

INFRASTRUCTURE

We touch every aspect of people's lives...

From the time a tap gushes out water each morning, to the journey of waste water until the very end, the townships you live in, the means of commute – sun up to sun down – we have left our indelible mark in people's lives.

Tata Consulting Engineers Ltd's Infrastructure Business Unit 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 common 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. Our experts plan and design townships and cities, waterways and water distribution, transport and the environment. We not only conceptualise but we also ensure it is materialised.



We do best what we have been doing for more than half a century... build a better tomorrow, today.

We are partners to the nation, in bringing about quality infrastructure to people, technologies of tomorrow, implemented today.

TCE's Infrastructure Business has strategically positioned itself to provide services relevant to its customers in specific regions. The services offered are sector specific with a portfolio of solutions customised to business needs.

Key Sectors





Services

- Concept to commissioning, master planning, conceptual architecture, design engineering, feasibility studies, environment impact assessment



BUILT ENVIRONMENT

Tata Consulting Engineers Infrastructure Business Unit's Built Environment sector has taken several strides in development initiatives. The sector has, over the years, scaled its operations and customer base through a collaborative approach, partnering with Government bodies, private players, international funding agencies, etc. Taking a consortium-based approach, the sector has gained market share in new and emerging projects such as smart city development and other urban planning initiatives of a specialised nature. The sector has the skills and capabilities to handle complex projects with expertise from concept architecture to construction support and commissioning of mega projects.



Infrastructure



Key Sectors

Buildings

Specialised building complexes, residential & commercial complexes, hospitality buildings, IT parks, educational campuses, healthcare facilities, training centres

Urban Development

Integrated townships, smart cities, brownfield city upgrades, specialised industrial townships & port cities

Manufacturing Facilities

Large manufacturing facilities for FMCG, Auto OEMs, auto components, farm machinery, white goods, heavy equipment facilities, aircrafts and special defence related manufacturing facilities, etc.

TCE Advantage

- › Expertise in both Greenfield and Brownfield urban planning & management
- › Value engineering solutions in optimising natural resources and protecting the ecology
- › Project management services through the project life cycle
- › Unique capability in working with multiple stakeholders such as local governments & administrative bodies, international consultants, global funding agencies, engineering procurement contractors and others
- › Use of advanced technologies such as Geo Informatics Systems, Digital terrain modelling, GIS substations, 3D analysis, integrated utility planning using 3D technologies, smart city ICT components, BIM modelling, IIOT solutions, etc.
- › Expertise in master planning ranging from 700 to 6000 acres and more
- › In-house team of experts in key areas for master planning, smart city ICT, urban development & planning, smart grids/electrical infrastructure, social development, urban transportation planning, environment & ecology, energy & sustainability, GIS & Remote Sensing Analysis, Engineering procurement management, planning for Special Economic Zones, etc.
- › Expertise in relevant design and compliance standards, regulatory framework and documentation requirements as stipulated by international funding agencies
- › Ability to offer all related services and solutions under one roof



Quick Facts

430,000 sq m

Manufacturing Infrastructure

3,60,000 sq ft

Residential, Infrastructure

1,01,00,000 sq ft BUA

Educational & IT Infrastructure

24,00,000 sq ft BUA

Healthcare Infrastructure

25+

Greenfield smart cities
Greenfield and brownfield
smart city initiatives

50+

Towns under AMRUT
project smart cities



Key Achievements

TATA Autocomp Systems Ltd.

- This manufacturing facility for an auto component major had a capital investment of about USD 80 million with area development spanning 82 acres. The facility was to house all its manufacturing divisions under one roof. The challenge faced was the difficult terrain which made planning and design very complex. TCE conducted a design thinking workshop to arrive at the most feasible solution by brainstorming with all stakeholders within the organisation. Real-time applications and simulation tools were used to project what-if scenarios to arrive at workable decisions. The GIS systems addressed the terrain issues and TCE's engineers provided valuable solutions making the facility a state-of-the-art unit benchmarked to the highest standards in design, safety and sustainability.

Technology Centres under the aegis of the Ministry of Micro, Small and Medium Enterprises of the Govt. of India

- 'Technology Centre Systems Programme (TCSP)' – a World Bank funded project under the aegis of Ministry of Micro, Small and Medium Enterprises (MSME) of Govt. of India, was planned for establishing Technology Centres (TCs) by providing training/skill development courses that will help job seekers to improve employability.
- TCE is appointed as the Construction Management Consultant (CMC), Design Engineering and Construction

management consultant to the Office of Development Commissioner – Ministry of MSME for TCSP project. TCE was responsible for end-to-end design and supervision of construction works for the project. TCE provided architectural planning, engineering design and construction management services for the construction of 10 new TCs and upgradation of 3 existing TCs from concept to commissioning.

