



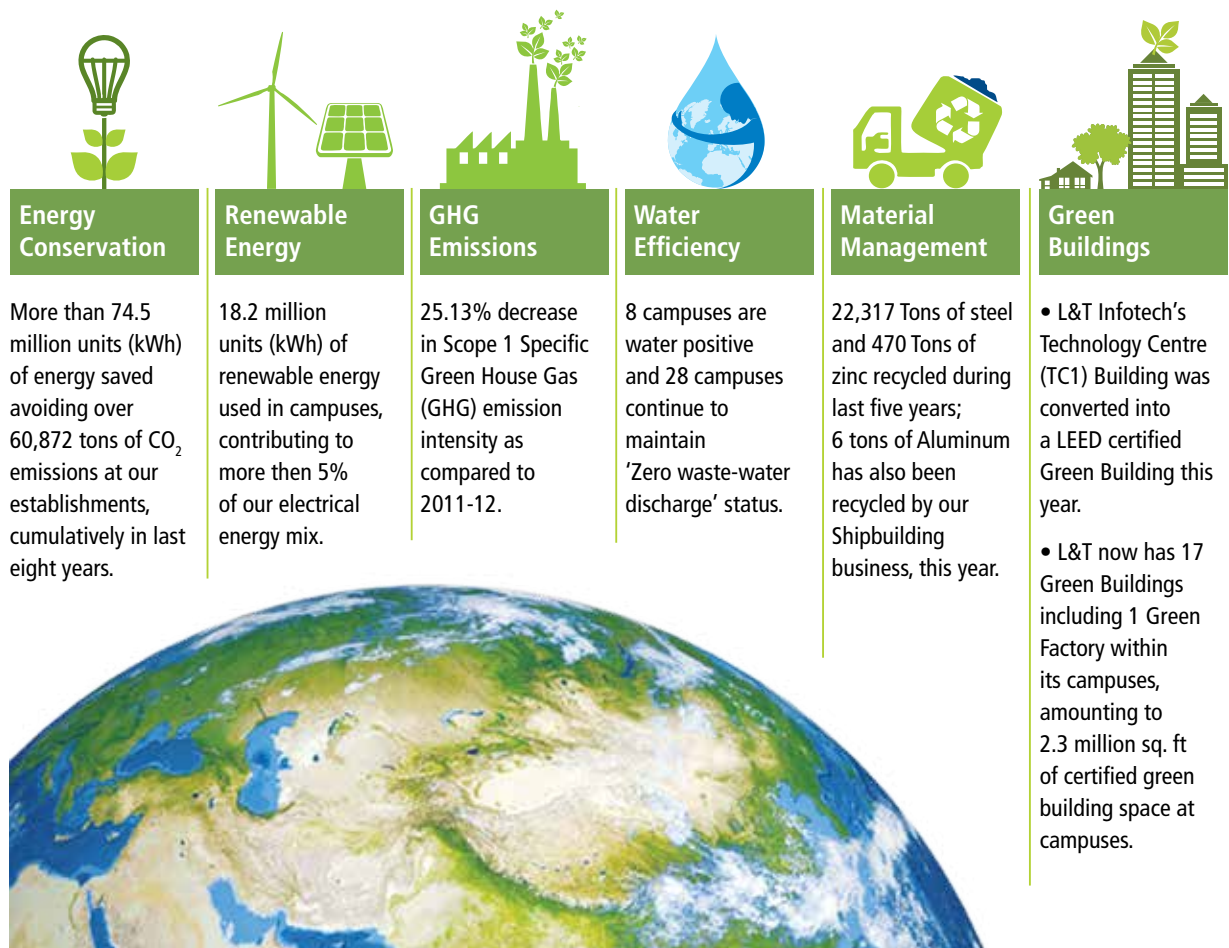
Greening
the Future

A holistic approach towards environment management and making responsible, informed choices are vital to the growth of the organisation. We recognise that achieving growth in industry at the cost of the environment is neither desirable, nor sustainable. Our Corporate Environment, Health and Safety (EHS) Policy plays a vital role in defining the choices we make. Since 2009, we have been setting measurable targets and developing action plans for successive three-year Sustainability Roadmaps. Last year, we completed our 2nd Sustainability Roadmap cycle. The next Sustainability Roadmap 2016-2021 has been formulated in alignment with business plan LAKSHYA-2021.

