In keeping up with its well-known aphorism “Builders of the Nation,” L&T has yet again contributed to the development and growth of the maritime infrastructure of the country. L&T is currently involved in building an integrated shipyard cum port project at Kattupalli, near Chennai, over an area of 1200 acres. Once completed, this project is poised to become a landmark for building modern vessels, warships, submarines, ship repair, as well as in becoming an important port on the Eastern coast of India. This facility will not only strengthen the defence of the nation through Indian Navy but also set to boost the maritime trade through its containerisation facility.

Moving from the defence of the nation, L&T has been shouldered with the responsibility of sheltering the masses through the country’s single largest affordable housing project at Lucknow. The current issue dwells on this project including yet another project of powering the nation through the Coal Handling Plant built at Koderma for Damodar Valley Corporation. L&T has taken the lead in all these projects by introducing pioneering construction techniques, resulting in execution of projects with innovation, high quality and speed. The Kaleidoscope section, as usual, offers a medley of corporate awards, accolades, events and CSR initiatives done by L&T across its project sites.

Happy reading!

- Editor
A Sea Change @

Kattupalli
The erstwhile quaint seaside village of Kattupalli, some 30 kilometers north of Chennai is buzzing with construction activities over the last two years; what with numerous trucks ferrying tons of boulders from places as far as 100 kilometers? Another sleepy fishing village called Kuppam that was part of the original topography has been relocated to give ‘berth’ to a sophisticated Shipyard and Port.

The project “L&T Kattupalli Shipyard cum Port” took shape with the formation of L&T Ship Building (LTSB)- a joint venture between L&T and Tamil Nadu Industrial Development Corporation (TIDCO) to implement an integrated shipyard cum port project at Kattupalli over an area of 1200 acres at a cost outlay of Rs. 3000 crores.

A glance at the overall project plan of the shipyard cum port project will instantly remind one of a colossal pinball machine, that is poised to usher in ships, for repair and unloading of containers, while also launching newly built ships at incredible speeds and unbelievable sophistication.

The Kattupalli project can be divided into four major components such as shiplift, production shops, commercial port and modular fabrication facility, which are turning into a reality due to the successful synchronization of different construction units of L&T.

### Major Quantities

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No of Piles</td>
<td>1526 bored cast in situ piles</td>
</tr>
<tr>
<td>Dia Lengths</td>
<td>600mm to 1300mm and length</td>
</tr>
<tr>
<td></td>
<td>25m to 52m deep</td>
</tr>
<tr>
<td></td>
<td>1914 precast driven piles - 8m to 20m long</td>
</tr>
<tr>
<td>Total volume of concrete</td>
<td>3,75,000cu.m of varying grades from M7.5 to M80</td>
</tr>
<tr>
<td>Total Rock Quantity</td>
<td>2.9 million tons</td>
</tr>
<tr>
<td>Total reinforcement steel</td>
<td>34,000 tons</td>
</tr>
<tr>
<td>Structural Steel</td>
<td>20,000 tons</td>
</tr>
<tr>
<td>Pre-casting</td>
<td>1,11,000 cu.m of concrete</td>
</tr>
<tr>
<td>Dredging quantity</td>
<td>8,377,336 cu.m</td>
</tr>
</tbody>
</table>
Once commissioned, Kattupalli will become one of the largest shipyards in Asia with an annual production capacity of 4,65,000 tons.

Kattupalli is also slated to become the third major international destination for ship repair after Colombo and Singapore in the South East Asian region. Kattupalli port will have a 1.2 million TEU (Twenty foot Equivalent Unit) annual capacity through two 350 meter long berths and a total terminal area of around 20 hectares.

**Shiplift**

The shiplift at Kattupalli is intended for lifting of ships/vessels of about 18,000tons in weight at its present capacity and is designed for lifting a total of 28,000tons with an additional extension of 60m lengthwise. It consists of two 200meter long outfitting jetty’s supported with two piled platforms, one cross transfer area, two defense repair berths, one wash down berth, two commercial repair berths and two defense ‘new-build’ berths. This facility will be used for launching of newly built ships as well as for lifting of marine vessels for repair works. The self-weight of ship-lifting platform is about 8200tons and is facilitated with 68 winches of 590ton capacity each for lifting the platform along with the vessels.

**Shiplift - Highlights**

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shiplift total concrete area</td>
<td>1.12 lakh sq.m</td>
</tr>
<tr>
<td>Outfitting Jetty - 2 nos</td>
<td>202m long X 30m wide each</td>
</tr>
<tr>
<td>Piled Platform -1</td>
<td>106m long X 60m wide</td>
</tr>
<tr>
<td>Piled Platform -2</td>
<td>148m long X 55m wide</td>
</tr>
<tr>
<td>Shiplift Platform</td>
<td>202m long X 50m wide</td>
</tr>
<tr>
<td>Shiplift platform weight</td>
<td>Total dead weight of 8500t</td>
</tr>
<tr>
<td>Wash down berth</td>
<td>114m long X 23m wide</td>
</tr>
<tr>
<td>Commercial repair berth</td>
<td>114m long X 25m wide</td>
</tr>
<tr>
<td></td>
<td>117m long x 25m wide</td>
</tr>
<tr>
<td>Cross transfer area</td>
<td>144m long X 195m wide</td>
</tr>
<tr>
<td></td>
<td>105m long X 94m wide</td>
</tr>
<tr>
<td>Defense repair berth - 2 nos</td>
<td>114m long X 13m wide each</td>
</tr>
<tr>
<td>Defense new-built berth - 2 nos</td>
<td>175m long X 13m wide each</td>
</tr>
<tr>
<td>Finger Jetty</td>
<td>254m long X 20m wide</td>
</tr>
</tbody>
</table>
**Dry dock systems**

Drydocks are structures used in the construction, maintenance, and repair of ships and boats. It is a narrow basin or vessel that can be flooded to allow the ship to be floated in, later drained to allow the load of the vessel to come to rest on a dry platform. Once the work is completed, the drydock is flooded so that the ship can return to the open sea for active use. There are different types of dry docks:

**Graving Dry Dock**

The graving dry dock is the most classic form of drydock and is a narrow basin, usually made of earthen berms and concrete, closed by gates or by a caisson. The vessel may be floated into this dock and the water pumped out, leaving the vessel supported on blocks. The keel blocks as well as the bilge block are placed on the floor of the dock in accordance with the docking plan of the ship. The graving dry dock is the most ancient form of drydock system in the world.

**Floating Dry Dock**

A floating drydock is a type of pontoon for dry docking ships, possessing floodable buoyancy chambers and a “U” shaped cross-section. The walls are used to give the drydock stability when the floor or deck is below the surface of the water. When valves are opened, the chambers fill with water, causing the drydock to float lower in the water. The deck becomes submerged and this allows a ship to be moved into position inside. When the water is pumped out of the chambers, the drydock rises and the ship is lifted out of the water on the rising deck, allowing work to proceed on the ship’s hull.

**Alternative drydock systems**

Apart from these two dry docks, ships can also be drydocked and launched by alternative drydock systems that include:

- Marine railway
- Mobile boatlift or Travelift
- Slipway
- Shiplift
Commercial Port

Planned with a capacity to handle an annual traffic of 1.2 million TEUs, the Kattupalli terminal comprises of two container berths with a total length of 750 meters. The container yard has a capacity of 5000 ground slot and is designed for 5 level storage of containers. The maximum depth at the berth area is (-)16.00 CD. As an enabling structure, the entire shipyard and port is protected by two breakwaters that measure up to 3.44 km in total length. Once completed, the Kattupalli port will feature some of the most modern equipment that include 6 Quay Cranes, 15 RTG cranes and two reach stackers.

North Breakwater : 1.775km
South Breakwater : 1.665km

Breakwater

The entire shipyard is protected with two breakwaters of total length 3.44 km. The north breakwater is 1.775km long and the south breakwater measures...

Aerial view of port area showing completed portion of container berth along north breakwater and piling work in progress at the other container berth

Positioning of Accropodes in the northern breakwater
1.665km in length. These two breakwaters act similar to two gigantic arms that protect the ship-lift area and port from the vagaries of the ocean. The breakwaters help to give tranquillity inside the shipyard basin for berthing the ships.

The breakwaters are rubble mound type, protected with Rock and Accropodes as primary and secondary armours with concrete wave wall of varying heights from 1.6m to 3.3m. The depth of breakwater varies from (-)1.00 CD near the land side to about (-)10.00 CD near the round head of the breakwater. As a major design & construction innovation, partial rock core is replaced with the available dredged sand to economize the breakwater section and to reduce the quantum of rock transportation. This is a first-of-its-kind innovation in the country.

