

DEVELOPMENT PROJECTS BUSINESS

The Development Projects business segment comprises:

- a) Infrastructure projects executed through its joint venture company, L&T Infrastructure Development Projects Limited and its subsidiaries and associates (the L&T IDPL Group)
- b) The Hyderabad Metro Rail project, executed through its subsidiary, L&T Metro Rail Hyderabad Limited
- c) Power development projects executed through its subsidiary L&T Power Development Limited and its subsidiaries (the L&T PDL Group)



Major junction at Sambalpur-Rourkela Tollway Limited

L&T INFRASTRUCTURE DEVELOPMENT PROJECTS LTD (L&T IDPL)

Overview:

L&T Infrastructure Development Projects Limited (L&T IDPL) is a pioneer of the Public-Private-Partnership (PPP) model of development in India, which involves the development of infrastructure projects by private sector players in partnership with the Union and State Governments. Since its inception in 2001, the company has completed landmark infrastructure projects across key sectors such as roads, bridges, transmission lines, ports, airports, water supply, renewable energy and urban infrastructure. It is one of India's largest road developers as measured by lane kilometres under concession agreements signed with Union and State Government authorities.

Currently its portfolio includes 16 owned and operated assets. This includes 10 highways of 4,434 lane km and a transmission line from Kudgi to Bidadi in Karnataka covering 490 km. It also manages 5 operational road assets covering 2,748 lane km transferred to Indinfravit Trust, an InvIT that the company sponsored and launched in May 2018 as the first privately-placed InvIT in India, with 77% holding from an international pension fund and insurance investors.



Toll plaza at Vadodara-Bharuch Tollway Limited

Two decades of extensive experience in working with governments, multi-lateral agencies, international and domestic financial institutions and corporate entities has helped the company to develop proven competencies in Viability Assessment, Financial Closure, Project Management, Operations & Maintenance and Portfolio Management of Infrastructure Assets across various sectors.

The Canada Pension Plan Investment Board (CPPIB) made substantial financial investments in L&T IDPL, with the current holding being 49%. This was the first direct private investment by the largest Canadian pension fund in an Indian Infrastructure Development company.

Business Environment

During the year, tolling started from 20th April '20. Barring the impact of the farmer agitation in the National Capital Region and the surrounding areas, economic activities have largely been functioning smoothly for the road sector for most part of the year and toll collections have witnessed a marked improvement, even surpassing the pre-Covid levels. The fear of Covid-19, along with limited availability of public transport, has led to a steady and significant increase in passenger vehicular movement on roads. In addition, the sharp pick-up in the manufacturing and construction sectors contributed to a healthy rise in commercial vehicular movement.

In order to mitigate the lower toll collection impact of the pandemic, in line with the provisions of the Concession Agreement, NHAI would grant extension of the concession period, while the case of state-sponsored road projects is still under discussion with the state authorities. In certain projects, moratorium facility granted by RBI was availed.

As FASTag (Electronic Toll Collection) has been made mandatory with effect from 15th February 2021 for all the vehicles plying on NHAI roads, Electronic Toll collections as a proportion of total toll collections went up from 73% in March 2020 to 96% in March 2021. This digitalisation would result in reduced cash-handling issues and costs associated with it.

In the Transmission Line sector, many greenfield projects are being set up. Under the Green Energy Corridor (GEC) Phase II, a total of 12 bids have been finalised by the central empowered committee, where the company intends participating in at least two of the tenders.

Major Achievements

The National Highways Authority of India (NHAI) released its first-ever national highways rankings during FY 2020-21. Krishnagiri Walajahpet Tollways Limited (KWTL), one of the highways maintained by IDPL, ranked 6th among the top 10 highways across the country.

The Ministry of Road Transport and Highways (MoRTH) confers National Highways Excellence Awards every year.



