



Tamil Nadu Newsprint and Papers Ltd.



**CIRCULAR ECONOMY**  
*THE ROOTS OF OUR BUSINESS*

Sustainability  
Report  
August 2021



Backwater storage in plantations, Unit II

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## **TNPL Sustainability Report 2020-21**

*TNPL proudly presents its first sustainability report, inspired by the belief that commitment to the environment and the society at large far surpass the profit motive. Every passing year in over four decades since inception, we at TNPL have deepened our commitment to this belief.*

*The challenging scenario of the pandemic on one hand and the changing climate on the other have put pressure on TNPL to accelerate its efforts towards sustainability. In this TNPL has displayed its resolve and courage to take positive strides into the future.*

*Through this report we affirm our vision, mission and rich values, and to gauge our economic, environmental, social and corporate performance and strength. We have accordingly set goals and developed newer strategies in order to usher in more and more innovative and sustainable solutions, in order to embrace the new challenges in the future more effectively.*





## ***Our Vision***

*To adopt state-of-the-art contemporary technology and be the world's most sustainable brand to manufacture eco-friendly paper and paperboards. We also strive to create an inclusive work environment, become the best place to work at, and grow in favourable opportunities.*

## ***Our Mission***

*To be the manufacturer of World Class Paper and Paperboards, to the tune of 1.0 million Tons by 2030 and to be the most preferred Supplier.*



# Message from the Hon'ble Minister



## **Thiru Thangam Thenarasu**

*Minister for Industries,  
Government of Tamil Nadu.*

The seriousness of the issue of Sustainability has become important and obvious over the last fifty years driven by increasing human population with equally increasing per capita resource consumption on a planet which is after all finite. Sustainability science has emerged as a new interdisciplinary endeavour in the last few decades. Inclusive and sustainable development is now a key priority for the World Nations and also for the long term growth of Industries and Commerce.

I am very excited to introduce this small, simple yet powerful brochure on Circular Economy that leads to sustainable development, published by Tamil Nadu Newsprint and Papers Limited (TNPL), a flagship undertaking of Tamil Nadu State Government. TNPL has been the forerunner among the country's top industries in balancing the Business, Environment and Community which are the common points that touch the Sustainability maxim "Live and let live".





This beautiful report illustrates a range of potential content and discusses probable overall directions for the Sustainable Development in TNPL. The report maps sustainable development assessments pertaining to Pulp and Paper and related processes, and identifies key challenges. The report also sketches alternative sustainable development pathways for the better future. The text being presented here is of paramount importance, because it will help to edify and inculcate this important subject of sustainability in the minds of all stake holders.

I am happy that this effort to produce a text covering the breadth of sustainability has come from a group of specialists from TNPL, as it has become an exemplary organization in using the natural resources like water and fossil fuels effectively, in keeping the Environment clean, in using non-conventional pulping raw materials and energy sources. It is the only industry of its kind in producing Cement from the solid wastes generated in the pulp and paper processes at the same time enjoys the position as the second

largest producer of Paper and Paperboards and is the market leader in the country. This initiative from TNPL really helps to provide the intellectual foundation that will allow every industry to become the engines that move and maintain society on the path of sustainability.

I strongly believe that with such wonderful commitments and responsibilities towards sustainability, TNPL will become the finest organization that helps to shape "Our Common Future."

Yours,

**Thangam Thenarasu**



# From The Chairman's Desk



Dr Rajeev Ranjan, IAS  
CMD, TNPL

“ TNPL designs and manufactures best-in-class products by optimum consumption of resources. This is achieved by minimising waste and reusing the waste as raw material for fuel, wherever possible.

The company is committed to using resources efficiently and generating energy from renewable sources. TNPL recognizes that its responsibility extends to advancing the vibrancy and health of communities surrounding its operations. ”







TNPL has a long history of prioritizing the sustainability of its business operations and viability of its products. Starting with the products we make, the primary raw material in both our paper and paperboard products is bagasse and wood, which is a 100 percent renewable and commonly recycled resource. Our captive plantations, all of which are in Tamil Nadu, adhere to Forest Stewardship Council's Chain of Custody - Controlled Wood and Forest Stewardship Council's Forest Management® (FSC-FM) Certification. As a result, the wood used in our products is sourced from responsibly managed plantation.

TNPL is committed to using resources efficiently and generating energy from renewable sources by adopting the circular economy model.

The company is making investments in Research and Development of new technologies to improve the efficiency of operations and minimise its impact on external environment. The development will enable us to save significant cost in resource utilisation while improving the overall efficiency of our operations.

No company can achieve sustained success without engaged, empowered and inspired employees. The company fosters collaboration with employees to improve their overall well being and satisfaction. TNPL rolls out several training opportunities for employees at various levels to motivate them for success. In turn, the company is also committed to creating a culture that prioritizes health and safety, collaboration, inclusion, continual learning and personal development.

TNPL recognizes that its responsibility extends to advancing the vibrancy and health of communities surrounding its operations. The company invests in local communities, providing educational and training resources, improving the infrastructure and health facilities and encouraging better livelihood opportunities for youth. We know that giving back to our communities makes us stronger.

I would like to thank you for your interest in and support for Tamil Nadu Newsprint and Papers Limited. We look forward to deliver superior sustainability performance in the years ahead.

Dr Rajeev Ranjan



# Sustainability redefined



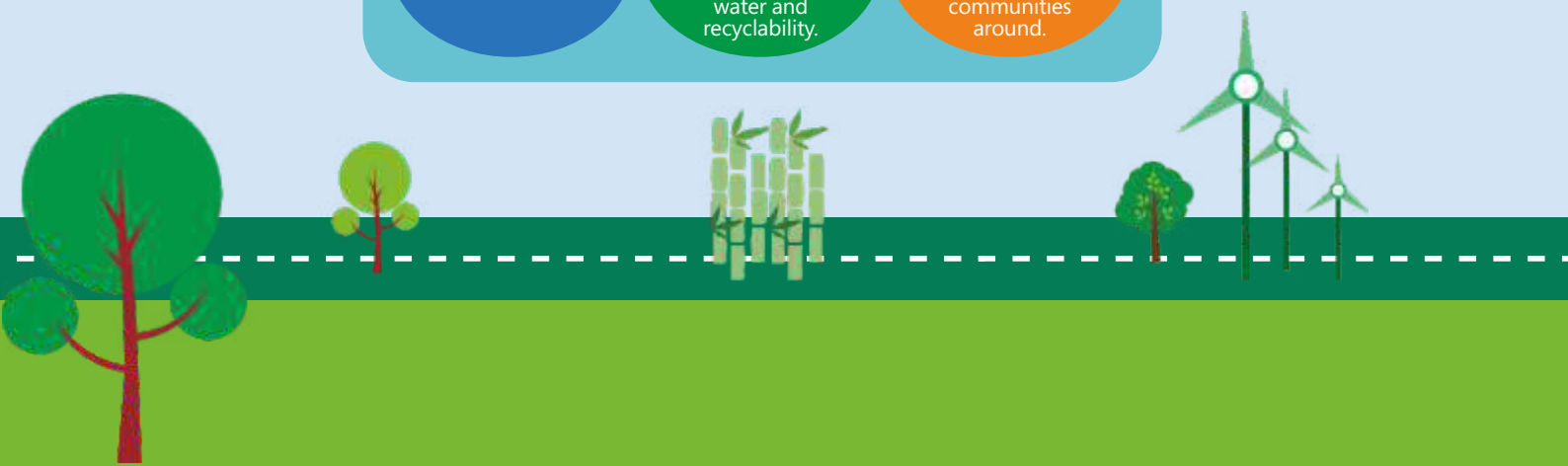
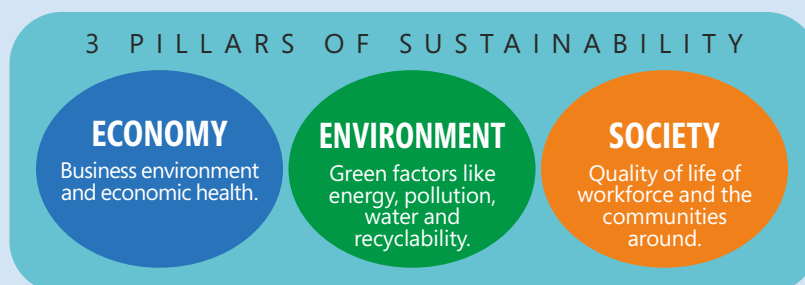
Sustainability has attracted much attention in the academic, corporate governance, planning and development intervention space. A wide range of governmental and non-governmental entities have embraced it as an appropriate development paradigm, the ultimate aim being to achieve a balance among economic, environmental and societal sustainability.