**Armour**

In order to construct the breakwater, about 2.9 million tonnes of rock of various sizes are to be placed. Being a remote location, the nearest quarries were located only at Chettipunniam & Kalahasti both located about 100km away from the project site. Such massive requirements of rocks meant that a high amount of planning needs to be in place to ensure that there was a daily supply of 6000 t of rock. The access route to Kattupalli is infamous for its traffic snarls and bad roads. With such issues on hand, a large fleet of trucks were pushed into action to keep up an unceasing supply of rocks which were classified based on its size for placement in the breakwater. Inspite of the huge quantities of rock and sand that were handled, both the breakwaters at Kattupalli were completed within a record time of less than two years-well within the scheduled time.

All the armour placing cranes are fitted with Global Positioning System (GPS). The underwater profile of the dumped stones is monitored using special software called ‘Hypack’ installed on the survey boat, which is interfaced with the GPS and echo sounder. The tolerance for variance in actual profile of the dumped stones with that of the design profile is plus or minus 20 cm.

**Accropode**

ACCROPODE® are single layer concrete armour units, placed on the seaside designed to resist wave action on breakwater. These are pure concrete blocks with several legs, without any reinforcement.
ACCROPODE® is a registered trade mark of SOGREAH which developed an artificial armouring block in 1981 for protecting river and maritime structures against wave and current attack. Owing to its original shape, the ACCROPODE® block is extremely robust and stable, enabling protective armourings to be built in a single layer, thus providing a considerable saving in the amount of concrete required.

In 1999, SOGREAH modified the original Accropode shape by chipping away excess materials and adding friction features in the form of small pyramids, resulting in the Accropode II. The shape modifications are intended to increase interlocking. According to the developers, the modified shape results in factors comprising minimized rocking and settlement, maximized energy dissipation, reduced wave reflection and run-up/overtopping, and improved structural strength.

Casting of Accropodes

Accropode moulds are fabricated by specialized agencies and are put to use after the certification of its makers. It consists of two symmetrical steel formwork (no base plate required), joined by bolting arrangement which enables quick assembly and stripping. At Kattuaplli the Accropodes were cast using M30 grade concrete.

Placement of Accropodes

After the completion of secondary armour layer (which is the protection to breakwater with comparatively smaller size rocks), the as-built profiles along with toe line and cross sections were sent to Concrete Layer Innovations (CLI-France, which is a subsidiary of SOGREAH). CLI will subsequently prepare the Accropodes placing drawings and send them back to site for the particular stretch. Positioning of Accropode is primarily based on predetermined grid aimed at achieving optimum keying units with the theoretical grids shown on placing drawings. The units are placed randomly in order to obtain specific packing density using GPS.

Harbour dredging

Extensive dredging activities had been carried out for the project and a total area of 14,44,393sq.m was dredged by using special equipment such as trailer suction hopper dredgers and water injection dredgers. The total dredging
quantity adds up to 8,377,336 cu.m. In order to optimise on resources, a part of the dredged sand was used as a replacement of the rock core of the breakwater. The dredging had to reach a depth of (-)16.00 CD especially for the shipping corridor at the port and shiplift area.

Production Shops

Once commissioned, the Kattupalli shipyard is slated to be one of the largest shipyards in Asia with an annual production capacity of 4,65,000 tons. The shipyard comprises of a world-class assembly line that includes twenty state-of-the-art production shops for the manufacturing of ships. The present annual production/fabrication capacity is at 1,20,000 tons. The total area of the production shops measure 54,765 sq.m with shops of various heights that even reach to over 120 feet. The production shops are all PEB (Pre Engineered Building) structures built on precast driven pile foundations equipped with all modern equipment for the production of defence ships.

There were a total of 254 heavy civil girders that weighed between 25 to 105 tons which posed a great
challenge was the fixing of roof sheets that measure about 35 meters in length at 120 feet height. The high wind velocities of up to 70 kilometers per hour made lifting and placing of the roof sheets highly challenging.

Metal such as steel / aluminium that arrives in the form of sheets or rolls enter the production shops, goes through a lot of processing joining with other assemblies/subassemblies only

<table>
<thead>
<tr>
<th>Type of units</th>
<th>Scope (No.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type-I Accropodes</td>
<td></td>
</tr>
<tr>
<td>2.5 cu.m</td>
<td>2804</td>
</tr>
<tr>
<td>4 cu.m</td>
<td>14014</td>
</tr>
<tr>
<td>6.3 cu.m</td>
<td>495</td>
</tr>
<tr>
<td>Sub Total (Type-I)</td>
<td>17313</td>
</tr>
<tr>
<td>Type-II Accropodes</td>
<td></td>
</tr>
<tr>
<td>4 cu.m</td>
<td>649</td>
</tr>
<tr>
<td>6 cu.m</td>
<td>540</td>
</tr>
<tr>
<td>ACCROPODE II (Type-II)</td>
<td>1189</td>
</tr>
<tr>
<td>Total</td>
<td>18502</td>
</tr>
</tbody>
</table>
to be rolled out in the form of ships from the mammoth sized final production shop.

**Modular Fabrication Facility (MFF)**

The shipyard is equipped with a modular fabrication facility that includes 1,00,000sq.m of developed area with a 84meter long quay wall for load out of the fabricated offshore platforms. The fabrication yard at the MFF is designed for taking a load of 25tons per sq.m through layers of murrum and rubble soling with a WMM toping.

The Phase-2 expansion for land development work is in progress for a further 5,00,000sq.m and is expected to be completed by September 2012. MFF Kattupalli has already sailed out its first product in May 2011 – a well head platform, for Gujarat State Petroleum Corporation, of about 2500tons. The second production is scheduled to begin in the month of November 2011. When fully developed, the MFF at Kattupalli will boast an annual production capacity of about 50,000tons.

MFF Kattupalli is the third such yard developed by L&T – Hydrocarbon after MFF Hazira (India) & MFY Sohar (Oman). One of the most interesting facts about MFF Kattupalli is that it started its commercial operation in tandem with its development phase. As soon as the fabrication yard was completed and handed over, MFF began its operations for the GSPC platform fabrication. By the time the quay wall structure was completed, the platform was also ready for the sail out.

**Plant and Machinery**

Project Kattupalli called for an impressive line-up for P&M in order to execute the works at incredible speeds. Apart from the large fleet of dumpers, barges, and cranes, a special jack-up barge was also in place. This expensive and versatile equipment was purchased exclusively for this project and it helped in reducing the cycle time of piling drastically. The movable jack-up platform has truly performed a miracle with its advanced technology.

The hydraulic rig over gantries for piling works of container berths 1 and 2 have helped in bringing down the cycle time for the pile from 13 days to 1 which is a major contribution in being able to complete the construction of container berth in an incredible 18 months’ time.

*The 2500 t well head platform for GSPC being rolled out of MFF*
During peak project period, a total asset base of over Rs. 220 crore was in place at Kattupalli.

Staff and labour during peak periods:
- 274 staff
- 4500 workers

**Compound wall**

In order to protect the project site area, a precast compound wall measuring a total length of 11km along with another 2.3 km of masonry compound wall was constructed. It is interesting to note that only roads separate L&T’s compound wall from the compound walls of adjacent facilities such as Ennore port to the south and CWDL (Chennai Water Desaline Ltd) a desalination unit to the north.

**Plant and Machinery**

<table>
<thead>
<tr>
<th>Plant and Machinery</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jack-up Barge</td>
<td>01 No</td>
</tr>
<tr>
<td>Crane Barges</td>
<td>02 Nos</td>
</tr>
<tr>
<td>Transport Barges</td>
<td>03 Nos</td>
</tr>
<tr>
<td>Mooring Barges</td>
<td>02 Nos</td>
</tr>
<tr>
<td>Tug Boats</td>
<td>04 Nos</td>
</tr>
<tr>
<td>Batching Plant</td>
<td>04 Nos</td>
</tr>
<tr>
<td>with a total capacity of 180 cu.m/hr</td>
<td></td>
</tr>
<tr>
<td>Crane of capacity 150t &amp; above</td>
<td>12 Nos</td>
</tr>
<tr>
<td>Excavators Ex200 &amp; above</td>
<td>16 Nos</td>
</tr>
<tr>
<td>Hydraulic Rotary Rigs</td>
<td>07 Nos</td>
</tr>
<tr>
<td>Dumpers &amp; Trailers</td>
<td>51 Nos</td>
</tr>
<tr>
<td>Power Generators (125kVA &amp; above)</td>
<td>30 Nos</td>
</tr>
</tbody>
</table>

**Challenges faced**

- Project Kattupalli faced and survived two major cyclones “LAILA” in May 2010 & “JAL” in November 2010 during its peak construction period. These cyclones left a devastating effect on the work-in-progress stage of the breakwaters completely altering the profile of the same.

- The transportation of over 2.9 million tons of rock from quarries located over 100 km away from the project through bad roads, which are infamous for traffic bottlenecks.

- Operating the marine piling gantries with hydraulic rotary rigs and cranes about 300m to 400m...
inside the sea. At the peak period over 9 marine piling gantries were operated.

- The remoteness of the location made the mobilization and retention of over 4500 workmen during the peak period very challenging.

