comfortable shoes.



Sightseeing



Tourist attractions include Johannesburg city, Pretoria city, Lions Park, Sun city, Walter Sisulu, Cradle of Human Kind with Maropeng etc. Other popular attractions are Laudium and Lenasia, cities where Indians were allowed to stay during the apartheid era. Both places are about hour and a half to two hours' drive from Witbank. If time is not a concern, a visit to Kruger National Park in Durban is a must. The team strongly recommends a Gautrain return trip ride from Sandton station. Public transport is very limited and restricted to certain major cities in South Africa. There are no taxis as used to in India. A word of caution, taxis need to be booked in advance and prove to be expensive. Certain safety precautions to be followed in a foreign city include not carrying large amounts of cash on you, avoid walking alone in isolated areas, especially

with electronic gadgets such as laptops or cameras even. Additionally, it is prudent to avoid certain places in Johannesburg particularly in the late evenings.

Miscellaneous

Personal SIM cards may be bought using passport as an ID document. Generally, the SA business community follows an informal dress code barring certain professionals who wear formal suits around the year. All travellers are therefore encouraged to bring their ties and jackets.

Majority of the restaurants serve at least one or two vegetarian dishes. Alternately, most Guest House proprietors are willing to provide packed lunches. On the contrary, if you are a connoisseur of food and have no restrictions, South Africa is a culinary fast lane. Obtain International Driving license and bring it with you. Smoking is not allowed in offices and public places.

The Tata Africa team looks forward to welcome you and hopes you have a lovely time.

Ravi D Naik, Dy. GM, TCE-South Africa

Stray thoughts on “The Creation, Existence and Re- creation of Universe-Cycle” and discussion with Nobel Laureates

This year’s “Nobel Prize in Physics” was awarded to Prof. Brian Schmidt and others on “Expanding Universe”.

The Discovery came as a complete surprise to the Nobel Laureates themselves. What they saw would be like: Throwing a ball up in the air, and instead of having it come down, watching as it disappears more and more rapidly into the sky as if gravity could not manage to reverse the balls trajectory.

Something similar seemed to be happening across the entire Universe. The 2011 Nobel Laureates for Physics have helped to unveil a Universe that is 95% unknown to Science.

The discovery of the accelerating expansion of the Universe is a milestone for cosmology. The expansion history of Universe gives us insights into the evolution and possibly its ultimate fate.

The expansion of the Universe was discovered by Vesto Slipher, Carl Wirtz, Kunt Landmark, George Lemiatre and Edwin Hubble in the 1920’s. The Expansion rate depends on the Energy content. A Universe containing only matter should eventually slow down to the attractive force of gravity. However, observations of type L Supernovae (SNe) at distances of about 6 billion light years by two independent research groups led by Saul Perlmutter and by Brian Schmidt & Adam Riess, reveal that presently the expansion rate is accelerating instead of slowing down. The Galaxies are rushing away from us and each other, and the farther away they are, the faster they move.

Within the framework of the standard cosmological model, the acceleration is generally believed to be caused by vacuum energy (sometimes called “dark energy”) which is based on concordant data from the Sne. (According to current consensus, about three quarters of the Universe consists of “Dark Energy”)

The Theory of Expanding Universe: The observations of the anisotropies in the CMB and surveys of the clustering of galaxies- accounts for about 73% of the total energy density of the Universe. Of the remainder, about 23% is due to an unknown form of matter (called “dark matter” and is so far hidden from us.). Only about 5% of the energy density corresponds to ordinary matter like atoms, the most of the regular matter, the stuff that galaxies, stars, human and flower are made of, is only five percent of the Universe.

After going through the above findings, I contacted Professor Brian P. Schmidt the Nobel Laureate over the phone. Congratulating him for The Prize, I got around to discussing with him about “Creation, Existence and Re- creation of the Universe-Cyclic” based on Upanishadas, “Shreemad Bhagavat Geeta” and Shreemad Bhagavat teachings.

These findings not only explain about expansion of Universe but also throw light on how the Universe came to existence, its cycle of existence, and re existence after a defined period.*

Professor Brian P. Schmidt replied over an e-mail and a formal Letter by Speed Post (From Australia).