### **Embracing the Circular Economy model**

A circular economy, as defined by World Economic Forum, is an industrial system that is restorative or regenerative by intention and design. It aims to close the gap between the manufacture and the natural ecosystems' cycles – on which humans ultimately depend upon. TNPL achieves its sustainability goals by adopting the Circular Economy model - designed to benefit businesses, environment and the society in which it operates, taking on global challenges like water depletion, biodiversity loss, climate change, waste generation, and pollution.

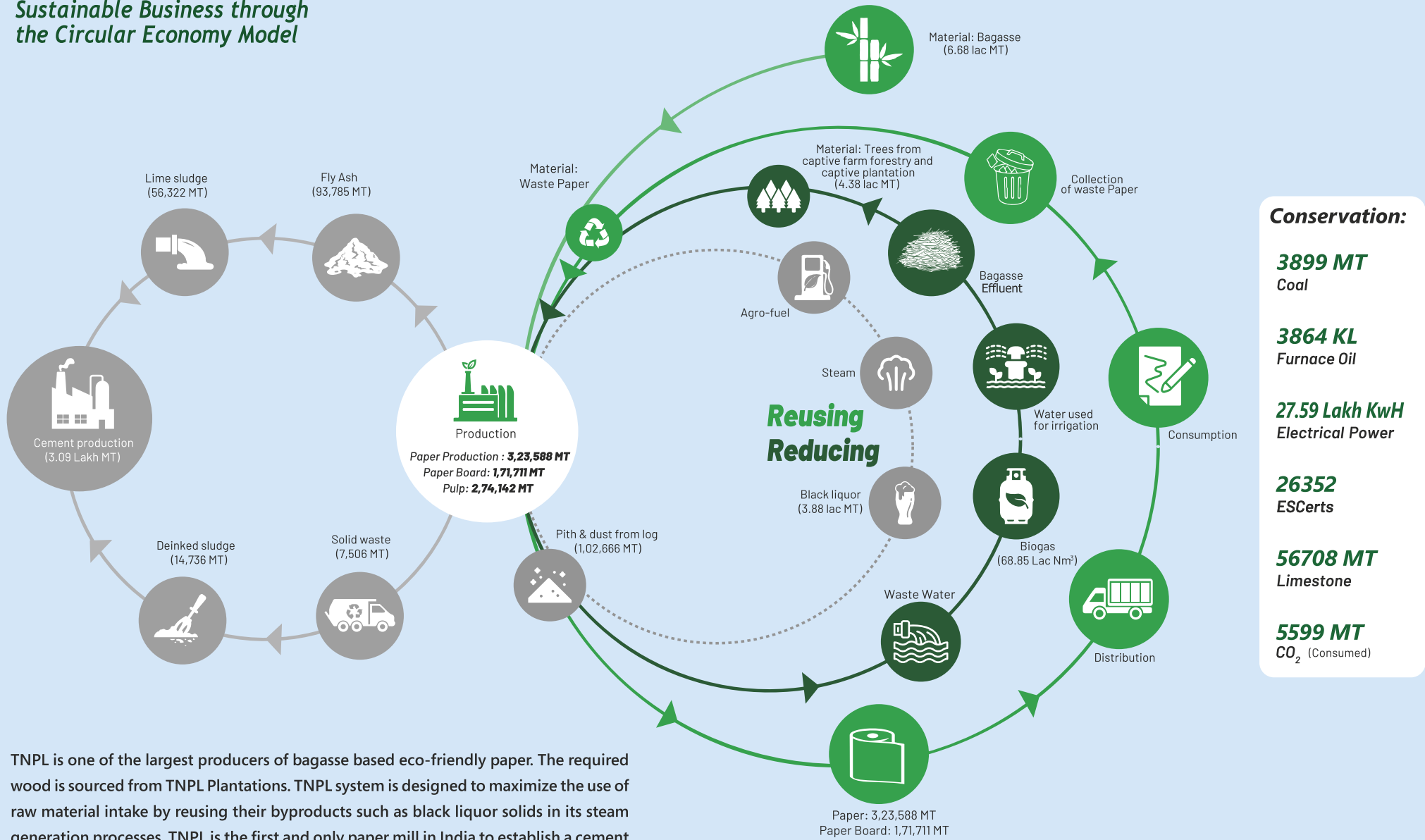
### **The three pillars of Sustainability: Economy, Environment and Society.**

Sustainability of economy depends on adoption of appropriate production, distribution and consumption. Sustainability of the environment is driven by proper physical planning and land use as well as conservation of ecology or biodiversity. Sustainability of society depends on the availability of proper health systems, peace and respect for human rights, decent work, gender equality, quality education and rule of law.



**TNPL has adopted a Circular Economy Model - designed to benefit businesses, environment and the society.**

## Sustainable Business through the Circular Economy Model



TNPL is one of the largest producers of bagasse based eco-friendly paper. The required wood is sourced from TNPL Plantations. TNPL system is designed to maximize the use of raw material intake by reusing their byproducts such as black liquor solids in its steam generation processes. TNPL is the first and only paper mill in India to establish a cement manufacturing factory to convert the mill wastes, namely lime sludge and fly ash into high grade cement, as part of its Solid Waste Management.



# Sustainability at TNPL



## **Bagasse Based Pulp & Biogas**

*TNPL employs Bagasse-a sugar cane residue, as one of its major raw material. Its depithed form is used in making pulp while Biogas is produced from its wash effluents.*



## **Sustainable Forest Management**

*FSC-FM and FSC-COC certified captive plantation for pulpwood. Land across Tamil Nadu is utilized to raise pulpwood.*



## **Recycling of Paper Products**

*Waste Paper is used as one of the raw materials for pulp production.*





## Carbon Control

Ensures that wood is used in a sustainable manner. Implement measures to reduce CO<sub>2</sub> emissions in the atmosphere.