Performance Review

We regularly review our environmental performance against the objectives and targets set, and conduct periodic EHS training for our workforce. At project sites and offices, the respective project managers are responsible for ensuring optimal utilisation of natural resources.

We also work closely with our clients, suppliers, and external stakeholders to improve their environmental performance. In 2015-16, a total expenditure of about ₹ 0.13 billion was incurred on environmental pollution control and management measures.

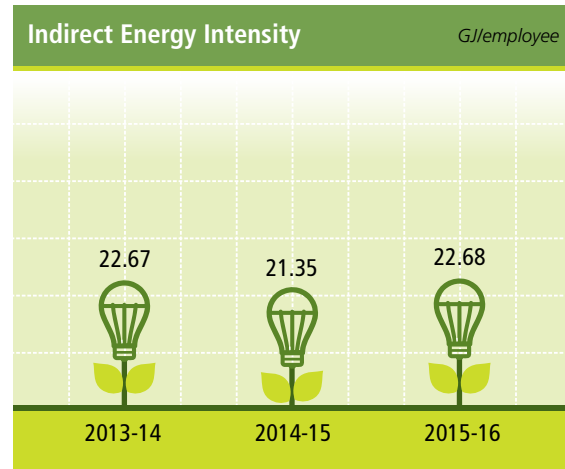
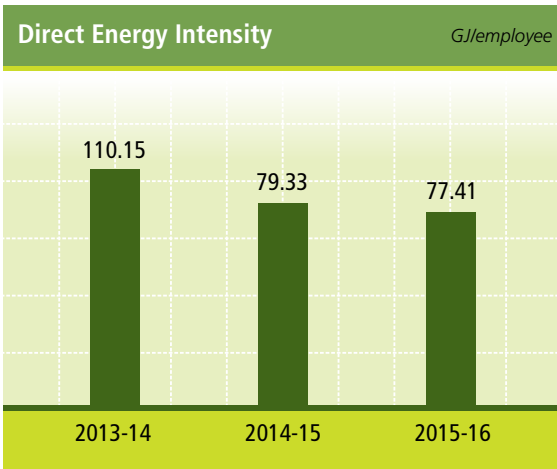


Energy

The production of fossil fuel based energy contributes to a large extent to the depletion of many of our planet's valuable resources. At L&T, we focus on conservation of resources by constantly improving our energy management processes.

We have dedicated energy auditors and managers, trained at units certified by Bureau of Energy Efficiency (BEE). Our Direct Energy consumption was 5,058,777 GJ and Indirect Energy consumption was 1,482,222 GJ for the year 2015-16.

This year, our direct energy consumption has reduced by 5.95% as compared to last year with the implementation of fuel efficiency measures. Our energy consumption outside the organisation covering transport facilities provided to the employees is 107,201 GJ. The variation in direct and indirect energy consumption w.r.t. previous year is due to the nature of business. Our major business is Engineering, Procurement and Construction of projects, in which energy consumption depends on the stage of project execution cycle. Our focus is on energy conservation and maximising the energy efficiency across our campuses and project sites.



Renewable Energy

We strive to increase the share of renewable energy in our overall energy mix. 3 campuses are sourcing wind energy from external suppliers, while 18 campuses and 1 project site are generating renewable energy on-site. Due to changed regulations regarding the banking of renewable energy units, renewable energy usage significantly reduced at Mumbai-based locations, this year.



WIND

Our campuses utilise 16.8 million units of electricity supplied by wind powered turbines.

SOLAR

Solar energy equivalent to 1.4 million units is harvested within the campuses.

BIO-GAS

The food waste processing plants at four campuses contribute to more than 5,471 Cu.m. of bio-gas, which is used in canteen.



CASE STUDY

A Green Campus – Now Greener! Microgrid makes maximum impact



L&T has installed a Renewable Energy Microgrid at its Chennai Campus integrating solar PV cells, micro-wind turbines, and a bio gas plant along with Li-ion battery for energy storage.