Bridge, Sambalpur-Rourkela Tollway Limited

For the year 2020-21, two of the assets operated by IDPL received these awards, viz. Deccan Tollways Limited (DTL) received the Gold award for Excellence in Toll Management and Devihalli Hassan Tollways Limited (DHHL) received the Silver award for innovation in pavement maintenance.

During the year, Kudgi Transmission achieved an availability of 99.99%. This being above the 98% qualifying level, made KTL eligible to receive incentives over and above the transmission tariff.

Significant Initiatives

The enterprise-wide digitisation drive to integrate all operations across functions built on four pillars, viz. process automation, transparency, efficiency and real-time data, were undertaken during the year.

Under Project Fusion, the business undertook massive ERP implementation covering all the 14 entities and all the processes in an integrated manner. The business went live with SAP S4 HANA 1909 (greenfield implementation) on 9th October, 2020.

The business also implemented an exclusive vendor portal integrated with ERP, including right from vendor on-boarding to vendor reconciliation, etc.

The business also launched a dedicated mobile app for O&M of the roads and power transmission line business, which is integrated with ERP and ArcGIS Online (ESRI, a

map-based server). The mobile app has revolutionised the way incidents are monitored and assets are managed. The salient features include capturing GPS coordinates, working in off-line mode, capturing AV and pictures, map navigation, various measurements readings, preventive and corrective maintenance and consumption of spares for asset repairs.

With the successful launch of Project Fusion, the business was recognised by AWS (Amazon Web Services) as a unique project (hosted on cloud) in India, and the business had the privilege to be the sole customer selected to represent India at the 'AWS Voice of Customer' event.

The business is developing a custom-built intelligent Highway Management System, christened iHAMS, which is a video-based AI/ML (Artificial Intelligence/Machine Learning) application. This tool captures missing assets and damaged assets automatically using a DashCam, without human intervention.

Environment, Health and Safety

The business continued to function without disruptions, despite the Covid-19 pandemic. Employees' health and safety remained the focus all through the year. The business continually made improvements and quickly adapted to the dynamically changing environment, which not only helped the business to keep the Covid-19 positive cases at a significantly low level but also earned respect from local authorities, including the clients.



Power Transmission Tower at Kudgi Transmission Limited

Also, the business initiated an innovative industry-first accident reduction measure by adopting Behavioural Science approach solutions, which aim at studying the driver behaviour and design solutions to bring about behavioural changes. The business was able to implement this at the Sambalpur-Rourkela and Krishnagiri-Thoppurghat projects under Phase-I and reduce accidents by 40%, with 80% reduction in fatalities. It intends to roll out the initiative at all its road projects under Phase-II in FY 2021-22.

Human Resources

Talent management is the key focus at L&T IDPL. A minimum of 4-man days training across all career levels as a learning investment for every employee is a thrust area in employee development. Future leaders and high potentials are put into a different rigour, viz. specifically identified technical development and executive coaching. Achievements are appreciated through organisation-wide broadcasts by HR. This is complemented by specific rewards and recognition programmes for outstanding achievers. HR and individual functional heads address specific functional members every month. Feedback is sought through an anonymous online system to know and understand the satisfaction levels of employees.

During the pandemic, communication and virtual reach-out was the key focus area with meetings being organised virtually. A site-based-employee one-time recognition award was given for their contribution during the lockdown.

Employee engagement activities, including panel discussions on subject matters, were also extensively resorted to in a virtual way. Regular hygiene-awareness communications on Covid-19 were sent to all employees. For office-based staff, alternate group weekly working was introduced.

As a business continuity plan, on a monthly basis, a virtual coffee-connect of top talent with leadership is being conducted. The top talent gets the opportunity to work with senior management as a grooming process in major assignments.

Risks and Concerns

In its ongoing businesses of roads and transmission lines, there are 2 annuity assets which are not dependent on traffic flow. However, the remaining highway assets are based on traffic volumes and toll collections. The coronavirus impact on toll collections could be a risk, which would be mitigated under provisions of Concession Agreements. *Force majeure* claims were submitted for a toll suspension period and a partial toll collection period. Concession agreement provides for extension of concession period in case of drop in toll revenue below 90% and reimbursement of costs in case of a *force majeure* political event.

