



building mega civil **infrastructure**



# The Indian CONSTRUCTION GIANT

L&T Construction, India's largest construction organization and ranked among the world's top 30 contractors, has been over the past seven decades transforming cityscapes and landscapes with structures of immense size and grandeur. The company's capabilities span the entire gamut of construction - civil, mechanical, electrical and instrumentation engineering - and its services extend to all core sector industries and infrastructure projects.

Several of the country's prized landmarks - edifices, structures, airports, industrial projects, flyovers, viaducts, water and power infrastructure projects carry L&T's signature of excellence in construction. Today, more and more structures beyond India's boundaries are standing tall, thanks to L&T Construction.

L&T Construction straddles seven related businesses:

- Buildings & Factories
- Transportation Infrastructure
- Heavy Civil Infrastructure
- Power Transmission & Distribution
- Water & Effluent Treatment
- Smart World & Communication
- Renewable Energy

## Eighty years of UNDISPUTED LEADERSHIP

Larsen & Toubro is a major Indian multinational in technology, engineering, construction, manufacturing and financial services, with global operations. Its products and systems are marketed in over 30 countries worldwide. A strong, customer-focused approach and the constant quest for top-class quality have enabled L&T to attain and sustain leadership in its major lines of business across eighty years.

- Construction
- Heavy Engineering
- Hydrocarbon Engineering
- Power
- Metallurgical & Material Handling
- Ship Building
- Infrastructure Concession
- Realty
- Electrical & Automation
- Construction & Mining Machinery
- Valves
- Infotech
- Technology Services
- Financial Services

## Building landmarks, setting benchmarks\*

- **11** International Airports
- **400+** High Rise Towers
- **40** Institutions & Public Spaces
- **70000+** Apartment Units
- **85+** Manufacturing Facilities
- **22000+** Hospital Beds
- **5 lakh +** km of Water & Waste Water Networks
- **7200** MLD of Water & Waste Water Treatment Plants
- **7.3 lakh** Hectares of Land Being Irrigated
- **805** Substations
- **36900 ckm** of Transmission Lines
- **1.5 lakh+** km of Distribution Lines
- **156263** Habitations Electrified
- **120** Towns Power Quality Enhanced
- **2.5+** GW Portfolio of Solar Plants
- **344** km of Metro Rail Corridors
- **19.5** km of Monorail Corridors
- **22600** Lane km of Highways
- **12.08 million** Sq. m. of Runways
- **8315** MW of Hydro Power Projects
- **8080** MW of Nuclear Power Projects
- **5075** tkm of Railway Track Laying
- **17906** tkm of Railway Electrification
- **245** Signalling & Telecom Installation in Stations
- India's Largest City Surveillance Project: **6000** cameras at **1500** locations at Mumbai

\*The track record information published here is as of September 2019

# STRUCTURES FOR THE FUTURE

Need to turn a river in the high Himalayas into a green power source? Or, build walls mid-sea, run a train underground or straddle the deepest valley with a viaduct? L&T Construction helps in both finding the answers and implementing them at some of the world's most challenging worksites.

Sharply focused on capitalizing infrastructure needs, L&T builds structures for the future that facilitate movement of people and goods and fuels progress through clean, green power.

Comprehensive range of design and construction services are offered for:

- Metros
- Hydro Power
- Nuclear Power
- Special Bridges
- Ports
- Tunnels
- Defence