Spread over 27 verdant acres at Chennai, L&T's Construction Headquarters was virtually a sustainability model – with three U.S. Green Building Council (USGBC) certified green buildings, a grid-connected solar rooftop PV system producing over 600,000 units per annum, solar street lighting, and a vast tree cover. Apart from this, the facility consumes about 13 MWH (of the 20 MWH) annually generated by the wind farm L&T set up in Tamil Nadu.

And then we went the extra, greener, mile. We installed a renewable energy microgrid system. It integrates solar photo-voltaic cells, micro-wind turbines, and a biogas plant and a Li-ion battery for energy storage. The micro-grid system was created by our Solar business team, an industry leader in renewable energy in India. The system maintains power security and overall protection through complete control and monitoring of energy resources, storage and loads. Optimising energy use, it improves energy efficiency through smart decision-making.

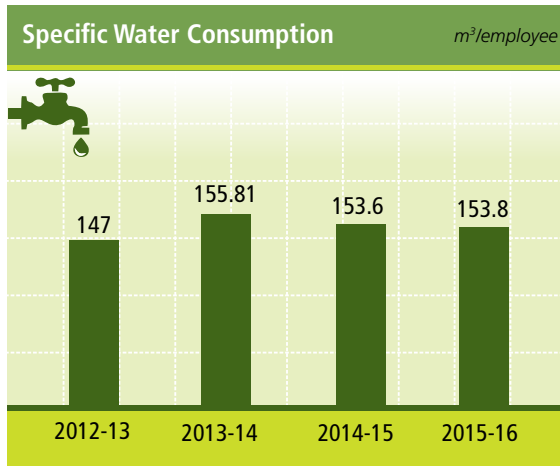
Highlights

- Full-fledged pilot renewable energy micro-grid commissioned
- Significant reduction in diesel consumption in DG sets
- Advanced load management by prioritisation of loads
- Advanced storage technology enables energy time shift and regulates frequency. Seamless integration of various renewable energy sources
- Won Earth Care Award 2015 for 'Excellence in Climate Change Mitigation and Adaptation'



Water

L&T is continuously optimising its water consumption through adoption of new technologies and behaviour change initiatives. The Company reuses / recycles treated wastewater at its establishments with the aim of reducing its fresh water intake.



12.87% of the total fresh water consumed at our campuses and project sites is reused / recycled.

All our 28 major manufacturing campuses have adopted a 'zero wastewater discharge' strategy. The Company is also focussing on utilisation of rain-water around its campuses by installing rain-water harvesting systems at its facilities at Powai (Mumbai), Pondicherry, Ahmednagar and Mysore.

Water Consumption *m³/year*

| Source of Water | 2013-14 | 2014-15 | 2015-16 |
|-----------------|-------------------|-------------------|-------------------|
| River/ Lake | 2,991,156 | 2,869,540 | 2,651,888 |
| Municipal Water | 2,173,743 | 535,840 | 1,532,946 |
| Rain water | 8,803 | 71,694 | 80,602 |
| Ground water | 1,301,963 | 2,321,394 | 4,102,763 |
| Other | 4,096,076 | 4,615,700 | 1,683,795 |
| Total | 10,571,741 | 10,414,440 | 10,051,994 |

Total water consumption as per current scope: 10,051,994 m³ and total wastewater discharge: 1,412,632 m³. Our waste water discharge does not significantly impact any water body, protected area, area of biodiversity value.

Making Every Drop Count

In 2015-16 Maharashtra state faced one of its biggest water crises in recent decades. And L&T's Powai campus rose to the occasion. Comprising Heavy Engineering workshops, world-class design and R&D labs, a Technology Centre, a world-class Business Park and offices of various businesses of the Group, there was plenty of scope for water conservation. L&T's efforts and initiatives resulted in a significant level of water conservation.

Key impact initiatives include:

- Throttling of valves in the main pipeline for reduction of water at source
- Formation of task force on water consumption reduction
- Fixing of orifice in taps to regulate water outflow
- Water leak detection in main delivery line to avoid water wastage

- Water meter installation at strategic locations for hourly water monitoring to identify and control high water consumption areas
- Employee participation through water conservation suggestions and awareness through posters/emailers
- Fixing of water-saving devices in canteen utensil washing area
- Use of sprinkler showers instead of pipes for watering gardens and lawns
- Reduction in garden watering frequency from thrice-a-week to twice-a-week
- Use of water gel chemical and moss to reduce water requirements of potted plants

Water consumption at Powai Campus has been reduced from 400,000 Litres/Day to 165,000 Litres/Day. Average water consumption was reduced by 54.33% .