Further, Ms. Rose Metcalfe, Executive Officer to Professor Brian P. Schmidt -The Australian National University is in contact on behalf of the Nobel laureate, with me for future discussions on the Evolution of the Universe.

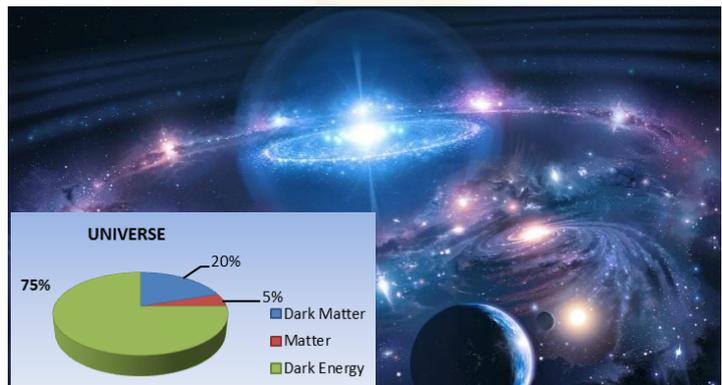
We are all for Advancing science for man kind. All the scientific activities are merely worship...

... and As per The Bhagavad Gita 7.3:

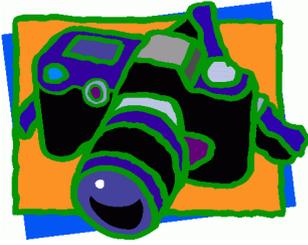
“Out of many thousands among men, one may endeavor for perfection, and of those who have achieved perfection, hardly one knows Me in truth.”

*“manushyanam sahasresu
kaschid yatati siddhaye,
yatatam api siddhanam
kaschin mam vetti tattvatah”*

G D Nigudkar, Dy. GM, TCE-Mumbai



*Although experiments are not available, explanations are available. Expansion of Universe is "Cyclic" in nature. It expands for 4.32 Billion years and after 3, 11.4 trillion years, a totally new cycle starts.



Candid Camera



Paddy Fields near Mysore
Anil Deshpande, TCE Bangalore



Cuckoos at Thakurli , Maharashtra
A V Ashtikar, TCE Mumbai



Twilight at Ooty Botanical Gardens, TN
Sridevi K S, TCE Bangalore



Tea Gardens at Darjeeling
Atul Soni, TCE Mumbai



The Andaman Sea, Phuket, Thailand
Sowmya Raghu Raman, TCE Bangalore

Photography

A photograph is more than just
A gift to bring or send.
And more than just the likeness of
A relative or friend.

It is a kindly greeting and
A memory to hold.
Of happy times and pleasant things.
However new or old.

It is a mirror that reflects
Companionship and cheer.
And now and then the wistfulness
That turns into a tear.

A photograph is something to
Adorn a desk or wall.
Or carry in a pocket and
Display to one and all.

It is a faithful portrait
The smile that friendship shares
To add its sunshine and to show
That someone really cares.

Author: Unknown

Source: <http://www.scrapbook.com>

CSR : The Year Gone by...

TCE, as a good corporate citizen and as part of the Tata Group, takes its social responsibilities seriously. The company believes in putting in an extra effort in community initiatives, including heritage conservation and working with vulnerable groups.

TCE's CSR policy emphasises on leveraging its core competencies and volunteering resources to serve the community. Accordingly, the organisation has a CSR Policy that has identified four thrust areas aligned to its competencies in engineering consulting:

- Engineering Services
- Community Service
- Educational Services &
- Environment Conservation

This section gives an overview of the community initiatives by TCE over the past year.

CSR Structure

TCE has a well-defined structure for driving the community initiatives in order to lend direction as well as create an environment that supports ownership and active involvement.

A core committee under the chairmanship of Sr. EVP consists of a convenor, location coordinators and a few corporate members and a consultant. Each location coordinator is supported by a group of volunteers who constitute the location CSR teams. The initiatives have a strong support of the Dy. Managing Director at the apex level.