Lucknow Metro



Earthen dam, Chhattisgarh



Kakrapar Atomic Power Plant



Kudankulam Nuclear Power Plant



Second Narmada bridge, Gujarat



Underground section of Chennai Metro

Underground stations



Underground sections



Girder erection for Chennai Metro



Precast yards



Depots



# ON TRACK TO TRANSFORMATION

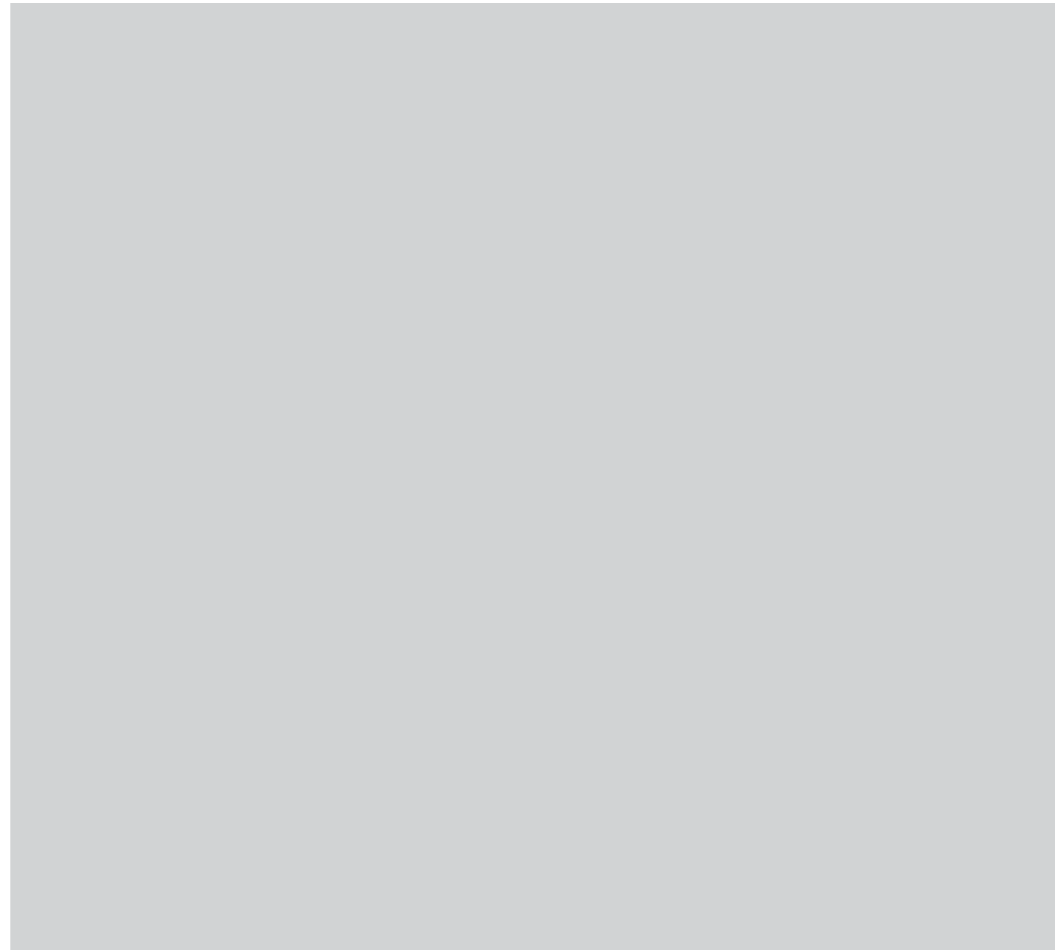
## Metros

As an industry leader in augmenting capabilities for urban mass rail transit systems, L&T is involved in the construction of metro rail systems in almost all the major Indian cities including Hyderabad, which is one of the world's most prestigious and the biggest metro contracts on BOT basis. On the global front, L&T has made inroads in the Gulf region and is currently executing metro projects at Riyadh and Doha.

Structures developed by L&T for the metro, range from elevated rail corridors to underground metro rail corridors, station buildings along with alignment and expansive depots. L&T's EPC capability enhances the pace of operations. Technologies adopted include the conventional Drill and Blast Method (DBM), the New Austrian Tunneling Method (NATM), Tunnel Boring Machines (TBM), mechanical excavations and soft tunneling using road headers for underground alignment. Construction methods for erecting super structures include incremental launching and full span 'U' girders for the rapid completion of elevated corridors. The post modern precast yards help fast track projects well before the scheduled time.



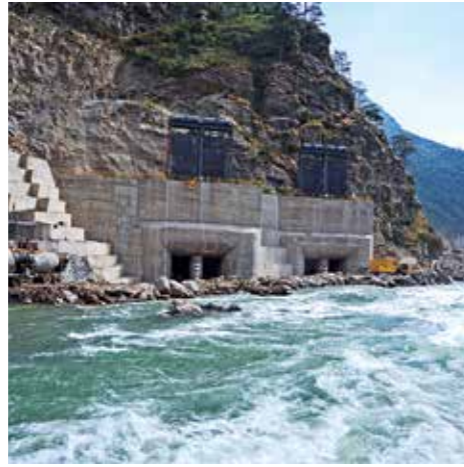
Doha Metro



New image

72 km in Hyderabad | 67 km in Delhi | 41 km in Riyadh | 16.3 km in Chennai  
14 km in Kochi | 11.3 km in Qatar | 5 km in Kolkata | 4.5 km in Bengaluru