India's first smart port-city

- Tata Consulting Engineers' Built Environment sector is part of all the three smart port city development in India. TCE completed master planning & DPR



studies for India's first smart port city of Paradip, for the Ports Authority of India. The focus was to build a community based on the economic activity generated by port traffic & market potential as informed by potential investors. This included type of industry, residential complexes, planning for educational institution, linkages with the port business, traffic management, etc. covering all aspects of port city businesses.

- Accordingly product mix suggested included industrial development, logistics parks, fish/ seafood processing industries, furniture industries, residential and education institution development, etc. covering all aspects of port city businesses.

Bhopal Smart City – Bhopal Smart City Development Corporation

- The Bhopal smart city project is an area-based development project with capital

investments of about USD 380 million. The area development covers 342 acres. TCE is involved in Market Research & Business Planning, Master Planning & Project Design (PPP & EPC), Transaction Advisory and Bid Process Management & Project Management.

- This is a smart city upgrade being developed in Brownfield conditions and TCE planned the city with a futuristic, transit-oriented development for 60,000 people. Infrastructure is designed on smart city guidelines. The key components planned are 24X7 water and electricity, underground utility tunnel, automated solid waste management system, green buildings, state-of-the-art transportation systems, green cover, etc.



WATER, WASTE & ENVIRONMENT

Tata Consulting Engineers Ltd's Water, Waste management & Environment sector have done pioneering work, providing infrastructure to improve the quality of life for citizens. The sector works on several large scale projects funded by international funding agencies such as Asian Development Bank, World Bank, Japan International Corporation Agency, etc. Working with these agencies calls for high level of standards and documentation. TCE's Water, Waste & Environment sector has, through its vast experience emerged as a partner of choice for international agencies and consortium partners for such projects.

Water

- TCE's Water distribution solutions has helped to ensure uninterrupted water to a large populace across several Indian states. The technology solutions provided has ensured arrest of wastage of water due to leakage. TCE has planned water distribution networks in the most complex areas, working with urban local bodies to bring about efficiencies in the water distribution management.

Waste

- TCE's waste management solutions are credited with several first of its kind solutions and complex brownfield environments such as smart city upgrade projects. Underground tunnelling systems, solid and liquid municipal waste management solutions that are world class projects are some of the hallmark assignments undertaken by the sector. TCE's engineering solutions have translated to cost reduction, resource conservation and modernised service delivery in utilities infrastructure.

Environment

- TCE offers Environment management solutions such as Environment Impact Assessment studies, carbon credit solutions through waste to energy projects, air pollution management solutions, etc. TCE is accredited by NABET, Quality Council of India for EIA studies in several key sectors and functional areas.

Services

- TCE's Water, Waste & Environment solutions are offered both in the domestic and international markets. TCE provides these services across India working with urban local bodies. The services are also extended to address water and waste management solutions to address captive needs of the operations of large international MNCs and international Governments especially when driven through funding agencies.





Key Sectors



Water supply and distribution systems, geotechnical, engineering solutions in geotechnics, tunnelling and underground spaces, water treatment plants, water desilting solutions, water channel planning and management, flood management solutions, etc.



Waste disposal systems, water supply & waste water systems, underground drainage systems, Sewage Treatment Plants (STP), storm water drains, solid & liquid waste management



Environment improvement and heritage conservation projects for lakes and gardens, rainwater harvesting and water conservation projects in building spaces, pollution control and measurement management solutions for industrial facilities, biodiversity and ecology management projects, green building solutions