Engineering Services

- Providing engineering schemes, preparation of tender documents for geo-technical investigation, civil works including electrical and mechanical works, evaluation of technical bids and identifying the agency to execute the work for Samarthanam (Hostel Building) Bangalore.
- Rendering engineering services on Structural Design & Supervision, vendor review work for their new building for Abalashram Bangalore.
- Design of Electrical Protection Systems for Sri Ramanasramam, Tiruvannamalai.
- Services to AADI, Delhi:
 - Water Leakage Detection & prevention of reception area ceiling.
 - In house design & implementation of overhead water tank & fire hydrant system.
 - Review & recommendation for Public Health engineering services for better access.
- Energy Audit of the Hospital operated and maintained by Ramkrishna Mission Hospital at Howrah.

Samarthanam empowers & Supports the visually impaired, disabled and underprivileged people in India.

Abalashram aims to rehabilitate totally orphaned girls and destitute women by providing food, shelter, clothing, medicare, education, vocational training & marital support.

Ramanasramam is a philanthropic institution that is devoted to the sole purpose of maintaining and preserving Sri Ramana Maharshi's teachings and spreading it through His ashrams.

AADI (Action for Ability Development & Inclusion) Delhi facilitates enabling environments in the best interest of the child and the adult thus ensuring equitable, accessible, quality assured services using a life span approach.

Ramkrishna Mission Hospital at Howrah is a Charitable Hospital run by the Ramakrishna Mission Trust.



Hostel Building for Samarthanam, Bangalore

Educational Services

Guidance to Tech Schools

- Lectures & Presentations.
- TCEites as Evaluation Panel & External Examiners.
- Summer training program support for engineering students in TCE premises.
- Lectures & practical training sessions on AutoCAD provided for ITI students.

Awareness Creation

- On Safety and Health at various project sites.
- On Green Engineering at The Mother's International School, Sri Aurobindo Marg, New Delhi.
- On Road Safety Awareness in association with Encourage India.
- Awareness on CSR to students of Rajiv Gandhi Institute of Technology in order to support their annual project work for the Management Studies Curriculum.

Spreading the Light of Knowledge:

- Employees have donated new / used technical and non-technical books to Noida Public Library, and Govt. Schools in Bangalore.
- TCEites of Construction Business Unit have set up elementary school for Laborers' children at Project Sites.

Community Service

Blood Donation camps have been organized at TCE offices in association with various NGOs & Hospitals which include NIMHANS, Tata Memorial Hospital, Sanklap, The Madras Voluntary Blood Bureau, VHS Blood Bank, Jankalyan Blood Bank and Jamshedpur Blood Bank.

Donations:

- Donation of clothes, food and utility items to support the needy in association with NGOs like Ekta Mission, Goonj, etc.
- TCEites have donated monetarily to Goonj, Bangalore & Seva Sahayog Foundation, Pune to aid preparation of School Kits for economically weak students.
- TCE also donates old newspapers, magazines and paper waste to Samarthanam Trust to be used as Braille writing material.
- Medical camps at a "Basti" in Deonagar

Jadavpur University

IIT Madras

COEP, Govt. Polytechnic,

MIT Cummins, Pune

Bharati Vidyapeeth, Pune

IIT Mumbai

M N M Engineering College, Chennai



ACAD Training for ITI Students

HOPE foundation is a compassionate but non-sectarian charity that changes lives by harnessing the compassion and commitment of dedicated staff and volunteers to deliver sustainable, high-impact, community-based services to the poor and needy.

Goonj has grown as a mass movement among the urban and rural masses, mobilizing cloth and repositioning it as an important resource for rural India rather than wastage fit only for charity.

Ekta Mission is a part of the worldwide organization and is relentlessly active in social, educational, cultural and spiritual, fields, working as NGO in India for Child Charity

LEAD - creates, strengthens and support networks of people and institutions promoting change towards sustainable development.

Andrews Rehabilitation Centre - takes care of Women with mental illness of different kinds which lead to psychiatric disabilities.