Since annual toll revisions are based on the wholesale price index, lower inflation would lead to lower growth in toll collections.



Going the distance – connecting destinations

Outlook

The Union Budget 2021 has given topmost importance to infrastructure development in India. In line with expectations to address issues of sustainable long-term financing for infrastructure sector, the Development Finance Institution (DFI) would be set up. The DFI is a professionally managed body with a budgetary allocation of ₹ 20,000 crore for funding infrastructure projects. It aims to have a lending portfolio of ₹ 5 lakh crore in a timeframe of 3 years.

The proposed DFI will address the financial needs of the infrastructure sector; especially associate and fund in difficult projects through which the infrastructure companies can resolve their debt-related issues. This move will help infrastructure players like IDPL in a big way in developing new projects.

NHAI has awarded around ~ 3500 – 4500 kms of highways during the FY 2020-21. The majority of these projects were awarded through the EPC mode and the remaining through the Hybrid Annuity Mode (HAM). Lately, NHAI is focused on the Asset Recycle programme that would fund NHAI's rising debt and reduce dependence on budgetary allocations. In this fiscal, NHAI has awarded two bundles on Toll Operate Transfer (TOT) mode and it would award more such projects on the same route in the upcoming years. Additionally, NHAI is also planning to launch its own InvIT that would fetch around ₹ 4,000-5,000 crore for NHAI. NHAI is also planning to award about ~5000 kms of new projects for the upcoming fiscal, of which about 20% would be awarded

through the BOT model. IDPL would continue to evaluate the upcoming opportunities that would provide adequate growth and returns.

L&T METRO RAIL (HYDERABAD) LIMITED (L&TMRHL)

Overview:

L&T Metro Rail (Hyderabad) Limited (L&TMRHL) is a special purpose vehicle to undertake the business of constructing, operating and maintaining the Metro Rail System including Transit Oriented Development (TOD) in Hyderabad under the Public Private Partnership model on Design, Build, Finance, Operate and Transfer (DBFOT) basis.

As per the Concession Agreement with the state government, the Metro Rail system was required to be constructed on three elevated corridors from Miyapur to L.B. Nagar, Jubilee Bus Station to Falaknuma and from Nagole to Shilparamam, in aggregate covering a distance of 71.16 km.

The project was commissioned in February 2020 and is now operational, excluding a portion of 5.5 km for which the Right of Way could not be provided by the Government and which the Government has been requested to descope. The concession period of the



The Hyderabad Metro adds efficiency to city mobility

project is 35 years, including the initial construction period of 5 years, which is extendable for a further period of 25 years subject to fulfilment of certain conditions by the Company, as set out in the Concession Agreement.

The Concession Agreement also included rights for real estate development of 18.5 mn. sq.ft. out of which 1.28 mn sq.ft. of Transit Oriented Development (TOD) consisting of 4 malls and an office block have commenced commercial operations. Construction work of 0.5 mn sq.ft. of office space at Raidurg site is currently underway. The entity is chalking out plans for monetisation of the TOD development rights in a phased manner.

Business Environment

At the start of the year, the Government of Telangana had imposed a lockdown and allowed the metro operations to resume only from 7th September 2020, with social distancing norms. With increased awareness, high recovery rates and the optimistic environment of vaccine availability boosting positive sentiments of commuters, ridership gradually increased. However, average ridership remained below pre-Covid levels, mainly on account of (a) caution amongst the passengers, (b) social distancing restrictions and (c) majority of corporates' advisory on continuing WFH.

In the case of lease rentals, footfalls in malls were below pre-Covid level, and hence most of the lessees adopted revenue-sharing models.