The trees are a major sequester of atmospheric carbon. The Captive and Farm Plantations sustained by TNPL help sequester of CO<sub>2</sub>



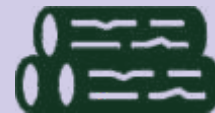
## Solid Waste Management

TNPL has set up a Cement plant to produce industry-grade cement using wastes generated during pulp production. The cement factory uses lime sludge, De-inked pulp sludge, fly ash & lime grit, dip sludge, etc.



## Water Stewardship

TNPL is the the most environmentally conscious and friendly mill in the country using as low as 32KL/MT and 10KL/MT of water for paper production and paper board production respectively, making TNPL as one of the least water consumers in the pulp and paper industry and the lowest nationally.



## Absolute Use of Biofuel

TNPL ensures that the wood being used in process is utilized completely in an array of different processes. Even the waste generated during logging process, namely wood dust and pith generated rom bagasse, are used as an agro fuels in operations.





Economic Sustainability

# *A Vision for a Greener Tomorrow*

*Production quantity has gone up from 90,000 MT per annum to*

**6,00,000 MT** per annum

**4,00,000 MT** of writing and printing paper

**2,00,000 MT** of multi-layer packaging board



## Company Overview

Tamil Nadu Newsprint and Paper Limited (TNPL), a government of Tamil Nadu enterprise, is one of the largest integrated Pulp & Paper Mills in the world. Since its inception in 1984 the company has grown both in scale and scope. Today, it has 2 units manufacturing pulp, paper and paper board along with a cement manufacturing facility that utilizes the waste generated from pulp and paper industry and produces commercial grades PPC & OPC cement. This process turns waste into wealth thereby creating a positive environmental impact. Currently, TNPL enjoys the second position in the production of writing and printing paper in the country.

It has a power generation Capacity of 169.12 MW consisting of 133.62 MW of Turbo Generators (TG's) and 35.50 MW of Wind Farm. Generation of power is primarily for self-consumption, and surplus is exported to State grid. TNPL doesn't have any subsidiary.

In line with its vision to be the market leader in the manufacture of world-class eco-friendly paper adopting innovative technologies for sustainable development, the company has mastered the technology of manufacturing writing and printing paper from bagasse, an agricultural residue. Besides, it has also implemented various environment friendly measures such as using wind-power, agro fuels, and by-products from the process including black liquor, bagasse wash water etc., to fulfil the process requirements.

TNPL works towards improving its efficiency and ensures that its systems and processes are environment friendly and sustainable. The product portfolio includes high quality surface sized and non-surface sized papers best suited for the writing and printing industry; coated and uncoated boards for the packaging industry; and Portland Pozzolana Cement (PPC) and Ordinary Portland Cement (OPC) for the construction industry.

Bird's eye view of TNPL Unit I facility







Project Site - Mill Expansion Plan in Unit II under implementation

TNPL's research & development department is constantly at the helm of developing newer technologies and products that fulfil the demands of the market while catering to the growing need to develop eco-friendly products.

Moreover, in order to provide an alternate for plastic/poly products, we have been working towards incorporating Carry Bag Base Paper which has been manufactured using our existing Paper machine infrastructure. This will be able to replace the one-time use plastics in our everyday lives. We have been revolutionizing the paper board industry with products such as Aura Fold Premium, Aura fold Eco Blue and Aura Green 210 GSM. While Aura Fold Premium is targeted at providing premium packaging for pharma and food segments, Aura Fold Eco Blue is a bagasse

pulp and deinked pulp based product making it eco-friendly and highly sustainable. Aura Green 210 GSM is a first of its kind low GSM grey back recycled board; it is perfect for high end packaging and premium notebook segments. Further details of our product line are available in our annual report.

TNPL products cater to markets in India and some major countries across the world. TNPL exports to countries including Europe, Africa, Asia, North America, South America and Australia, Sri Lanka, Iran, Nigeria, Sudan, Qatar, Italy, Canada, Guatemala, South Africa, Malaysia, Ghana, etc. Economies of scale and quality production, driven by technology, provide us with a competitive edge in these markets.





## Plants

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### **TNPL Paper (Unit I)**

(Kagithapuram, Tamil Nadu)

### **TNPL Paper Board (Unit II)**

(Mondipatti Village, Tamil Nadu)

### **TNPL Cement**

(Kagithapuram, Tamil Nadu)

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*Writing and Printing Paper*

**4,00,000 MT**  
Per annum



*Packaging Paper Board*

**2,00,000 MT**  
Per annum



*Hi-grade Cement*

**3,00,000 MT**  
Per annum



## Corporate Governance

The economic aspects of sustainability includes compliance, proper governance and risk management that are required for good Corporate Governance. TNPL takes pride in its strong governance mechanism based on transparency, integrity and equity, and believes that good corporate governance facilitates effective and prudent management leading to maximizing value for stakeholders.

The company adheres to the highest standards of business ethics and compliance with statutory and legal requirements in its business decisions.

The Board of Directors plays a pivotal role in ensuring good governance. As of now, TNPL has nine directors i.e. a Chairman & Managing

Director nominated by the Government of Tamil Nadu, three non-executive Directors nominated by Government of Tamil Nadu, and five independent Directors including one woman Director. A code of conduct has been framed which has to be duly followed by all board members and senior management.

In order to maintain accountability of the independence board, the independent directors meet separately and assess the performance of the non-executive directors and the board of directors as a whole. This includes the evaluation of the performance of the chairman, executive and non-executive members.