- The fabrication of shiplift platform called for a large number of qualified SAW welders who were in short supply near the project area. Pre-qualification of more than 125 SAW welders was done to overcome this challenge.

- Launching of fabricated & assembled modules of size 50m long X 22m wide X 4.5m height and 660 ton weight through skid tracks and strand jacks to the shiplift location was a tough challenge.

**Permanent relocation of CPCL intake structure**

Adjacent to the south breakwater at the allotted boundary of Kattupalli shipyard is located an existing intake and outfall structure of a desalination unit that belongs to Chennai Petroleum Corporation Limited (CPCL).

This structure consists of two major sections – a 550m long approach trestle which extends from the shore and goes into the sea with an intake well and a pump house at the tip of the approach trestle. For supplying water to the intake well and bringing back the reject water line into the sea, there are two GRP pipelines of 900mm & 800mm diameter laid along the trestle.

The intake pipeline travels up to the intake well whereas the outfall pipeline goes a further 750meter into the sea from the intake structure in order to ensure that there is no mixing of the reject water with that of the fresh water near the intake well.

As part of its scope of work, L&T had to permanently relocate this intake structure along with all its electro-mechanical and communication systems further south of the south breakwater. For this purpose, an intake well with 17meter diameter along with a 480 sq.m pump house and a 550meter long approach trestle that is 8 meter in width is under construction. After the
completion of the civil works for the approach trestle & intake well with pump house the entire electromechanical-communication system needs to be shifted to the new location without any interruption to the water supply to the desalination plant.

L&T has already started the works for construction of approach trestle which consists of bored cast in-situ pile with pile cap, pre-cast members and in-situ deck slab. For the intake well caisson, which forms a part of the well foundation, over 150 tons of fabrication has been completed in a period of 4 months using a large welding team consisting of twenty five 3G and 6G welders. The greatest challenge is the jointing of individual segments in floating mode in order to build the caisson height in a phased manner from 4m to 7m, 7m to 10m, 10m to 14m and finally from 14m to 18m.

Once completed, the massive structure that would weigh 350 tons, partially filled with concrete has to be towed into the open sea to the exact location, to be pitched and sunk into the sea bed to a depth of 17m. Carrying out this operation in the open seas during high swells and cyclonic weather is truly a challenging task.

Outer dia of the well : 17.1 m  
Height of steel caisson : 18.0 m  
Total depth of intake well : 33.0 m  
Depth of well below sea bed level : 17.0 m  
Total concrete volume : 4250 cu.m

Kattupalli village relocation

Two fishing hamlets called Kuppam and Kattupalli were part of the proposed shipyard and port project. While Kuppam village that was in the midst of the allotted land was relocated outside the project area, Kattupalli village that was in the periphery was separated by building a perimeter wall. L&T has built a colony for the relocated Kuppam village with well-built concrete structures complete with all electrical, plumbing, sanitary and finishing works with paved internal roads. This relocated village has now become a model village in the area that has resulted in even other villagers outside the
Moreover, as part of the commitment to being a good corporate citizen, L&T has provided employment opportunities to one eligible member from each family in both the villages apart from providing sub-contractor opportunities to the eligible. Once commissioned, L&T’s Kattupalli shipyard and port project is sure to usher in renewed economic activities in this region through additional scope of providing employment.

Rehabilitation of Kuppadam Village

- 99 Houses - 88 Single Story House and 11 Double story houses
- Helped shift about 110 families to the new location
- Church : 1 no
- Temple : 2 nos
- School Building : 1 nos
- Health Centre : 1 no
- Community centre : 1 no
Port Electrification

Power Transmission and Distribution

Given the scale of the project, the Katupalli shipyard and port project called for a comprehensive power supply and distribution network that involved setting up of as many as twelve substations and over 300 km of cabling.

MFF
- Construction of 11kV receiving substation
- Construction of electrical control room buildings
- Supply, Installation, testing & commissioning of power transformer and associated civil works
- Supply, installation, testing & commissioning of DG sets
- HT & LT switch gears and lighting panels
- 30 m high mast
- Supply and laying, testing & commissioning of 3 km of HT and 7 KMs of LT cables

Shiplift
- Construction of 33/11kV main receiving substation
- Construction of electrical control room buildings
- Supply, Installation, testing & commissioning of power transformer and associated civil works
- Supply, installation, testing & commissioning of DG Sets
- HT & LT switch gears and lighting panels
- 30 m high telescopic high-mast
- Supply and laying, testing & commissioning of 10 km of HT and 40 km of LT cables
- Lighting system for all the shop floors
- Supply, installation, testing & commissioning of SCADA system

Port
- Construction of 110/11kV substation
- Construction of electrical control room buildings
- Supply, installation, testing & commissioning of power transformer and associated civil works
- Supply, installation, testing & commissioning of DG sets
- HT & LT switch gears and lighting panels
- 30 m high mast
- Supply and laying, testing & commissioning of 20 km of HT and 70 km of LT cables

T. S. Ananthakumar
Task Force Leader
India’s single largest affordable housing project @ Lucknow
Lucknow or the city of Nawabs, brings to memory things such as sprawling gardens, poetry, music, and delectable Persian cuisine. Also known as the Golden City of the East, or the Constantinople of India, Lucknow is today among the top ten fastest growing non-major-metropolitan cities of India. This fast paced growth has triggered an insatiable demand for quality housing in the affordable segment to cater to the large middle class segment of the population.

The infrastructure and Housing construction sector in India is considered as an important component of the economy. Several key measures announced by the Government recently gave a resounding dimension to this segment and helped to act as a major kick-starter for the economy. The rate of urbanization in the country is continuing to grow at a faster pace resulting in increasing demand for dwelling units. The projection suggests that the demographic growth will be high and the country is poised for rapid urbanization, which will lead to major developments in housing and real estate projects. As per a study conducted recently, by the year 2015, ten of the world’s largest cities will be in Asia (excluding Japan) and three of these will be in India.

In order to meet this ever increasing growth in population and rising urbanization, the central and state governments have accorded top priority for this sector. The Lucknow Development Authority (LDA) in UP is one such apex body involved in planning and developing several multi-storied housing apartments vis-a-vis many other infrastructure development all along the prime growth centers in the state. As a part of this Urban Planning and Development by LDA, L&T is involved in a major way in the Design & Construction of River View Apartments at Gomti Nagar Extension in Lucknow. L&T is executing this project under two phases using the proven ‘shear wall construction technology’. The site is located in Sector 1 & 4 of Gomti Nagar Lucknow, which is one of the posh localities of the State Capital, and is well connected with the Airport, Railway station and other major road intersections.

Work in progress at Phase II
This being a government housing development project, it assumes greater significance at a time when the construction costs are sky rocketing and owning a home is almost unaffordable by people in the middle income group. The River View Apartments proposed by LDA is thus considered a dream come true, as they are highly affordable by the middle class families.

**Scope**

L&T’s scope of work in the project includes design, structural construction using shear wall technology employing aluminium formwork, all interior finishing works like flooring, painting, plumbing & sanitation, building electrification, as well as installation of lifts, elevators, fire fighting, lightning arrester systems and basement parking etc.

Consisting of 18 towers each of 12 floors the Phase-I of River View apartments is having a total

<table>
<thead>
<tr>
<th>Phase I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractual Commencement Date</td>
</tr>
<tr>
<td>Period of Contract</td>
</tr>
<tr>
<td>Contractual Completion Date</td>
</tr>
<tr>
<td>Revised Completion Date (Including EOT due to increase in scope)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractual Commencement Date</td>
</tr>
<tr>
<td>Period of Contract</td>
</tr>
<tr>
<td>Contractual Completion Date</td>
</tr>
<tr>
<td>Revised Completion Date (Including EOT due to increase in scope)</td>
</tr>
</tbody>
</table>

**Client**: Lucknow Development Authority, Uttar Pradesh

**Consultant**: Engineering Design Research Consultancy (EDRC), L&T
of 1245 flats with two and three bedrooms and a total built-up area of 22,26,000 sq.ft. Similarly, the Phase-II project is having 26 towers each of 12 floors with 1928 flats having two and three bed room flats and a total built-up area of 29,09,000 sq.ft.

Commencing the works in May 2009 with a construction schedule of 25 months, L&T completed Phase-I project by September 2011 as there was considerable increase in the scope of work. Similarly for Phase-II the works began in February 2010, and is scheduled to be completed by October 2012.

Both Phase – I & II of this project employed a workforce of 800 workmen at the beginning with peak strength of 7800 workmen.