Advertisement revenue was impacted pending renewal of advertisement contracts for pillars. Further since the trains were not running, there was lower advertisement revenue for broadcasting in the trains. Despite this, the entity was able to book various advertisement media, including digital advertisements, apart from various physical media like piers, portals, station facades, etc.

In order to combat the financial and profitability pressure, the business used the moratorium extended by banks and has also applied for *force majeure* under the concession agreement, which provides for extension of the concession period for the *force majeure* period.

Significant Initiatives

- L&TMRHL has finalised the open loop ticketing system which is expected to be commissioned in FY 2021-22 and will make travel easy, contactless and trouble-free. L&TMRHL has tied up with ticketing partners, such as Goibibo, MakeMyTrip, Phonepe and Paytm, and has launched the Mobile Ticketing (QR Code generation) solution for metro commuters. This is making travel contactless, easy and trouble-free.



Going digital with Mobile QR Tickets

- L&TMRHL is tying up initiatives, such as shuttle services, to create robust and affordable last-mile connectivity to enhance ridership.
- L&TMRHL is exploring various non-fare revenue-generating options, viz. leasing out space for erecting mobile towers, optical fibre, royalty from QR ticketing / open loop ticketing partners, consultancy services to other metros, etc.
- L&TMRHL has tied up with a solar power developer to generate captive solar power at a very competitive price with the view of reducing operational expenses. Considering future mobility, L&TMRHL has tied up with partners and set up Electric Vehicle charging points at different metro stations. A total of 50 charging points have been made available across Hyderabad Metro stations.
- Driving towards digitalisation, L&TMRHL has started using Business Intelligence IT tools such as Alteryx and Tableau for both business and passenger data analysis / interpretation.

Awards and Recognition

- IGBC Performance Challenge 2020 for Green Built environment under the category Transit Buildings – Metro
- Top 100 Influential Game Changers, 2020 under the category PR and Corporate Communications

- 50 Marketing Marvels 2020 under the category Best Marketing and Communications Professionals
- ABCI Annual Awards 2020 under the category Web Communication – Online Campaign and internal broadcast
- PRSI National Award 2020 under the category of Social Media for PR and Branding

L&TMRHL facilitated transportation of a live heart for transplantation through a special Metro Rail Green Channel, contributing to a social cause.

Human Resources

During the year, the focus of HR shifted towards the well-being and care for the employees, associated staff and their families in view of the pandemic. Various initiatives and actions were taken to safeguard employees and their families viz. tie-ups with hospitals for round-the-clock support, dedicated ambulances, special Covid-19 insurance, etc. Further, training programmes and webinars were organised.

Environment, Health and Safety

The metro helps shift the commuting masses from traditional air-polluting modes of transport. Further, it reduces sound pollution due to the efficiency of the coaches and the advanced engineering that has been used for building the track, viaduct as well as the metro coaches.



Ready to serve the metropolis

L&TMRHL has installed solar power plants of 8 MW capacity over the rooftops of the metro stations and in the depot areas to partly meet the power requirements, thereby reducing dependency on the grid power. As a sustainability initiative, rainwater harvesting pits are created at stations and depots and about 65 million litres of water are harvested per year. Further, smart cards and mobile QR ticketing options have reduced paper consumption.

The Hyderabad Metro rail is run on the Automatic Train Operation (ATO) mode which is the normal mode of operation of trains. The Automatic Train Protection (ATP) System continuously monitors safe train operations. All vital train-borne equipment are highly safe and redundant to avoid any unwanted interruption of train service. The station equipment, e.g. Computer based inter-locking (CBI), wayside ATP, etc. are vital signalling equipment and redundantly arranged to ensure safe and uninterrupted train operation. Passenger Emergency Stop Plungers are provided on each platform and in the station control room (SCR) to stop a train immediately in case of emergency.

Risks and Concerns

The business has a robust Risk Management Process, having identified risks and categorised them as Major, Moderate and Minor and embarked upon a regular risk monitoring and control process.