**Dr. Rajeev Ranjan, IAS**  
Chairman and Managing Director



**Thiru N. Muruganadam, IAS**  
Director



**Thiru S. Krishnan, IAS**  
Director



**Thiru Harmander Singh, I.A.S.**  
Director



**Thiru V. Chandrasekaran**  
Director



**Tmt. Soundara Kumar**  
Director



**Thiru N. Narayanan, IAS (Retd.)**  
Director



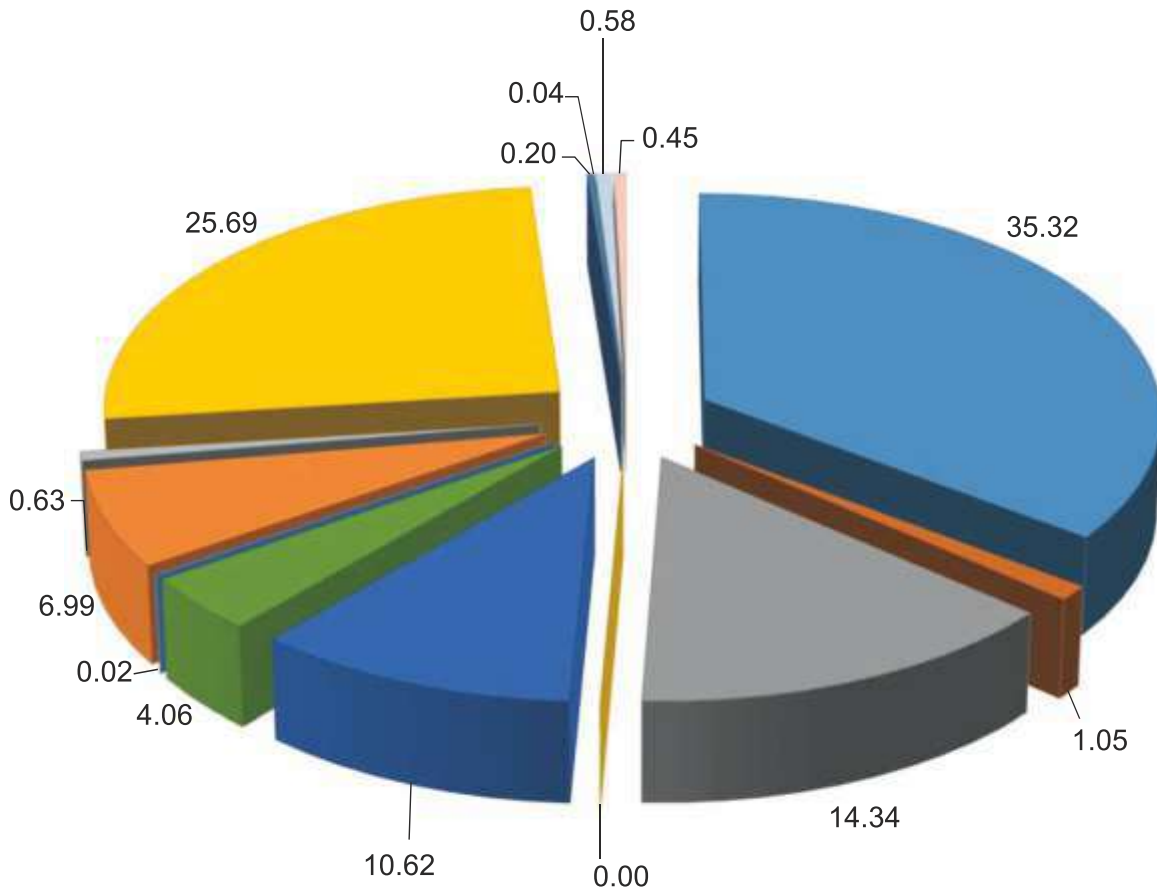
**Thiru P. B. Santhanakrishnan**  
Director



**Dr. M. Arumugam**  
Director



# Shareholding Pattern



- Governor of Tamilnadu
- Indian Mutual Fund
- Insurance Companies
- Employees
- NRIs
- IEPF
- Trust
- Foreign Institutional Investors
- Banks
- Govt Companies
- Limited Companies
- Public & Trust
- QIB
- Shares Dematerialised/Shares in transit



## Management Committees

Management committees have been constituted by the board to enable a focused and quick decision making in the organization. Each committee is responsible for handling a specific area. These committees are under direct supervision of the board.



TNPL's Audit Committee provides oversight of the financial reporting process, the audit process, the company's system of internal controls and compliance with laws and regulations.

The Company's Risk Management Committee oversees how management monitors compliance with the company's risk management policies and procedures, and reviews the adequacy of the risk management framework in relation to the risks faced by the company. Risk management policies are established to identify and analyze the risks

faced by the company, to set appropriate risk limits and controls and to monitor risks and adherence to limits. These are reviewed regularly to reflect changes in market conditions and the company's activities.

The culture of ethical behavior at TNPL emanates from the top and percolates down to the employees. It is deeply ingrained throughout the organization.

TNPL has a well defined vigil mechanism in place. The company has implemented various policies and code of conduct to ensure transparency and integrity in all its actions.



Presence of a Whistle Blower Policy manifests in the company's commitment towards abating corrupt practices and encourages a culture of transparency while the anonymity of the whistle blower is duly respected; a vigilance administration has been instituted to enhance the managerial effectiveness and efficiency. Any such complaint is reviewed by the competent authority or Chairman of the audit committee.

TNPL has formulated a Nomination and Remuneration Committee that has the task of overseeing / recommending to the board

with respect to remuneration of directors, Key Managerial Personnel and senior management personnel. The committee is also responsible to motivate, retain and promote talent and to ensure long term sustainability of talented managerial persons and create competitive advantage.

TNPL understands its responsibility and accountability towards its stakeholders, focusing on fostering healthy and mutually beneficial relations with its key stakeholders as a means to create long term sustainable

Aerial view of TNPL's Cement factory



value. Their opinions and insights are incredibly valuable and facilitate in the development of business strategy in addition to identifying and managing various risks and opportunities.

The presence of a board level Stakeholders Relationship Committee further bolsters TNPL's commitment to strengthen relations with its stakeholders. The committee prioritizes stakeholder grievances and responds to them in stipulated amounts of time thereby instilling

trust and confidence amongst its stakeholders. In addition TNPL engages with its stakeholders on numerous platforms throughout the year. The company has identified key stakeholders based on their impact on its business. These stakeholders include: employees, customers, suppliers, government and the community at large. TNPL has utilized existing mechanisms to interact with the stakeholders and as a result identified a list of material topics.



***The culture of ethical behavior at TNPL emanates from the top and percolates down to the employees. It is deeply ingrained throughout the organization.***



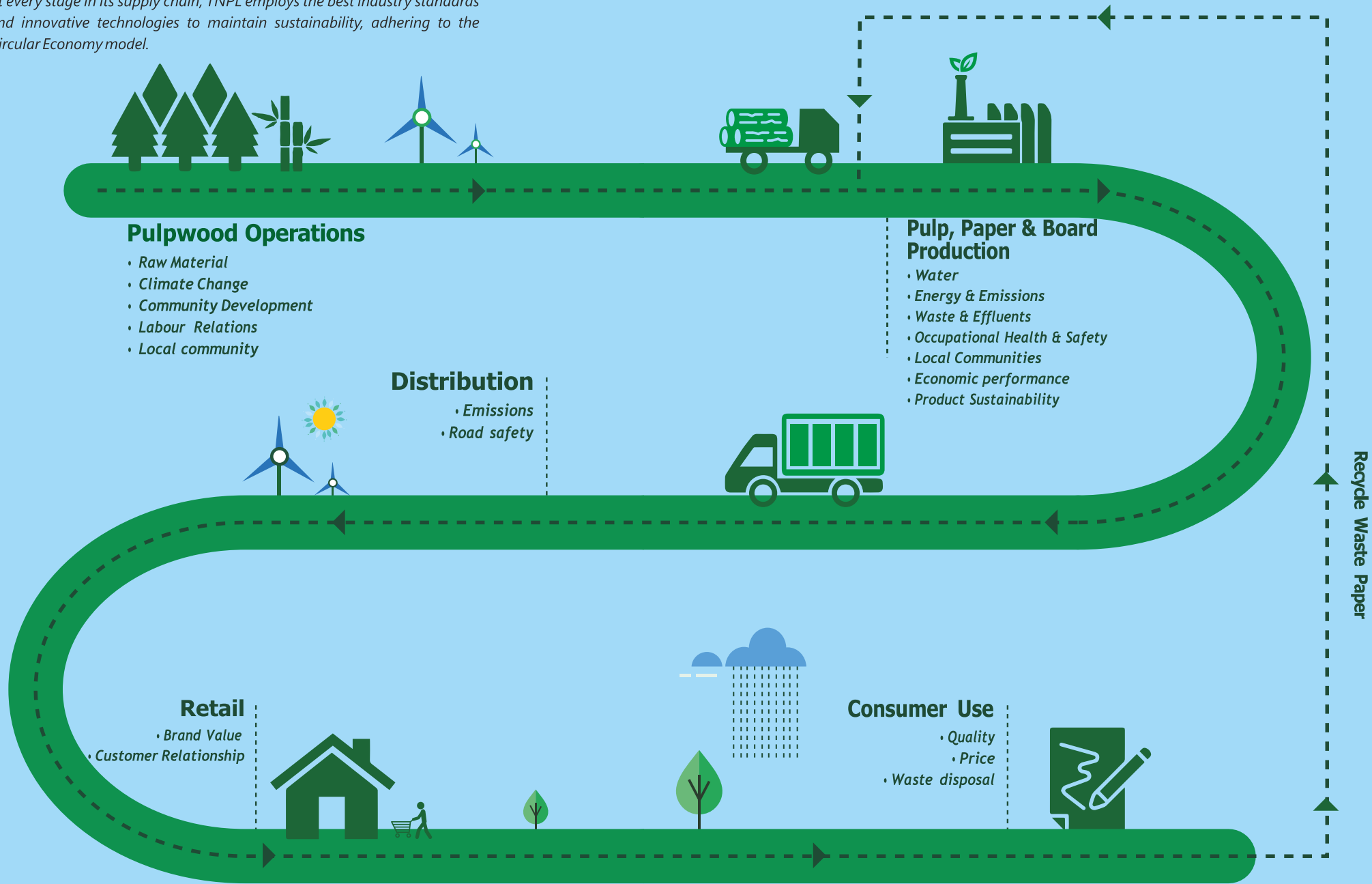
***TNPL focuses on fostering healthy and mutually beneficial relations with its key stakeholders as a means to create long term sustainable value.***