**Shear wall technology**

The shear wall technology involves cast-in-situ vertical structural elements with a dual role of resisting both gravity and lateral loads. The system produces solid concrete construction that is quick to install and is structurally superior to conventional buildings. The advantages of shear wall construction include:

- Top quality wall finish - Crack-free & smooth finish walls
- Durability
- Termite proof structure with a solid concrete wall
- More efficient floor space
- Higher fire rating
- Faster installation

Shear walls are the most effective building elements in resisting lateral forces during earthquakes. Damage due to the impact of lateral forces on account of high wind velocity is also minimized and shear walls provide stiffness to the buildings thereby reducing damage to the structure and its contents. They are structurally integrated with roofs/floors and other lateral walls running across at right angles, thereby giving three dimensional stability for the structures.

<table>
<thead>
<tr>
<th>Highlights</th>
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<tbody>
<tr>
<td><strong>Description</strong></td>
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<tr>
<td>Built-up area</td>
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<tr>
<td>Saleable area</td>
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<tr>
<td>No of Towers</td>
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<td>No of Flats</td>
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<tr>
<th>Major Quantities</th>
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<tbody>
<tr>
<td><strong>Civil Works</strong></td>
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<tr>
<td>Earthwork</td>
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<tr>
<td>Concrete</td>
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<tr>
<td>Formwork</td>
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<tr>
<td>Reinforcement</td>
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<tr>
<td>Flooring &amp; Dado</td>
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<tr>
<td>Painting</td>
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<tr>
<td><strong>Electrical</strong></td>
</tr>
<tr>
<td>Conducting</td>
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<tr>
<td>Internal wiring</td>
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<tr>
<td>Switch Fixing</td>
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<tr>
<td>Lightening Arrester</td>
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<tr>
<td>Metering Panel</td>
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<tr>
<td>LIFT</td>
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<td><strong>PHE</strong></td>
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<tr>
<td>Internal Piping</td>
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<tr>
<td>Vertical</td>
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<tr>
<td>Basement Piping</td>
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<td>Chinaware</td>
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<tr>
<td>Terrace Piping</td>
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</table>
Unlike ordinary structures, shear wall structures will not collapse suddenly even during a very severe earthquake. They give enough indicative warnings such as widening structural cracks, yielding rods, thereby offering time for people to take adequate safety measures, before the structure collapses completely.

**Tower crane free construction**

The LDA project site would stand out as unique with just a mere glance. One cannot spot even a single tower crane which is usually a significant outline in the skyline while constructing hi-rise buildings. Even though lifting of heavy materials can’t be done away with in high-rise building construction, L&T had totally done away with the deployment of the costly tower cranes at the LDA project and made the right selection of only the quintessential equipment such as rope winch and a mast climbing working platform in order to cut costs and at the same time keep the performance unaffected. While the lightweight aluminium formwork was manually shifted, the reinforcements were lifted using the rope winch. Through such meticulous planning and forethought, the project team at LDA has broken conventions and carried out the project with bare minimal plant & equipment.

**Major Challenges**

**Work front**

During the initial days of the project commencement, there were resistance from the land owners and local villagers and work suffered due to non-availability of work front. This challenge was overcome by developing a cordial relationship with the community through L&T’s meaningful CSR initiatives. As an innovative measure, a Bhandara (mass lunch) was organized for the neighbouring villages. Additionally, employment was also given at the site for skilled and unskilled laborers from the neighbouring villages. Even subcontractors were chosen from the local surroundings if they qualified to the corporate norms and terms. Through such proactive measures, the confidence of the surrounding community was gradually built.
**Water table**

Being located on the banks of river Gomti, L&T encountered ground water seepage while doing excavation for foundation of the Yamuna Block. It was found that the existing water table was higher than the base of the foundation level. Therefore, well point dewatering system was used for lowering the existing water table by deploying 20 pumps and it took almost four months to complete the Raft for this particular block. In addition, crystalline water proofing was done to make the basement water tight and suitable for parking and services installations.

**Soil condition**

The soil under the Blocks of Rapti and Alaknanda of River View Apartments – Phase II, was initially water-logged and it took 2 to 3 months for dewatering the area. After detailed soil investigation for design of foundations, it was found that the safe bearing capacity was low and construction of the respective blocks cannot withstand the burden of a multi storied building. This challenge was mitigated by a replacement of Raft foundation to the more reliable Pile foundations. Consequently, 1535 piles of 600mm dia with a depth of 25/27 m were done as per the geotechnical design specifications.

**Quality**

The LDA project site of L&T includes an in-house Quality Lab, which certifies the quality of each and every material that is being procured for the project. This lab houses a limited number of material testing equipment and for the testing of other material, a third party testing is undertaken.

Before casting of each and every flat or unit, parameters such as the quality of concrete pour, verticality and uniformity in thickness of walls and the quality of materials being used after casting is checked. It is also ensured that the finish of the wall is crack free and smooth with every pour.

**Achievements**

- First residential project (above 1000 Flat category) delivered to the government of UP.
• First project to use Aluminum formwork in the entire state of Uttar Pradesh

• Record time for completion of a single largest residential building project, (i.e., more than 10 stories in height and above 1000 flats under a single contract in India)

• Highest production of concrete recorded in a month in India in 2010

• Winner of internal ‘B&F - Quality Rolling Trophy’ for the year 2010

• Certificate received for 10 million injury free safe man hours

• Success story of River View Apartments has given a fillip to the trend of vertical growth in Lucknow city and the nearby areas.

Lucknow’s lovely rambling gardens, graceful fountains that form traffic islands and the imposing pink stone structures have already changed the city’s outlook as being a well laid-out and shipshape city. The River View Apartment project has taken this fast paced development of Lucknow to a new high with its swanky yet affordable high rise housing units dotting the skyline by the banks of river Gomti.

Sankalp Misra
Project Manager
Coal @ 1600 tph
The Damodar Valley in India is abuzz with industrial activities envisioned by the Damodar Valley Corporation or more popularly known as DVC. DVC is the country’s first multi-purpose river valley project modeled on the lines of Tennessee Valley Authority of USA. When Damodar Valley Corporation, as a premier power generation organization of Eastern region, drew up a plan for capacity addition of 6000MW of power in the 11th Plan, the 2x500 MW Koderma Thermal Power Plant came into being with an installed capacity of 1000MW.

Though L&T’s Construction Division has executed many electrical projects for DVC, this was the first time ever that L&T had been awarded a Coal Handling Plant project on a turnkey basis. This project was secured under stiff competitive bidding against renowned Indian firms and with a scheduled completion period of 30 months.

The scope of work involved design, engineering, supply, construction and commissioning of 1600 tph Coal Handling Plant. The Koderma Thermal Power Project is situated on the northern part of Jharkhand, adjoining Bihar and is surrounded by dense forests. The state capital of Jharkhand, Ranchi, the only major town, is about 160 km away from the project site.

### Coal Handling Plant (CHP) Highlights

- **Track Hopper**: 280 m, 5500 t holding capacity
- **Wagon Tippler**: 20 Trips per hour
- **Coal Conveyor**: 6.80 km, 1400mm belt width, 3.2m/sec, 1600 tph
- **Crusher House**: 4 Ring Granulators, 900 tph
- **UG Tunnel**: 413 m
- **Transfer Points**: 8
- **Stacker Reclaimer**: 2 nos. 1600 tph
- **MCC Bldgs**: 4
- **Admin Bldgs**: GF-500 sq.m + FF-500 sq.m
- **Road & Drain**: Road work-2.0 km, Drain- 10.5 km
- **Electrical works**: HT motor -18, LT motor-29, Transformer (1MVA ~7.5MVA) - 11 nos.

![Open stockyard area equipped with two rail mounted Stacker Reclaimers](image-url)
Unloading of coal

A merry go round system of coal transportation has been installed at the project to carry coal through wagons that arrive from mines to the power plant. The coal rake, consisting of special bottom discharge wagons, unloads coal into the hopper of the 280 m long track hopper. From the track hopper, coal is conveyed at 1600 tph to Crusher House and thereafter through various paths to the stockyard or boiler bunkers. Since coal also arrives in the conventional wagons that do not feature bottom discharge, there is an arrangement to unload such wagons using the wagon tippler at Koderma.

Major quantities

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>Earth work excavation</td>
<td>384000 cu.m</td>
</tr>
<tr>
<td>Concrete work</td>
<td>52800 cu.m</td>
</tr>
<tr>
<td>Reinforcement work</td>
<td>5050 t</td>
</tr>
<tr>
<td>Shutter work</td>
<td>170000 sq.m</td>
</tr>
<tr>
<td>Structural Fab &amp; Erection</td>
<td>6800 t</td>
</tr>
<tr>
<td>Eqpt Supply &amp; Erection work</td>
<td>7900 t</td>
</tr>
<tr>
<td>Utility Piping</td>
<td>70000 in-m</td>
</tr>
</tbody>
</table>
Wagon Tippler which is located adjacent to the track hopper.

**Major Challenges**

Though the letter of intent for the project was awarded in March 2008, there was considerable delay in start-up due to land acquisition issues. Disruption of work by the local villagers was also quite frequent and such challenges had considerably delayed the availability of work front. Added to this was the remoteness of the project location.