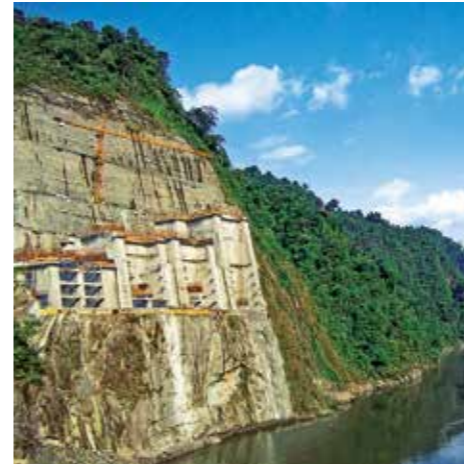
Intake structure at Punatsangchhu, Bhutan



Head Race Tunnel, Tapovan Vishnugad



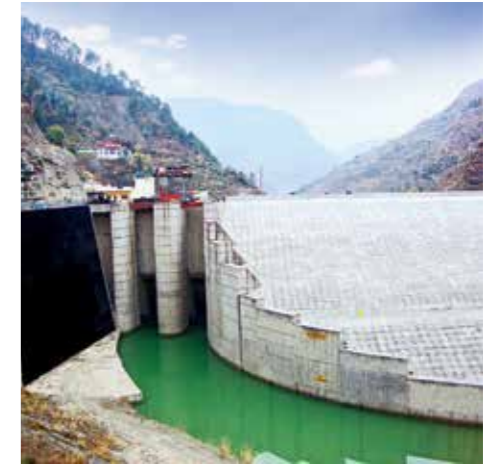
Subansiri Lower HPP



100 MW Kuttiyadi HEP, Kerala



Rockfill dam, Parbati



# WATER TO WIRE

## Hydro Power

The hydro power business offers a 'Water to Wire' range of service on an EPC basis in tough mountainous terrains.

Areas of expertise cover:

- Diversion weirs, barrages, concrete / earthen / rockfill dams including roller compacted concrete dams
- Underground tunnels of various geometry (both concrete lined and steel lined), pressure shafts, surge and de-silting chambers
- Large underground and surface power houses
- Hydro-mechanical components such as gates and penstocks including erection of electro-mechanical equipment

8315 MW of clean, green power



Desilting Chamber, Punatsangchhu



Srinagar HPP



Medigada Gate Erection



Singoli Head Race Tunnel



Singoli Bhatwari HEP at Uttarakhand

Kaiga atomic power plant



Kudankulam nuclear power plant



Kakrapar Atomic Power Plant



Rajasthan atomic power project



Kakrapar Atomic Power Plant

Tarapur atomic power plant



Turbine erection for Kudankulam nuclear power project



# FUSION OF INTEGRITY AND INGENUITY

## Nuclear Power

A majority of nuclear power plants and heavy water projects in India carry the L&T stamp of excellence.

Areas of expertise cover:

- Civil construction and erection services for nuclear containment structures (reactor buildings), control buildings, auxiliary buildings and other associated structures
- Design, consultancy including seismic qualification, procurement and construction services for pump houses, cooling towers, head end facilities
- Mechanical works and piping systems, associated detailed engineering, procurement and other related works
- Engineering, procurement and construction for electrical and instrumentation works
- Construction and commissioning of back end projects such as fuel reprocessing and storage buildings

# BRIDGING IDEAS

## Special Bridges

L&T has bridged people and places in several countries across Asia with the finest bridges. Having pioneered the design and construction of major bridges, L&T has extensive experience in executing a wide range of bridges of different span lengths using ingenious cutting-edge construction techniques such as:

- Incremental launching
- Segmental construction
- Cable-stay
- Precast, prestressed concrete
- Steel and concrete composite construction