# Impacts across TNPL's Supply Chain

At every stage in its supply chain, TNPL employs the best industry standards and innovative technologies to maintain sustainability, adhering to the Circular Economy model.



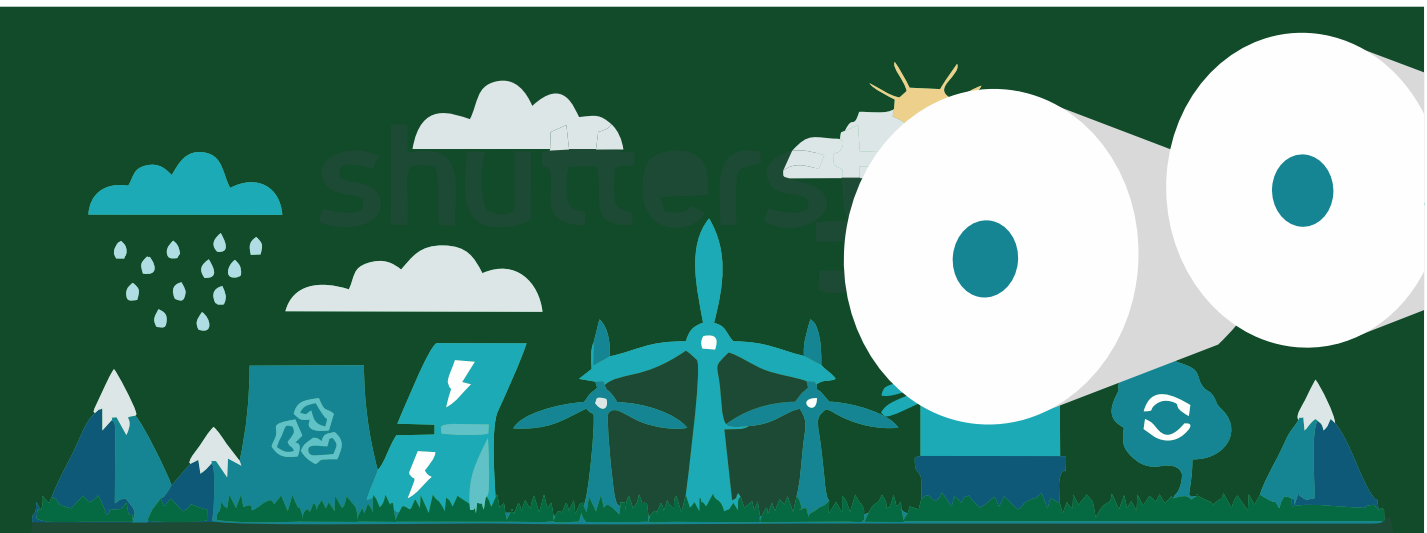
## Economic Performance

The writing and printing paper demand was relatively better during the year as compared to the previous fiscal year. Despite some limitations such as increase in input costs in procurement of bagasse and other raw materials, the Company has managed its operations well.

Various factors contribute towards achieving a sound economic performance such as, the increase in demand for cut-size paper led to an increase in production to 16% from the normal level of 10-11%, of the overall production. Domestic Sales accounts for 94% and Exports at 6%.

The packaging board also performed well. The demand growth for packaging board is estimated at 10-12% per annum.

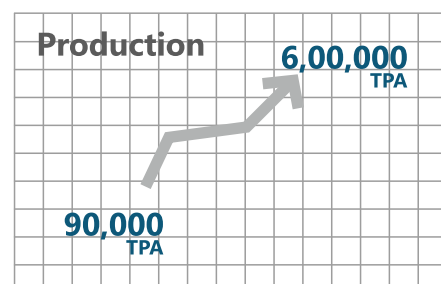
Increasing awareness among consumers towards eco-friendly and sustainable packaging options along with increasing trend towards reducing the use of plastic have led to a sustained demand for paper and packaging board. This trend is encouraging for continued expansion of the paper packaging demand globally, especially in the high growth regions of the world among which India plays a primary position.



## Continuous and Sustainable Growth

TNPL has grown from an initial capacity of 90,000 TPA to 6,00,000 TPA in tandem with the Industry growth. Currently, TNPL enjoys the third position in installed capacity and second position in production of writing and printing paper in the country. The company has three paper machines each with a capacity of 1,15,000 TPA, 1,30,000 TPA and 1,55,000 TPA respectively, and one board machine with a capacity of 2,00,000 TPA. The

growth is supported by the latest technology and state-of-the-art equipment. Economies of scale and quality production driven by technology provide competitive edge to the Company in the market.



