



TATA CONSULTING ENGINEERS LIMITED

21ST ANNUAL REPORT 2019-20



DELIVERING

ASPIRATIONS

ACHIEVING

SCALE

ANNUAL REPORT

2019-20

Approach to Reporting

The Annual Report is aimed at meeting the information requirements of all our stakeholders, including investors, customers, suppliers, employees, contractors, competitors, press, analysts, the government and others.

Materiality

The Report includes information which our Senior Management believes, is material to our stakeholders and it presents an overview of our businesses and associated activities that help in short, medium and long-term value creation. We have presented information around our strategic approach and the Report also discusses what different capitals mean for the Company.

Scope of the Report

We have presented the information on all our business units in a fair, balanced and understandable manner. The performance disclosure is reported for the period FY 2019-20.

Forward-looking Statement

This annual report and other statements – written and oral – that we periodically make, contain forward-looking statements that set out anticipated results based on the management's plans and assumptions. We have tried wherever possible to identify such statements by using suitable words in connection with any discussion on future performance. We cannot guarantee that these forward looking statements will be realised, although we believe we have been prudent in our assumptions. The achievement of results is subject to risks, uncertainties and even inaccurate assumptions. Should known or unknown risks or uncertainties materialise, or should underlying assumptions prove inaccurate, actual results could vary materially from those anticipated, estimated or projected. We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise.

Management Review

For optimal presentation of the information in the Report, the strategic framework, governance overview, performance and value-creation model are all perused by the Senior Management.

Reporting Principle

Through the Report, we are attempting to present our 'integrated thinking' process by aligning our communication with the International Integrated Reporting <IR> Framework by the International Integrated Reporting Council (IIRC) and the Companies Act, 2013. The Report tries to communicate a clear, concise, integrated story that explains how all our resources are put together in creating value for the business and its stakeholders.

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Tata Consulting Engineers Limited (TCE) is an integrated engineering consultant providing concept to commissioning services in Infrastructure, Power, Resources - Hydrocarbons and Chemical and Resources - Mining and Metallurgy sectors.

TCE is a 100% subsidiary of Tata Sons. The Tata Group is one of India's most respected conglomerates.

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About Us

Delivering Aspirations and Achieving Scale

Established in 1962, Tata Consulting Engineers Limited (TCE) is India's Leading Integrated Engineering Consultant providing Concept to Commissioning services. With 10,000+ projects delivered in more than 55 countries the company has a five-year CAGR of 12%. TCE, amongst top 2 consultants in its core sectors - Power, Infra and Resources is a well diversified firm with equal distribution between domestic and international projects. TCE continues to be a part of Nation's Strategic Projects across Infra, transportation, nuclear, power, defence, space and urbanisation.

With a strong knowledge base and technical expertise, TCE has a track record of delivering several one-of-a-kind projects. The Company has multi-disciplinary engineering talent with capabilities to manage complex projects worldwide. TCE is among the few companies geared for the Industry 4.0 era, providing engineering solutions for Industrial Internet of Things (IIoT).



58 Years
of Technical Excellence



10000+
Projects Delivered Globally

2545
Employees

\$35 bn
worth Projects under
management

Currently, TCE is executing projects (design, engineering and/or site services) at 130 sites across India and overseas. TCE has a dedicated talent pool with core engineering skills, thus serving as an integrated service model for its clients.

The Company's ability to manage complex projects, and experience in building cost-effective and environment friendly solutions, makes it one of the most sought after engineering solutions partner across the globe. TCE's digital engineering and 3D - 5D delivery models enable the Company to provide niche services tailored to client needs. This is underscored by several success stories in delivering client aspirations.

VISION

To be an internationally respected engineering consultant offering comprehensive solutions

MISSION

Provide technically excellent and innovative solutions, for adding value for all stakeholders, and operate globally as professional consulting engineers

VALUES

-  Customer Satisfaction and Loyalty
-  Technical excellence with professional ethics
-  Responsibility to society
-  Employee dignity and self-respect
-  Organisational and individual growth



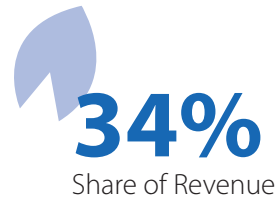
Our Businesses

Sectors



POWER

Thermal, Nuclear, Renewable, Captive, Energy Storage, Transmission & Distribution



INFRASTRUCTURE

Water, Sewage, Sustainable Infrastructure, Urban Development, Buildings, Industrial & Manufacturing Facilities, Ports & Transportation



RESOURCES:

1. HYDROCARBONS & CHEMICALS

Oil & Gas, Petrochemicals & Refineries, Food & Pharma, Specialty Chemicals

2. METALS & MINING

Ferrous & Non-Ferrous, Geology & Mining, Beneficiation, Material Handling





Our Businesses

Services

DESIGN & ENGINEERING

- Project Concept Development
- Pre-feasibility & Feasibility Reports
- Detailed Project Reports
- Environmental Study Reports
- System Studies
- Frontend Engineering Design (FEED)
- OE Services
- Detailed Engineering

PROJECT MANAGEMENT & SAFETY

- Project Management
- Engineering Review
- Construction Management/Supervision
- Program Management
- Interface Management
- Specialised Services
- Quality & Safety Audits
- Outage Management

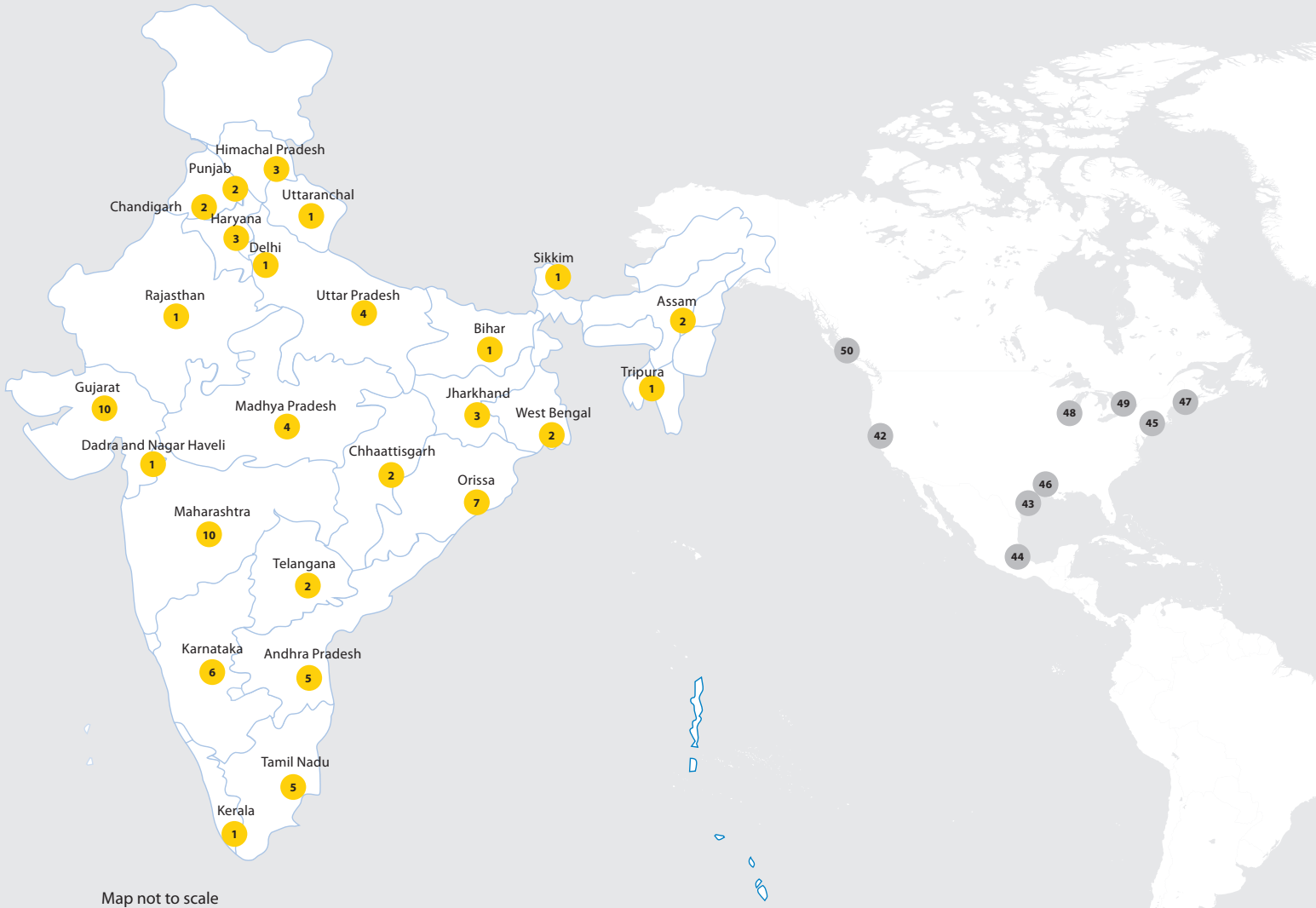
DIGITAL & ADVANCED TECHNOLOGY

- 3D Modelling & 4D Simulation
- Asset Digitisation
- Engineering IT Services
- BIM & IIoT
- New Machine Development
- Machine Localisation
- Machine Component Development
- Design Validation
- FE Analysis
- Special Projects

PROCUREMENT MANAGEMENT

- Procurement Assistance
- Quality, Inspection & Equipment management
- Vendor Quality Assessment
- Vendor Management
- Inquiry/Tender Preparation and Award

Our Presence



● No. of Cities (Domestic Projects)

INDIA

Assam

- Dibrugarh
- Guwahati

Andhra Pradesh

- Kakinada
- Shriharikota
- Vijaywada
- Visakhapatnam
- Yeddumailaram

Bihar

- Patna

Chhaattisgarh

- Raipur

Durg

Chandigarh

- Mohali
- Nayaraipur

Dadra and Nagar Haveli

- Silvassa

Delhi

- New Delhi

Gujarat

- Ahmedabad
- Baroda
- Bharuch
- Dahod
- Gandhidham
- Gandhinagar
- Jamnagar
- Rajkot
- Surat
- Vadodara

Haryana

- Faridabad
- Gurgaon
- Jhajjar

Himachal Pradesh

- Kinnaur
- Kullu
- Shimla

Jharkhand

- Jamshedpur
- Ranchi
- Noamundi

Karnataka

- Bangalore
- Belagavi (Belgaum)
- Bellary
- Bidadi
- Hubballi
- Shimoga

Kerala

- Thiruvananthapuram

Madhya Pradesh

- Bhopal
- Napanagar
- Satna
- Ujjain

Maharashtra

- Aurangabad
- Chandrapur
- Mumbai
- Navi Mumbai
- Pune
- Ratnagiri
- Shirdi
- Solapur
- Tal Khed, Dist. Pune
- Thane

Orissa

- Banharpali
- Bhubaneswar
- Dhenkanal
- Gopalpur
- Narendrapur
- Paradeep
- Rourkela

Punjab

- Bathinda
- Mansa

Rajasthan

- Jaipur

Sikkim

- Gangtok

Telangana

- Hyderabad
- Secunderabad

Tamil Nadu

- Chennai
- Hosur
- Sriperumbudur
- Thoothukudi
- Tuticorin

Tripura

- Agartala

Uttar Pradesh

- Allahabad
- Bulandshahr
- Noida
- Sonebhadra

Uttaranchal

- Dehradun

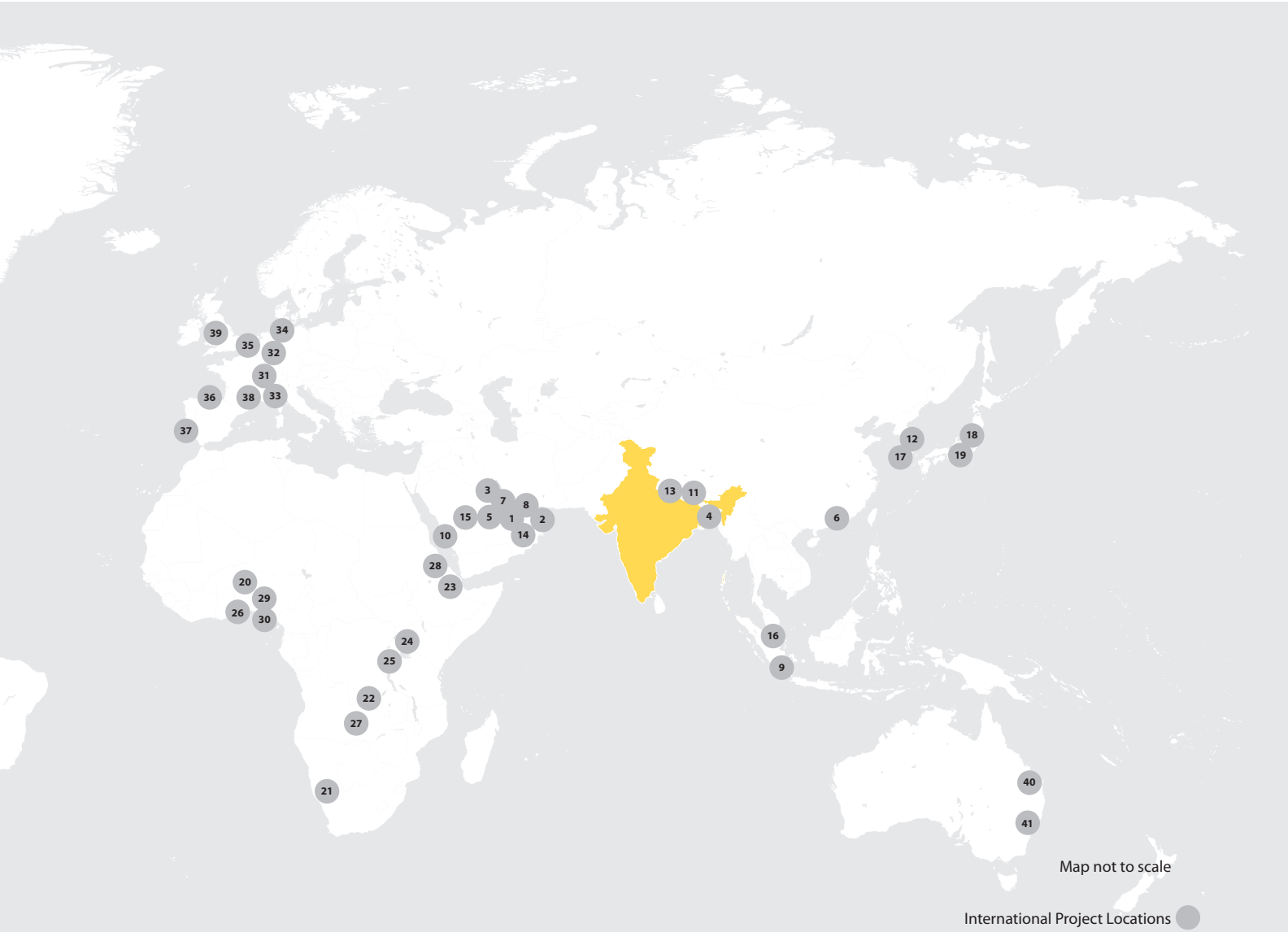
West Bengal

- Kolkata
- Medinipur

58%
Share of Revenue
INDIA

17%
Share of Revenue
MIDDLE EAST & AFRICA (MEA)

25%
Share of Revenue
REST OF WORLD (ROW)



ASIA & MIDDLE EAST

AFRICA

EUROPE

AUSTRALIA

NORTH AMERICA

- 1. Abu Dhabi, UAE
- 2. Barka, Oman
- 3. Dammam, Saudi Arabia
- 4. Dhaka, Bangladesh
- 5. Doha, Qatar
- 6. Dongguan, China
- 7. Dubai, UAE
- 8. Fujairah, UAE
- 9. Jakarta, Indonesia
- 10. Jeddah, Saudi Arabia
- 11. Kathmandu, Nepal
- 12. Korea, South Korea
- 13. Lalitpur, Nepal
- 14. Ras Al Khaimah, UAE
- 15. Riyadh, Saudi Arabia
- 16. Selangor, Malaysia
- 17. Seoul, South Korea
- 18. Tokyo, Japan
- 19. Yokohama, Japan

- 20. Abuja, Nigeria
- 21. Aggeneys, South Africa
- 22. Chingola, Zambia
- 23. Djibouti, Ethiopia
- 24. Kampala, Uganda
- 25. Kigali, Rwanda
- 26. Lagos, Nigeria
- 27. Lusaka, Zambia
- 28. Mekelle, Ethiopia
- 29. Port Harcourt, Nigeria
- 30. Rivers State, Nigeria