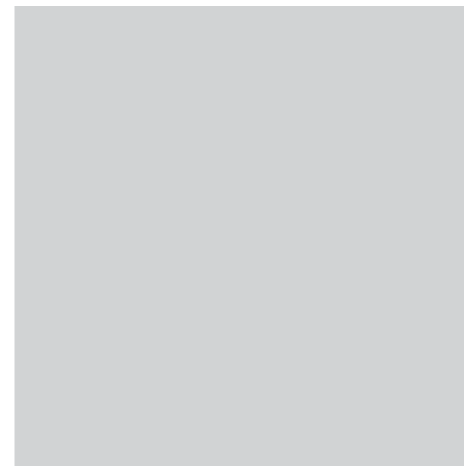
Kachi Dargah



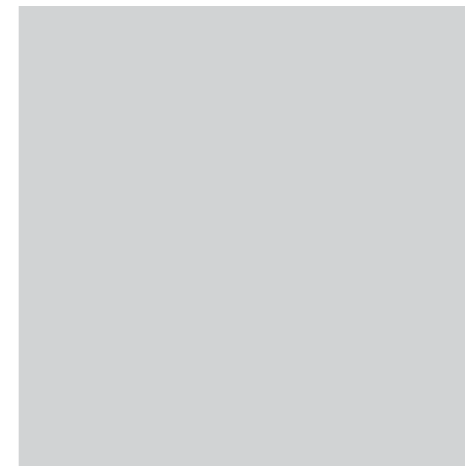
Panvel Nadi viaduct



Wadi Abdoun bridge, Jordan



New Image & caption required



New Image & caption required



Mumbai Trans Harbour Link



Military bases / Air Force stations

# AN OCEAN OF EXPERIENCE

## Ports

With in-depth knowledge of marine technology, maritime structures such as greenfield ports, breakwaters, docks, container terminals, bulk berths, liquid jetties, shipyards, shiplift systems and shore protection have been engineered and built to spearhead waterway transportation.

In-house expertise in design, quarrying and state-of-the-art equipment ensure world-class quality and timely delivery.

# A RELATIONSHIP OF SUBSTANCE

## Defence

Backed by the expertise and experience gained from managing mega projects for over seven and a half decades, L&T has established a position of preeminence in shoring up the country's defenses. On offer are end-to-end solutions that include:

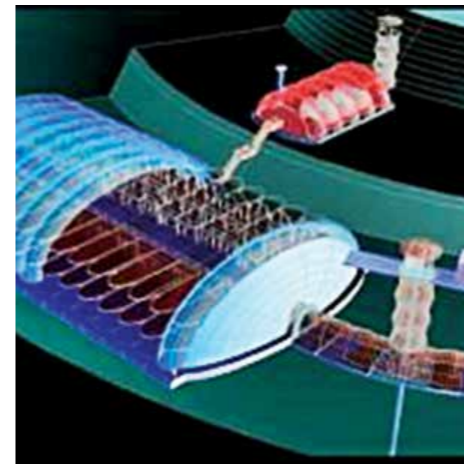
- Military bases / Air Force stations
- Ordnance factories, workshops and warehouses
- Weapon test ranges
- Underground structures for people and armament
- High altitude area shelters
- Critical storage facilities
- Pre-engineered buildings
- Blast walls / fences
- Watch towers with surveillance systems



Dhamra port, Odisha



Container terminal at Mundra, Gujarat



Underground structures



Blast walls / fences



Hangers



# COMRADES IN COMMAND

**Engineering Design and Research Centre:** Engineering Design and Research Centre (EDRC), L&T's well-equipped design facilities in Chennai and Faridabad offer a complete range of design solutions including consultancy services for hydro power, irrigation, tunnel projects, elevated corridors for metro projects, special bridges, marine structures, cooling water systems for nuclear power plants and other special infrastructure projects.

**Construction Methods and Planning Cell:** The Construction Methods and Planning Cell (CMPC) complements operations by providing value-added solutions for critical and complex works that focus on implementation of cost-effective construction methods and aims at systematizing, automating and mechanizing processes by incorporating the latest trends in construction technology.

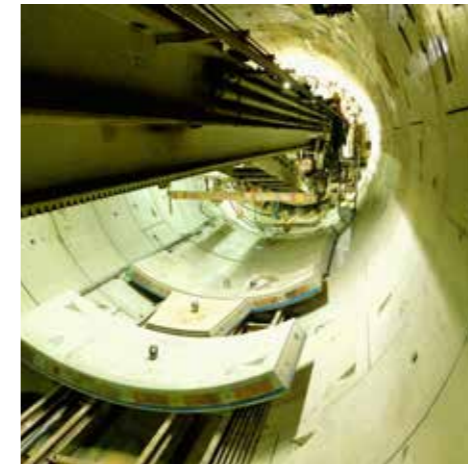
Major thrust areas provided by CMPC to facilitate execution include:

- Establishing temporary project infrastructure
- Planning for key plant and machinery
- Detailed construction planning and scheduling
- Detailed phasing plans, erection schemes for complex and heavy steel structures
- Complete precast solutions including design, detailed production plans and erection schemes
- Innovative formwork solutions for complex structures
- Devising project specific customized construction methods

**Geotechnical Capabilities:** L&T GeoStructure is a unique entity that focuses on foundation and ground improvement related businesses. The division has a strong and professional foundation specialist team with the knowledge of design, equipment and methods to execute and supervise sophisticated foundation works.