The pandemic continues to pose a major risk considering the restrictions, WFH being continued by major corporates,

closure of schools / colleges, etc., and reduced ridership due to fear of spread of virus among the passengers.

To mitigate this, the business adopted best practices from metros across the world and upgraded standard operating procedures with a focus on cleaning and sanitisation of metro systems. These include:

- Regular audits by a team pertaining to the disaster management plan
- More focus on contactless travel by promoting Mobile ticketing (QR Codes), etc.
- Implementing wellness and sanitisation measures in the TOD facilities, aligning to the newer business requirements
- Being a public transport system, the operations risk in terms of passengers safety and assets is major. To mitigate this, L&TMRHL has a robust in-house team to check the safety measures. Keolis, a reputed French company, is the O&M operator and has experience in providing solutions for the safety of the commuters, systems and assets of the metro rail

The company is currently running sub-optimal and has also the additional pressure of debt servicing. The Company and its parent, L&T, are exploring various options, such as state government assistance, additional equity support, part



2x700 MW Supercritical Technology based Thermal Power Plant at Rajpura

conversion of debt into equity, TOD monetisation efforts, etc., to reduce the interest / debt burden.

Outlook

With the continuing risk of the pandemic, the upcoming transport scenario will be highlighted by social distancing, the continued practice of WFH-reduced travel and reduced travel by senior citizen and increased use of self-owned modes of transport. The on-going vaccination drive for Covid-19 should build confidence amongst the common people and drive them to use public transportation, such as the metro rail.

The telecom sector (optical fiber & tower) is a major contributor to non-fare revenue and, with current pandemic situation (increased demand for bandwidth for remote working), it gives L&TMRHL the opportunity to expand it further and enhance non-fare revenue significantly. Non-fare revenue generation through cross-selling of products to commuters is being increasingly explored, which will be further strengthened by metro expansion, resulting in higher ridership.

Training and consultancy to other metros is a great opportunity that the entity would target in a big way, given the many upcoming metro projects in the country and abroad.

The optimisation of revenues from development rights, including monetisation, is a focus area.

GoTS has plans to implement Phase II of the metro project covering 85 km, including an airport link. This will significantly enhance the average ridership of the metro system, with improved connectivity.

L&T POWER DEVELOPMENT GROUP

L&T Power Development Limited, a wholly-owned subsidiary of L&T, is engaged in developing, operating and maintaining power generation assets. The portfolio currently comprises two project, one each in thermal and hydel sector and aggregating to 1499 MW. In the thermal sector, Nabha Power Limited owns and operates a 2 X 700 MW supercritical thermal power plant at Rajpura, Punjab. In the hydel sector, L&T Uttaranchal Hydropower Limited is operating a 3 x 33 MW Singoli-Bhatwari Hydro-Electric Plant in Uttarakhand which came into full commercial operation from January 2021.

NABHA POWER LIMITED (NPL)

Overview:

Nabha Power Limited (NPL) owns and operates a 2X700 MW supercritical thermal power plant at Rajpura, Punjab. The entire power generated from this plant is sold to Punjab State Power Corporation Limited (PSPCL) under



Rajpura project at the cusp of completion in December 2013

a 25-year Power Purchase Agreement (PPA). The plant is built on supercritical technology from Mitsubishi, Japan.

The plant sources its fuel from South Eastern Coalfields Ltd. (a subsidiary of Coal India Limited) under a Fuel Supply Agreement (FSA). NPL has also secured approvals to arrange for coal from alternative sources to make up for any shortfall in the supply of coal under the FSA. The Bhakra-Nangal distributary is the perennial source of water for the plant, under an allocation by the State Government. The plant is operated by an in-house team of experienced operations and maintenance professionals.

The power plant has been running successfully for over seven years, with an availability of over 85% since 2014. The plant has been the most reliable source of power for the state of Punjab and has supported its requirements with uninterrupted supply during peak seasons. NPL also happens to be the lowest cost coal-based power producer within Punjab, with the best operational efficiency.