Eco-friendly Recycling of Waste-water

L&T's Shipbuilding business offers total solutions, from concept to design for new ships, as well as repair and retrofit for both defence and commercial vessels. The business owns and operates two modern shipyards at Hazira, Gujarat and Kattupalli, Chennai – both of which are ISO 14001 and OHSAS 18001 certified. The corporate headquarters of L&T Shipbuilding and a state-of-the-art Marine Design Centre are located in Chennai, India.

Taking an eco-friendly step to conserve a precious resource, L&T's Kattupalli Shipyard has installed an oil-water separator to recycle and dispose of influent from the bilge water tank or from oil storage tanks of new or repaired ships. This helps remove the oil present in high concentration in the waste water. The separator generates a centripetal force to separate the lower density oily phase from the higher density water phase. The separated water is then treated in the effluent treatment plant and is used for gardening and horticulture, once it meets the discharge standards prescribed. The separated oil is disposed through government- authorised recyclers. This has simplified the effluent treatment process and helped convert process water into a clean reusable effluent.

L&T's Kattupalli Shipyard has installed an oil-water separator.



Air Emission

We have put in place all the necessary control measures for monitoring and managing air emissions from our campuses and project sites. This includes monitoring systems to check our performance against applicable regulations, at campuses and project sites. The usage of Ozone Depleting Substances (ODS) has been phased out as per the applicable regulations. The ODS consumption is due to the use of refrigerants in air-conditioners and chilling plants.

Tons/year

| | 2013-14 | 2014-15 | 2015-16 |
|-----|---------|---------|---------|
| SOx | 84.6 | 23 | 11.5 |
| NOx | 456 | 91.7 | 20.3 |
| PM | 82.06 | 36.6 | 23 |
| ODS | 1.27 | 2.5 | 2.4 |

GHG Emissions

Scope 1

Direct GHG emissions

368660 tons of CO₂e

Scope 2

Indirect GHG emissions

321972 tons of CO₂e

Scope 3

Other Indirect GHG emissions

2872617 tons of CO₂e

Climate Change due to mankind's energy intensive and planet-unfriendly production processes is a real challenge and needs to be addressed on a global scale. At L&T, we are making every effort to minimise our impact by reducing GHG Emissions.

The source of emissions in our operations, are:

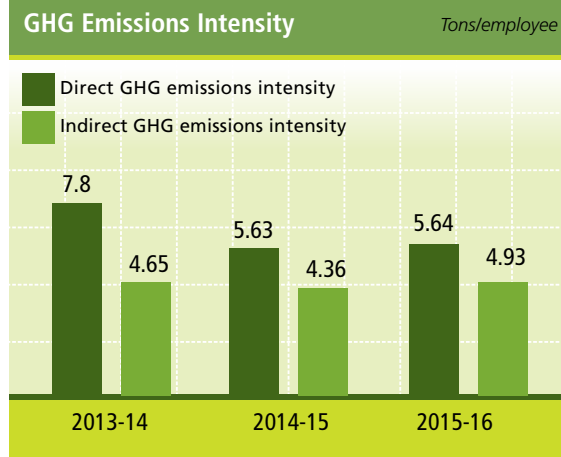
Scope 1 emissions* - Consumption of fuels like petrol, high speed diesel, furnace oil, natural gas, LPG, CNG and acetylene.

Scope 2 emissions - Utilisation of grid electricity supplied by state electricity supply boards.

Scope 3 emissions - Business travel, employee commuting provided by the organization and waste generation in operations. We are also capturing a part of the Scope 3 emissions from upstream and downstream transportation, emissions from purchased goods and services. We are in the process of establishing a system to capture the entire Scope 3. Emissions from leased assets (upstream) and investments are included in the Company's Scope 1 and Scope 2 emissions.

Initiatives such as technology change, switching to renewable energy and improving energy efficiency are also enabling us to reduce our scope 1 and scope 2 GHG emissions.

We have achieved a 27.7% decrease in Scope 1 Specific Green House Gas emissions intensity compared to 2013-14.