L&T's fleet of piling rigs



Ahmedabad Metro Tunnelling



Reverse Circulation Drilling (RCD) rigs in operation at MTHL, Mumbai

**Project Management:** From the innumerable projects handled, L&T has developed a core team of project managers and dedicated sub-contractors who thoroughly understand every facet of the activity from design, construction to commissioning and have established a fool-proof methodology for speedy construction.

**Supply Chain Management:** Fortified by longstanding strategic relationships with power equipment manufacturers of international repute, L&T leverages its global sourcing capabilities and offers clients a value-added service in flexibility of choice and guidance on equipment selection.

**Plant and Machinery:** Supported by a wide range of sophisticated and specialized equipment such as drill jumbos, heavy duty tower cranes, road headers, TBM, launching girders, piling rigs and barges, projects are fast tracked with top-class quality and cost-efficiency.

**Precast Technology:** For faster completion of projects, L&T adopts state-of-the-art precast technology for various railway and urban transit projects. Concrete elements such as viaducts, full span 'U' girders, tunnel lining rings, armour units, guideway beams, deck elements and even station buildings are prefabricated in state-of-the-art casting yards.

**Safety & Quality:** At L&T, Environment, Health & Safety (EHS) is considered a core value. Systems and procedures have been established for implementing the requisites at all stages of construction and are accredited to the International Standards of ISO 9001, ISO 14001 and OHSAS 18001. L&T continues to maintain its tradition of meeting stringent quality standards and adherence to time schedules across all projects.

**Construction Skills Training Institute:** Through its Construction Skills Training Institutes, L&T has been providing skill development training to empower and convert rural youth into trained workmen in significant numbers.



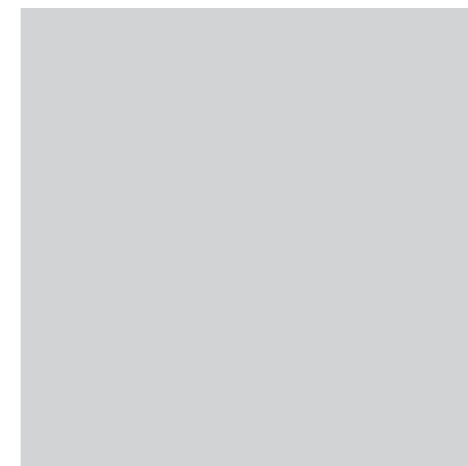
Design engineers at work



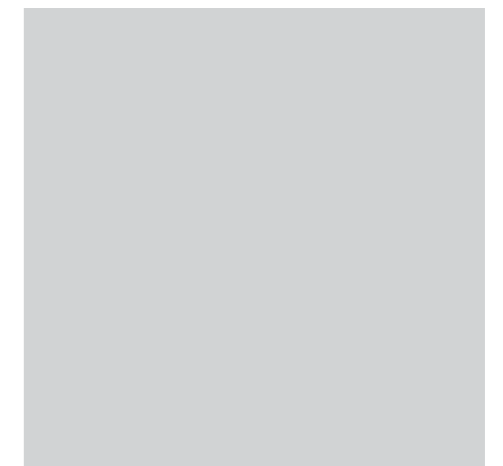
Comprehensive geotechnical services



Ring girder erection at Kakrapar Nuclear Power Plant



Launching girders - Mandovi



Precast yards

# DIGITAL INITIATIVES



Caption to be placed

## TUNNELLING EXCELLENCE ACADEMY

As rapid urbanization drives infrastructure development and with space a huge constraint in cities, a fair share of construction is moving underground with the result tunnelling is assuming greater importance. Since it is still an emerging activity, the skill set available for tunnelling is extremely meagre. L&T's Tunnelling Excellence Academy (TEA) aims to address this gap and is in line with India's vision and national policy for skill development to create an ecosystem of skilled human resources in alignment with global standards and catalyse sustainable livelihoods.

TEA is designed to equip both engineers and workmen with specialist skill sets through a mix of classroom based and onsite training. The curriculum has been developed keeping in mind the skill gaps and will be enhanced and broad based going forward.



Workshop



Open auditorium with audio-visual facility



GF-Traning



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