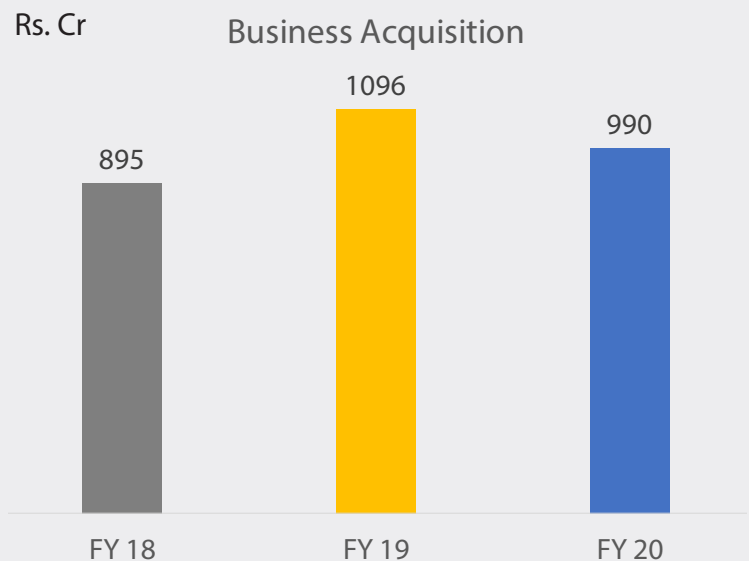
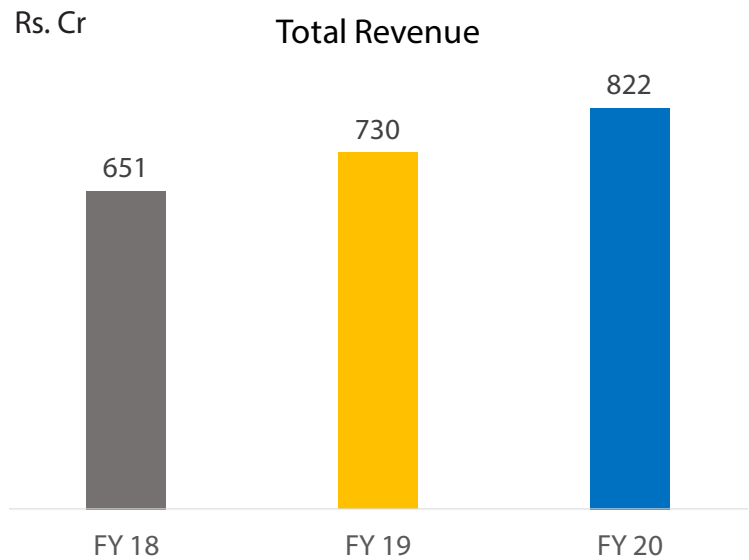
- 31. Baden, Switzerland
- 32. Berlin, Germany
- 33. Gallarate, Italy
- 34. Hamburg, Germany
- 35. Handelsregister, Netherlands
- 36. Leioa, Spain
- 37. Lisboa, Portugal
- 38. Saint Paul Lez Durance, France
- 39. Northwich, UK

- 40. Brisbane
- 41. Sydney

- 42. California, USA
- 43. Houston, USA
- 44. Mexico City, Mexico
- 45. New Jersey, USA
- 46. New Waverly, USA
- 47. New York, USA
- 48. Oakbrook Terrace, USA
- 49. Ohio, USA
- 50. Vancouver, Canada

Performance Highlights

FY 2019-20 saw the highest all-round growth in the company's 58-year history. Total revenues grew 12.6% over the previous year closing at Rs 822 crores for FY 2019-20.



Financial Capital

822 Cr

TOTAL REVENUE

990 Cr

BUSINESS ACQUISITION

12.6%

GROWTH IN TOTAL REVENUE OVER PREVIOUS YEAR

Manufactured Capital



Project design, engineering, construction, maintenance and management are the stages when we use materials, equipment, tools and technologies all form our manufactured capital

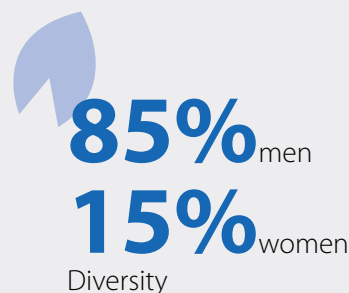
Intellectual Capital

Innovations around technologies for increasing project efficiency and creating knowledge continuously establishing the company as thought leaders



Human Capital

People are at the heart of our business. Collective skills, knowledge and capabilities of our employees and contract staff is core to delivering customer aspiration.



Natural Capital

Natural resources that our business activities and projects depend on. Efficient operations and optimal use of natural resources ensure all our business activities have minimal impact on the environment. Through our technology-enabled solutions, we also help our clients in preserving natural resources. Some of the projects that we undertake in water, waste management, smart cities, mining & metals, etc. are specifically addressed at natural capital enhancement.



Social and Relationship Capital

Powered by our different flagship programmes, along with various volunteering initiatives, we are delivering on our social responsibility. Our Corporate Sustainability Policy framework offers the foundation to build our social well-being programmes by leveraging our core capabilities. Our primary focus areas are: **Sustainable Livelihood, Education, Infrastructure, Health and Hygiene, and Research and Development.**



Technology Group

The technology Group is the engine behind the intellectual capital of our company. Entrusted with the responsibility of continuously generating knowledge, this group keenly analyses projects and provides technical knowhow to uplift the project design and delivery.

Academia Collaboration










Indian Institute of Technology Bombay



Indian Institute of Science Bangalore

Highlights of the contribution by the Technology Group:

-  **18** papers published in reputed journals / magazines
-  **19** Presentations and **8** Panel Discussions in various conferences
-  **38** articles written and uploaded on the company website
-  **63** SMEs from TCE enrolled as members of various BIS committees
-  **5** new Solution Offerings
-  **4** new productisation./templatisation
-  **2** Whitepapers

Chairman's Statement



Ashok Sethi

Chairman



During these extraordinary times of COVID19, your company has also been actively contributing positively to the social well-being of all its stakeholders and above all, to the common people of India. The company has been a part of the group initiative on Emergency support for COVID19 specific quarantine and ICU wards and facilities to be developed for various state governments, hospitals or NGO's/ Trust.

Dear Stakeholder,

It gives me immense pleasure to share that your company has completed a year of record financial performance. FY 2019-20 saw the highest growth in the company since its inception. Your company also improved its ENR ranking of 'top international engineering firms' in FY 2019-20 to an all-time best of 127. Your company continued on the path of business excellence and scored 550+ in last year's TBEM assessment and was recognised as "Emerging Industry Leader" at the prestigious JRD QV Awards. It also gives me immense pride to inform you that your company was the Design Engineering Consultant of the Kakrapar Atomic Power Plant located at Kakrapar, near Surat, the first indigenously designed and built Pressurised Heavy Water Reactor (PHWR) unit of 700MWe capacity. The indigenous nuclear plant - KAPP Unit 3 at Kakrapar achieved criticality on 22nd July 2020 demonstrating India's progress towards long term energy security. Your company has partnered with NPCIL on 85% nuclear plants and is associated with the Department of Atomic Energy since 1968.

Today we are living in unprecedented times with COVID19 drastically changing personal and professional lives. I sincerely wish safety and well-being for you and your loved ones'. As you are aware, this pandemic has affected the global economy severely and is expected to lead to ~3% contraction in global GDP. Indian economy is also likely to be significantly impacted with a sharp decline in industrial activity, contraction in exports and a drop in real GDP by almost 2-3%. Given this turmoil, it is a foregone conclusion that the business will also be impacted in the coming year as a fallout of the COVID19 pandemic. However, let me assure you that your company leadership has taken cognisance of the challenges and has prepared a detailed strategy focusing on invigorated sales efforts, cost optimisation, efficient collections and new business lines.

Your company is aligning to the new business order and new business lines and has also moved rapidly to adapt its IT systems and processes to the new normal enabling its employees to remain productive while Working from Home.

During these extraordinary times of COVID19, your company has also been actively contributing positively to the social well-being of all its stakeholders and above all, to the common people of India. The company has been a part of the group initiative on Emergency support for COVID19 specific quarantine and ICU wards and facilities to be developed for various state governments, hospitals or NGO's/ Trust. This FY 2020-21, your company prioritised the health and safety of its employees while keeping customers' mission-critical systems running under challenging circumstances.

When we emerge out of this crisis, the world will be a very different place. We are witnessing many of those changes already. Cloud and a new class of collaboration tools are helping people discover that they can collaborate just as well while working from home, as they did in person in the pre-COVID19 era. We are already in a disruptive period driven by technological advances and digital innovation which will further accelerate post-COVID19 with the emergence of 'low-touch' economies'. This is very much evident in the engineering consulting business as well, as most of TCE clients are embarking on their digital transformation journey. What makes digital unique in plant and infrastructure space is its deep linkage with the core design of assets and the need for an integrated plant level approach. Your company, with its strong domain expertise, is already working with its customers and has created new digital services offerings in tandem with customers' changing requirements.

Your company is also focussing on offering sustainability/climate change design and services across small and large industries. The company believes that operationalising forward-looking technologies and innovations will help it remain the most admired Indian engineering consulting company.

Strong Financial Results

TCE maintains a leadership position within the Consulting Industry by promoting excellence, creating value, seeking new and pioneering technologies, and delivering for clients, despite market and economic volatility. Your company achieved consolidated total revenue of Rs. 822 crore (for FY 2019-20) as against Rs. 730 crore (for FY 2018-19). The business acquisition for FY 2019-20 was Rs. 990 crore out of which International was Rs. 490 crore, amounting to 49% of the total acquisition. On the strength of its strong credentials, I am optimistic that your company will scale newer heights.

Into the Future - Cluster Approach & Strategy:

After a detailed discussion on company's strategy for transforming its portfolio and setting the foundation to achieve 2025 vision, your company has decided to reorganise into the following three clusters, focused on innovation and continued transformation to build upon its position as the leading engineering solutions provider.

1. **Infrastructure Cluster** – Providing Engineering Services for Water & Environment, Urban Infrastructure, Buildings & Facilities, Ports, Transportation, Sustainability Services (via the wholly-owned subsidiary M/s Ecofirst) and Project Management Services across sectors.
2. **Plant Engineering and Design Cluster** - Providing Engineering Services for Oil & Gas, Petrochemicals, Chemicals, Food and Pharma, Geology & Mining, Ore Beneficiation, Metal Extraction, Material Handling, Power Generation (Thermal, Renewable, Nuclear), Transmission and Distribution, Energy Storage.
3. **Digital Cluster** – Providing Digital Services such as plant digitisation, asset information modelling, digital handover, Industry 4.0 solutions and niche Product Engineering Solutions.

Governance & Systems

Your company has always focused on good governance practices and established systems and processes to enforce the same. Anti-bribery & Anti-corruption, Prevention of Sexual Harassment (POSH) at the workplace, adherence to General Data Protection Regulation (GDPR), Whistle-Blower Framework and others have been institutionalised through policies and guidelines. Business processes have been strengthened through IT systems, making for a transparent mechanism with a view to protect client IPR and build client confidence. The risk management process has been strengthened with a clear focus on addressing and mitigating material risks to the organisation

People

TCE is among the few organisations with a large congregation of engineers who form the very backbone for the company's success. The immensely talented workforce, passionate about projects has, time and again, helped deliver significant value to its customers. With the increased requirement of digital engineering delivery mechanisms, the focus in FY 2019-20 was on reskilling engineers across business units on advanced engineering applications..

Conclusion

Globally, the next few years will see the economic impact of COVID19 redefining businesses in many ways. The 'new normal' bet will undoubtedly lead to an enhanced focus on digital and OPEX. In the physical realm as well, there will be more standardisation, modularisation and a shift towards more efficient, sustainable and greener technologies. The strategic plans for the coming year factor in these global trends and I am confident that your company is well prepared to embrace the 'new normal' with a relentless focus on value, innovation, and excellence.

In all, it has been a momentous year for your company. My best wishes to all employees, customers and partners who have placed their trust in TCE. I also thank the Management and the Board members of TCE, Mr Sriram Kadiyala (Chairman – Audit & Risk Management Committee) and Ms Anjali Kulkarni (Chairperson- Corporate Social Responsibility Committee) for their valuable contribution to the success of the company.

I look forward to TCE delivering for you in the year ahead and beyond. I want to convey my sincere appreciation to the Board of Directors for their guidance and express my heartiest gratitude to all stakeholders for their enduring faith in TCE.

Sincerely yours,
Ashok Sethi



Members of The Board

Tata Consulting Engineers Limited (TCE)



Ashok Sethi

Chairman



Sriram Kadiyala

Director



Anjali Kulkarni

Director



Amit Sharma

CEO & Managing Director

Managing Director's Overview

Delivering Aspirations, Achieving Scale

As we prepare this year's annual report, the world is confronting the greatest pandemic of a generation, one that will hugely impact the economy and people across the globe. Our thoughts remain with the people affected by the COVID19 crisis and with the frontline team of doctors, police personnel, the government agencies and all others involved in the essential services.

Throughout our history, Tata Consulting Engineers (TCE) has built its reputation on being there for all its stakeholders in the most critical times. This unique environment is no different. Our actions during this global crisis are essential to keeping the economy going, and we are already on it.

Looking back at 2019, I am proud to say that we delivered on aspirations of our stakeholders and scaled newer heights. Over the last few years, we built TCE 2.0, a more future-ready, next-generation company disrupting the engineering consultancy space by offering Industry 4.0 engineering solutions. TCE has always had the privilege of associating itself with several landmark projects, this year too, we bagged some significant projects. New order wins in FY 2019-20 was close to 1000 cr.



Talent retention and profitability are significant challenges faced by the highly fragmented engineering consulting industry. TCE took it upon itself to work on these challenges and successfully managed a reduction in the attrition rate by 35% to reach 13%. Our profitability, on the other hand, grew by 22%.

Performance Review

FY 2019-20 saw the highest growth in the company's 58-year history. Total revenues (excluding other income) grew 11.4% over the previous year closing at Rs 782 crores (772 excluding revenue from consortium contracts) for FY 2019-20. A well-balanced portfolio and the right mix of domestic and international projects helped us achieve these numbers.

- We took part in the Tata Business Excellence Model (TBEM) Assessment 2019 and were assessed as 'Emerging Industry Leaders' after crossing over to the 551-650 band. Excellence is a journey and while we are still working to improve ourselves in many areas - the firm foundation of processes, system, tools and culture we have built will undoubtedly enable us to achieve new milestones in coming years.
- TCE moved up in rank in the ENR Top 225 International Design Firms to 127. In FY 2019-20, 42% of our revenues and 49% of our FY 2019-20 business acquisition came from international markets. Our niche capabilities ensured large businesses from international marquee customers.
- TCE is proudly associated with ITER the world's massive fusion experiment with a collaboration involving thirty-five nations. Fifty of our young and bright minds are working on the project. ITER ("The Way" in Latin) is one of the most ambitious energy projects in the world today. Located in southern France, 35 nations are collaborating to build the world's largest tokamak, a magnetic fusion device that has been designed to prove the feasibility of fusion as a large-scale and carbon-free source of energy based on the same principle that powers our Sun and stars.
- TCE has been increasing its focus on Opex projects to move away from the cyclical nature of Capex investments. 27% of FY 2019-20 revenues came from clients' opex investments (operational investment of customers in their asset lifecycle management).
- We now have a fair share in the development of infrastructure in India with 14 Smart Cities, 50 Amrut Cities, millions of metres of piping, multiple GWs of power generation, millions of litres of water and wastewater management, etc.
- TCE has promoted the use of smart project management applications that help reduce the exchange of paper. We launched TCE SmartSite™ to manage and track all steps, encourage collaboration and show real-time status with the help of interactive dashboards. We also use Suraksha App for daily tracking of site safety indicators. We promote increased use of drones and fixed point photography to reduce the need for manual inspection.
- This year, we bagged our first metro rail project (Agra Metro), not only a prestigious project but also a successful start of a new sector. We are building our capabilities in the transport sector and are successfully bidding for a larger share of the pie.
- 44% of our total revenues were derived from strategic relationships, providing consistency in earnings and establishing TCE as a reliable, long-term and trusted associate globally.
- TCE expanded its footprint in the Middle East with the setting up of a subsidiary and an office in Saudi Arabia and signing of an MoU with Saudi Aramco for various identified areas such as Power, Digitisation, Smart Cities, Energy Management, Water and Environment, etc.
- Streamlined Delivery Operations ensured high revenue productivity and Optimised Establishment Costs ensured establishment overheads remained flat, contributing to a robust bottom line.
- A strategic focus on customer centricity and increased thrust on opex services across the businesses lead to all business units within TCE being profitable.
- Sturdy order book in FY 2018-19 of 1096 crores provided a good head start for FY 2019-20 and the year closed with another good order booking number of 990 crores.

Our continued pursuit for excellence, focus on the customer, targeting strategic geographies and unique delivery models specific to each geography, augured well.

Management

The greatest asset of TCE are its employees, the highly skilled workforce of engineers coming from diverse backgrounds. In today's competitive environment attracting and retaining talent is the key to success. In FY 2019-20, we recruited 173 fresh graduate engineers from leading engineering institutes across India, and 78 new diploma holders. We put the recruits through our rigorous flagship induction programme, the Young Engineers Development Programme (YEDP) before they began work.