Volunteer Services:

- Under the initiative of Talking books, TCEites lent their voice to audio recordings of 8th Std. text books for visually challenged children in association with Pune Blind School & Home.
- Festival celebrations in all TCE offices saw various non-profit institutions putting up their exhibition-sales stalls of their self-generated products.
- To promote the highly enriched tribal culture of India, some tribal dance groups from various parts of India were invited to perform on TCE Day at Kolkata.
- Across TCE offices, the proceeds from sale of waste paper, plastic, metal waste and other waste are donated to institutions that support education and general welfare activities of visually, physically and economically challenged children

Environment Conservation:

- Under the TCE-QSTP Climate Change Awareness Program, the "Reduce, Reuse, Recycle (RRR)" philosophy was introduced to high school students at Qatar
- A lecture & interactive quizzing session was organized by TCE on Green/ Sustainable Initiatives in Environmental Engineering at "The Mother's International School, New Delhi
- In order to reduce the carbon footprint of TCE Office at Bangalore, Diesel Generator Synchronization was implemented resulting in Carbon Emission reduction by about 5.4 Tons per annum.

The Way Forward

In the coming year, the CSR teams across offices have planned a host of community initiatives as follows:

Educational Services

- Orientation program on Project Management for final year engineering students about project activities involved in Engineering Consulting Organization
- Faculty services to technical educational institutions
- Corporate Campus - Talent sharing with engineering students by Senior TCEites
- To provide training on CAD & PDS Software for ITI Students
- Presentation on Nuclear Technology in one of the upcoming Technical Symposium at NIT-Trichy

Engineering Services

- Redesign and re-fabrication of old traffic signages
- Continued engineering design support to Sri Ramanasramam
- Designing of Auditorium for School of Hope.

Environment Conservation

- Creating Awareness on Rainwater harvesting in villages
- Supporting the WOW (Wealth out of Waste) concept by ITC Ltd in association with RAMKY Group
- Awareness Sessions for TCE staff on Climate Change & Conservation of natural resources

Community Service

- Blood donation camps on 3rd March 2012 (Founder's day)
- Infrastructure development work in slums & Govt. Schools
- Computer education to village students, & awareness on energy conservation /Rain water Harvesting
- Supporting visually challenged students in improving their education standard
- Supporting underprivileged schools in rural areas by providing study materials
- Financial support to the differently abled for medication and rehabilitation



Blood Donation Camp @ Mumbai



Helping for a better Society



Road Safety Awareness





Earlier two issues of TCEExpression have nicely captured the spirit of work culture and happenings across TCE.

Apart from the technical capabilities, it has given exposure to the talents across TCE Family.

This is one of the Best ways of bringing TCEites together and showcase to the customers, suppliers the difference between TCE and others.

“My Compliments and Best Wishes to the Editorial Team!”

Mr. A S Prabhudesai, Sr. VP, CN, Pune

TCEExpression has fulfilled the long standing desire of the employees to have an In house magazine. The looks and the content are excellent and are in line with our global vision. My compliments to the entire team involved in TCEExpression for the meticulous planning and sense of creativity .

Mr. D Ananthachar, VP, TCE-Bangalore

I am very pleased to note that TCEExpression - the in-house journal of TCE is making a very positive impact not only on TCEites but also on our esteemed Customers to whom this journal is being sent.

TCEExpression gives an insight into what is happening at various offices of TCE which includes important milestones achieved by its engineers and information on CSR initiatives and other extra-curricular activities .The journal is very informative and a very good media for Corporate Communications.

My best wishes to the Editorial Team. Keep up the good work!

Mr. Mohan Murthy, VP – BD, Bangalore

TCEExpression - Wonderful initiatives . We may think to cover more on environmental consciousness, client's perspective as well as packaging of the magazine could be improved to match other Tata Magazine viz. Tata Sphere matching with International Standards for similar initiatives.

Dr. Tapan Choudhury , GM-SMBU, TCE Kolkata

TCEExpression is an excellent initiative which is connecting TCEites across the globe. It has a refreshing content and is an excellent spread of news and items. I always look forward to the new issue.

Mr. Vikram S Bapat, GM-IBU, TCE 247 Park

TCEExpression has helped all TCE staff to know the various activities going on at various TCE offices .It has also helped in bringing all TCE offices closer to each other.

Mr. K S Thimmaiah, VP, TCE Jamshedpu

Mr. A B Panchal, MD, BECL

Better Bugs for Oil Spills

Oil-eating bacteria offer new hope for bioremediation. By *Duncan Graham-Rowe*

Scientists in Europe have sequenced the genome for an oil-eating bacterium, a move that could pave the way for faster and more efficient ways to clean up oil spills.