**The energy, GHG emissions and water consumption intensity per employee has been derived as per the Scope of reporting [Refer Section - About the Report]. Calculation methodologies are as per ISO 14064-1 standard and the global warming potential used in these calculations is taken from IPCC and WBCSD GHG protocol.*

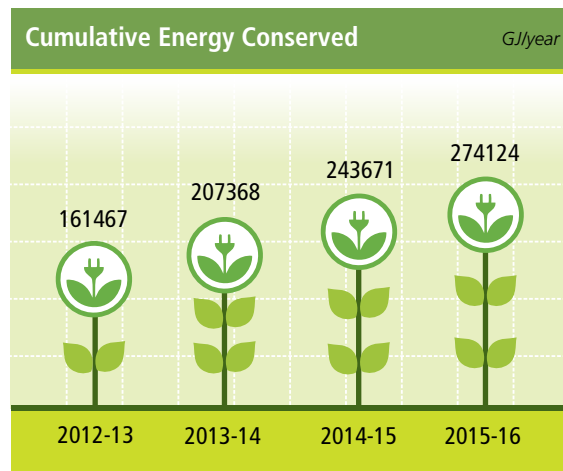
Innovative Eco-friendly Waste-water Treatment

It's chemical-free, underground, lightweight, rust-proof, leak-proof, durable and easy to maintain. That's the innovative sewage treatment plant installed by our Heavy Engineering business at its Ranoli Campus. The plant undertakes anaerobic-aerobic treatment of domestic waste water, without any chemical dosing. The underground treatment plant has 3 separate zones which undertake solids separation, aeration and final sedimentation. Waste water flows by gravity, requiring little energy and low maintenance costs. The surface land is being utilised for parking or gardens.



Energy Conservation

The Company places an emphasis on energy conservation. More than 74.5 million units (kWh) of energy have been saved cumulatively, thus avoiding over 60,872 tons of CO₂ emissions at our establishments.



| Interventions | Energy Savings |
|--|----------------|
| Process Redesign | 16,522 |
| Optimisation and Operational Control Efficiency | 157 |
| Conversion and Retrofitting of equipment | 10,428 |
| Change to CFL and LED lamps | 2,298 |
| Change in personal behaviour and auto shutting of lights when not in use | 1,047 |
| Total Energy Conserved | 30,452 |

Major Energy Conservation Measures

HVAC operation optimisation for energy efficiency, through operators' training and strict monitoring by the Power Business - Knowledge city, Vadodara, saving 282,383 kWh.

Installation of motion sensors to enable auto on/off of floor lighting based on employee presence by Power Business - Knowledge city, Vadodara saving 47,370 kWh

Installed LED for shop overhead light replacing 400W MH with 140W LEDs improving LUX level in the shop area at our Heavy Engineering facility, Hazira leading to savings of 39858 kWh.

Modification in coolant system in deep hole drilling machine at our Heavy Engineering facility, Hazira saving 0.26 million kWh.

Replaced 69 thyristor-based welding machines with inverter-based welding machines at our Heavy Engineering facility, Hazira saving 0.1 million kWh.

At our Heavy Engineering facility, Hazira we replaced 150TR VAM chiller with 130 TR twin circuit water screw chiller which reduced energy consumption from 0.013 to 0.002 GJ/TR-hr, eliminating natural gas consumption usage of 0.38 SCM /TR-hr.

Conservation of Voltage Reduction (CVR) by Heavy Engineering, Vadodara. A 2% saving of Energy Consumption= 22,965 kWh, reducing 12.1 MT of CO₂ equivalent.

Using 90kW Vertical Autoclave for curing process in place of energy intensive Horizontal Autoclave by Heavy Engineering, Vadodara, saving 73.2% energy and Reduction in Carbon Footprint 13.84 MtCO₂e / annum.

Optimisation of electrical energy in Bay-3 Shop with installation of Noorikool to utilize natural light by Heavy Engineering, Vizag leading to power saving of 2695 kWh and reduction in carbon footprint.

Installation of 32 KW solar power plant for power generation at Heavy Engineering, Vizag with average power generation of 3,054 kWh per month.