With the ever-changing technologies, the need to re-skill and re-bond is a necessity. We forged strategic tie-ups for upskilling our engineers and also design in-house technical workshops. More than 19000+ programmes were made available to our employees with an average 20+ person-days training per employee. We have also seen an encouraging increase in employee retention and employment longevity, increase in employee satisfaction scores, and we hope to leverage these positive trends as we look ahead and beyond the post-COVID times.

Strategy and Operations

COVID19 has impacted both CAPEX and OPEX spends by our clients. However, with a well-diversified sectoral, regional and client spread, TCE will be able to sail through these unprecedented and ambiguous times. After a record FY 2019-20 year where TCE achieved highest revenues and profits, the company has taken prudent measures to ensure it can sail through FY 2020-21 amidst challenging market conditions.

We were able to switch to "Work from Home" within weeks of the lockdown announced in mid-March 2020. A detailed impact analysis was conducted early in the year with various scenario-based financial modelling, precise actions, responses and goals.

Following COVID19 specific measures were taken with effect from the beginning of FY 2020-21, and we believe that these will ensure TCE remains profitable and sustainable in the coming year as well.



COVID19 Specific Measures

Revenue measures

- Enhanced revenue measures across the ecosystem – sales, delivery and enabling functions as champions. While we focus on the optimistic scenario we continue to keep a close watch on actual outcomes
- Focus on the domestic market working closely with our existing customers and GOI projects – especially infra, smart cities, transportation. In the current times, we are also keeping a tab on the possible China relocations (Korean/Japanese/US players)
- Deepen relationships and connect with existing international key customers (OPEX/DEC)
- Group customers/synergies
- Leverage digital, process, asset digitisation and plant sustenance opportunities
- Specific short-term sales strategies
- International engineering outsourcing
- Plant digital and IIOT
- Project revival services
- Plant sweating, extension, restart and expansions
- Project audits and reviews

Adjacencies being targeted with Digital, Modular and Low-Touch economy principles as relevant to Architecture-Engineering & Construction sector

- Digital twin, asset digitisation, digital handover
- Mini-EPC (~100 Cr) – modular units, skids, pre-cast/pre-fab, mini-plants and warehouses
- Explore new geographies especially in Europe
- Enhanced 3D, 4D and 5D conversion and simulations

COVID Specific Focussed Actions

- CSR & emergency support for COVID specific quarantine and ICU wards working and in line with group efforts.
- Hospitals, clean-rooms, air-lock spaces, isolation & containment facilities
- Import substitutions / localisation

- Paperless digital project site and low-touch shop floor SOP
- GMP/GMA certification for existing pharma / medical device units

Cost Measures

- Optimise contract staff / farmed out work + revised terms for contract staff that are required as a must (CV / PQ)
- Optimisation of all costs mainly travel and site guest house rentals and office space with Work-From-Home (WFH) as a new normal
- Enhance collection efforts and explore mechanisms to recover old debts
- Salary restructuring (keeping CTC constant – restructure fixed & variable)
- No employee reductions or any adverse measures, however no increments or promotions for FY 2020-21
- Fresh Graduate – All offers to be honoured – joining deferred to Q4

Future Readiness

COVID19 will redefine the economy and business in many ways. The New Normal bet will be more digital and less physical, possibly in the short term more OPEX focused and less significant CAPEX, and as a silver lining more green, sustainable and circular than the pre-COVID19 times.

In the physical realm as well, it will be standardised and modular, to be more efficient, sustainable and greener. As we enter Industry 5.0 era, which refines the collaborative interactions between humans and machines we are working towards creating newer opportunities and changing the way we respond and remain agile, lean and sustainable as an organisation.

Our strategic plans for the coming year factor in these global trends and we are confident and well prepared to embrace the new Normal.

Sincerely yours,
Amit Sharma

Management Team

Under the guidance of the CEO & Managing Director



K Ramesh

Head - Project Management BU



S Vidyanand

Head - Power BU



Tapan Choudhury

Head - Resources (Metals & Mining) BU



P R Shahu

Head - Digital Business Unit & CIO



Manoj Kumar

Head - Hydrocarbon & Chemicals BU



Manmohan Soman

Head - Infrastructure Business Unit



Kalpana Jaishankar

Head - Human Resources, CSR & Ethics



Sachin Dewasthalee

Chief Financial Officer (Till May 15, 2020)



Sachin Mishra

Head Legal & Company Secretary



Rajat Kaushal

Head - International Business Dev
Mktg & Key Engagement Accounts



Rajashekhar R Malur

Chief Technology Officer



Aditya Kumar Mishra

Head - Strategy, Business Excellence
& Brand



Rajeev Tanna

Chief Risk Officer



Ashwani Sadhu

International Marketing Group (MEA)



Col. Anurodh Mishra

Head - Estate



Gurunandan Molahalliker

Chief Financial Officer (Since May 16, 2020)

Board of Directors

Amit Sharma
Chairman

S Vidyanand
Director

K Ramesh
Director



Chitranjan Kaushik

Chief Operating Officer, Ecofirst

Corporate Governance

Our Board of Directors and management committee work in tandem to drive the core values that form TCE's guiding philosophy. Our business decisions are taken by the management committee in consultation with the Board. The different Board committees oversee the governance standards followed at TCE and are closely associated with the execution of programmes and initiatives, maintaining the highest standards of ethics and integrity.

Our Governance Framework



Corporate Governance Philosophy

Effective Corporate Governance practices constitute the firm foundation on which successful commercial enterprises are built. TCE's philosophy on Corporate Governance oversees the business strategies. It ensures fiscal accountability, ethical Corporate Governance and fairness to all stakeholders and the society at large. Strong leadership and effective Corporate Governance practices inherited from the Tata culture and ethos have been our hallmark.

TCE has a strong legacy of fair, transparent and ethical governance practices and has adopted the Tata Code of Conduct for its employees including the Managing Director and non-executive directors.

As per the Section 149 of the Companies Act 2013, TCE doesn't fall under the requirement of appointing an Independent Director on Board or the Committees like Audit & Risk Management Committee and Nomination & Remuneration Committee. Hence the Code of Conduct for Independent Directors is not applicable to us. However, the company follows the Tata Board and Committee/s Governance Charter 2015 and the Committees i.e. Audit & Risk Management Committee, Nomination and Remuneration Committee, Corporate Social Responsibility Committee, are functional in TCE as a practise of good Corporate Governance. The Tata Business Excellence Model further strengthens our Corporate Governance philosophy.

Board of Directors

As on March 31, 2020, TCE has four Directors. Of the 4 Directors, 3 (i.e. 75%) are Non-Executive Directors. The profiles of the Directors can be found on our website (www.tce.co.in). The Composition of the Board is in conformity with Section 149 of the Act. None of the Directors on the Board hold directorship in more than ten public companies.

5 Board Meetings were held during the year and the gap between two meetings did not exceed one hundred and twenty days. The dates on which the said meetings were held are:

Date of Board Meeting	Number of Directors present at the Board Meeting	Total Number of Directors	Attendance (%)
May 13, 2019	4	4	100
May 24, 2019	3	4	75
September 13, 2019	4	4	100
November 21, 2019	4	4	100
January 22, 2020	4	4	100

The necessary quorum was present for all TCE meetings.

- i All necessary disclosures regarding Committee positions in other public companies as on March 31, 2020 have been made by the Directors and none of them are related to each other.
- ii The names and categories of the Directors on TCE Board, their attendance at Board Meetings held during the year under review and at the last Annual General Meeting ("AGM"), names of other listed entities/public companies in which they are a director and the number of Directorships and Committee Chairmanships/Memberships held by them in other public limited companies as on March 31, 2020 are given herein below.

Other directorships do not include directorships of private limited companies, foreign companies and companies registered under Section 8 of the Act. Further, none of them are members of more than ten committees or chairperson of more than five committees across all the public companies in which he/she is a Director.
- iii The TCE Board periodically reviews the compliance reports of all laws applicable to the company.

Board Members Details

Name of the Director (DIN)	Category	Number of Board Meetings attended during FY 2019-20	Whether attended last AGM held on Date 08th July 2019 (Yes/No)	Number of Directorships in other Public Companies		Number of Committee positions held in other Public Companies		Directorship in other listed entity (Category of Directorship)
				Chairman	Member	Chairman	Member	
Mr. Ashok Sethi (Chairman) (DIN 01741911)	Non-Independent, Non- Executive	4	Yes	0	1	-	-	-
Mr. Amit Sharma (Managing Director) (DIN 03212568)	Non-Independent, Executive	5	Yes	1	1	-	-	-
Ms. Anjali Kulkarni (DIN 06993867)	Non-Independent, Non- Executive	3	Yes	-	7	-	7	-
Mr. Sriram Kadiyala (DIN 08449772)	Non-Independent, Non- Executive	4	Yes	-	-	-	-	-

Number of Board & Committee Meetings Held and Attendance Records

Name of the Committee	Audit Committee	Nomination and Remuneration Committee	Board Meeting	Corporate Social Responsibility Committee	Independent Director
No. of meetings held	3	5	5	2	1
Date of meetings	May 13, 2019 November 21, 2019 January 22, 2019	May 13, 2019 October 17, 2019 December 13, 2019 March 7, 2020 March 19, 2020	May 13, 2019 May 24, 2019 September 13, 2019 November 21, 2019 January 22, 2020	May 13, 2019 March 19, 2020	May 13, 2019
No of Meetings Attended					
Mr. S Padmanabhan*	1	1	1	1	-
Mr. P K Ghose**	1	1	1	1	1
Ms. Hema Ravichandar **	1	1	1	1	1
Mr. Ashok Sethi ***	2	4	4	1	-
Mr. Sriram Kadiyala ***	2	3	4	-	-
Ms. Anjali Kulkarni ***	-	4	3	1	-
Mr. Amit Sharma	-	-	5	2	1
Whether quorum was present for all meetings	Yes	Yes	Yes	Yes	Yes

* Ceased to be the Non-Executive Director of the Company w.e.f. 14th May 2019 due to completion of tenure and consequently as a member of the committees assigned therein w.e.f. 14th May 2019

** Ceased to be an Independent Director of the Company w.e.f. 14th May 2019 due to completion of tenure & consequently as a member of the committees assigned therein w.e.f. 14th May 2019

*** Appointed as member of the Board of Directors w.e.f. 13th May 2019.

(Applicable to both cases i.e. Director resigning within the relevant FY and a Director resigning post the FY but before the Board's Report is approved by the Board)

iv. The TCE Board has identified the following skills/expertise/competencies fundamental for the effective functioning of the company which are currently available with the Board:

Global Business	Strategy and Planning	Governance
Understanding, of global business dynamics, across various geographical markets, industry verticals and regulatory jurisdictions.	Appreciation of long-term trends, strategic choices and experience in guiding and leading management teams to make decisions in uncertain environments.	Experience in developing governance practices, serving the best interests of all stakeholders, maintaining board and management accountability, building long-term effective stakeholder engagements and driving corporate ethics and values.

Committees of the Board

The details pertaining to various Board Committees as on March 31, 2020 which comprises of the statutory committees as well are as follows:

Name of the Committee	Extract of Terms of Reference	Category and Composition	Other Details
Corporate Social Responsibility Committee	<p>The Committee is constituted in line with the provisions of Section 135 of the Act to:</p> <ul style="list-style-type: none"> Formulate and recommend to the Board, a CSR Policy indicating the activities to be undertaken by the Company as specified in Schedule VII of the Act. Recommend the amount of expenditure to be incurred on the activities mentioned in the CSR Policy Monitor the CSR Policy. 	<p>Ms. Anjali Kulkarni, Member Chairman</p> <p>Mr. Ashok Sethi, Member Director</p> <p>Mr. Amit Sharma, Member Director</p>	<p>During the year, TCE held 2 CSR Committee Meetings.</p>
Nomination & Remuneration Committee	<p>The Committee is constituted in line with the provisions Section 178 of the Act.</p> <ul style="list-style-type: none"> Recommend to the Board the setup and composition of the Board and its committees. Recommend to the Board the appointment/re-appointment of Directors and Key Managerial Personnel. Support the Board and Independent Directors in evaluation of the performance of the Board, its Committees and individual Directors. Recommend to the Board the Remuneration Policy for Directors, executive team or Key Managerial Personnel as well as the rest of employees. Oversee familiarisation programs for the Directors. 	<p>Mr. Ashok Sethi – Member Chairman</p> <p>Ms. Anjali Kulkarni- Member Director</p> <p>Mr. Sriram Kadiyala- Member Director</p>	<p>During the year, TCE held 5 Nomination and Remuneration Committee meetings as a good Corporate Governance Practice</p>
Audit & Risk Management Committee	<p>The Committee is constituted in line with the provisions of Section 177 of the Act.</p> <ul style="list-style-type: none"> Oversight of financial reporting process. Reviewing with the management, the annual financial statements and Auditors’ Report thereon before submission to the Board for approval. Evaluation of internal financial controls and risk management systems Recommendation for appointment, remuneration and terms of appointment of auditors of the company. Approve policies in relation to the implementation of the Related Party Transactions. To consider matters with respect to the Tata Code of Conduct, Anti-bribery and Anti-Corruption Policy and Gifts Policy. 	<p>Mr. Sriram Kadiyala, Member Chairman</p> <p>Mr. Ashok Sethi, Member Director</p>	<p>During the year, TCE held 3 Audit & Risk Management Committee Meetings as a Good Corporate Governance Practice</p>

General Body Meetings

i. General Meeting

a. Annual General Meeting (AGM)

Financial Year	Date	Time	Venue
2016 - 17	Friday, July 21, 2017	11:00 AM	Tata Sons Limited. Conference Room No 2, 4th Floor, Bombay House, 24 Homi Mody Street, Fort, Mumbai 400001
2017 - 18	Monday, July 2, 2018	3:30 PM	Tata Sons Limited. Meeting Room No 67, 6th Floor, Dr Dadabhai Naoroji Road, Fort, Mumbai 400001
2018 - 19	Monday, July 8, 2019	11:30 AM	Tata Sons Limited. Meeting Room No 301, 3rd Floor, Bombay House, 24 Homi Mody Street, Fort, Mumbai 400001

b. Extraordinary General Meeting: No Extraordinary General Meeting of the members was held during FY 2019-20.

c. Special Resolution(s) for FY 2018-19: NA

A certificate has been received from M/s Robert Pavrey & Associates Practicing Company Secretaries, that none of the Directors on the Board of the Company have been debarred or disqualified from being appointed or continuing as directors of companies by Ministry of Corporate Affairs or any such statutory authority and Compliance of the relevant laws under the Companies Act 2013.

M/s B S R & Co. LLP Chartered Accountants (Firm Registration No. 101248W/W-100022) have been appointed as the Statutory Auditors of the Company. The particulars of payment of Statutory Auditor's fees,

on consolidated basis is given in the Statutory Section of the Annual Report.

Other Disclosures:

1. Related Party Transactions: Defined under the Act

There are no material Related Party Transactions during the year that have conflict with the interest of TCE. Transactions entered into with related parties during the financial year were in the ordinary course of business at an arm's length basis and were approved by the Audit Committee. The Board's approved policy for related party transactions is uploaded on the website of the company.

2. Whistle Blower Policy and Vigil Mechanism: As per the Act

The company has a Whistle Blower Policy and has established the necessary Vigil Mechanisms for directors and employees to report concerns about unethical behaviour. No person has been denied access to the Chairman of the Audit Committee. The said policy has been uploaded on the website of the company.

3. Disclosure under the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2018: As per the Act

The details have been disclosed in the Board's Report forming part of the Statutory section of Annual Report.

All policies are available on <https://www.tce.co.in/ethics-and-compliance/>



Risk Management Overview

In the rapidly changing business environment, the company is exposed to a number of risks that could impact its businesses adversely. It is imperative to identify, analyse and address such risks and at the same time leverage opportunities for achieving our objectives. TCE has adopted the Enterprise Risk Management (ERM) process that recognises and seeks to address the key risks across bid stage and execution stage for projects, while also evaluating strategic, financial, operational, legal and reputational risks amongst others at Business Unit (BU) & TCE level.

The risk management process and its elements continue to evolve and are enhanced further based on stakeholder feedback/inputs with a view to supporting organisation strategy requirements. The ERM process is designed to address key risks across bid stage and execution stage for projects, while also evaluating strategic, financial, operational, legal and reputational risks amongst others at Business Units, Corporate Functions & TCE level.

Risk Management Organisation: The Risk Function at Central level is primarily driven by Chief Risk Officer with guidance from the MD and the Board. Business Unit level Risk Officers (BUROs) assist the Corporate Risk Team in deploying Risk Frameworks with an aim to embed risk process in the day to day business activities.