*TNPL employs state-of-the-art technology in its processes*

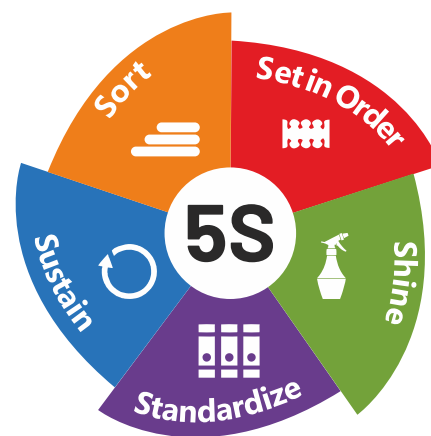
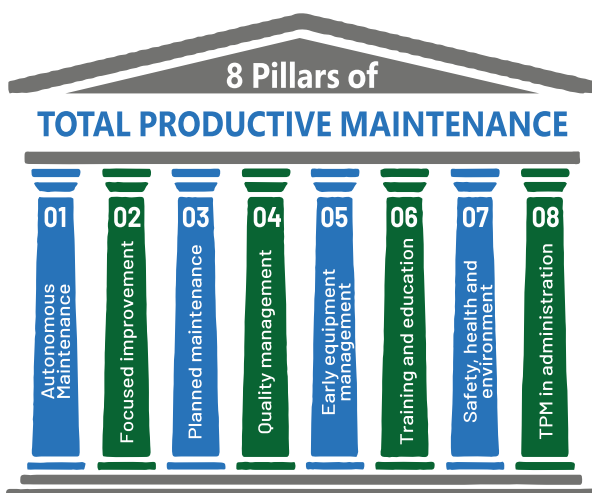
*TNPL is the most environmentally conscious and eco-friendly paper mill in the country with the least water consumption\**

\* in terms of KL/MT of paper

## Manufacturing Excellence in TNPL

TNPL has embarked on a Journey of "Manufacturing Excellence" - "ME", encapsulating the concepts of "5S, Total Productive Maintenance (TPM) – Major Pillars, Lean and 6 Sigma" to improve the overall efficiency of the company as a whole.

The main objective of the ME exercise is to manufacture world class quality products at competitive costs, ensuring safety and morale.

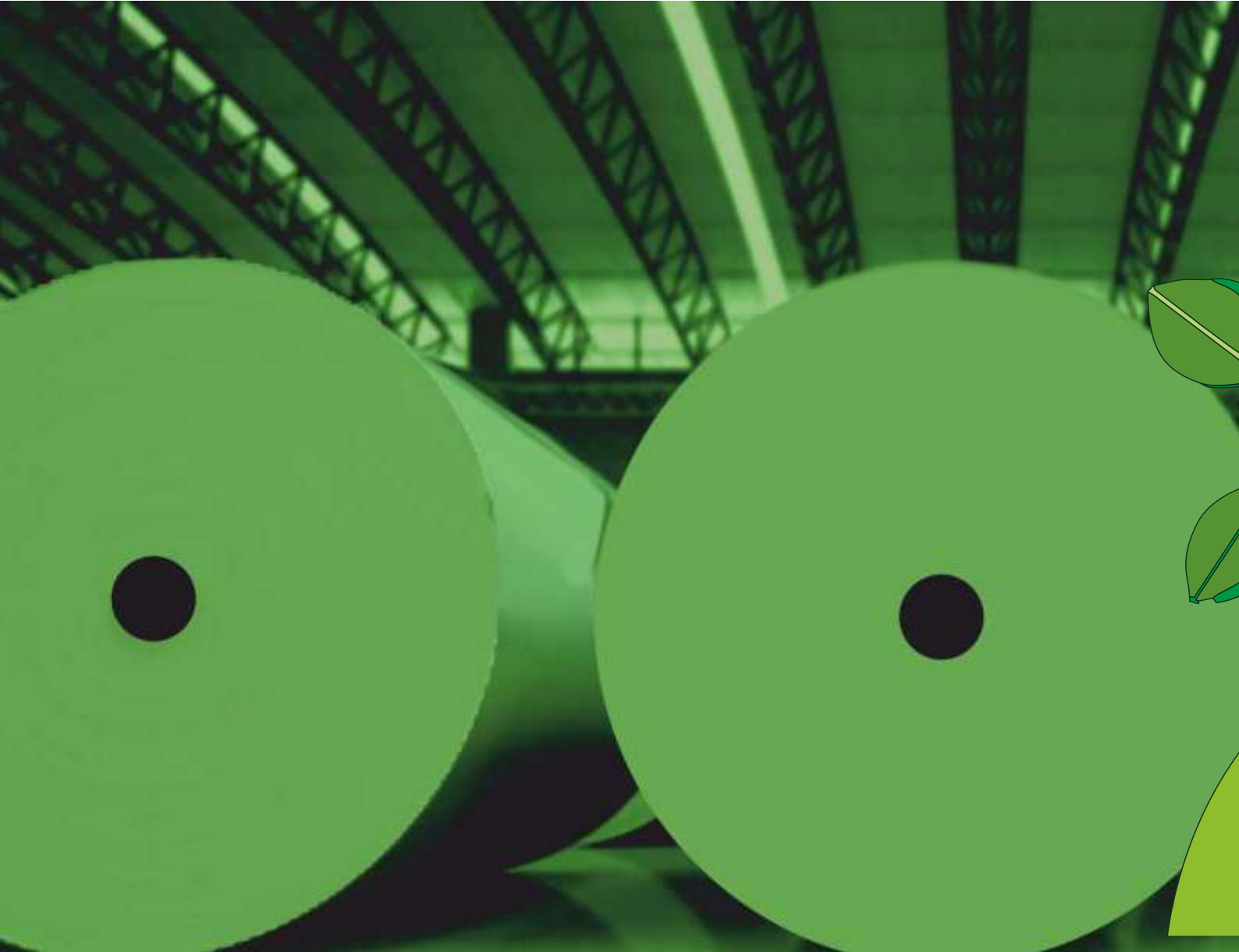


### The Key focus area in our "ME" journey are

1. To create a Culture of 5S, Safety and Methodical working with Analysis, within the Company, creating a Clean and Efficient workplace.
2. To improve the Quality of the Products, by identifying and eliminating the defects using Lean and Six Sigma Tools.
3. To improve the Manufacturing Efficiency by increasing the uptime of the equipment and by balancing the Pull & Push Production in the system.
4. To leverage the Information Technology (IT) Platform, for all the possible Automation in the Processes.
5. To reduce the manufacturing and distribution costs, through Lean Processes, by eliminating waste at various sub processes.
6. To extensively use Lean concepts for avoiding all non-value adding activities.



# *State-of-the-Art Technology*



**TNPL makes consistent efforts in minimizing its impact on the environment by adopting best available process technology that is aligned to a sound environment policy.**



TNPL has been a pioneer in implementing contemporary technology in pulp, paper and paper board manufacturing. The company has been proactive in utilizing latest technologies to develop a product that has minimum negative impact on the environment. TNPL is known as the most environmentally conscious and eco-friendly paper mill in the country with the least water consumption (KL/MT of paper).

Since its inception the company has been a frontrunner in adopting latest technologies including ECF bleaching, Oxygen delignification, integrated Chlorine dioxide production, Wash presses, Odour free recovery boiler, Collection and Incineration of NCG (Non Condensable Gases), production of bio-gas from bagasse wash effluent, manufacturing pulp from waste paper.

The mill also produces precipitated Calcium Carbonate to avoid GHG emissions, producing high grade Cement from pulp and paper mill wastes, etc.

The latest technologies are utilized in the plants to increase efficiency and product quality. Due to these initiatives the company has been able to recover some of the by-products from its processes and utilize them in the operations. This has various benefits such as reducing waste generation, reuse of by-products, conservation of raw materials, cost savings, etc. TNPL also treats the waste water generated in the mill in its advanced waste water treatment plant and utilizes it

for irrigation purposes, thereby conserving this natural resource.

In future expansions, the company is committed to use cleaner technologies to develop a produce that is sustainable.