These challenges were overcome through meticulous planning by integrating all engineering details right from the very initial stage of the project. Similarly, resources and supply items including those items which were to be imported were planned to perfection in their expected delivery dates.

As for the land acquisition issues, despite many efforts to soften the problems, the issue remained active for a major part of the project progress. Since almost all the working fronts were handed over in segments, the project schedule had to be constantly altered and modified by keeping the total duration of construction unchanged. However, work was planned and executed in a phased manner with the help of DVC and L&T’s Industrial Relations team. Gradually the local community’s cooperation was won by convincing them and through a lot of CSR and community engagement initiatives.

Hard rock was yet another problem that was encountered at the location. In order to progress with excavation, blasting work had to be undertaken. Koderma, being a sensitive zone, blasting was done with a lot of planning and precision. With so many challenges on hand, the project team had to do some out-of-the-box thinking because time was also a major factor. Joint brainstorming sessions between the site team and design support at headquarters gave rise to many path-breaking ideas which were implemented with successful results.

**Some of the innovations include:**

- Ply board shutter of 5 m height was used for track hopper wall concrete
- 6m column shutter board for construction of administrative building
- Self-compacting concrete used for narrow structures like hopper wall
- 16mm thick liner plate which was part of the hopper’s structure was used as shutter board for track hopper wall concrete
- Pre assembly of structural panels before erection

The operating sequence and speed of operation of CHP is dictated by a PLC in the control room.
Many parallel activities were planned and carried out in an overlapping manner so as to save on time.

**Stacker Reclaimer**

The open stockyard area of DVC KODERMA is equipped with two rail mounted Stacker Reclaimers, which operates back & forth with stockpile on either side of rail tracks. Each machine operates in conjunction with a unidirectional stockyard conveyor belt. The yard conveyors operate in conjunction with the Stacker-Reclaimer. The yard conveyors deliver coal to the Stacker-Reclaimer which is then stacked into regular Stock piles by the machine. The stacked material is subsequently reclaimed by the machines and delivered to the conveyor. The machine is designed to operate in an automatic mode with minimal operator intervention. To ensure that it operates within its capacity and at peak efficiency, each operating sequence and speed of operation is dictated by a PLC. The machine can also be operated in manual mode.

**Quality**

In line with maintaining the high standards set by L&T, the job quality was maintained at high levels right through the entire phase of the project. Even minute details were checked and stringent quality checks were implemented. As a result, L&T was bestowed with ‘Excellent Customer Satisfaction’ report during the project along with zero recorded ‘Customer Complaints’.

**Safety**

Safety was, as with the integral culture at L&T, the top priority at CHP, Koderma. The project site had set exemplary benchmarks and was therefore conferred with the prestigious “British Safety Council award- 2009”. Koderma project also clocked a whopping 9.20 Million safe man hours record with no reportable case so far.

All these design and constructional features make CHP- Koderma, a state-of-the-art project in the true sense of the term. In doing so, it has become a landmark project of quality construction, timely execution and innovative design features, maintaining the tradition of L&T Construction.

Ranjan Roy
Project Manager
CSTI-Kanchi establishes Construction Skills Training Centre (CSTC) in Odisha

As part of L&T Construction Skills Training Institute’s new sourcing model, CSTI-Kanchi has established Construction Skills Training Centre in association with Gramin Vikas Trust (GVT) at Nilagiri near Balasore in Odisha on 1st August. This centre was made ready in a short span of 12 days.

Through this centre, the prospective candidates will be imparted initial training for one month at Nilagiri and subsequent intensive training for two months at Kanchi for skills enhancement. While this helps to alleviate poverty, L&T job sites get the required manpower for various projects.

Mr. Laxmidhar Dash, District Development Manager of NABARD, Balasore inaugurated the CSTC-Nilagiri and addressed the gathering.

The function was graced by the presence of Mr. Pravat Kumar Mohanty, Sr. Officer Integrated Tribal Development Authority, Nilagiri, Mr. R.K. Singh, Block Development Officer, Nilagiri. Key officials of GVT Mr. B.B. Singh, Zonal Project Manager, Mr. S. Sarkar, Sr. Program Manager and the L&T Team were present during the occasion.

CSTC Dhamtari

L&T Construction Skills Training Institute Jadcherla, Hyderabad Region, inaugurated a Construction Skills Training Centre at Dhamtari in Chhattisgarh on 20th September. Gramin Vikas Trust (GVT) as NGO, will source local youth and impart the initial one month training in this centre. Upon completion of this training, the trainees will undergo an additional two months advanced training at CSTI Jadcherla and subsequently be placed at L&T’s job sites.

The centre will source and accommodate a maximum of 60 BPL trainees per month from in and around Dhamtari. Mr. Vijay Bhushan, Regional Project Manager, GVT, Mr. T. M. Jalapathy, RTM Hyderabad, Mr. Gyaneshwar Singh, L&T Central Sourcing Coordinator along with local delegates were present during the inauguration.
Rs.1210 crore Electrical Order for a Substation Project in Qatar

The Power Transmission & Distribution IC has bagged a major international EPC order valued at Rs.1210 crore (269 Mn USD / 978 Mn QAR) from Qatar General Electricity & Water Corporation (KAHRAMAA) for supply and construction of thirteen extra high voltage (EHV) substations in Qatar.

This order, part of Qatar Power Transmission System Expansion – Phase 10 (Stage I), is the single largest order for L&T’s power transmission & distribution (PT&D) operations in GCC Countries and the job was secured against stiff international competition. The project will be completed in a span of 18-26 months.

The scope includes gas insulated switchgear of 220kV, 132kV & 66kV, associated cabling including external EHV cable diversion works, power transformers, 11kV air insulated switchgear, protection and substation automation system including DC system and auxiliaries. The contract encompasses design and construction of civil buildings with a complete set of utilities such as air conditioning, fire protection, lighting systems and much more.

L&T successfully completed six 66kV substations for KAHRAMAA recently and this order reinforces L&T’s operational competency and customer goodwill garnered in Qatar and other GCC Countries.

Rs.797 crore order for residential / commercial development

L&T Construction has secured yet another order worth Rs.797 crore in the Building & Factories segment during the second quarter of FY2012. A major order worth Rs.797 crore has been secured from a leading developer for the mixed use construction comprising predominantly of residential, including retail and commercial developments at Mumbai.

Rs.1015 crore order for IT Campus development

L&T Construction has bagged new orders valued over Rs.1015 crore in the Building & Factories segment during the second quarter of FY2012. In the commercial buildings segment, the Company secured new orders valued at Rs.692 crore from reputed clients for the development of IT campuses, and for the construction of a commercial establishment. In the residential buildings and factories segment, L&T won new orders valued at Rs.323 crore for the construction of a residential tower and additional orders from on-going projects in the factories segment.

Rs.1340 crore orders from IT / residential segment

L&T Construction has secured new orders worth Rs.1340 crore in the Building & Factories segment during the second quarter of FY2011 for the construction of commercial & residential buildings including add-on orders from ongoing projects.

L&T has secured new orders aggregating to Rs.975 crore for the construction of a mixed use commercial development and construction of the main civil works for an IT campus from reputed customers. In yet another development, L&T secured an order valued at Rs.203 crore for the construction of a residential tower from a leading developer. It has also secured add-on orders worth Rs.162 crore from various clients for ongoing contracts.
Larsen & Toubro reported Gross Revenue of Rs. 11375 crore for the quarter ended September 30, 2011, registering a growth of 20 % y-o-y.

Order inflow of Rs. 16096 crore during the quarter takes the Company’s Order Book to Rs. 142185 crore as on September 30, 2011. Despite the current slowdown in new investment decisions in many industries, and uncertainty in global markets, the Company succeeded in garnering orders against stiff competition, mainly from Building & Factories, Hydrocarbon, Minerals & Metals and Power Transmission and Distribution sectors. Profit after Tax (PAT) for the quarter from ordinary activities stood at Rs. 798 crore recording an increase of 15 % over the corresponding quarter of the previous year.

**Engineering & Construction (E&C) Segment**

The E&C Segment achieved Gross Revenue of Rs. 9704 crore for the quarter ended September 30, 2011 registering a growth of 21% y-o-y. Execution of various ongoing projects is progressing as per schedule.

During the quarter, the Segment secured orders totaling to Rs. 14552 crore with International orders constituting 35 % of the total order inflow. The Order Book of the Segment stood at a healthy Rs. 139891 crore as at September 30, 2011. The Segment recorded an Operating Margin of 11.9% during the quarter ended September 30, 2011 aided by efficient project management and execution.

L&T’s sustainability practices and its disclosures are ranked amongst the top in Asia in the Environment, Social & Governance (ESG) 2010-11 ratings of Repu Tex, Hong Kong – a leading ESG, carbon advisory and independent research organisation. L&T is also the only Indian company listed among the top 5 in Asia in the ‘Industrial’ segment rating. Repu Tex maintains ESG ratings, carbon risk data and projected risk information of over 4,500 companies in 30 markets globally. The research and ratings are based on a detailed model that measures the performance of Asian companies in four categories: Environmental Impact (including carbon & water); Social; Corporate Governance; and Workplace Practices. It also takes into account country and sector specific factors. Repu Tex’s research and ratings are referred to by major international financial institutions, investors, fund managers, global banks and pension funds.