Key Risks and How we Mitigate Them

Risk Category	Key Risk Areas	Mitigation Strategies	Areas Impacted
Economic Risk	<ul style="list-style-type: none"> Demand for our services is mainly CAPEX based. Sectors in which our clients operate may get impacted by economic downturns, reductions in government or private spending, political and economic uncertainty, etc. Uncertain global economic and political conditions on account of the pandemic may negatively impact the ability and willingness of our clients to announce or fund projects, pay our invoices in time. 	<ul style="list-style-type: none"> TCE has multiple Business Units (BU) across sectors, making it immune to a downturn in any single sector. Diversify business across sub-sectors, geographies, opex vs CAPEX, etc. Proper due diligence of clients, projects to ensure at bid time that viability, funding tie up etc. are in place. 	<ul style="list-style-type: none"> Ability to generate new business, generate revenue out of existing business as well as make collections for current and past dues
Business Acquisition & revenue flow	<ul style="list-style-type: none"> There is a good deal of uncertainty in getting new business as forecasted. Acquisition depends on several factors external to TCE like economic trends, risks like a pandemic, government policy, market conditions, etc. Delays or reduction in new orders affects the targeted revenues. Revenue generation could also be negatively impacted due to internal issues like lack of matching skill sets to requirements, inadequate planning, etc. 	<ul style="list-style-type: none"> Identify new sectors / areas / adjacencies of growth Develop new key accounts & enter new areas through partnerships, etc. Build customer connect & deepen the relationship, especially for key accounts. Ensure rigorous project risk management. 	<ul style="list-style-type: none"> Reduced revenues and profits Employee morale affected
Locked Working Capital and Cashflow	<ul style="list-style-type: none"> Many of our contracts have milestone-based payment terms, due to which, we may incur significant costs before we can raise bill and subsequently receive payment. Cash flows from projects can fluctuate significantly over the execution period depending on the timing of the contract, financing contingencies, delays, etc. Due to the current pandemic, our clients could be severely stressed in terms of funding ability and liquidity which may negatively impact our cash flows from past, existing and future projects 	<ul style="list-style-type: none"> Follow-up to get the collection in line with the contract terms Enhanced focus on contract & claims management through review rigour at various levels to ensure project delivery with profitability Due diligence and factoring in locked capital or cash flow impact into our bid pricing. Where possible, negotiating for favourable payment terms and granular milestones 	<ul style="list-style-type: none"> Impact on working capital. Higher cost of financing the project.
Concentration Risk	<ul style="list-style-type: none"> If one or few clients have a substantially large share of revenue of a business unit, the loss of or a significant reduction in business from such client(s) will have a negative impact on the revenues. Despite good relationships and performance by TCE, such client(s) may sometimes be forced to reduce, delay or cancel their contracts due to changed business scenario or changes in policy. 	<ul style="list-style-type: none"> Conscious efforts at dependence or concentration on any single client or sector. Develop newer key or large accounts Strengthen business relationships with clients at all levels 	<ul style="list-style-type: none"> Inability to achieve acquisition and revenue targets Impact on profits
Cost Overrun	<ul style="list-style-type: none"> Costs may increase in projects beyond budgeted estimates due to various reasons like: <ul style="list-style-type: none"> Higher quantum of resources required Schedule delays Scope creep Resources being unoccupied while being deployed on the project Higher actual cost of outsourced work 	<ul style="list-style-type: none"> Ensuring the study of secondary data to identify issues/risks that emerge during project execution, quantify the same and factor into the prices. Follow project and contract management best practices to avoid delays and cost overruns. 	<ul style="list-style-type: none"> Lower profitability Disputes with client

Risk Category	Key Risk Areas	Mitigation Strategies	Areas Impacted
Human Resources	<ul style="list-style-type: none"> • People are our company's most important resource; hence our business success is dependent on the ability to hire, retain, and utilise qualified personnel in a profitable manner. • During times of reduced business, the challenge would be effectively training resources in required skill sets and utilise the available workforce profitably. 	<ul style="list-style-type: none"> • Developing specific learning and re-skilling programs. • Better and flexible manpower planning practices • Enhancing employee engagement practices • Build a relationship with outsourcing agencies for access to resources with specific skill sets and/or those required urgently. 	<ul style="list-style-type: none"> • Reduction in revenue and profits • Quality of deliverables affected • Negative impact on the Brand value
Liabilities	<ul style="list-style-type: none"> • Our project execution activities may result in liability as per Contract conditions. • We could be exposed to significant monetary damages, claims or reputation risks due to deficiencies in service, any catastrophic event at our project sites, etc. 	<ul style="list-style-type: none"> • Adequate professional liability insurance at the organisation and project level • Proper due diligence at bid time to avoid taking up of large liabilities, adhering to contract requirements and professional best practices to avoid imposition of penalties or liabilities. 	<ul style="list-style-type: none"> • Unexpected and huge costs • Negative impact on profitability • Negative impact on reputation and brand value
Intellectual Property (IP)	<ul style="list-style-type: none"> • Although we protect our intellectual property through contractual arrangements, registration, licensing, NDAs, etc., we may not be able to completely prevent infringement of our IPs. • Our employees could inadvertently or purposely cause an infringement of the client's or third party's IP rights. • Litigation to determine the scope of IP rights, even if ultimately successful, could prove to be costly. 	<ul style="list-style-type: none"> • Strengthen process, contracts & other mechanisms to safeguard our IP, confidential information & trade secrets. • Provide training to employees on the importance of respecting IPs of our company and those of other stakeholders, and the high price that we might become liable to pay in case of IP infringements. 	<ul style="list-style-type: none"> • Unexpected and huge costs • Consumption of a significant amount of senior management's attention and time. • Negative impact on reputation and brand value
Loss of confidential information / Data violation / breach /	<ul style="list-style-type: none"> • Processes are being followed to properly identify confidential information of the company and other stakeholders and prevent leakage. However, there remains a risk of loss of confidential information either by oversight or on purpose. • The chances of a data breach are increased in a Work From Home scenario. 	<ul style="list-style-type: none"> • Training and sensitisation of employees about the importance of maintaining confidential information. • Obtaining specific NDAs / Confidentiality agreements from employees/partners. • Tightening of IT security measures. 	<ul style="list-style-type: none"> • Unexpected and huge costs • Loss of business. • Negative impact on reputation and brand value
JV / Partnerships	<ul style="list-style-type: none"> • We perform certain contracts as a member of joint ventures, partnerships, and similar arrangements. There is a risk that our partners may be unable to fulfil their contractual obligations to us or our clients. • We would have limited ability to control actions of our JV partners, including non-performance, default, bankruptcy or legal compliance. 	<ul style="list-style-type: none"> • Proper due diligence of JV partner during pre-bid/bid stage, esp. on financial ability, experience and track record • Strong back-to-back contractual arrangement to pass on liabilities and penalties to JV commensurate with their share in the partnership 	<ul style="list-style-type: none"> • Impact on quantity and quality of project deliverables. • Loss of revenue and profit. • Loss of reputation. • Legal costs and waste of time.
International Operations	<ul style="list-style-type: none"> • Our international operations are exposed to additional risks and uncertainties, including unfavourable political developments and weak foreign economies. E.g. unexpected changes in foreign government policies and regulatory requirements, Potential non-compliance with regulations and evolving industry standards, Renegotiation or nullification of our existing contracts, Social, political, and economic instability; Currency fluctuations, etc. 	<ul style="list-style-type: none"> • Proper due diligence during bid time in terms of country or location risk. Avoid excessively risky, unsafe, economically unstable or weak countries or geographies. • Have systems and processes to ensure compliance to all key regulatory, govt and contractual compliances, standards, laws, etc. 	<ul style="list-style-type: none"> • Loss of business • Safety and security risk of personnel. • Impact on revenue and profits. • Impact on strategic targets for improving our global footprint.

Value Creation Model

At TCE, delivering customer aspirations and helping them achieve scale is at the core of our strategy. Creating sustained value for all the stakeholders using our resources and relationships and taking actions aligned to our strategic focus areas helps us create sustainable long-term value.

Resources and Relations

Financing

- Equity
- Debt

Materials, Tools & Equipment

- Design suite
- Application licenses
- Hardware

Technology & Management Insights

- Design engineering
- Project management
- Consultancy
- OPEX optimisation
- Knowledge management

Employees

- For engineering solutions
- At project sites
- Shared services

Raw Material

Suppliers and Vendors

Strategic Focus Areas

Financial

- Focus on profitability with working capital optimisation
- Acquire business in new sectors; 50: 50 international domestic mix of orders
- Focus on large deals and work with consortiums and partnerships

Customers

- Offer cross business and integrated solutions across customer asset lifecycle
- Trusted advisor to marquee clients
- Customer engagement and customer satisfaction

People and Learning

Attract, Retain and Retrain Talent

Processes

- Strengthening processes for operational, technology excellence
- Productivity improvement & cost optimisation

Responsible Member of Society

Outcomes

- **Total Revenue of 882 Cr, highest in history; New order acquisition high at 990 Cr; EBITDA and PAT best ever.**
- **42% business from international markets**
- **27% of new business from opex services**
- **Consortium-based approach established : TCE a leader in Smartcities and water projects**
- **TCE bagged the Agra Metro Project, a first for TCE**

Customers

- 20% of business orders through cross selling and offering integrated solutions
- 44% sales revenues from key/strategic accounts
- Customer feedback index at 72%

Processes

- Processes were strengthened through several automation applications for technology (knowledge management), people process, sales & operations, streamlined deliveries and improved sales process along with long-term relationships with customers

Learning/People

- Focus was on reskilling and training. All-round training was at 20 person-days per employee & technology training was at 3 person-days per employee. Attrition of key talent was curtailed at 3%. 173 young engineers were hired from campus and made industry ready through the YEDP
- Safety was a key focus on site and in offices. Safety index was at 4.01 at sites

Responsible Member of Society

- Infrastructure solutions for making tribal villages water positive was successful in the model village.
- Total CSR spends were at Rs. 219 lakhs
- Corporate volunteering clocked 11,532 hours
- 143 volunteering programs were organised
- Special Tata Units were designed to help country fight COVID19



Strategic Framework

**Rs. 1,000
Revenue**

- Within ENR 100 r...
from outside hon...
- International - Do...
50:50
- Trusted advisor to...
& preferred partn...
business (75/25)
- Asset lifecycle fo...
30% OPEX

Approach

- Leverage Strengths
- Minimise Risks

Focus

- Aspire
- Innovate
- Scale

000 cr
e by 2022

ank (w. r. t. revenue
me country)

domestic Revenue Mix

o strategic clients
ners in their growth

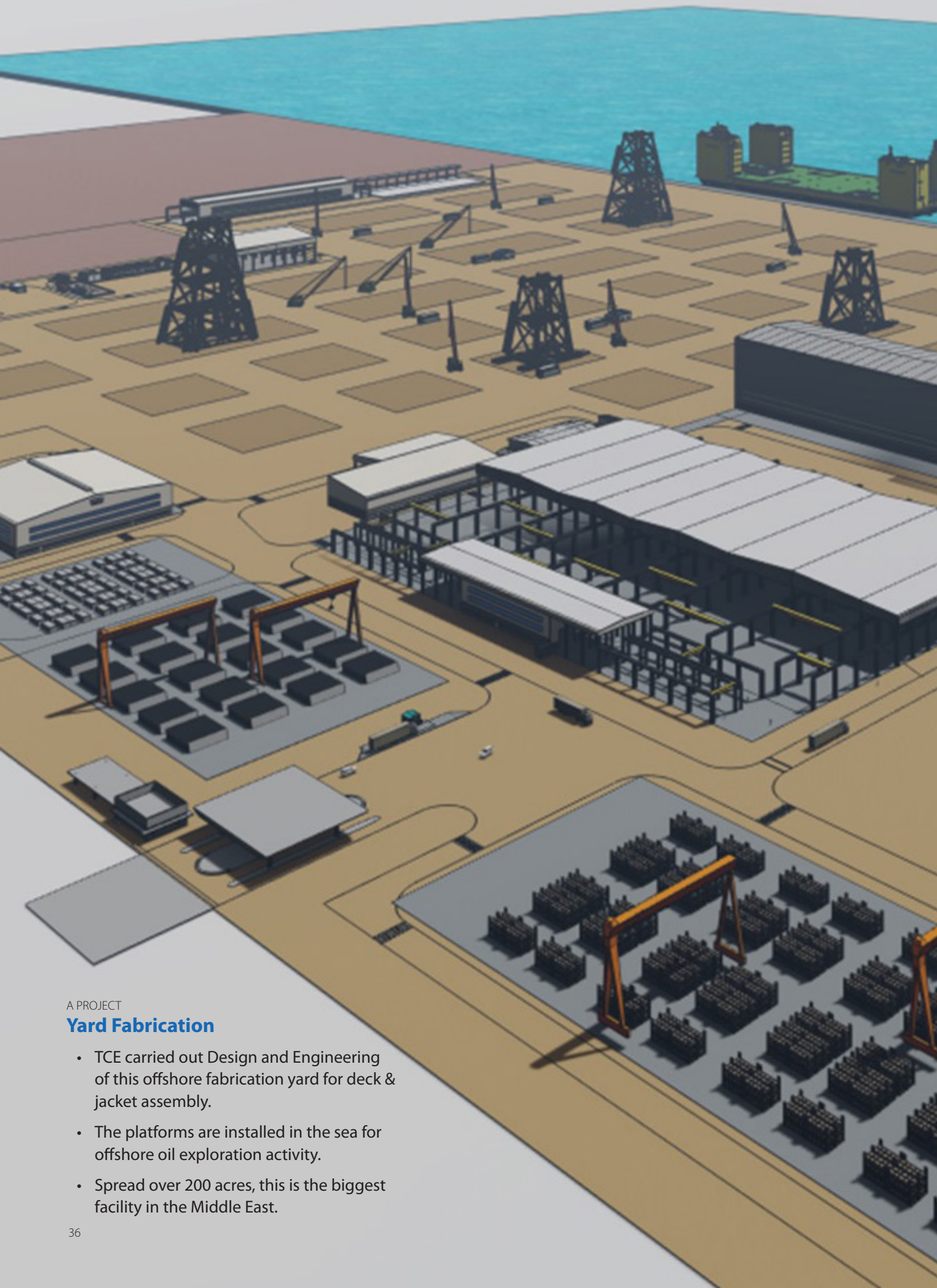
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Plan

- Digital asset management
- Industry 4.0 Solutions
- Urbanisation and MEGA Cities - smart infrastructure, smart city, smart grid, smart mobility
- Renewable Energy & Sustainability Solutions

People

- Attract, retain and develop talent and prepare for the workplace of the future
- Be a responsible member of society



A PROJECT

Yard Fabrication

- TCE carried out Design and Engineering of this offshore fabrication yard for deck & jacket assembly.
- The platforms are installed in the sea for offshore oil exploration activity.
- Spread over 200 acres, this is the biggest facility in the Middle East.



12%

CAGR growth in 3 years



38%

Contribution to Order Book



34%

Contribution to Revenue

Infrastructure

Business Review

- Water
- Wastewater & Sewage
- Sustainable Infrastructure
- Urban Development
- Buildings
- Industrial & Manufacturing Facilities
- Ports & Transportation

Infrastructure Business Review

Infrastructure Business Unit of Tata Consulting Engineers is a part of a nation's everyday life. What goes behind it is what we strive to do tirelessly – we improve the quality of life of the ordinary person on the street. To be able to do this, we work with public and private sector organisations, government and local bodies and international funding institutions. We plan and design townships and cities, waterways and water distribution, transport and the environment. TCE has successfully managed complex engineering projects across the infrastructure spectrum, securing a high degree of differentiation in building large-scale infrastructure facilities.



14

Smart Cities as Lead Consultants



50

AMRUT Cities as Lead Consultant



2

Smart Port Cities

Areas of Expertise:

Water and Environment:

- Providing water, wastewater and sewage treatment systems, among others, to assist authorities in water conservation and leakage management
- Offering geotechnical investigations and underground design innovations to industries
- Managing environment improvement projects such as heritage conservation, rainwater harvesting, pollution control, biodiversity conservation, green building solutions

Built environment:

- Building a city within a city with complete planning, design and commissioning
- Providing engineering solution for large capacity industrial units and manufacturing facilities
- Developing smart cities that sustainably use resources and catalyse economic growth

Transportation

- Creating standalone urban transport infrastructure, including airports, rail systems and ports planning, development and commissioning; as well as connecting tech cities and large SEZ spaces

Key Achievements:

- Market leader in the Smart City development initiative.
- One of the top three infrastructure consulting companies in India.
- Bagged Agra Metro Rail project.

Key Trends Shaping the Industry:

- With increasing focus of the government on the need for infrastructure, the public sector has begun to reassert its role and is aggressively pursuing the enhancement of this sector.
- With continued focus on Urbanisation, SMART Cities, AMRUT cities, it is expected that many more such cities and related infrastructure will be launched in the coming years.
- With sustainability becoming more relevant and awareness about global warming and climate change increasing, the need for sustainable infrastructure both new and upgrade of existing is also an increasing trend.
- Due to extreme weather events and high level of water stress, there is a growing demand around identifying alternate water sources, efficient distribution of quality water in towns and cities.
- The degree of privatisation in the water industry will expand, with a wide range of opportunities, for smart water management, alternative water sources (desalinisation) market and water reuse/ recycling, along with irrigation and rivers.