With a complete blueprint for *Alcanivorax borkumensis*, researchers hope to better understand the specialized physiological mechanisms that enable the bacteria to live almost exclusively on hydrocarbons, says Vitor Martins dos Santos of the Helmholtz Centre for Infection Research (formerly the German Research Centre for Biotechnology) in Braunschweig, Germany, who co-led the international project. The sequencing of the 2,755-gene organism is described in the journal *Nature Biotechnology*. The findings could reveal how to optimize the conditions for these bugs and thus enable them to help mop up the hundreds of millions of liters of oil that enter the sea each year, says Martins dos Santos.

The ability of some bacteria to metabolize oil has been well known for more than a century. But so far efforts to exploit these capabilities for remediation efforts have faltered. "It has been used in the past and was a complete failure," says Victor de Lorenzo, deputy director of the National Center of Biotechnology in Madrid, Spain. In one example, bacteria were used experimentally to try to help clean up the 11 million gallons of crude oil spewed out by the Exxon *Valdez* after it ran aground off the coast of Alaska in 1989. But it didn't make any difference, says de Lorenzo. The problem was not a lack of bacteria, he says. Indeed, though the oil-eating bacteria are not common in unpolluted environments, they are plentiful where there is oil;



Oil Spills in oceans



Hydrocarbon-eating cells

A. borkumensis makes up as much as 90 percent of microbial populations in oil spills. The challenge in using these bacteria to clean up oil lies in creating the right conditions for them to grow faster and metabolize oil more efficiently. Cleanup workers have started to do this: "Now it is standard practice to add nutrients like oil-soluble forms of nitrogen and phosphorus to oil spills," says de Lorenzo. However, they still have no real understanding of what specific nutrients the bacteria need, says Martins dos Santos.

Because bacterial remediation methods have not succeeded, cleaning up oil spills still depends mainly on the laborious process of physically removing the oil using booms and introducing chemical dispersants to break up what remains. But such methods are less than ideal. Recovering oil physically is expensive, and the chemically dispersed oil that remains in the sea still poses a threat to the environment even if it is no longer visible on the surface.

But decoding the genome of organisms like *A. borkumensis* is going to make a difference, says Jan van Beilen, a microbiologist who studies the molecular genetics of oil-eating organisms at the Institute of Molecular Systems Biology in Zurich, Switzerland. The genomic information has revealed molecular transport mechanisms that enable the organism to scavenge nutrients from its environment. This should, in turn, help identify which forms of phosphorus and nitrogen would create the best conditions for the bacteria.

The research could also identify the plethora of genes that produce the oxidative enzymes the bacteria use to degrade the oil, which should make it easier to search for other organisms with similar capabilities.

And such organisms will be needed. *A. borkumensis* can only metabolize compounds of low molecular weight, and these make up only about 70 percent of crude oil. So the next step is to look for organisms that are specialized to consume the remaining high-molecular-weight compounds, says van Beilen.

Sequencing *A. borkumensis* is only the first step, says Martins dos Santos. But, he says, research is under way in the United States, Australia, and Japan to sequence other oil-eating bacteria.

In the meantime, Martins dos Santos and colleagues have already begun applying the knowledge gleaned from *A. borkumensis*'s genome. Working with the Alfred Wegener Institute in Bremerhaven, Germany, they are running pilot tests in tanks in the North Sea to see if they can improve the bacteria's appetite. "We add these bacteria, add nutrients, and try to see how they react," he says.