The rating affirms international recognition of L&T as a company committed to global sustainability practices and disclosures.
L&T Metro Rail participates in the International Conclave on Climate Change

L&T Metro Rail (Hyderabad) Limited participated in the International Conclave on Climate Change organised from 12-14 October 2011 at Hitex, Hyderabad. The theme of the conclave was “Clean Energy and Energy Security.”

The Conclave was organised by Engineering Staff College of India in association with Govt. of India, Govt. of Andhra Pradesh, UNIDO, World Energy Council, and UNESCO. The Prime Country Partner was Germany and Country Partner was Australia.

Mr. V B Gadgil, Chief Executive & Managing Director, L&T Metro Rail addressed the conclave during a Special Session on “Effective Climate Change Policies for Reducing 20% Emission Intensity by 2020.”

L&T Metro Rail also exhibited a stall highlighting the greener aspects of the metro rail project with the theme “A Greener Hyderabad brought to you by L&T Metro Rail.”

Mr. Y. M. Deosthalee appointed Chairman & Managing Director of L&T Finance Holdings Limited

Mr. Y. M. Deosthalee (YMD) was appointed Chairman & Managing Director of L&T Finance Holdings Limited (LTFHL), with effect from 6th September 2011. He joined L&T in 1974 and was appointed as Whole-time Director & Member of L&T Board in 1995. During his long tenure, he made tremendous contribution in areas such as Finance & Accounts, Risk Management and Human Resources. He also provided strategic inputs in the growth journey of L&T Infotech. YMD retired from the L&T Board with effect from 5th September 2011.

Mr. R. Shankar Raman appointed CFO & elevated to L&T Board

Mr. R. Shankar Raman was appointed Chief Financial Officer of Larsen & Toubro on September 6, 2011, and was subsequently elevated to the Board on October 1, 2011. Mr. Shankar Raman succeeds Mr. Y.M. Deosthalee who takes over as Chairman and Managing Director of L&T Finance Holdings.

Mr. Shankar Raman earlier held the position of Senior Vice President, Finance & Legal at L&T. He qualified as a Chartered Accountant in May 1983 and became a Graduate of the Institute of Cost & Works Accountants of India in 1986. Over the past 29 years of professional work experience, Mr. Shankar Raman has worked for leading listed corporations in varied capacities in the field of finance.

Mr. Shankar Raman’s portfolio covers a wide range of critical functions such as Finance & Treasury, Corporate Accounts, Taxation, Insurance, Risk Management, Legal, and Investor Relations. He is on the Board of several companies including international subsidiaries within the Larsen & Toubro Group. Mr. Shankar Raman is a member of Western India Regional Council of Confederation of Indian Industries.
A team of bureaucrats from the Government of Delhi visited CSTI-Pilkhua on 15th July. Mr. B.V. Selvaraj, IAS, Principal Secretary - Labour & Employment, Mr. Anand Prakash- Principal Secretary, Directorate of Training & Technical Education, Govt. of Delhi and Mr. Rajender Dhar, Joint Labour Commissioner, Govt. of Delhi along with other officials toured the CSTI campus and Mr.Rajan Malhotra, Regional Manager-DLRO presented an overview on the functioning of CSTI.

In addition, Col. N.B. Saxena (Retd), Regional Training Manager briefed the officials on the training and placement procedure. The officials were impressed with the skill training imparted by L&T and expressed their interest towards sponsoring the recruits from the Delhi region. They also sought the support of L&T in establishing one such Construction Academy at Delhi.

L&T Ranked 29th among Top Global Contractors

According to the latest list dated August 2011, the ranking of L&T (with estimated revenue of US $ 9205 million) has improved to 29th rank (34th in 2010, 35thin 2009, 40th in 2008; 47th in 2007 & 54th in 2006). L&T’s rank has improved on the back of strong topline growth notwithstanding the depreciation of the Indian rupee vis-à-vis the USD.

The top 20 to 30 ranking of the ENR has global giants like Taisei, Strabag, Balfour Beatty, Takenaka, Saipem, Bilfinger Berger, Construtoria Norberto Odebrecht, Royal Bam Group & Hyundai engineering.

In the list of Top International Contractors (based on Overseas Rev. for 2010) L&T ranked 77th. With an International revenue of US $ 1199 million, L&T is ranked 77th (62nd in 2010, 60th rank in 2009, 67th rank in 2008 & 72nd rank in 2007).
Industry Interaction on New Vistas in Rail Construction

To address the demands of new vistas in rail construction and the development of rail infrastructure, L&T Construction’s Railway Construction Business Unit organised an industry interaction workshop in Chennai on September 20, 2011. Mr. Deepak Krishan – General Manager, Southern Railway, along with Mr. S C Agnihotri, Managing Director- RVNL, Mr. S.N. Subrahmanyan, Member of the Board and Senior Vice President (Construction), Mr. Rajiv Jyoti, Chief Executive for L&T Railway Construction and Mr. P. John Rajkumar, General Manager and Head Railway Construction commenced the proceedings. Senior executives from Southern Railway, RVNL, construction officers of the Railway participated in the workshop. Other senior dignitaries who were present in the program included Mr. R R Jaruhar, Former Member Engineering, Railway Board; Mr. M Ravindra, Former Chairman Railway Board, Mr. S C Gupta Former Member Electrical, Railway Board and Mr. N Aravindan, Retired Additional Member, Railway Board.

SNS in his introductory address highlighted the need to bring a technology transition in railways. He cited the role played by private sector in development of cell phone technology, road infrastructure and airport privatisation.

Mr. Deepak Krishan in his keynote address highlighted the phenomenal growth of railways and the high asset reliability, productivity rates achieved. However he said that the time has come now to take a review and build the kind of railways that we envision. Calling this exercise as a joint initiative, he was hopeful that the deliberations would pave way for the future. He said that the construction industry in the way forward will be required to partner in design and build contracts. The workshop that was marked by case studies and deliberations concluded with the release of a brochure on Competency Development Centre (CDC).
ABRO lends a helping hand to Shram Mandir

ABRO reached out to the Leprosy Home of Shram Mandir Trust, Baroda. L&T staff distributed around 25 beds, 220 suitings & shirtings, 150 saris and a cheque for Rs 25,000. Mr.V.S.Ramana, Head- Corporate Communications, Chennai along with Mr. S. H. Vora, Regional Manager-ABRO participated at this event along with many senior colleagues of ABRO.

Shram Mandir Trust, a nest for over 500 leprosy affected people is located 10 km away from Vadodara City in the valley of Mahi river and is around 37 years old. There is a school attached to the centre where the children of the patients are provided with education. The patients sustain themselves by weaving bed spreads, pillow covers, tailoring, barber shop, carpentry works and farming.

Educational initiative by TSL Project team

The staff at the TSL Project Site, Jamshedpur reached out to the children of DBMS English Medium School, Kadma on 2nd July. The site constructed two class rooms at the school and this was inaugurated by the Cluster Plant Manager Mr. A.K Sinha.

Eye Camp at Kanchipuram benefits over 900 people

L&T’s Engineering Workshop at Kanchipuram in association with Aravind Eye Hospital, Puducherry organized a free eye camp on 23rd July where more than 900 people from in and around Kanchipuram benefitted. Conducted at Pachaiyappa’s Higher Secondary School at Moongil Mandapam, this is the fourth camp in a row.

Mr. S.R. Sudharsan, District Revenue Office, Kanchipuram, Mr.D.R. Ray, Executive Vice President & Head – Metallurgical and Material Handling IC, L&T, Dr. Bhavani Umadevi, Dy. Director, Public Health, Dr. Vijaya Kumar, Medical Superintendent, Govt. Hospital – Kanchipuram, Dr. Pradhamesh, Medical Officer, Aravind Eye Hospital, Mr. R. Nagarajan (RN), Incharge – L&T Engineering Workshop, Mr. Balakrishnan, Headmaster of Pachaiyappas’ Hr. Sec. School and office bearers and members from Prayas Trust participated in the function. Out of 915 people who were screened, 152 were presented with spectacles and arrangements were made for cataract surgery for 112 people.
Project team reaches out to school children

The staff at Sahar Elevated Access Road Project distributed note books to over 150 needy children in the slum areas of P&T colony at an event held on 17th July.

The staff at the Mumbai Monorail project site reached out to the children of Narayana Acharya School located at Chembur in Mumbai on 23rd July by distributing books to over 300 students and also conducted quiz competitions for the children.