- As the population growth surges forward, hand in hand with urbanisation and industrialisation, more efficient transportation services are in high demand, particularly mass commuting services both within and between cities.
- Urban rail services (metro/mono), high-speed rail and super-fast hyperloop train technologies, as well as fossil fuels alternatives to power transportation, are areas of opportunities.

The infrastructure sector will continue to evolve, integrating various industries, rather than simply focusing on installation and services. To stay relevant amid a rapidly changing world, TCE will leverage its innovation excellence and project expertise to scale new heights and establish enduring relationships.

Going forward, TCE will participate in the urban rejuvenation programme; reinforce the water management vertical, expand presence in metro rail services, ports, river interlinkages and transportation; and explore partnership / collaboration opportunities for high- speed rail networks.

A PROJECT

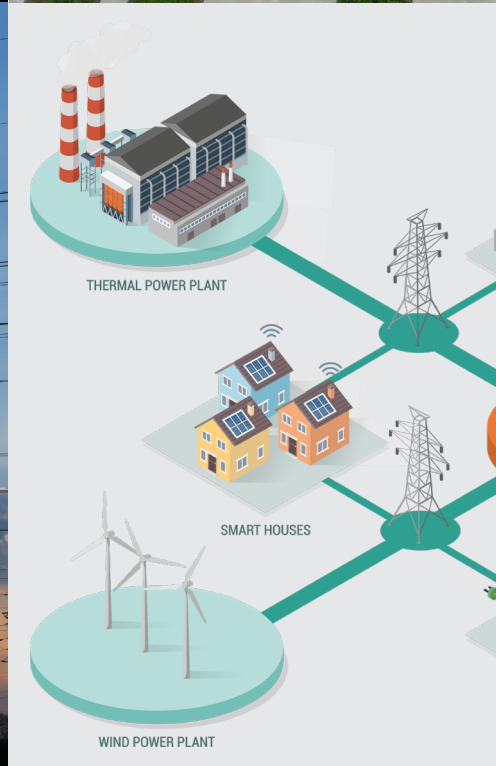
Water Supply Facilities to 110 Villages in Karnataka:

With the inclusion of 110 villages, the need for augmentation of existing water supply arrangement was urgently felt. It was also considered that bringing an additional quantity of 775 MLD water from the river project is likely to take a long time. Hence this project will utilise the savings of water obtained by the reduction of Unaccounted for Water (UFW) in the core area. However, the system was designed such that it can be integrated with the river water at a later date.

The UFW work included detail design of 26 DMAs spread over 22 Square kilometres in the project area, laying jointing of 400 kilometres of pipelines, service connections for 43000 houses, domestic water meters for 36000 homes and installation of 80 Electro Magnetic Flowmeters.

Up to 31st March 2020 pipelines have been laid in a length of 2660 kilometres and construction of Ground Level Reservoirs (GLRs) and Overhead Tanks (OHTs) are in advance stage.



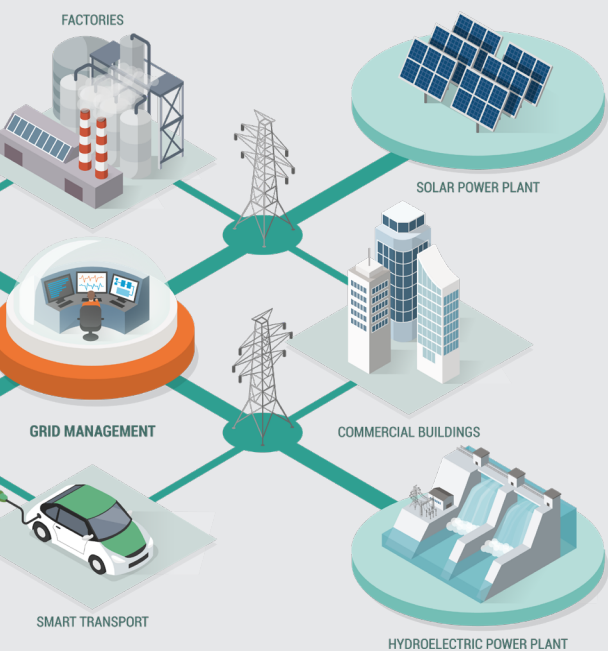




33%
Growth over previous year

28%
Contribution to Order Book

26%
Contribution to Revenue



Power

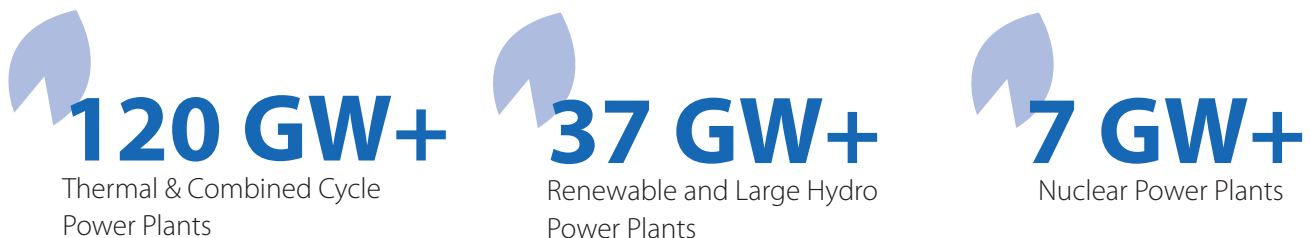
Business Review

- Renewable
- Hydro
- Nuclear
- Thermal
- Transmission & Distribution

Power Business Review

The Power Business of TCE is amongst the top two players in the market providing value-added concept to commissioning and life cycle management services. With decades of experience in Power Generation, Transmission and Distribution, the business is geared up to deliver emerging customer aspirations. Having made its mark in engineering and project management of various thermal power plants across the global, TCE's Power Business has stayed relevant by adapting to the changing needs of more greener and environmental-friendly power plants. The business unit offers innovative patent pending solutions to ensure a balance between the need of the customer and the environment.

Globally Engineered Till Date:



Key Differentiators:

- Proven our mettle in the Power sector and have till date contributed to the generation of about 164 GW+ of power generation.
- Capabilities in all forms of renewable power - roof top solar, floating solar, to CSP and large ground mounted mega solar projects, onshore and offshore wind, energy storage and hybrid plants, and waste to energy through gasification, combustion and incineration technologies
- Market leader in Nuclear power plant engineering with more than 85% market share in India.
- One of the few empanelled consultants by Central Energy Regulatory Commission (CERC).
- Provide comprehensive solutions to meet Environmental & emission/pollution norms and Plant/Energy efficiency improvement.
- Rich experience in planning, designing, implementation, Renovation & Modernisation and plant review including plant safety review of all types of power plants.

Service Offerings:

- **Renewable Power:** Hydro, Solar, wind, biomass, hybrid, battery energy storage and waste-to-energy.
- **Hydro Power:** Large Hydro, Pumped Storage Projects, Renovation and Modernisation, and Dam Rehabilitation
- **Nuclear Power:** Power generation, fuel fabrication, fuel reprocessing, waste disposal.
- **Thermal Power:** Coal, gas, captive and cogeneration.
- **Opex Services:** Plant renovation, modernisation and performance improvement projects and various Industry 4.0 solutions in existing facilities.
- **T&D:** Transmission lines, substation, distribution and system studies.

Key Trends Shaping the Industry:

- Sustainable Development Goals are driving Energy Transition across sectors with a focus on clean and green energy. Renewable growth focus across geographies. Floating solar, hybrid solar and wind with energy storage opportunities being realised. Energy neutral infrastructure, waste to energy and offshore wind expected to emerge in coming years in India.
- Flexibilisation of thermal plants, Tariff based competitive bidding for Round the Clock (RTC) power with Variable Renewable Energy (VRE) bundled with underutilised thermal plants along with Green Term Ahead Market that allows renewable buyers and sellers to trade without PPAs will govern the dynamics of power industry going forward.
- Nuclear sector upbeat with ten units of 700MW PHWRs in fleet mode along with bulk imported reactors based on LWR and EPR technologies set to realise soon. Kaiga 2x700MW Unit 5&6 tender expected in 2020. Seismic Margin Assessments for existing plants offer opex opportunities. Overseas opportunities with ITER, Korean and European majors offer international growth unexplored thus far.
- Hydro plants up to 25MW capacity are considered as renewables and are eligible for similar benefits. Pumped Storage Schemes (PSPs) receiving huge attention due to simplicity, flexibility and quick turnaround to replace VRE. Dam Rehabilitation Phase II and III for improvement of 700 dams with a budget of 10,000cr planned to be completed in this decade.
- No new utility-scale thermal plants expected and focus in the sector is on flexible power and environmental upgrades. New build opportunities are emerging in CIS countries as well as in Asia Pacific regions.
- Transmission and distribution infrastructure upgrades in India receiving due attention. Higher investments expected in transmission infrastructure, HVDC and FACTS, smart grids, distribution automation, load forecasting, microgrids, WAMS etc. The Asia Pacific and MENA regions offer international opportunities.
- Government of India intends to reduce AT&C losses through privatisation of DISCOMs. Open access in distribution, regular tariff revisions, extensive smart metering, services on digital platforms, direct beneficiary transfer mechanisms to bring in much relief and improve the efficiency of the distribution sector.
- Distribution system enhancement will bring in new players in DISCOMs as well as new opportunities in the areas of due diligence, AT&C loss reduction, infrastructure upgrades, energy storage, smart grids, smart meters and grid automation.
- OEMs and EPCs focus on standardisation, modularisation and reuse to gain competitive advantage and reduce time to market.
- In response to the emerging trends, TCE is stepping up its core service offerings in the Power business, reinforcing its strengths and judiciously pursuing the opportunities presented by Energy Transition and the Industry 4.0 revolution.
- Power Business is focusing on digitalisation, IIOT solutions and opex services for plant upgrades and asset lifecycle management. Focus areas for Point solutions include monitoring and performance optimisation of boilers, condensers, critical pumps and other equipment, plant chemistry, coal inventory, the health of switchgear and transformers, solar power forecasting, etc. Capacity building initiatives on data sciences, machine learning, and artificial intelligence are in progress.

A PROJECT

International Thermonuclear Experimental Reactor (ITER)

ITER nuclear fusion research and engineering megaproject is the world's largest magnetic confinement plasma physics experiment. TCE has been involved in the project since inception.

We provided the detailed engineering of the Cooling Water System for the project and were a part of the conceptual and preliminary design phases which formed the foundation for the final design.

Currently, our 50+ engineers from different specialisation are working at the site to help ITER deliver the Engineering Work Packages to the Construction Team for Erection. We are also supporting ITER through offshore projects being executed by the delivery teams in India



A PROJECT

Coke Dry Quenching Plant

TCE masterminded the complete project cycle from concept to commissioning of the Coke Dry Quenching (CDQ) plant for Coke Oven Batteries 10 & 11 of Tata Steel at Jamshedpur. The CDQ plant was mandatory to meet environmental norms to operate the coke oven. The plant is designed with Best Available Technology (BAT) from globally renowned suppliers and contractors and is able to reduce coke dust emission, eliminate the wastage of water as steam in the wet quenching process and use 80% of the sensible heat of the circulating cooling gas to generate steam in waste heat recovery boilers for use in other processes and power generation.

TCE also carried steam dynamics study for boosting the power generation capacity by 10MW using additional steam from existing CDQ plant through PRV based cascade control with steam from the new boilers, resulting in considerable value addition to the project viability and environment. The plant retrofits into the confined space of the existing plant using various innovative schemes for enabling works to create working space above and below ground. The engineering was carried out through extensive use of smart engineering tools like 3D integrated approach with a common digital model of the entire plant by merging the engineering output from various global suppliers/ contractors to create a seamless product for safe and time bound execution. Use of 4D construction simulation helped in meeting the challenges of execution in deep brownfield conditions by proper sequencing of activities and support logistics.





16%

CAGR growth in 3 years



34%

Contribution to Order Book



40%

Contribution to Revenue

Resources

Business Review

1. HYDROCARBONS & CHEMICALS

- Oil & Gas
- Petrochemicals & Refineries
- Food & Pharma
- Speciality Chemicals

2. METALS & MINING

- Mining, Geology & Beneficiation
- Ferrous & Non Ferrous Value Chain
- Material Handling
- Enabling & BOP Related Services

Resources Business Review

TCE's Resources sector has a track record of providing comprehensive engineering services from concept to commissioning. This translates to consistently delivering smart engineering solutions for its customers across the value chain.

The Resources business has two sub-sectors namely: Hydrocarbons & Chemicals and Mining & Metallurgy.



MMBU Contribution to Revenue



HCBU Contribution to Revenue

Hydrocarbon and Chemicals

Areas of expertise

Under this sector, TCE provides comprehensive EPCM services to clients in the fields of:

- Oil, Gas and Refineries
- Petrochemicals
- Fertilizers
- Chemicals & Specialty Chemicals
- Food & Pharmaceuticals
- Glass, Cement and Allied Industries

Key Trends Shaping the Industry

This sector envisages growth opportunities in the Indian markets fueled by higher consumption associated with rising standards of living and rapid urbanisation. Growing realisation about the risk associated with the large concentration of Chemicals manufacturing in one country, will present opportunities as many large MNCs may plan to de-risk by diversifying their expansion locations.

Large investments are planned in the refinery sector, petrochemicals, LNG regasification terminals and specialty chemical sectors.

The Government of India aims to increase the share of natural gas in the country's energy mix from 6% to 15% by 2030. Government also has plans for creating National Gas Grid which will require installation of additional Gas Pipeline Infrastructure.

There is a thrust to utilise indigenously available Coal

for manufacturing liquid fuel and Chemicals using Coal Gasification Technology. This will help in reducing country's Crude Import bill.

India's refining capacity is planned to increase from 230 MMTPA to 440 MMTPA by 2030. All the refineries are now integrated with downstream petrochemical complexes to improve ROI and also to cater to the increasing demands of plastic polymers in the domestic market. Apart from the CAPEX projects in the domestic market, we expect to have good opportunities in the global market for the following types of projects, to meet the need of sustainability and tighter emission controls:

- Plant upgrades, automation and revamps
- Asset integrity management
- Energy Optimisation Studies
- Efficiency improvement & debottlenecking

We see opportunities in bio ethanol and bio CNG investments in India.

The sector is well poised to leverage these opportunities with a healthy mix of domestic and international clients. This strategy is expected to help the sector maintain its growth momentum in the coming years. FY 2019-20 saw the strengthening of TCE's relationships with marquee clients and more such long-term engagements are in the pipeline.

Mining and Metals

Areas of Expertise

This sector continues to deliver creative solutions to customers worldwide across the value chain of:

- Iron & Steel
- Mining & Beneficiation of Ferrous & Non-ferrous
- Smelting and Processing

The focus areas in the mining sector are:

- Geology and Mine Planning
- Mineral Processing and beneficiation
- Material Handling.

Key Trends Shaping the Industry

The Mining & Metals (M&M) industry is facing new challenges. In the past, the mining sector simply had to plan their production on the basis of “highest volumes at the lowest production cost”. Today, they have to be not only profitable and productive but also sustainable under new & upcoming regulations. The Mining and Metals (M&M) sector is returning to growth, but companies face a transformed competitive and operating landscape.

Key drivers for the next decade for this sector are the following :

- Import substitution strategy (Resource Security) with redefined globalisation
- Climate change and Environmental sustainability without compromising competitiveness
- Energy transition and Net-Zero based redesign approach
- Adopting Controlled-Tower methodology in new normal conditions
- Innovate and integrate various functions to bring greater capital efficiency

- Adoption of Industry 4.0/5.0, digitalisation and remote controlled center for plant operations

Our areas of expertise are:

- Concept to Commissioning Services with interface management
- Portfolio Management Services
- Process Engineering & Interface Management
- Layout & Logistics
- Sustainability & Environmental Engineering
- Waste Management
- Asset Integrity Management

M&M BU has already built its strength both in CAPEX and OPEX areas for the Iron & Steel Industry by providing services in building some of the largest plants in Iron & Steel making and Finishing areas as well as rebuilding of the existing world in close coordination with world reputed technology suppliers. For the last 5 years, the diversification has also resulted in customer orientation in providing services related to productivity improvement, operational assistance and asset integrity management throughout the life cycle of the assets. In non-ferrous area, the sector strategy has resulted in innovative solutions to the reputed customers in green metal entire value chain. The experiences gained in the OPEX services has now been expanded to the non-ferrous areas to meet the present business objective. A separate dedicated team is working on identified initiatives like Energy Transition, Clean technology, High value product differentiation and Digital point solution to identified Industrial problems along with partners.

The sector approach will be towards reskilling of entire work force to orient in changing Industry need and the drivers enforcing the changes - Re-envisioning talent management in the digital age.