Quick Facts

Water & Waste water management solutions across **11** states in India

Direct water supply to households **5.56 lakh** connections in **2 cities**

Modular engineering solutions in waste management for Middle East & Africa

Sewage Treatment Plants (STP) Capacity range from **0.5 to 90 mld**

Sewer pipes **550 km** length sewers with dia ranging from **150 mm to 1000 mm**

No. of Waste management projects across states in India **139**

Key Achievements

- › Waste to energy projects to generate energy and carbon credit
- › Engaged in a World Bank funded Clean Ganga Mission project for 6 years, extending 3000 kms of the rivers' course across 119 towns in 5 states
- › EIA studies and solutions for landmark capital city with solutions to manage floods through navigable inland waterways
- › Digital water management solutions for Bengaluru city with IIOT-SCADA systems on GSM platforms
- › Digitised data capture for 3000 km stretch of River Ganga, adjacent towns and cities using GIS mapping, cloud-based app, Project Information System (PIS)
- › First of its kind, underground tunnelling for waste management with solutions for brownfield upgrades for the Mumbai city municipal body, MCGM

Case Study

Namami Gange Program (National Mission for Clean Ganga)

The Namami Gange Program by National Mission for Clean Ganga (NMCG) is a prestigious project of the nation and TCE is associated with the project as Project Management Consultant (PMC) to NMCG.

As a PMC, TCE's responsibilities include review and scrutiny of various DPRs for sewerage infrastructure, Crematoria works & monitoring of implementation activities across the states (Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Haryana and Delhi).

The project commenced with a 3-year agreement with NMCG for TCE services. In first year, 49 sewerage projects have been approved. TCE has played a key role in scrutiny of these DPRs from various states by making value addition and cost optimisation.

TCE team is assisting NMCG in procurement related activities, thereby ensuring uniform approach and reducing the time for projects' award.

The detailed activities by TCE encompass:

- Identification of towns polluting Ganga river and its tributaries
- Critical review of condition assessment and feasibility studies for more than 100 towns
- Review of DPRs for towns in the river basin-planning, sewage load estimation, checking of design and drawings for all components like network, I&D structures, pump houses and sewage treatment plants



- Review of cost estimates with respect to civil, electro-mechanical and instrumentation aspects
- Handholding of state agencies for improving the DPR
- Review of bid documents and overseeing the bidding processes

Development of MIS Dashboard

A dashboard has been designed and developed by TCE and is being customised to NMCG requirement, which will enable real-time access to latest details on all projects. Projects have been categorised into four categories: Ongoing, Under tendering, Approved and Tenders-to-be-floated categories. The dashboard will be able to generate flexible report formats with graphical view to users.



TRANSPORTATION

Tata Consulting Engineers Ltd's Transportation sector within the Infrastructure Business Unit provides concept to commissioning services in all areas of transportation, with a focus on last mile connectivity. TCE's Transportation sector's expertise covers standalone transport infrastructure solutions for large urban cities and also connectivity mapping for Area-based-Development of Brownfield smart cities, tech cities and large SEZ spaces in the area of water, land and air transport facilities.

Key Sectors



Port development, ship facilities' management, inland waterways, harbour infrastructure management



DPR studies for Mass Rapid Transit & Light Rapid Transit systems, railway track alignment/design, signalling and telecommunications (stations), bridges, elevated stations and viaducts, rail yard solutions for captive use, rail road planning for material handling, etc.



Traffic and transport management planning for urban infrastructure projects/SEZs, pre-feasibility studies & DPR, roads, expressways, transport demand modelling, road geometry design, roadways – design and project management consultancy, road network planning, traffic decongestion planning



Technical review and construction supervision of airports, greenfield/brownfield airport design and planning, procurement assistance, business advisory services, ropeways & cable way planning and management

Transportation sector footprint

JNPT Phase-II

TCE is involved in Project Management Consultancy services & Contract Administration for capital dredging project at Mumbai Harbour and Jawaharlal Nehru Port Channel – Phase-II. This is India's leading container port and is deepening its 33.54 km long channel to depths upto 15.9 m to handle 12500 TEU vessels. The dredging assignment involves removal of soil and hard rock by the world's largest Trailer Suction Hopper Dredgers (THSD), Cutter Suction Dredgers (CSD) and under water rock blasting. TCE's support for the project extends from end-to-end services such as dredging methodologies, support for necessary statutory clearances procurement support, etc. TCE's engagement in the project began with PMC for Phase-I of the project that was successfully completed 4 months ahead of schedule in 2014.

International ship repair facility at Cochin Port Trust, India

The ship repair facility in Cochin is presently under execution. On commissioning, Cochin Shipyard Ltd will be able to lift 6500 T ships by ship lift, transfer to well-equipped workshops for ship repairs.

TCE in consortium with Inros Lackner (IL) and in association with Danish Hydraulic Institute is responsible for design and installation of a ship lift, transfer system and allied facilities from concept to operation.

Contact

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