Turning a dream into reality

The staff of PT&D’s Jamshedpur Project presented a computer to Mr. Paras Nath Bhattacharya, a 65 year old man who is bringing up two children who were neglected by their own parents. Mr. Bhattacharya is working towards realising the dreams of these two children who he considers his own - Master Sayanto Rao, adopted from the suburb at Kadma and baby Nitasha, a 4 year old girl who lost her mother soon after birth. Both kids want to reach great heights in chess and Mr. Bhattacharya’s dream of making the two children chess champions is now slowly turning into a reality with the computer that includes the latest simulated game of chess.

Fire fighting demo for 500 students

Towards further instituting the CSR efforts of the organization, a Fire Fighting demonstration was organized by the Subansiri Hydro Electric project site at Kendriya Vidyalaya school, NHPC Gerukamukh on 25th July. Over 500 children along with the teachers benefitted from this demo and the site also installed five fire extinguishers at the school premises.

Health Camp at Nizamabad Projects

A Free Health Camp was organized by the Nizamabad UGDS and WSIS Projects on 31st July at Quilla WTP site for the staff and workmen. Over 101 workmen from various agencies working in Nizamabad UGDS and WSIS Projects apart from the staff underwent health screening including weight examination, oral health, blood pressure check-up, general fitness and other specific ailments reported by the patients. Dr. Bhooma Reddy from District Hospital, Nizamabad along with a team of two medical practitioners prescribed medicines and the same was provided to the patients free of cost.
L&T Metro Rail (Hyderabad) Limited distributed schools bags and books to over 600 school children on 2nd August. Mr. V.B Gadgil, Chief Executive & Managing Director, L&T Metro Rail distributed the bags and books to the children of classes one to five in three Government schools, namely Central Primary School, Nagole, Central Primary Boys School, Uppal and Government Primary School, Ambedkar Nagar in Hyderabad.

Blood donation and tree plantation drive at Kanchipuram

The staff at the Engineering Workshop, Kanchipuram organized a voluntary Blood Donation Camp in association with ESSAR Blood Bank, Chengalpattu on 16th July. The staff and workmen including those at the P&M Workshop actively participated in the blood donation camp. Around 85 units of blood were collected from this camp.

Also, a tree plantation programme was organized by the staff and around 104 saplings were planted in the campus. Mr.R.Nagarajan, Head – Engineering Workshop planted the first sapling and other senior officials and staff including clients of Engineering workshop followed the plantation activity.

1200 workmen screened for health at BSL Project, Angul

The staff at the Bhushan Steel Project, Meramandali, Orissa organised a free Malaria & General Health camp for the large community of workmen and staff on 6th August.

The camp was inaugurated by the Project Manager Mr.Tinanjan Mitra in the presence of the other staff. General screening for common problems like blood pressure and fitness along with malaria check-up was organised for over 1200 workmen at site.

Singoli Bhatwari HEP organizes a Blood Donation Drive

Singoli Bhatwari HEP organized a blood donation camp on 6th August in association with a Srinagar based hospital. The staff at L&T PDL and Hydel Business Unit donated over 44 units of blood and the hospital authorities expressed their gratitude as this blood donation camp would meet the two months demand for blood in the hospital.

CSTI Panvel

The Construction Skills Training institute in Panvel
organized a blood donation camp on 27th July in association with Indian Red Cross Society, Bombay Branch. Many CSTI trainees actively participated in this drive and donated over 117 units of blood.

Siliguri

A Blood Donation Camp was organized by the staff of KSTL Project site at Siliguri on 7th August. Staff, workmen and supervisors actively participated in this camp and over 59 units of blood was collected and donated to Siliguri District Hospital.

Arshiya FTWZ Project

A blood donation camp was organized at Arshiya FTWZ Project, Panvel in association with MGM Hospital on 30th July. The staff, workmen and the client actively participated in donating and over 101 units of blood were collected from this camp.

Sohar

L&T Electromech, Oman organized a blood donation camp on 26th August in association with the Ministry of Health, Oman and 51 donors enthusiastically came forward to donate blood.

Chennai Metro

Metro Tunnelling Chennai Site (L&T SUCG JV) organised a blood donation camp on August 20th in association with Kilpauk Medical College at KMC Hospital. Mr.R.G. Saini (Project Director of L&T SUCG JV) and Dr.Geetha Lakshmi (Dean, KMC) inaugurated the programme. Workmen and staff came forward and joined in this initiative. 61 units of blood were collected at this camp.

Kharagpur

On 27th September a blood donation camp was organized jointly by PNS-KGP 3rd Line RC project and RE Midnapur Project in Kharagpur. Mr.Meeraj Khalid (IPS), Additional Superintendent of Police, Kharagpur was the guest of Honour for this event and he also inaugurated the camp and appreciated the donors.

This camp was conducted in association with State Govt. General Hospital Kharagpur and over 56 staff and workers donated blood.

SWDP Jabalpur site

A Blood donation camp was organized at the SWDP Jabalpur site of MMH IC – Ahmedabad Cluster on 24th September. This camp was organized in association with NSCB Medical College, Jabalpur and the Project Manager Mr. M K Mishra along with the site staff enthusiastically donated blood. Over 16 units of blood were collected from this camp.

Tree plantation drive at Satna - Seoni project

The staff at PT&D IC’s 765/400kV Satna-Seoni project organized a tree plantation drive on 7th August at the Sheela Dehi Hills. The staff planted over 100 saplings at places like road edges and hill walk ways. Also, an awareness program on environmental issues and importance of plantation was conducted among the local villagers.

A free health camp at Vishakapatnam

The staff at the BF # 3 & WRM # 2 project, Vishakapatnam organized a free health camp at the labour colony on 31st July in association with R.K. Hospital Gajuwaka. Over 300 workmen and a few neighbouring villagers were screened during this camp for general health and fitness including weight, oral health and blood pressure. Some specific complaints from the workmen were also addressed during this programme. A senior physician from R.K.Hospital, Gajuwaka assisted by four doctors screened the patients and prescribed the drugs which were distributed free of cost.
Reaching out to its Societal Stakeholders

Further promoting its triple bottom line approach towards People, Planet & Profit, the Chennai cluster of MMH IC reached out its helping hand to schools in various areas. The Hospet Job site constructed two toilets with taps and water pipelines for the Government Higher Primary School at Chitawadgi, one of the remote and under developed districts in Hospet. The site headed by Mr. S.C Satish also visited Sarada lower Primary School in Devarapura in Hospet and donated water purifiers, teaching aids for the staff, sports equipment and stationery kits for the students in the presence of the District Educational Officer.

A similar initiative was carried out by the staff of the NTPL project site in Tuticorin at a Government Primary School at Kalankarai. This team headed by Mr. S. Kumaresan provided uniforms to school children in addition to sports equipment and stationery kits. The school’s infrastructure was given a face lift by painting the building and providing a shade in the frontage.

Ecological performance of the Cluster is evinced by the participation of all Project sites towards the Cluster’s target of planting 100,000 saplings for this financial year. Green engineers have been identified at each site and the 5th of every month is being observed as Environment Day. So far 45435 saplings have been planted.

L&T Oman launches a charity programme in Salalah

L&T Oman launched a charity programme in Salalah where the organization is currently executing projects like the expansion of the Salalah International Airport, construction of Water Transmission pipelines, Tanks and Booster station, substations and overhead transmission lines.

Through this charity programme, L&T distributed food items to the needy people during the holy month of Ramadan. Mr.S N Subrahmanyan commenced this initiative on 2nd August and expressed delight towards this act of CSR which provides an opportunity to connect with the needy during the holy season. Mr.Hamed Awadh Soakharoon, Manager- Ministry of Social Development, Directorate General of Social Development, Dhofar Governorate, Department of Family Development and Mr. P R Surendhra Babu, Chief Executive, L&T Oman LLC were present during this occasion. This programme reached out to over 500 families in Salalah.

DMRC team supports Green Leap Delhi

Staff and workmen at DMRC CMC-1 Project organized a tree plantation drive on 19th August and supported ‘Green Leap Delhi’, an initiative taken up by Govt of Delhi to plant 1 million trees in Delhi during the 2011 monsoon period.

The site team participated very enthusiastically and over 150 saplings were planted at pre-cast yard in Dwarka. Mr. R.D. Bhattacharya, PC Yard In-charge, inaugurated this drive and planted the saplings.

Eden Park site reaches out to 91 children

The staff at the Eden Park, South City Project extended hands in support of Good Life Centre, a home for 91 destitute and differentlyabled children. L&T distributed uniforms to these children.

448 Government school students benefit at Coimbatore
ESIC Hospital Project Team in Coimbatore reached out to the needy children of the nearby Government Schools on 10th August by distributing school bags. A total of 448 students from two Government Schools—Government High School, Varadharajapuram and Government Middle School, Masakalipalayam, benefitted from this contribution.