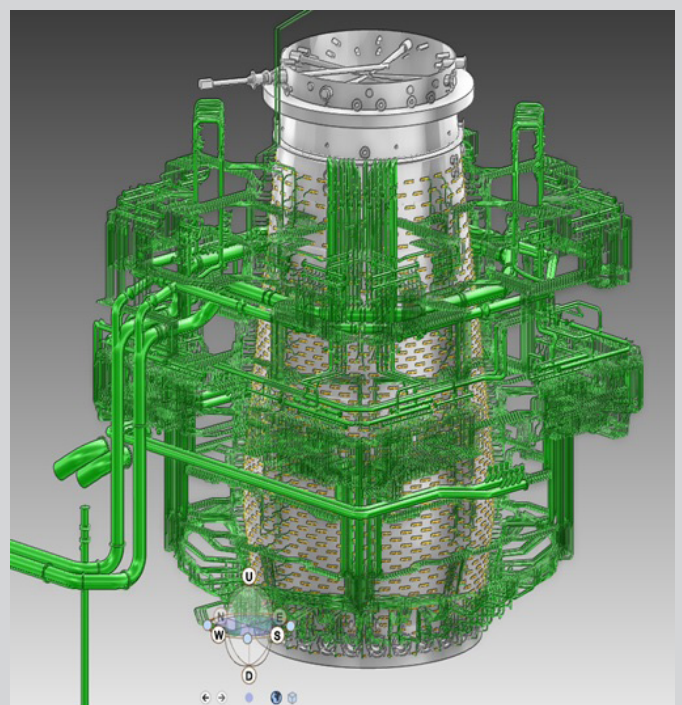
A PROJECT

3D Modeling of Critical Utility System

Revamping of the Blast Furnace was planned by the plant owner, but new engineering was hindered by lack of “As-Built” information of the major parts and components of the Blast Furnace. TCE carried out this assignment for the critical utility systems to create the digital asset through 3D laser scanning and subsequent allocation of appropriate specifications for the various utility pipes from existing documents.

The final engineered 3D model was further used for extracting isometrics & other 2D drawings and has become a part of the digital asset of the plant which can be integrated with other parts being developed.

Developed intelligent 3D model has been used for further engineering and modification / replacement of pipe in the required location without clashing with existing, to avoid interdisciplinary clashes, proper engineering and planning for adjacent facilities such as changing of Bustle Main Pipe, changing of cooling water return gutters etc., and creating cost savings by allowing as-built design services





A PROJECT

Construction Supervision of Hydrogenation Plant

10,000 Sqm brownfield project comprising of Process Plant Building, Tank Farm, FGS Warehouse, Pipe Rack, Utility Building, Hydrogen Unloading Area, Cooling Tower, Chillers, Roads and Other Infrastructure.



Project Management

Business Review

- Project Management
- Engineering Review
- Construction Management/Supervision
- Program Management
- Interface Management
- Specialised Services
- Quality & Safety Audits
- Outage Management

Project Management Business Review

The Project Management service offering serves as the onsite execution partner across our sectors - infrastructure, power and resources. The offerings span EPCM services, project management, commissioning support, engineering programme management and planning, and quality, inspection and expediting. We have expertise ranging from architectural engineering, basic engineering, detailed engineering, project management and construction management. We take our holistic solutions a step further by extending our services through the entire asset life-cycle by offering opex services management.

From the simplest of projects to the most complex such as extensive nuclear energy facilities, we have proved our might as the country's top-notch PMC service providers. We have diverse capabilities endorsed with high ethical practices and international standards in safety and quality.



130+

Sites in India and Overseas



990

Engineers on Site

Key Market Trends:

Investments and growth across key sectors where TCE is present in, such as, infrastructure, minerals and metallurgy, chemicals and hydrocarbons, and power, promises growth opportunities for the PMBU. Each of these sectors are integral to the nation's economic progress and TCE's PMBU a lead player in India is well positioned to leverage its competitive strengths

With Government's focus on Metros, High-Speed Rails, Smart Cities, Water for all by 2022-23, Investments in logistics and manufacturing shifting base to India will provide good project management avenues. The power sector is also projected to increase the installed capacity from 346 to 619 GW by 2025 requiring Transmission lines /smart grids to the tune of 150,000 KM another area of strength for TCE.

TCE has invested heavily in digital engineering tools to serve the requirements of clients adopting Industry 4.0 technologies. Construction management services can provide tremendous value additions and cost efficiencies through digitalisation. TCE's focus will be on digitalisation using 3D-5D technologies. This will help critical decision-making in a simulated environment and increase construction efficiencies.

With 130+ Sites in India and overseas TCE continues to adopt new technologies and work with partners to leverage capabilities and provide value to customers. Moving in this direction, smart construction management practices combining digital tools and engineering expertise is the unique value proposition that TCE has to offer its customers.

A PROJECT

Regional Office of one of India's Largest IT Companies

This IT/ITES business park spread over 48 acres has the potential to house 60,000 seats. The first phase of development consisted of 2.85Mn sft of FAR area that houses 33000 seats, a Data Center along with 3 level basement parking and connected amenities.

TCE was appointed as the PMC to maintain Contract administration & variation, Time management, EHS & Quality Management for the completion of 5 Blocks including Data centre, utilities, fit out, MEP, façade & landscaping.

This project has been awarded the prestigious Platinum LEED rating. Another highlight of the project is the use of technologies like Under Floor Air Distribution System. Phase-I is approaching completion and our team ensured timeline, budget & quality of construction all exceed expectations.



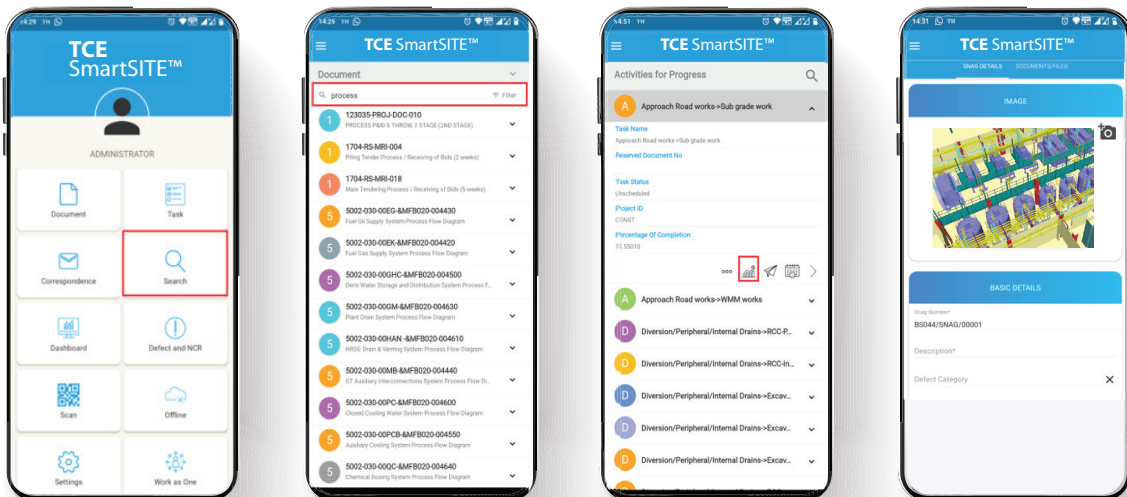
TCE Smart Site App

At TCE, we promote the use of smart project management applications that help reduce paper work and provide live dashboards.

The TCE SmartSITE™ App helps manage and track engineering drawings and documents across their lifecycle. It brings all stakeholders together on the same platform, having built-in quality management processes and provides the most up-to-date information with complete traceability.

The app also allows digital collaboration through electronic reviews, comments, approvals, RFI's, correspondences and transmittals and ensures better visibility through real-time dashboard and reports.

We also use Suraksha App for daily tracking of site safety indicators and encourage use of drones and fixed point photography to reduce the need for manual inspection.

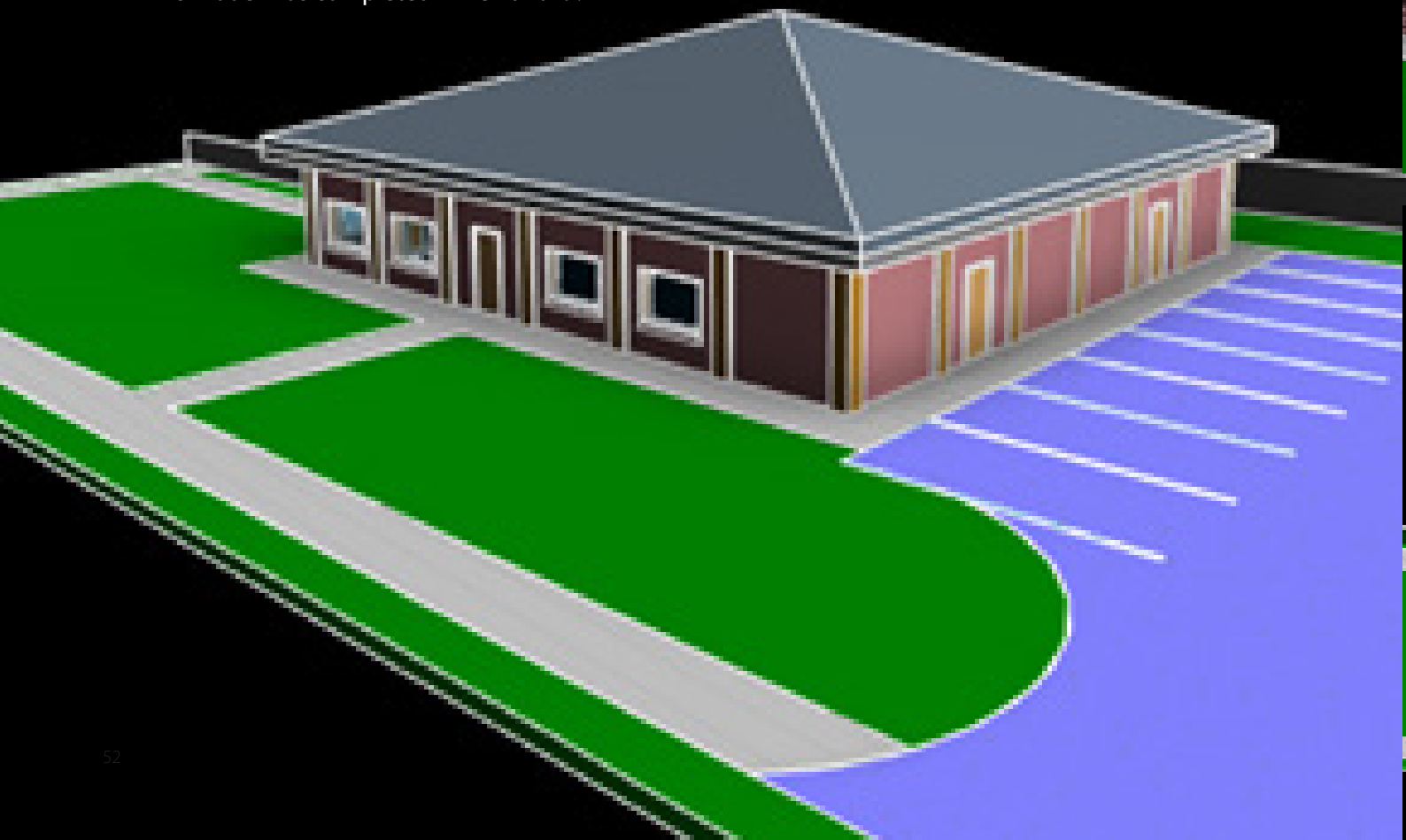


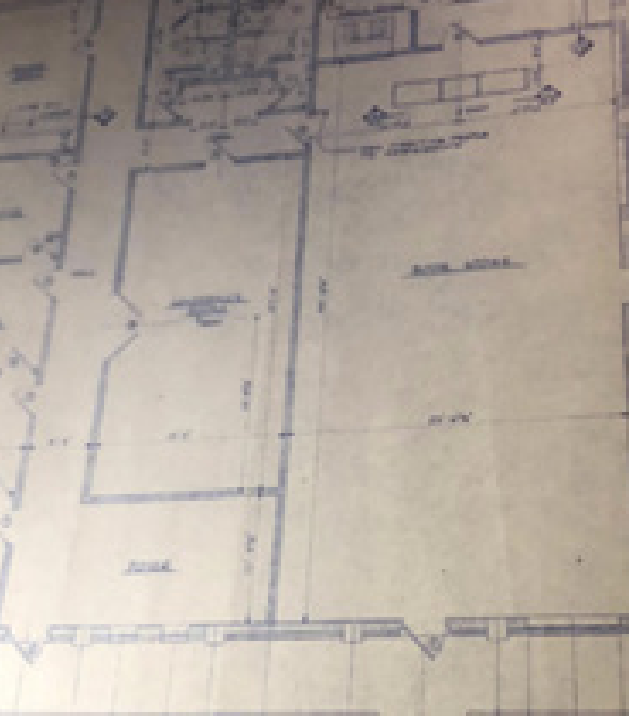


A PROJECT

Intelligent 3D Model

- The site was converted from scans of old drawing and some site photographs.
- The model was successful completed by integrating available information with google maps to get the most accurate and latest information about the location.
- This model was completed in Revit 2019.



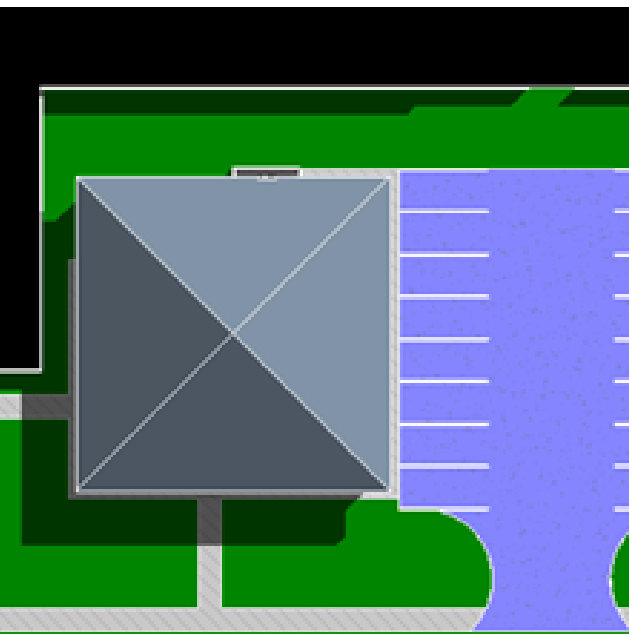


Digital & Advanced Technology

Business Review



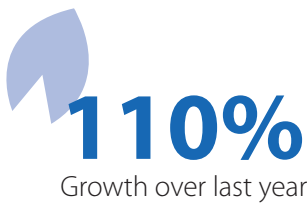
- Intelligent P&ID
- 3D Modeling, 4D/5D Simulation
- BIM
- Asset Digitisation
- Asset Information Management
- Digital Handover
- Engineering IT Implementation Services
- Digital Roadmap Advisory
- Asset Performance Management
- Digital Workforce Solutions
- Industry 4.0 Point Solutions
- Asset Life Assessment
- Product Engineering – Design, Analysis
- Machine Development/ Localisation
- Special Projects



Digital & Advanced Technology Business Review

Digital and Advanced Technologies business provides services in Asset Digitisation, Asset Information Modeling, Industry 4.0, Product Engineering and Special Projects. The service cuts across all our sectors - Infrastructure, Power and Resources.

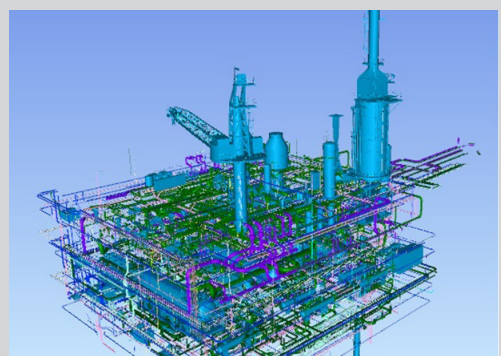
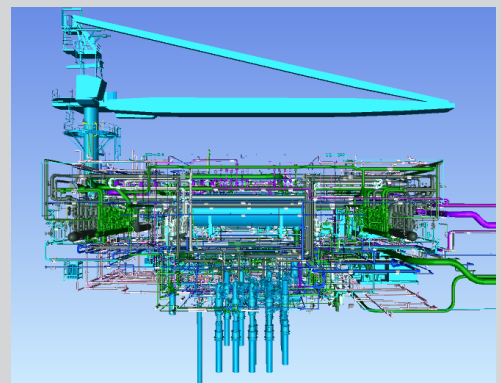
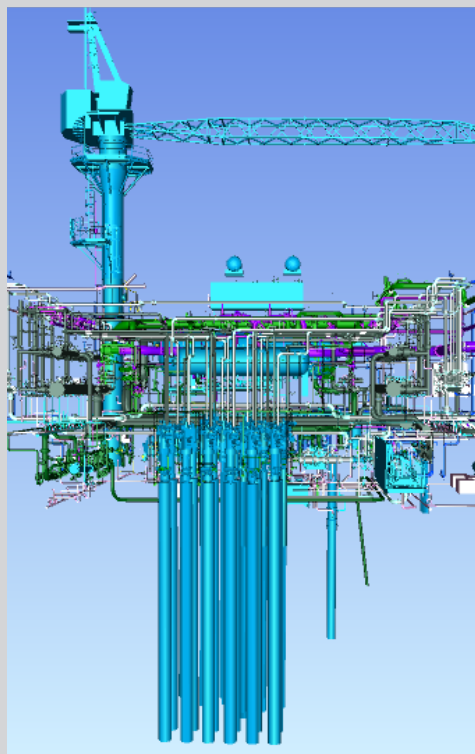
Multi-dimensional digital engineering suites are now prevalent for integrated plant design, buildings, urban planning and complex infrastructure projects such as Nuclear Plants, Power Plants, Chemical Plants, Water Distribution Systems, Waste Management Systems, Towns, Hospitals, Buildings and Smart Cities.