Aerial view of TNPL Unit I facility



Aerial view of TNPL Unit I facility



Paper Machine 3, Unit 1



*TNPL has revived wastelands into 187,680 acres of pulpwood plantations.*

*Thus, in corollary, enhancing paper production expands green cover.*





## Environmental Sustainability

# Recreating the Canvas through sustainable materials

Total Pulp Generated

**2.74** Lakh MT

Total Pulpwood conserved using agro-based raw material and secondary fiber is

**7.54** Lakh MT

Bagasse Pulp:

**1,24,739** MT

Deinked Pulp:

**48,526** MT

Hardwood Pulp:

**1,00,877** MT





Environmental sustainability depends on the the continuous availability and economic viability of renewable natural resources where TNPL uses the best-of-latest technology and strategies to attain the goals.

**Bagasse - the renewable raw material**

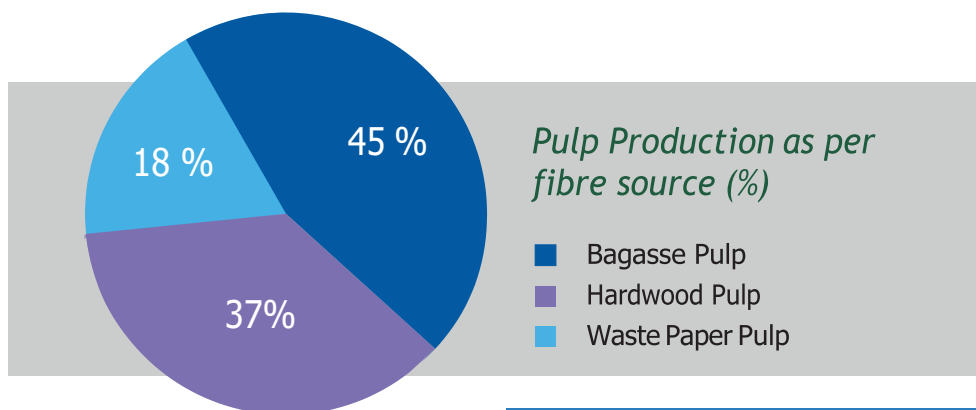
The primary raw material for TNPL’s product is Bagasse, a residue of the sugar cane industry which is used along with wood to manufacture paper and paper board. As an alternative raw material the company produces deinked pulp from waste paper collected from various sources. All the input raw material is sourced from sustainable sources.

Since paper industry is dependent on pulp wood, it becomes important to manage this resource responsibly. The wood used in this process is not sourced from forests, but from

The company procures waste paper to manufacture deinked pulp. This paper comes from academic institutions, and comprise examination papers, office papers, text books, packaging paper, etc.

**Pulpwood Plantation**

Pulpwood is one of the critical raw materials for production process. The company has an annual pulpwood requirement of 5 Lakh MT which is targeted to be around 12 lakh MT post mill expansion. Currently pulpwood plantations cover an area of 1,87,680 acres, but the company has plans of intensifying plantation development



captive and farm plantations, and some of it is sourced from Tamil Nadu Forest Plantation Corporation (TAFCON).

TNPL purchases the bagasse either directly from the sugar mills or barter it in exchange of steam/fuel. In recent years, unavailability of bagasse due to natural disasters such as droughts has posed a serious threat to the production. As a result, the research & development wing is in the process of developing an alternative to meet the target pulp production at reduced costs.

The Pulpwood is certified by Forest Stewardship Council Forest Management (FSC-FM) Certification, FSC Controlled Wood (FSC-CW) and Forest Stewardship Council Chain of Custody (FSC-COC) certification ensuring that paper manufacture from wood is managed socially and environmentally in a responsible way.

The Forest Management Certificate from the Forest Stewardship Council for our captive plantation from M/s NEPCON, Estonia is valid upto July 2023. TNPL has also received the Chain-Of-Custody (COC) - Controlled Wood certification from M/s NEPCON, Estonia with validity upto July, 2026.





Stacker in Bagasse Yard, Unit-1

activities, fixing the annual target of 25,000 acres, since 2018-19. TNPL has raised pulpwood in 20,065 acres in 2020.

TNPL procures pulpwood from two key sources – Government owned plantation (TAFCON) and Plantation schemes (Farm Forestry and Captive Plantation). Over the coming years TNPL wants to focus on increasing its dependence on pulpwood grown under its plantation schemes.

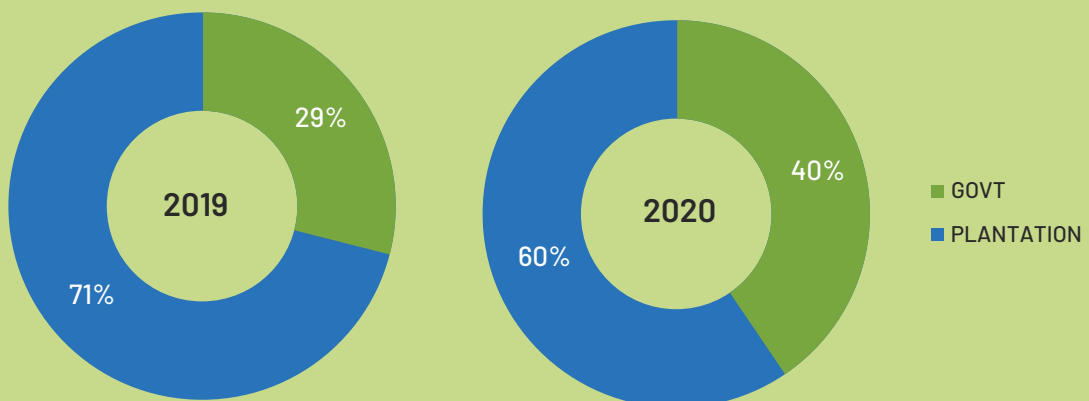




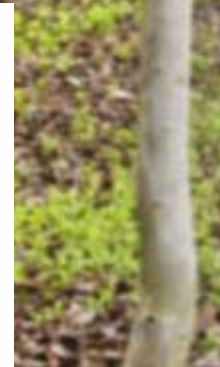
TNPL has carefully selected tree species that have a positive impact on environment. Plant species such as Eucalyptus are known to produce more biomass with minimum water, control soil erosion, absorb large amount of carbon dioxide and recover unusable and degraded lands. These trees can thrive in areas with limited water resources and poor soil conditions.

The company has also focused on Casuarina plantations. TNPL's state-of-the-art Research and Development division has been constantly developing better clones which will prove to use water more judiciously and grow at a faster rate as compared to their counterparts. The company has developed three new eucalyptus clones namely TNPL 191, 192 and 193, that have been duly distributed to the farmers for nurturing and harvesting. So far, TNPL has developed 2502 lakh plant saplings and supplied 2242 lakh pulpwood plants to farmers.