Source: <http://www.technologyreview.in>

- Bluetooth** Something which takes small "bytes"
- Space Bar** A bar visited "quite often"
- CD Drive** Has poor eyesight, since it has a "lens" in it!
- Printer** Puts everything in "Black & White"
- Scanner** A softening agent, turns "hard" things "soft"
- Joy Stick** Gives kids joy & a headache to parents!
- Tablet** Something, even a doctor can't resist!
- Server** Actually a master, who has everyone's strings attached!
- Browser** "Once started", keeps your brows raised!
- Hard Disk** Disk that is "hardly" visible!
- i-Phone** Phone that keeps everyone's "eyes" glued to it!
- Keyboard** "Many keys with few locks"

Cartooning Team, TCEXpression



Laugh Aloud

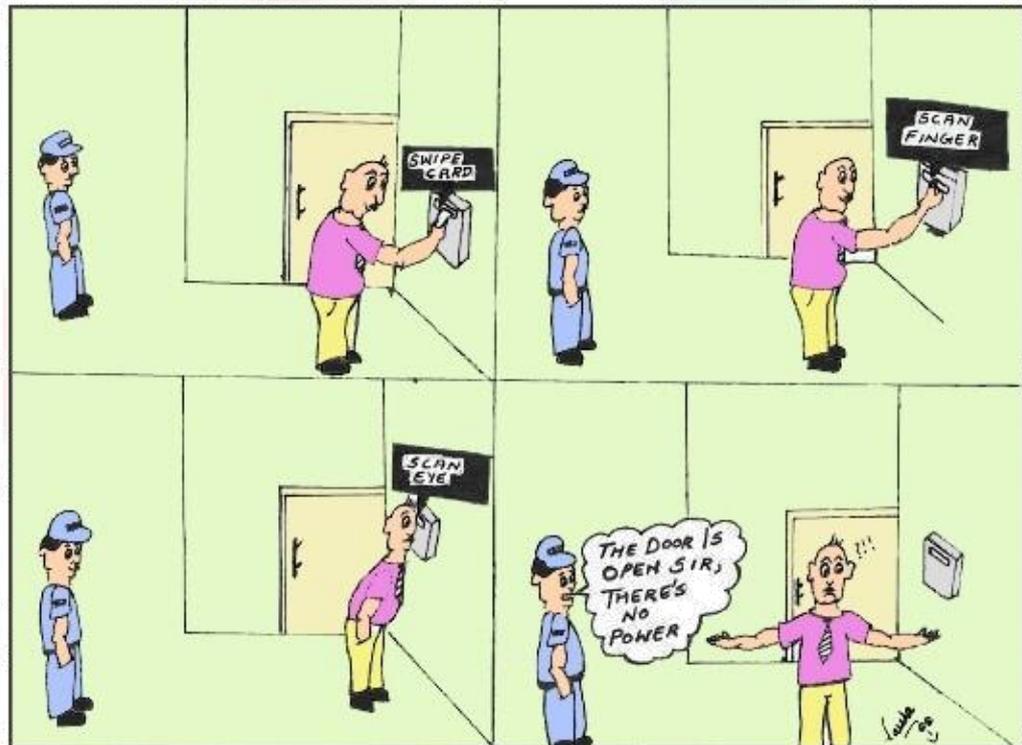
Engineer: My hard disk has become real hot!
 IT Guy: Well, try making chapatis on it!!

Boss: When will I get the project report?
 Engineer: If I send it by Blue Dart, you'll get it by tomorrow,
 If I send it by Bluetooth, you'll get it by next week!

Asst : Sir , as soon as I connected LAN, the mouse disappeared !
 IT Engr : Did you use a CAT cable ?

TEASY-YEE

Cartooning Team,
 TCEXpression





IT Head : My life is in disarray. It is becoming difficult to manage all the myriad technologies at my office.

Shrink : I do not know much about technologies .

But you can try to "DELETE" your life for a while. Then we can see.

Technology Head: I cannot sleep properly nowadays at night. I get nightmares of all the technologies malfunctioning.

Shrink : Counting sheep is passed nowadays. Instead try to count the bytes of all the documents printed by your printer.

A scene from the year 2035

Technology Manager: Norman, why are your fingers bruised?

Norman: I tried to access my wife's laptop and it crushed my fingers. Nowadays these laptops are very loyal to their users.

H W Joshi, Chief Manager-247 Park, Mumbai

Feedback / Suggestions – Welcome to TCEexpression@tce.co.in

TCEexpression

In House Newsletter

TCEexpression Magazine is a quarterly communication channel and an in-house newsletter for Tata Consulting Engineers Ltd., that strives to capture the happenings across TCE and keep every TCEite (& the world beyond) informed, inspired and involved.



TATA

TATA CONSULTING ENGINEERS LIMITED