A PROJECT

Development of intelligent 3D model for offshore platforms

- The client provided a primitive model Laser scan data to develop an intelligent 3D model.
- Developed Intelligent model was checked against markup Isometrics and P&ID for assigning Tags (Valves, Special items and Instruments) and Spec break.



Key Trends Shaping the Industry:

- **Digital Adoption in Industry will only further Accelerate:** In the ever-changing business environment, most industrial and infrastructure business are increasingly realising the need for Digital Transformation to manage their businesses better. This trend will accelerate post COVID19 with companies ramping up investments in digital in the medium to long term with ‘low touch’ technologies being the first to be adopted.
- **The market is now moving from ‘Pilots’ to ‘Full-scale Deployments’:** Many PSUs and large private industrial players are beginning to release formal RFQs of substantial value for a wide range of requirements such as digital handover, asset digitisation, APM, digital workforce etc.
- **Need for ‘Established Technologies’ and Strong ‘Digital Partner’:** While the initial few years saw a much-needed explosion in terms of startups and self-innovation, the market is understandably converging towards established technologies with demonstrable experience and long term support setups.

- **Digital engineering and digital tools:** Creation and management of assets using digital tools, together with the interfacing and collaboration of physical and digital assets. Building Information Modelling (BIM) is expected to gain ground, as a reliable, shared knowledge resource for information and decision-making.

In line with the key trends, we plan to strengthen our business on Industry 4.0, FEA and BIM. We also aim to grow our asset digitisation business and are focused on building an internal centre of excellence for digital engineering.

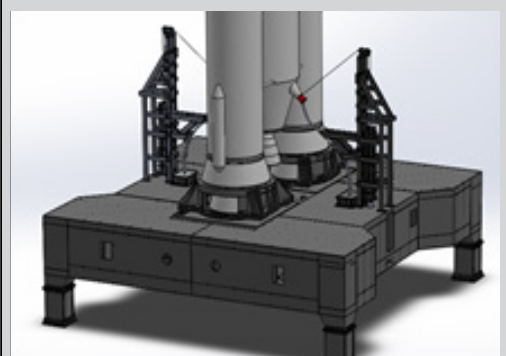
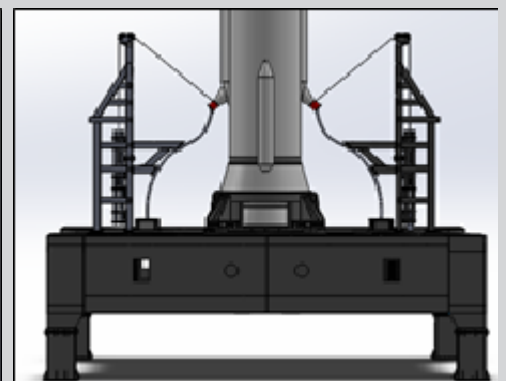
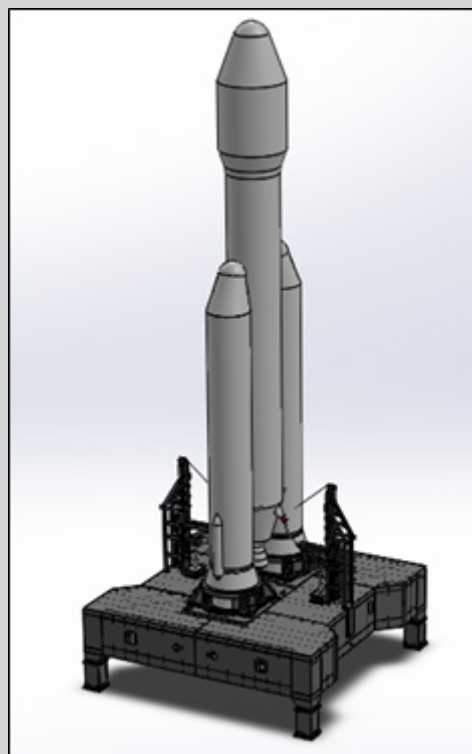
In the process, TCE will also focus on building the partner ecosystem with software OEMs, hardware firms, analytics solutions providers and other outsourcing partners. We have already entered into Laser Scanning and 3D Modelling for Private sector and have secured several Digital Handover projects. We also achieved competency and maturity for Digital Asset Information Management for a large PSU.

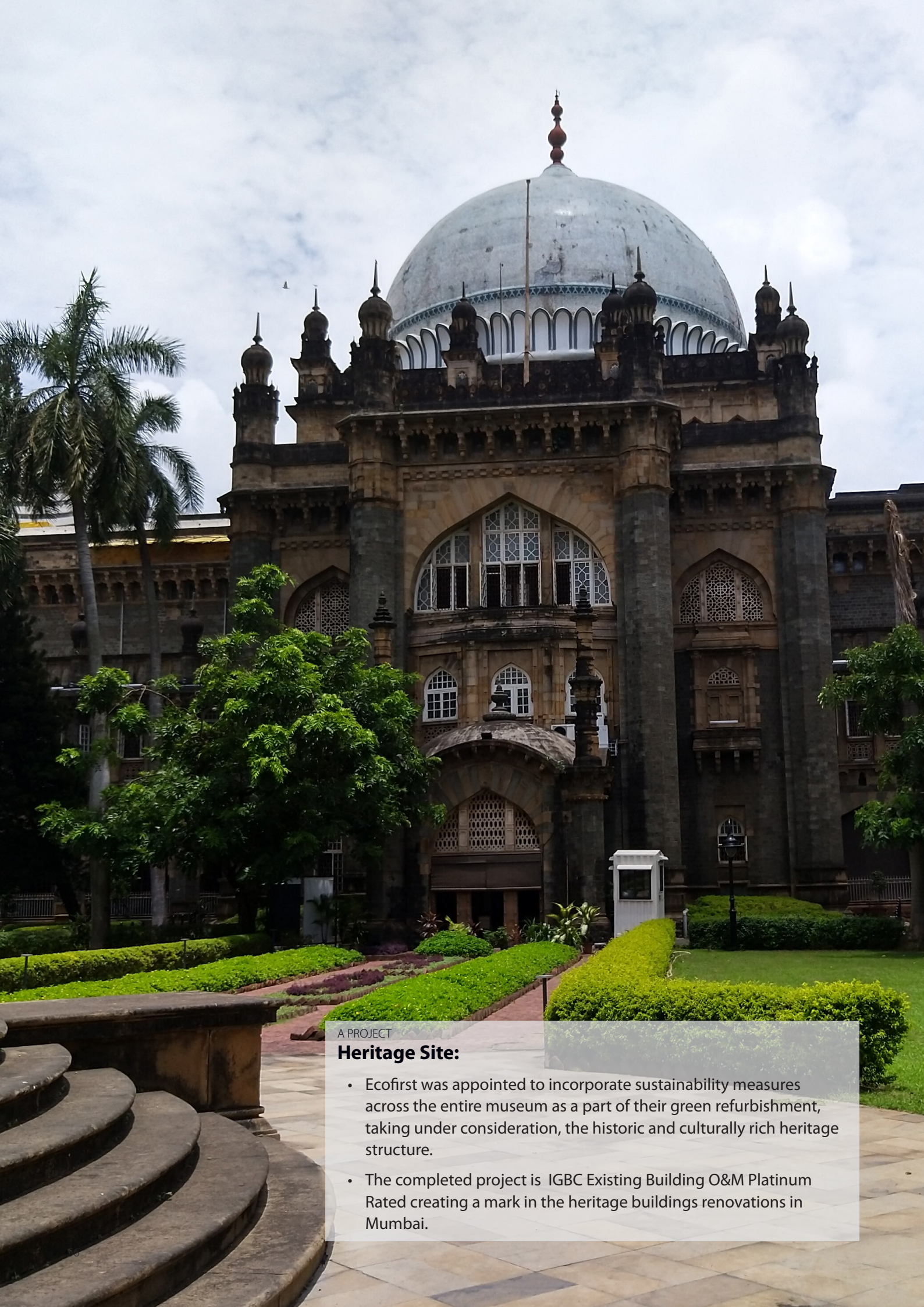
TCE plans further to expand product engineering service offering for defence and space and help with the government of India’s localisation mission.

A PROJECT

Indian Space Research Organisation (ISRO)

- Mobile Launch Pedestal (MLP): Fabricated steel structure, supports vehicle weight of 800 T to withstand extreme Jet loads experienced during launch.
- Overall size approx. 19m (L) x 19m (W) x 9m (H).
- Retractable Arms are provided on top of MLP to facilitate retraction of Umbilical Cord Unit (UCU) within few seconds during launch.





A PROJECT

Heritage Site:

- Ecofirst was appointed to incorporate sustainability measures across the entire museum as a part of their green refurbishment, taking under consideration, the historic and culturally rich heritage structure.
- The completed project is IGBC Existing Building O&M Platinum Rated creating a mark in the heritage buildings renovations in Mumbai.



Ecofirst

Sunsidiary Review

Sustainable Integrated Design

- Master Planning
- Building Engineering
- Infrastructure

Planning and Design

- Architecture
- Master Planning
- Urban Design

Sustainable Engineconomics

- Building Engineering (MEP)
- Land Development & Wet Infrastructure
- BIM 7D

Sustainability Services

- Design Enhancement
- Sustainability Audits
- Green Building Certification

Program Management

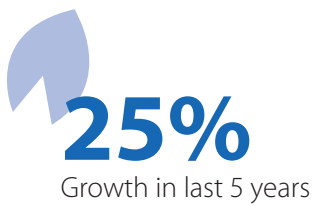
- Project Management
- Construction Management
- Procurement & Cost Control

Ecofirst Business Review

(A 100% subsidiary of Tata Consulting Engineers)

At Ecofirst, we provide comprehensive and wholistic Integrated Design solutions across the project lifecycle. Sustainable by Design is our supreme motto. Sustainability for us is not only about taking care of environment and social concerns but also to meet financial goals of capital and operational excellence, reflecting through our design philosophy.

We specialize in creating sustainable designs and responsible development solutions by a seamless integration of Architecture, Engineering & Environmental technology. Our work in Retail, Townships, High Rise, IT Parks & warehousing industries ranges pan India. We strive to provide our associations with expertise in conceiving and developing performative, operative and feasible solutions.



A PROJECT

Large Residential Complex:

Ecofirst was appointed as a consultant for Sustainability Certification, Building Engineering Design, Vertical Transportation, Rooftop Solar system Engineering & Infrastructure Engineering Design.

- Installation of 200Kw Solar PV on all towers helped cater 100% of the total annual common area lighting load reducing the cost of electricity and carbon footprint.
- Reuse of industrial elements such as chimney, steel sheets and industrial equipment resulted in a saving of 3% of the total construction material cost.
- Our best technical/quality practices helped improve the project timelines by minimising the repeat work.
- The completed project is IGBC Green Homes Platinum rated creating a benchmark in the real estate industry.



Key Trends Shaping the Industry:

- With increasing awareness about the need for sustainable living, increasing trends are visible for demand in sustainable designs and buildings. Both public and private players are increasingly looking for solutions to coexist with nature.
- The digital revolution is also visible with growing impetus on digital modelling and Building Information Modelling (BIM) requirements to intelligently manage built spaces.
- Preserving heritage structures and making them modern and functional is another increasing trend and requires specialised partners like ecofirst.

In line with the market trends, Ecofirst is gearing up to provide sustainable solutions and is continuously updating its portfolio with the changes in the environment.

The subsidiary has proven its mettle with flawless execution and delivery of several mega projects and has achieved platinum & gold certifications to establish itself as a leading player in sustainable solutions space.

Some Highlights:

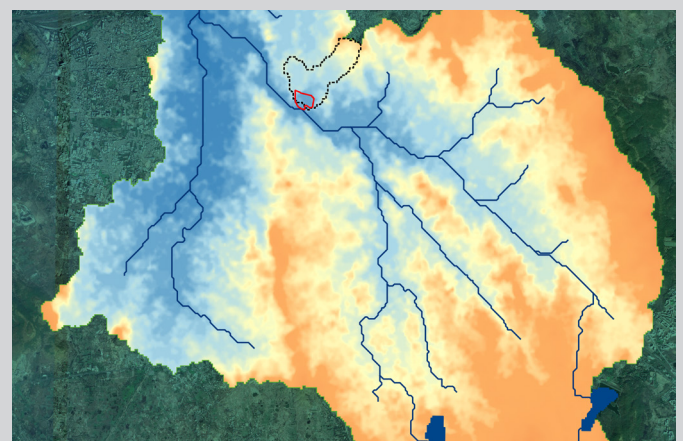
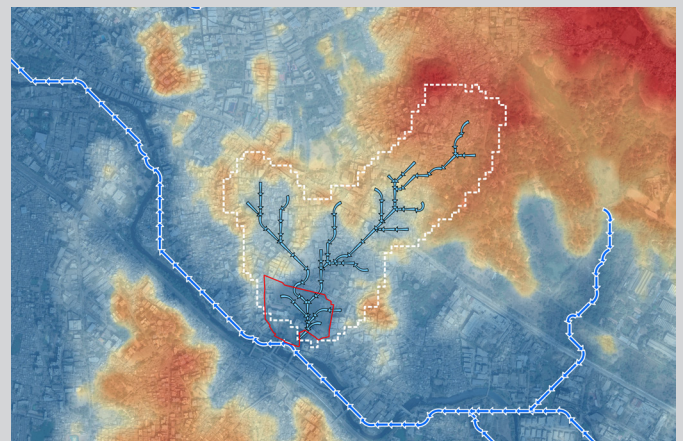
- Successful completion of iconic Bombay House renovation established Ecofirst as a leading player in heritage buildings restoration and renovation.
- Successfully start of sustainable and integrated Sports Complex consulting with a mega-sports complex project.
- Working with major brands to provide sustainable, integrated warehousing solutions.
- Several Sustainable Integrated Designs (SID) projects are under delivery - IT parks, Hospitals, residential complexes and mixed-use townships.
- Signed an MOU with a leading international player offering sustainable technology implementation support program pan India.
- Delivered two niche projects on Vertical Transportation Modelling and multiple projects on climate change adaptations (flood modellings solutions)
- Working on a growing number of projects with international partners in the US, UK and Bhutan.

A PROJECT

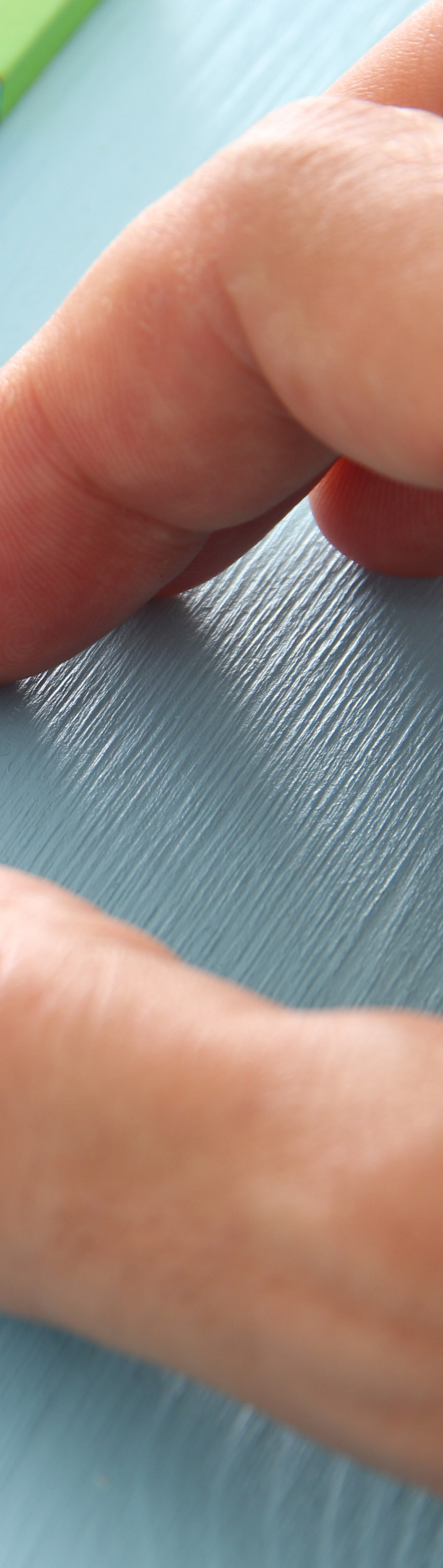
Flood Risk Assessment:


Ecofirst was appointed to carry out a Flood Risk Assessment Study and propose Mitigation methods for the project located in a flood-prone area.