Optimisation of electrical energy usage by using occupancy sensors at Heavy Engineering, Vizag leading to power conservation of 6,000 kWh

Conversion of entire office lighting to LED lighting at Heavy Engineering, Vizag leading to power savings of 17,421 kWh

80 watt induction lamps in place of 150 watt MHL for shop floor lighting at Heavy Engineering, Coimbatore. This led to reduction in energy consumption by 25%.

Compressed air management by Metallurgical & Material Handling business at Kansbhal, through a change in compressor layout, leakage identification and arresting and use of an in-house designed trolley mounted portable compressor for painting and cleaning operation, leading to 21% reduction of energy 0.53 million kWh and 423 Tons CO₂ emissions.

At Metallurgical & Material Handling business, Kansbhal, a 20 HP pump at the undercarriage shop was replaced by a 10 HP pump, avoiding throttling operation, leading to savings of 34,171 kWh, and reduction in CO₂ emissions of 27 Tons.

Optimisation of the condensate booster pumps (elimination of high voltage motor) in Sagar Pragati Project by L&T Hydrocarbon Engineering.

At our Heavy Engineering facility, Hazira the Hood was installed for the Burner Candle Array, saving 2.6 million kWh.

Waste and Spills

We believe that effective waste management is a vital contributor to the protection of the environment and we are committed to reducing and efficiently managing our waste footprint. Our waste management practices ensure responsible waste disposal at our manufacturing facilities, project sites and offices. We have also set up measures to eliminate or contain any spills.

Tons

| Waste Generated | 2015-16 |
|-------------------------------|---------|
| Hazardous waste and waste oil | 5,952 |
| Non-hazardous waste | 39,599 |

Highlights of our waste management strategies:

Reviews

- Periodic assessment by internal and independent auditors to ensure compliance with applicable regulations.
- Regular reporting of waste and spills as part of ISO 14001 and OHSAS 18001 compliance.

Disposal and transport

- Disposal of hazardous waste like used oil, oil soaked cotton waste, used chemical/ paint/ oil containers, batteries, paint residues and ETP sludge is done through government-approved recyclers/re-refiners /re-processors.
- Transportation of hazardous waste is done as per the statutory requirements.
- Authorized vendors for electronic waste (e-waste) disposal are identified.
- Responsible disposal of bio-medical waste generated by dispensaries and health centres is ensured.
- The Company does not import, export, transport or treating of any hazardous waste covered under the Basel Convention.

Waste to worth

Canteen waste is reused in bio gas plant or organic waste converters at the following L&T Campuses: Ahmednagar, Bengaluru, Chennai, Hazira, Knowledge City (Vadodara) Leadership Development Academy (Lonavala), Mahape, Mysore, and Powai. The Bio-gas is used in the canteen for cooking purpose and the manure is utilised for horticulture.



Food Waste Processing Bio-Gas Plant at L&T Powai.

We Put Waste to Work

Eco-friendly concrete? That's what you get when you recycle concrete instead of discarding it. At its thermal power project site in Rajasthan, L&T Power recycles waste concrete cubes for casting 'precast slabs' – which have many applications: walkways, material stacking, internal approach roads, and more. This initiative eliminates wastage and meets the need for structure without added environmental impact.



Biodiversity

As a responsible corporate citizen, we understand the need to conserve precious natural resources. Our facilities are located in notified industrial areas. No species listed in the International Union for Conservation of Nature (IUCN) Red List and National Conservation List was found to exist at our campuses.

More than 150,000 trees are nurtured within L&T campuses. This year, we have planted more than 0.3 million trees, across locations, taking the count to 1.5 million trees planted over the last five years. The Company quarterly monitors the number of trees

planted across campuses and project sites through a tree inventory portal. A guidance document on the scientific method of tree plantation along with operation and maintenance, has been made available across campuses and project sites.

Tree certificates are presented to guests instead of floral bouquets. These certificates affirm that a tree sapling has been planted and maintained on behalf of the guest. This is in line with the Company's objective to increase the tree cover and create natural carbon sinks in a sustainable way.



Compliance

All our campuses and project sites have taken the requisite approvals from the local authorities before commencement of operations. Compliance with respect to various statutes, rules and regulations applicable to L&T is ensured by the Company. There is a 'system compliance report' which is reviewed at

all units and regional offices, and submitted to the Corporate Secretarial department on a quarterly basis. During the year, there was no incidence of non-compliance and no fines were imposed within the reporting period on L&T Campuses.