Business Environment

The Covid-19 lockdown marginally impacted India's average electricity demand by 0.99% in FY 2020-21. During the months of April - June 2020, Punjab also witnessed a significant drop in demand from ~5100 MW to 3200 MW due to Covid-19. However, as the restrictions were gradually lifted, the demand picked up significantly, taking

the average for the year 3% higher (6705 MW) compared to last year (6490 MW). Punjab witnessed a net capacity addition of 156 MW during FY 2020-21, all of which was contributed by renewables.

Further, in the second half of the year, NPL faced challenges due to the Rail Roko agitation (farmer protest) and was forced to shut down both units for 34 station days due to depletion of coal stocks. Upon lifting of the rail blockade, coal rake movement resumed and NPL quickly built up its plant stocks.

As per its notification dated May 21, 2020, the Ministry of Environment Forest Climate Change (MoEFCC) has removed the restrictions of ash % while transporting coal to thermal power plants located beyond 1000 km from the mine source. During the year, NPL was able to maximise the availability of domestic coal from various CIL subsidiaries, such as ECL, NCL and CCL, in order to ensure that the adequate quality and quantity are available at the plant.

Major Achievements

- Highest continuous operating station days achieved: 119 days (Previous best: 76 days)
- First ever Unit 1 Capital overhaul completed
- Sustained Operational Performance - Annual PLF: 65% v/s All-India thermal average of 54%
- Ensured domestic coal adequacy for FY 2020-21



Aerial view of cooling towers, Rajpura Thermal Power Plant

- Significant collection of receivables from PSPCL pursuant to a favourable order from the Hon'ble Supreme Court
- Commencement of construction of Flue Gas Desulphurisation (FGD) Project
- During the year, NPL received the following awards:
 - Certificate of Merit, National Energy Conservation Award 2020, MoP
 - Twin awards from CII
 - ◆ 'National Energy Leader' for its progressive performance for the second consecutive year in Energy Management (2nd time in a row)
 - ◆ 'Excellent Energy Efficiency Unit' award for outstanding achievements in Energy Efficiency (4th time in a row)
 - 'Independent Power Producer of the Year 2020 – India' at the Asian Power Awards 2020
 - Finalist at S&P Global Platts Global Energy Awards – 2020 under the category 'Award of Excellence-Power', second time in a row
 - Gold Recognition at CII's Outstanding Managers Competition

Environment, Health and Safety

NPL is committed to generating reliable and environment-friendly power under safe working conditions. A policy on Quality, Environment, Health and Safety has been put in place. Emphasis is laid on continual improvement of its processes and practices to achieve improved environmental, health and safety performance. Training on HSE for employees and stake-holders is undertaken on a regular basis to foster a culture of health and safety.

During the lockdown, NPL, being a provider of essential service, maintained business continuity, while ensuring the health and safety of all its employees and workers. Various steps were undertaken, including all Covid-19 protocols and Standard Operating Procedures (SOPs). Vigorous efforts were made to ensure the safe movement of employees and workers during the lockdown.

Human Resources

NPL has built a committed team of 288 professionals experienced in the field of operations and maintenance of power plants. Special emphasis is laid on training and development of the workforce through various training programmes. In addition to competency building programmes, NPL also focusses on soft skills and leadership development.

Risks and Concerns

As a private power producer, NPL's major risk is financial, mainly being (a) delay in collections from PSPCL, the



Barrage for Singoli-Bhatwari Hydro Electric Power Project (3x33 MW), Uttarakhand

state-owned Discom due to its poor financial health and (b) interest rate risk on the NPL's borrowings. Further it also has exposure to regulatory risks in terms of changes in environmental rules, delays in clearances, changes in government policies, etc. Operational risks pertain mainly to availability and quality of coal, availability of rakes, disruptions in the supply chain, local disturbances, etc.