- In the urban agglomeration, dealing with flood itself is quite a challenge as there needs to be a harmony between the built and the natural environment. In this case, both the projects were inhabited, sited in low lying areas, close to rivers and surrounded by Nala (streams).
- The study comprised of comprehensive analysis of various catchment characteristics based on data gathered from field investigations and open source platforms.
- The completed project ensured prevention of future losses due to flooding such as financial losses, property or equipment damages and avoiding disruption of movement.









83%
Utilisation of
People


173
Fresh Engineering Graduates/Post Graduates
78
Fresh Diploma Engineers
Hired


85%_{men}
15%_{women}
Diversity


20
Training Person-days
per employee

Talent Management

Talent Management

At TCE, we put people at the heart of our business and believe in the immense potential of our human capital. People and people practices have always been of paramount importance to us. The emphasis on people stems from the belief that our employees are the core growth engine for the Company.

Connected, Equipped & Integrated are the key elements in attracting, retaining and developing talent and a culture where people want to stay. At TCE, we are committed to creating an inclusive, performance-oriented, and entrepreneurial culture that allows bringing the best out of every individual and team.

We are also committed to creating an equal opportunity workplace, which promotes openness and diversity and focuses on attracting, motivating and retaining the best talent. We have a strong employee value proposition that focuses on providing challenging work, hiring and retaining the right people, sustained focus on talent and leadership development, differentiated rewards to drive exceptional performance and community engagement.

HR Systems

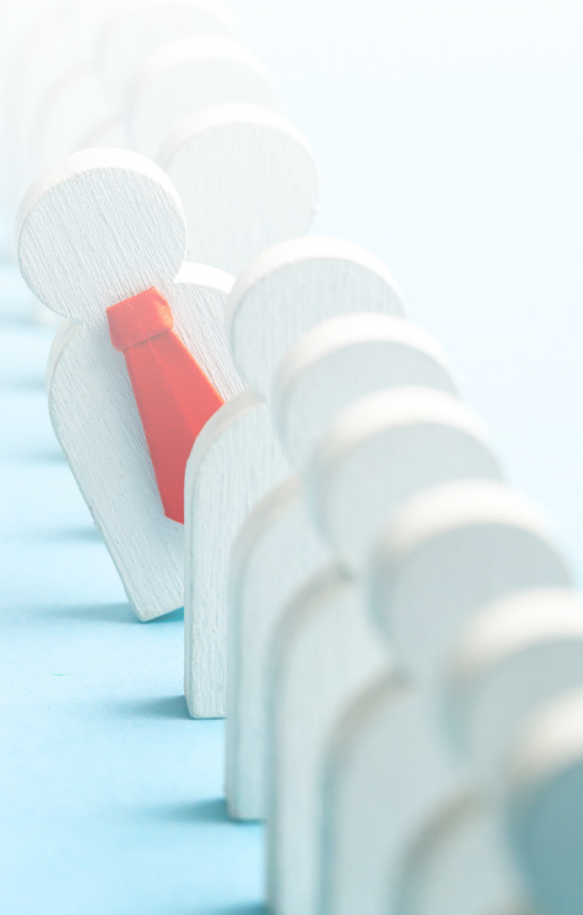
The people systems at TCE like talent supply, performance management and talent development are robust and competitive. Our vital HR programs ensure that the organisation delivers the future and exceeds client expectation.

During FY 2018-19, we engaged in upgrading, creating and launching several new processes and systems. This year we made significant improvements in areas of employee engagement, enhanced performance, competency development and training & development with specific initiatives to bring about a change in culture and mindset of the workforce.

Given our build-from-within strategy and focus on core campus programs, we continued to attract top talent. We added special impetus to hiring and creating an infrastructure for a diverse workforce as well as retaining and developing women leaders.

Campus Programme

As a part of the Young Engineers Development Program, we hired 173 Fresh Post-graduates and Graduate engineers. For our Accelerated Delivery Center (ADC), we hired 78 fresh diploma holders. The young engineers go through our rigorous and coveted Young Engineers Development Programme (YEDP), a methodical benchmarked process for training graduate/postgraduate hires through our 12-month training programme. Keeping the emerging industry landscape in mind and building future core competencies in line with the strategic Vision 2025, the program has undergone a shift in pedagogy. Due focus on newer concepts like Modularisation, Parameterisation, Digital Engineering, Opex, Urbanisation and Mega Cities, Clean & Green Energy and Electrification of Everything, Additive Manufacturing & Digital Asset Management ensure our employees remain up to date.



Recruitment

At TCE, we take pride in being an equal opportunity employer. The design of our recruitment and appraisal processes ensure no discrimination or biases.

Our policies on leadership pipeline, talent planning, mentoring and career development continue to ensure that the company attracts and retains the best talent.

The New hires pass through a thorough onboarding process 'In-Touch' which ensures that the new members become early contributors in their roles and feel valued. Building organisation capability, Value Additions to customers, bringing in new and fresh perspective through innovation, agility to explore new technologies or solutions continue to be key focus areas for us.

Training, Learning and Reskilling

In addition to YEDP, 19000+ courses are available to our employees. In FY 2019-20, we achieved 20.32 person-days of training per employee.

This year we launched our very own Technical Competency and Structured Career Framework. These frameworks help promote continuous development by aligning employee career aspirations with organisational goals. The Technical Competency framework, integrated with the performance management process helps provide constructive developmental feedback.

Code of Conduct

Imbibing TCoC among new and existing employees is a particular focus area. To strengthen this further and enhance awareness on the Tata Code of Conduct (TCoC) and Leadership in Business Ethics (LBE) framework, we celebrate "Ethics Week" every year in November and March.

We roll out several communication campaigns and e-learning training programs on TCoC, POSH, Gift and Hospitality, Whistle Blower Policy, ABAC and AML for all stakeholders, including third Party workforce and Supplier/Partners. We actively engage the leadership team for delivering TCoC/POSH related communication at various communication forums such as Offsites and COCs.

We actively share the learnings and concerns raised through the year at various employee connects like Town Halls and Quarterly DC Communications to reinforce acceptable behaviour. LBE Survey on Ethics conducted in July every year also helps measure the effectiveness of the LBE framework. We engage external subject matter experts to train our ethics counsellors and POSH IC members.

Performance Management

We have a robust performance management system which assesses and differentiates employees based on performance and help them perform to their maximum potential. We also have an established Team Lead structure that ensures the right performance support to each employee. The team leads themselves undergo various capability building programs to become better people managers. Our robust talent management process to build world-class leaders is supported by an intense Learning & Development program, leveraging internal and external experts.

To be in the know of employee sentiments, we conduct periodic third-party facilitated surveys. These surveys help us understand the pulse of employee opinion to help us create a more meaningful employee experience. This year 99% of employees participated in the study, and the Employee Engagement Index moved from 68% to 75%.



performance

Communication

We have a formal process of connecting, communicating and collaborating with employees across geographies. Annual Town Halls led by the MD and BU leaderships sees active participation by all employees. Various other channels of communication meetings (CoCs) held at multiple levels happen quarterly or monthly. This year due to the COVID19 pandemic, we conducted a virtual townhall with participation from employees across the globe. The MD and the Senior Leadership interacted with the employees and provided useful insights on the performance, strategy, and future roadmap of TCE. Close to 2000 employees attended the session.

At TCE, recognition goes hand in hand with achievement, right from appreciating the small wins every day to celebrating the business accomplishments. Our programs such as Value Awards, iTHINK awards, Innovista, PRIDE poster competition and Instant Awards, empower our employees to recognise individuals or teams on high performance and for living by the TCE values.

From the way we operate our business to the work we deliver our clients and the environment we provide

our employees, we always act with integrity - taking responsibility of our work, caring for our people and staying focused on safety and sustainability. Health and Safety measures are an integral part of our operations, and we are committed to providing a safe and healthy workplace.

COVID 19 Response

The announcement of the nationwide lockdown due to COVID19 Pandemic on March 24, 2020, was the beginning of a lot of organisational changes required for working from remote locations spread across the globe. The critical task for our team was to ensure employee' Safety and Wellbeing and minimal interruption to Business Operations.

With employees working from home across the world, regular communication and conversation became even more critical. We developed a series of planned campaigns to create awareness about the COVID19 pandemic, its symptoms, precautions and steps to undertake in case someone experiences symptoms. We set up HR hotlines with dedicated HR Managers trained to answer employee concerns. Our daily HR connects with the employees helped



monitor wellbeing and also acted as a channel of regular communication and updates. With the contagious nature of the pandemic, our teams not only maintained a tab on the employee health but extended the same attention and care to the family

Within two weeks of the announcement of the pandemic, the entire organisation seamlessly transitioned to working from home. Our IT, Admin and HR teams ensured that employees experience minimal discomfort and least disruption. Desktops and laptops were quickly shipped to employees' residence, and VPN connections provided smooth working from home. Our employees also promptly oriented to the new standard way of working from home, and a series of communications helped impart best practices to make work from home more productive.

As we went through different phases of the lockdown, we created Standard Operating Procedures for reopening of Construction sites, and offices and published them on our website, making it freely available for use.

Over time we realised the high treatment and hospitalisation costs to tackle the ongoing COVID19

pandemic, we felt that the existing insurance cover provided by the company to its employees and their families was not enough. We teamed up the Admin and Finance teams and conducted extensive research and negotiations with various banks and insurance companies to put together information and best options for the employees to choose. An aggressive campaign followed to educate and encourage employees to take the additional insurance cover, by either opting for a top-up on the existing medical insurance through the current insurance provider or opt for a COVID19 specific policy provided by the existing insurance provider or banks with company salary accounts. A series of emails and location wise virtual group calls ensured that the employees understand the options and make the best decision in the current trying times. As a result, close to 53% of employees opted for additional insurance in some form or the other.

While the fight with COVID19 is far from over, we wish health and well being for all our stakeholders.







11,532

Corporate Volunteering
Person hours



Rs. 219 lakhs

Invested in CSR projects



30,626

Lives Touched



1,212

Employees Volunteered

Corporate Social Responsibility

Corporate Social Responsibility

Powered by our flagship programmes and various volunteering initiatives, we are delivering on our social responsibility. Our Corporate Sustainability Policy framework offers the foundation to build our social well-being programmes by leveraging our core capabilities. Our primary focus areas are *Sustainable Livelihood, Education, Infrastructure, Health and Hygiene* and *Research*.

Sustainable Livelihood

 **2,508**
Tribals Benefitted

Water Management and Income Generation Program in Khoripada, Jawhar block is a part of our Sustainable Livelihood program. This program was scaled up to include Malghar cluster which consists of three hamlets Dapti, Malghar & Navpada. The programme is positively impacting 2508+ people from the tribal areas. The first initiative undertaken at the new cluster was to provide engineering solutions to harness water for cultivation and general use.

Our floriculture and horticulture programmes helped resident families learn vegetable cultivation, moisture crops, jasmine farming and set up model plots of Thai Guava. The harvested water in the farm pond provided the irrigation. Our efforts led to the turn around of 1.78 H of uncultivable land. We also installed drip irrigation for Jasmine cultivation preventing soil

erosion and nutrient runoff. The programme helped improve the lives of the community and provided a healthy source of income.

Rainwater harvesting, Solar water pump installation and repair of existing water supply system helped provide clean and safe drinking water to all. Forty-five families also benefitted from the water wheel support reducing drudgery and time spent in fetching water.

The renovation of the primary school and development of a playground at Khoripada made learning more comfortable.

Solar lights installation for 65 households helped provided clean and affordable electricity.

Continuous training on health and hygiene, water purification techniques, crop management and pest control ensured the communities remain current with the changing times. Six Self Help Groups (SHG) with minimum seed capital helped in the creation of a nursery for floriculture grafting and sale within the village in Khoripada.



Education

1,560
Kids Benefitted

Our School on Wheels (SoW), i.e. classroom on a bus program covered nine construction sites in Hadapsar. Through the programme, we conducted regular classes on weekdays and library sessions every 3rd and 4th Saturday. 504 kids, including 242 girls and 262 boys benefitted from this programme. Twenty-nine children enrolled in regular school and 18 in PMC schools during the year.

We are also actively involved in providing career counselling and career awareness sessions for night school kids. More than 1000 students benefitted from these sessions. We helped 56 students enrol in job-oriented skilling programs to make them employable, of which 32% were female students.



Infrastructure

10,000+
People Benefitted

We continued to support the rehabilitation program benefitting 10,000+ victims afflicted by the floods in Uttarakhand. We provide engineering design and project management support to the Tata Relief Committee that is presently running the Relief & Rehabilitation program. Projects such as Aanganwadis, School in Daira, Govt. polytechnic, Women's weaving centre, were completed and handed over for commissioning.

We also provided project planning and preliminary architectural drawings for six schools in Krushnaprasad and Brahmagiri blocks of Puri district severely impacted by the Cyclone Fani.



Health and Hygiene

 **2,508**
Tribals Benefitted

This year we commenced a focused Health & Hygiene program in the villages of Khoripada, Dapti, Malghar and Hateri where we are also engaged in providing sustainable livelihood means to the community.

The objective of the program is to provide quality preventive, promotive and curative health services through training of Health workers, Community awareness and Health Screening.

We also promoted linkages with existing Government hospitals & Health schemes to make these programs effective and sustainable. We studied key factors affecting the health of the community and worked on bringing behavioural and lifestyle changes through training and awareness workshops. This year, we conducted eight health camps, three training sessions of Health workers and ten community awareness programs.



CSR Grants for Research Programs

 **3**
Institutional Tie-ups

As part of CSR, we have engaged with Academia in the following areas:

- Laboratory Support for Supercritical Carbon Dioxide Thermal Cycle at Inter-disciplinary Centre for Energy Research with IISc Bangalore – This lab supports the development of technology that uses CSP (Concentrated Solar Power) with Super-critical CO₂ thermal cycle.
- Large Scale Grid Integration of Renewable Power with IISc Bangalore – Integration of large-scale solar power with the grid will result in grid stability issues, and this study finds the scale at which this happens and the remedial measures.
- Digital Twins for Mechanical Components with IIT Bombay – This project aims to combine physics-based models with real-time data analytics and machine learning to predict the behaviour of mechanical components.

Employee Volunteering

 **143**
Programmes

Our corporate volunteering efforts cover varied initiatives across locations like:

- Blood donation drives
- Drawing & poster competitions for kids
- Eye Check-Up for children
- Best out of waste activity
- Preparation of Learning aids and posters for Door Step School
- Corona Virus Awareness
- Shop and Smile
- Tree plantation
- Yoga training
- Flood Relief
- Cleanliness Drives

Abhishek Sharma, our young engineer, won the SPOC Hero award at the Tata Volunteering Week12 celebrations for curating 56 activities on various themes.



COVID19 Response

Standard Tata Units

COVID19 Pandemic struck the world in March 2020, bringing about the realisation of the shortages in our health infrastructure. The country needed solutions to quickly ramp up the existing infrastructure. Identifying this need, we promptly teamed up with our subsidiary Ecofirst Services and designed a modular engineering solution to quickly scale hospital facilities.

Each 30 Sqm. of the air-conditioned 'Standard Tata Unit' (STU) accommodates five beds along with one washroom. The design of the unit is such that it can be altered, responding to the varying site conditions and end requirements. The same modular unit can be tweaked to become separate units/modules like Isolation Wards, Quarantine Wards, and ICUs. These modules can also be clustered together to work as a full-fledged 300-bed makeshift medical facility. The detailed engineering and designs were freely shared with Tata Trust and other Tata companies, NGO's and government bodies to benefit the nation at large.



Corporate Information

OFFICES AND ADDRESSES

REGISTERED OFFICE

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Cloud City Campus
Opp. Reliable Tech Park
Thane-Belapur Road
Airoli, Navi Mumbai - 400 708

BRANCH – DOMESTIC

BENGALURU

Sheriff Centre, 73/1
St. Marks Road
Bengaluru - 560 001

PUNE

Sai Trinity, Central Wing
S. No. 146/1/28, Pashan
Pune - 411 021

DELHI (NCR REGION)

Green Boulevard, Ground Floor
Tower B & C, Plot no - 89A
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Noida - 201 301

JAMSHEDPUR

Pipeline Road, Sakchi
Jamshedpur - 831 001

KOLKATA

JC 30/A, Salt Lake, Sector-3,
Near South Bidhannagar Police
Station
Kolkata - 700 106

PROJECT OFFICE

GUJARAT

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Gandhinagar - 382 421

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SAUDI ARABIA

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BANKERS

- Bank of Baroda
- Citibank
- EXIM Bank
- HDFC Bank
- ICICI Bank Limited
- State Bank of India
- Yes Bank

AUDITORS

- B S R & Co. LLP, Chartered Accountants (Statutory Auditors)
- Ernst & Young LLP (Internal Auditors)
- Robert Pavrey & Associates, Company Secretaries (Secretarial Auditors)

DIRECTORS

- Mr. Ashok Sethi
- Ms. Anjali Kulkarni
- Mr. Sriram Kadiyala
- Mr. Amit Sharma



TATA CONSULTING ENGINEERS LIMITED

Engineering a Better Tomorrow Since 1962

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