Clean Development Mechanism (CDM)

L&T's Infrastructure Development Projects Limited (L&T IDPL) has setup a Wind Farm, which is registered on Clean Development Mechanism (CDM) under United Nations Framework Convention on Climate Change (UNFCCC). This project has capability to reduce an equivalent of 16,128 tons of CO₂ emissions per annum.



CASE STUDY

Building a New Future, a Sustainable Future



Heavy Civil Infrastructure business not only puts underprivileged youth on their feet – it does so in a sustainable way. Construction Skills Training Institute (CSTI) at Jadcherla in Andhra Pradesh, where it imparts training in formwork and carpentry, bar-bending, steel-fixing, masonry, construction, electrician skills and welding.

Going a step further, the business turned the facility into a green campus. This year, it reduced CO₂ emissions by 124 tons. It obtained 129,285 kWh solar power from a 114 KWp installation comprising a fixed panel, a single-axis tracker and double axis trackers, reducing CO₂ emissions by 106 tons. Another 18 tons was reduced by using five, 300-litre solar water heaters to provide warm water round-the-clock to the hostel, saving 22,500 units of electricity.

Water conservation measures coupled with utilisation of RO plant reject water helps to reuse more than 3.2 million litres of water in the canteen and for gardening.

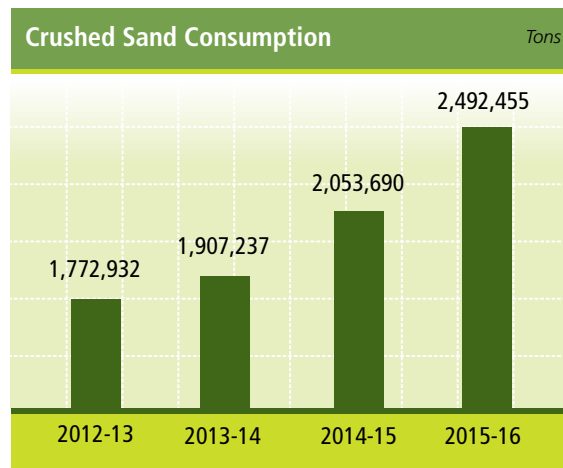
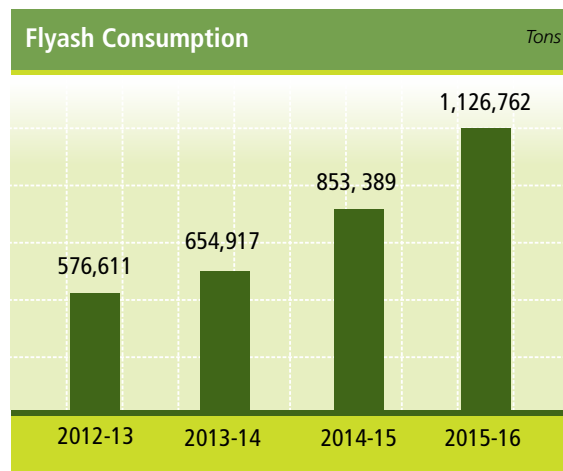


Last year, armed with marketable skills that will shape their future, 745 youth emerged from the Institute, leaving a minimal carbon footprint.