The Risk Management Policy of NPL provides for a robust risk management framework which involves risk identification, assessment, evaluation, strategy, mitigation, monitoring and review mechanisms. NPL has implemented multiple measures in each of the risk areas to ensure a proactive approach and timely mitigation.

Outlook

In FY 2021-22, the average demand in the state is likely to remain ~7000 MW (peak 14000 MW) and, as a result, NPL is expected to be scheduled at a high Plant Load Factor (PLF) of 80% being at the top of merit order among the thermal power producers within the state.

The per capita consumption continues to promise robust long-term demand. On the fuel side, coal supply continues to be challenging.

Variable scheduling by Discoms due to flexibilisation is likely to worsen, with rapid integration of renewables for balancing demand due to the variability, intermittent nature and geographically confined concentration of renewable energy.

The major focus areas for NPL during FY 2021-22 would be maximising plant availability, improving operational efficiency, securing adequate quality and quantity of coal, implementation of FGD, and resolution of pending litigations.

L&T UTTARANCHAL HYDROPOWER LIMITED

Overview:

L&T Uttaranchal Hydropower Limited (L&T UHL)'s 3 x 33 MW run-of-the-river Singoli-Bhatwari Hydro-Electric Plant in Uttarakhand came into full commercial operation from January 2021. The project is located on Mandakini River, the right bank tributary of Alaknanda River, in the Garhwal region in Rudraprayag district in Uttarakhand, India.

The plant is connected to the Northern Regional Grid through a 220 kV double-circuit transmission line up to Srinagar (Garhwal) sub-station and has been registered as Regional Entity with Northern Regional Load Dispatch Center (NRLDC), Delhi. Power generated from the plant is currently being sold in Indian Energy Exchange (IEX) through PTC. Efforts are on to execute a long-term PPA with state-owned distribution companies.

The plant will cater to daily peak demand loads of 2½ hours each, morning and evening during non-monsoon months, and will continuously run with full capacity during the monsoon season.

Major Achievements

- Even in the stage of lockdown due to the Covid-19 pandemic, L&T UHL successfully commissioned all three units, including 220 kV switchyards, while ensuring the health and safety of all its employees, contract staff and contractor staff
- Plant Availability Factor is at 99.9%
- Generated energy with minimal deviation of committed schedule
- Zero fatalities, zero reportable accidents in FY 2020-21

Environment, Health and Safety

- To combat the impact of Covid-19, many steps were taken, including social distancing and safety practices. Effective Standard Operating Procedures (SOPs) were implemented for people coming from outside for commissioning of individual systems to achieve the targets
- Implementation of proper PPEs for staff and employees
- Training for employees and workmen undertaken on regular basis
- Installation and operation of the waste oil treatment system in order to avoid spillage of oil in the river
- Emergency response plan prepared for safe running of the plant

Human Resources

L&T UHL is being operated by a team of professionals, which includes people from operations, maintenance, water management, finance, commercial, HR & general administration. L&T UHL focusses on overall development of its people, using the support of Learning & Development

initiatives. These include programmes on relevant technical skills, EHS, communication skills, personal effectiveness and leadership skills.

Risks and Concerns

- The project was challenged during construction & commissioning by the rough terrain, dense forests and a small working window because of the extremely cold weather, landslides and monsoon floods.
- The project is located in Seismic Zone V; however no major earthquakes have been reported in this region to date.
- Power generation is dependent on the flows in the river.
- Revenue is linked with variation in prices in IEX, which is dynamic in nature.
- Forced outages due to faults in the equipment may lead to generation loss.
- Tripping of transmission lines could affect power evacuation, especially during the monsoons.
- High sediment concentration of the river during the monsoon will be a challenge.

Outlook

The L&T UHL team is geared to deliver the best to achieve maximum generation and will put in full efforts to maintain plant availability by minimising forced outages through proper preventive maintenance. Thus, the Singoli-Bhatwari Hydro Power Plant is contributing to the nation's focus on renewable energy, and is also helping the grid to meet peak load demand.