Dengue Prevention Camp at BSL Orissa

The Staff at the Bhushan Steel Project, Meramandali, Orissa organized a Dengue prevention Camp for the large community of workmen & staff on 22nd August. The camp was inaugurated by Project Manager Mr. Tinanjan Mitra in presence of the other staff. Free Homeopathic medicines were distributed to 12242 workmen & staff.

Tree Plantation Week

Ahmedabad Cluster of MMH IC celebrated “Tree Plantation Week” during 11th – 17th August 2011 at all project sites. Nearly 2000 saplings were planted during this week at different locations. The site teams invited clients, government officials and officers from local administration including staff members & workmen who enthusiastically participated in this green initiative. This noble act has been highly appreciated by everyone and created a great impression in the local community.

Free Health Camp organised at Ahmedabad Viramgam Maliya Road Project

The EHS department at AVMRP, Dhrangadhra organized a free health camp for the workmen at three of its site offices (Viramgam-Package1, Dudhapur-Package2 & Sakthinagar-Package3,4) on 11th August and 6th September. This camp was organised in association with the State Government Health centre. Over 400 workmen were screened during this camp for general health and malarial symptoms. Some specific complaints from the workmen were also addressed during the camp. Medicines were distributed free of cost to the workmen in this camp.

North 24 Parganas Rural Electrification Project reaches out to school children

The Rural Household Electrification Site in North 24 Parganas West Bengal reached out to 565 students of Durgamandap Sardarpara High School in Sandeshkhali, located in a remote area near the Sunderbans Delta. The site team donated school bags, books and geometry boxes to the children on 1st September 2011. This programme was inaugurated by Mr. N.D. Majumdar, Project Manager W.B.S.E.D.C.L in presence of Mr. Subrata Mandal, Project Manager L&T and Mr. Harasith Bira Head Master Durgamandap Sardarpara High School along with other officials.

Free health camp at a Substation project in Delhi

A free health check-up was organized for the staff and workmen at the 400/220/66 kV GIS Substation project at Harsh Vihar in Delhi. This camp was organized in association with Dr. B L Kapur Memorial Hospital, Delhi. Over 115 workmen and staff were screened during this camp for general health and fitness and all participants were given Tetanus vaccination.
2600 children in Limdi District get clean drinking water

The staff at L&T’s Ahmedabad regional office reached out to the village primary schools of Limdi Taluk by constructing eight RCC water tanks of 5000 liters capacity each for the children. This initiative was inaugurated on 9th September by Mr. S.H.Vora – Regional Manager, Ahmedabad, along with other staff. Over 2600 children will now have clean drinking water.

SGRP & KMRP site teams help in rehabilitation of Bhuj

Floods devastated many villages in Kutch and Jamnagar districts in the month of September, and disaster management teams continued rescue and relief operations in the area. L&T site teams at Samakhiali Gandhidham road project and Kandla Mundra road project rushed to the area and supported the rehabilitation measures further.

The collector of Bhuj requested L&T’s site management team stationed at Samakhiali Gandhidham road project and Kandla Mundra road project on 8th September to help rehabilitate the low lying submerged locations of Sanjognagar - Gandhinagiri - Shantinagiri due to heavy overflow from the Hamirsar Lake. The site team of SGRP and KMRP immediately responded to the collectors request and sent resources to Bhuj.

The rehabilitation measures initiated by L&T were successful in bringing the situation under control on 17th September protecting over 30,000 people.

ITC Kolkata team reaches out to 180 underprivileged people

As a part of L&T’s CSR efforts, the staff at ITC Kolkata Project-II reached out to Hatgachia Village located near ITC Sonar Hotel. The site staff conducted a free medical camp on 25th September and distributed medicines to over 180 underprivileged people. The screening included eye check-up, blood pressure, blood sugar and general wellness of skin, heart and kidneys.

A new step in CSR- HZL Dariba starts a tuition centre at workmen colony

HZL Dariba site celebrated Teachers Day in an extremely meaningful manner this year, as they
inaugurated a new crèche cum tuition centre at the workmen colony.

On 5th September, the site staff started this centre with the sole aim of providing basic education to the children of those workmen who are involved in the construction of Zinc Smelter Plant for HZL at Dariba, Udaipur, Rajasthan. A study hall with a qualified teacher, study materials, toys and other items for playing along with one balanced meal is being provided in this centre for the children.

A helping hand to those in need

The staff at the BALCO site, MMH IC Hyderabad Cluster, reached out to Prashanti Vriddhashram, an old age home near Sarawamangala temple, Korba on 4th October. The site team distributed water purifiers, electric stove, dining tables with chairs, dust bin for garbage collection, utensil stand and PVC chairs for the inmates at the home.

The inmates were delighted to receive these items which will help them in easing their day-to-day lives and thanked L&T for this kind gesture.

Prayas Trust inaugurates a new tuition centre on Vijayadasami

Prayas Trust, Chennai, saw another new beginning for Prayas Trust Chennai. Yet another feather in the crown of Prayas Trust who inaugurated their efforts to serve a much larger community by starting a Tuition Centre at Virugambakkam.

On the 6th October Prayas members, teachers and a few children gathered at the Virugambakkam Medical Center for a pooja following which the classes began with the blessings of the almighty. Mr. B. Ramakrishnan graced this occasion and flagged off this new beginning. Tuitions will be conducted by experienced teachers for the underprivileged children in the neighbouring community for classes III – VII between Monday and Friday.
Bhamasah Award for TLT Pithampur Works

TLT Pithampur factory has been awarded the prestigious Bhamasah award for the year 2009-10 for being the 3rd highest tax payer. This award was presented by the honorable Finance Minister of Madhya Pradesh, Shri Ragavji, at a glittering ceremony organized by commercial tax dept on 27th August. Mr.R.B.Parhi - Manager Accounts and Admin and Mr.U.K.Ghosh - Assistant Manager, Indirect taxation, Pithampur works, received this award from the Honorable Finance Minister in presence of Minister of State, Urban Development, Business communities and other bureaucrats. The bhamash award has been instituted by Government of MP in the name of Raja Bhamasah who was the Finance Minister of the great Rajput Warrior Maharana Pratap Singh and donated all his wealth to Maharana Pratap, to help him to fight the battle against the mighty Mughal emperors. It is for the second time that Pithampur works is being honoured by the government of MP with this award.
Mr. A.M. Naik Wins ABLF Business Courage Award

Mr. A.M. Naik, Chairman & Managing Director, has won yet another international award affirming his leadership qualities and values.

He was awarded the inaugural Business Courage Award - 2011 presented by the Asia Business Leadership Forum (ABLF). The award was received on his behalf by Mr. K. Venkataramanan, President, Hydrocarbon, and Member of the Board.

The citation states that Mr. Naik was chosen by the ABLF Awards Grand Jury for his contribution to the rising and dynamic Asian business-scape, and for his achievements that were consistent with the parameters and criteria of courage and integrity.

The ABLF Awards have been instituted as an enduring benchmark of achievement, excellence and leadership in the key sectors of industry, infrastructure & energy across the three regions of Asia – the Gulf, India and South-East Asia.

The award is the culmination of a rigorous and intensive system that included a global nomination portal covering over 30,000 respondent companies and entities across the world. A jury comprising eminent personalities from the fields of finance, diplomacy and academia as well as political, economic and legal commentators made the final choice. The grand award ceremony on October 3 was attended by business stalwarts, media leaders, global celebrities and senior members of the Union Cabinet.

L&T Bags Golden Peacock Global Award for Excellence in Corporate Governance

L&T has been selected as the winner of the ‘Golden Peacock Global Award for Excellence in Corporate Governance’ for 2011 by the Institute of Directors (IoD) and the World Council for Corporate Governance.

The award was presented by UK’s Finance Minister, Mr. Mark Hoban, in London on October 13, 2011, at a distinguished gathering of business leaders, jurists, academics, environmentalists, economists, legislators and policy makers during a global convention of the institute.

The Golden Peacock Award for Excellence in Corporate Governance is presented annually. It is won by organisations which have institutionalised a powerful self-assessment process. Preparation for the award also helps to inspire and align the entire workforce and management of an organisation.

The Golden Peacock awards have been instituted by the IoD – a non-profit apex association of directors committed to improving the competitiveness of Indian businesses.
L&T Construction bags Construction World’s Largest Construction Company Award

L&T secured the Largest Construction Company award at the 9th Construction World Annual Awards 2011 held in Mumbai on 21st October 2011.

Mr. S.N Subrahmanyan, Member of the Board and Sr. Executive Vice President (Construction) received the award from Dr. Shashi Tharoor, Former Minister of State for External Affairs in the presence of Dr. Indu Shahani, Sheriff of Mumbai. Also present in the function as key note speaker was Justice Santosh Hegde, Former Lokayukta of Karnataka.

Since the inception of the award, L&T has been receiving top honours for the past 9 years and collected 14 awards in different categories.

Construction World Annual Awards is the flagship event under India’s leading Construction business Magazine “Construction World. It is the most prestigious set of awards which recognizes and facilitates the achievers in the Construction and Allied Industry.