Material Management

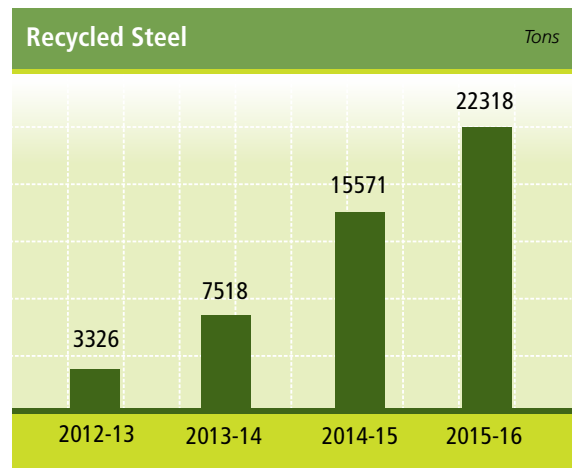
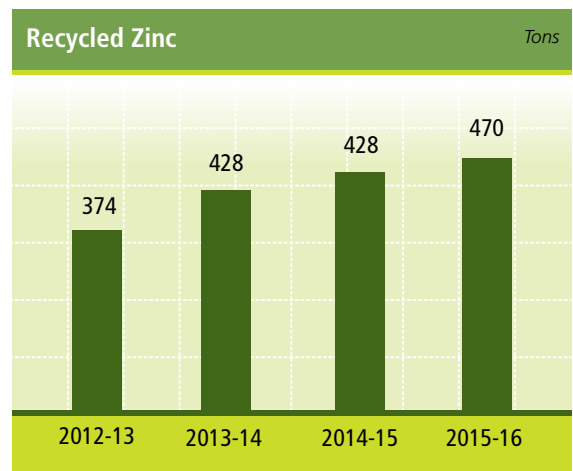
L&T has instituted several resource-saving initiatives at its campuses. We promote the use of alternative materials such as flyash and crushed sand in our construction business. As most of our products are Engineered To Order (ETO), the scope of using recycled material is limited. We continue to recycle steel and zinc in our operations.

Cumulative Alternative Material



| Materials (Partially Reported) | 2015-16 |
|--------------------------------|-----------|
| Ferrous | 746,005 |
| Non Ferrous | 19,573 |
| Hazardous Chemicals | 103,792 |
| Oils and Lubricant | 1,649 |
| Hazardous Gases | 4,677 |
| Packaging Material | 11,324 |
| Cement and Sand | 6,224,962 |

Recycled Input Materials Used



Packaging Materials

Many of our products are 'engineered to order', heavy equipment which do not require packaging. Whenever packaging is required for distribution or retail sale, we continue to use green packaging materials and ensure that minimum packaging material is used. Given the nature of our business, it is not feasible to reclaim or recycle packaging material used for our products.



Green Buildings

With the conversion of one more building into a Green Building, we now have 17 Green Buildings and one green factory, covering 2.3 million square feet of green building area within our campuses.

Larsen & Toubro LEED Rated Green Buildings



Technology Block, Hazira



Administrative Building, Kattupalli



Office Complex, Talegaon



SBU Block (2nd floor), Hazira



Administrative Building, LTSSHF, Hazira



Office building, Coimbatore



Office Complex, Ahmednagar



Unnati building at C&A Mahape (Navi Mumbai)



Knowledge City, Vadodara



North Block II, Mumbai



Learning Centre - LDA, Lonavala



Infotech TC 1, Mumbai



Green Factory, Vadodara



EDRC, Chennai



L&T TC II, Chennai



L&T TC III, Chennai



Administrative Building, Vadodara





CASE STUDY

Hi-Tech Facility Gets Emerald Hue – LEED Green Building Certification

L&T Infotech adds value to prestigious companies worldwide by providing cutting-edge technology solutions. And now, it adds a greener edge to its offerings.

L&T Infotech Technology Centre -1, at Powai in Mumbai, was converted into a Green Building and the US Green Building Council has conferred upon it the Gold Rating LEED certified Green Building status. This coveted certification marks a significant milestone in L&T Infotech's approach towards sustainable development.

In order to convert the building into a Green Building, the Centre enhanced its energy performance by adopting environment-friendly initiatives as well as major and minor changes. Major initiatives included installing of motion sensors in washrooms, using eco-friendly chemicals for cleaning, recycling of PET bottles used in the office, use of environment-friendly refrigerants, replacement of CFL bulbs with LEDs, use of aerated drinking water taps, and sprinkler water taps for gardening etc.

The building was given an Energy Star Rating of 88 (released by Bureau of Energy Efficiency) i.e. the energy performance of the building is better than 87% of similar buildings. We are in the process of converting other office buildings into certified LEED green buildings.

Highlights:

- Reduction in water consumption
- Use of electronic sensors to optimize energy consumption
- Environmentally friendly chemicals used for office cleaning
- Water and e-Waste disposal system
- Reduction of paper usage and recycling of used paper
- Recycling of PET water bottles, paper cups
- Replacement of CFL bulbs with LED lamps
- Hibernation of personal computers for energy saving
- Enhanced green cover around campus, contributing to biodiversity
- Substituting travel wherever possible through audio / video conferencing
- Use of Company Buses for employees