**Pulpwood Procurement: FY 2019 vs FY 2020**



*The increase in production volume due to mill expansion would demand pulpwood requirement to leap from 5 lakh MT to 12 lakhs MT pa resulting in planting more pulpwood in 25,000 extra acres every year raising the plantation area further from 1,87,680 acres.*



*Hence, the more we produce paper and paper board, the more barren lands are brought under green cover, supporting ecology and improving environment.*





Environmental Sustainability

# Reducing Dependency on Water

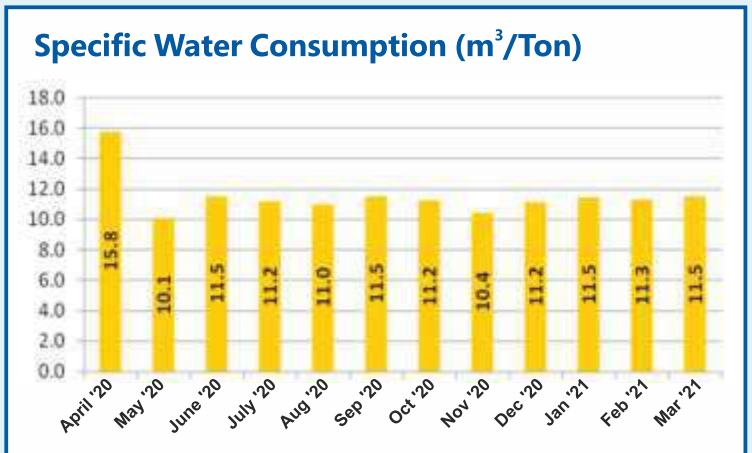
Fresh water consumption per ton of board production is reduced to

**11.3 KL/MT**  
by process optimization

Total water consumption/ton of paper produced

**47 KL/MT**

Specific Water Consumption (m<sup>3</sup>/Ton)

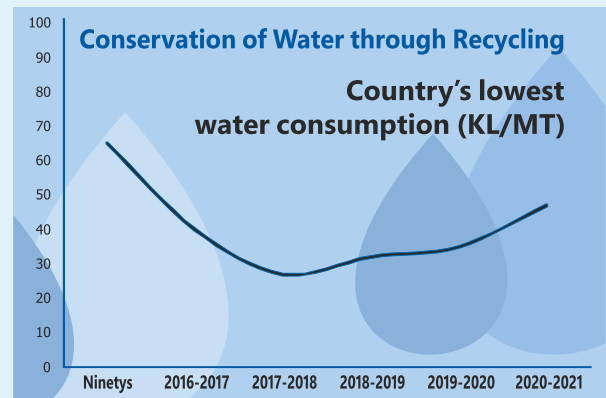


Water is one of the most important resources for pulp and paper manufacturing. It is a key element in the production of paper. The major areas of water consumption include raw material cleaning, pulp mill, showers on washers, paper, boilers, etc. At TNPL the source of water remains fresh water that we draw from the Cauvery River.

In recent times factors like low ground water level, vulnerability to draught coupled with issues of public resentment, regulatory pressure as well as awareness of the impact on environment have made water conservation a priority. In line with this, TNPL has implemented various water conservation programmes including rain water harvesting, waste water treatment and reuse.

With the implementation of state-of-the-art technologies, TNPL has been successful in reusing the water in some of its processes. The waste water treatment plant in Unit 2 utilizes the entire waste water generated for irrigation in TNPL's own land of about 650 acres. In Unit 1, 1650 acres of land is irrigated with treated waste water through the Treated Effluent Water Lift Irrigation Society (TEWLIS) Scheme.

Today, TNPL is the the most environmentally conscious and friendly mill in the country using 47KL/Ton and 11.3KL/Ton of water for paper production and paper board production respectively, making TNPL as one of the least water consumers in the pulp and paper industry and the lowest nationally. To further enhance the operation, the company is examining the ways and means to reduce dependency on the fresh water intake and also exploring the possibilities of moving towards Zero Liquid Discharge by adopting modern technologies.



View of Water Reservoir at TNPL Unit II





## Environmental Sustainability

# Regenerating Energy from Renewables

Installed a  
**35.5 MW** wind farm

TNPL is energy intensive but an energy efficient organization. The company believes in investing in various projects, improving the efficiency of the systems, as it can yield considerable benefits from reduced water and associated chemical use, improving energy and water security for the plant.

100% of energy requirement is met from captive power plants with an installed capacity of 133.62 MW. In addition, TNPL has installed a 35.5 MW wind farm where a small amount is wheeled for self-consumption and the remaining is exported to the State grid.

100% of energy requirement is met from captive power plants with a total installed capacity of  
**133.62 MW**

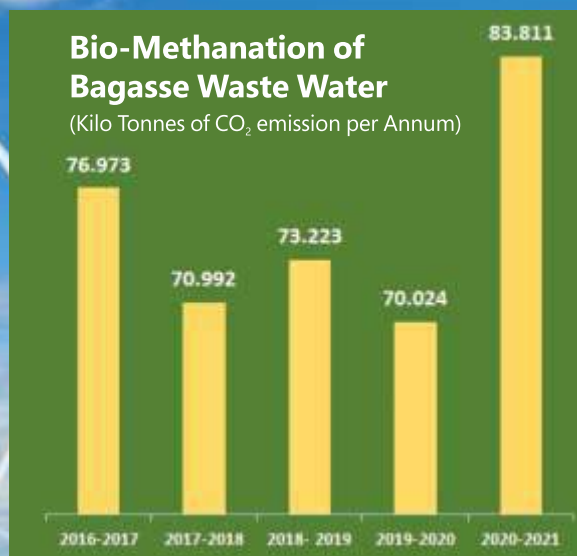
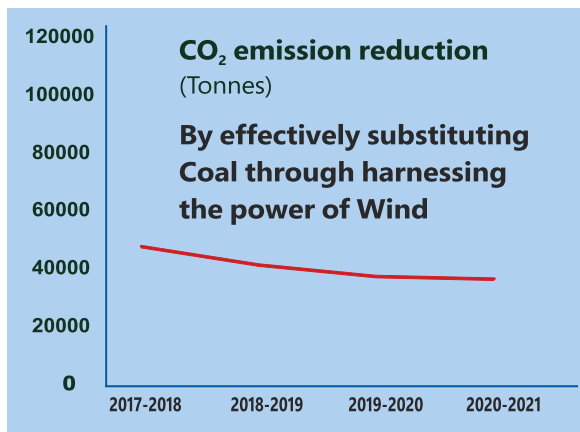




## Energy Consumption

To improve energy efficiency and limit our GHG emissions the company has invested in combined heat and power (CHP) generation.

Further it utilizes internally generated bio-fuels and biogas that serve the dual purpose of generating environment friendly energy and at the same time converts waste into a useful resource. Currently there are three bio-methanation plants to treat high organic wastewater from bagasse handling and storage system and to generate biogas which is utilized in the lime kiln to replace furnace oil, and in Power Boiler to replace Imported Coal. The Consumption of bio-fuel and bio-gas accounts for 42.25 % of the total Energy consumed.



## Travelling towards Net Zero Carbon



### TNPL CDM & Carbon Footprint

TNPL, leader in implementing environmentally friendly technologies, has several innovations to reduce the GHG emission. TNPL ventured into renewable energy sectors by putting up a 35.5 MW windfarm. TNPL is the first paper mill to register the Recovery Boiler 3 - TG 5 Cogeneration system under Renewable Energy Certificates (REC). TNPL is also the first paper mill in India to register a project under Clean Development Mechanism of UNFCCC. of total two CDM projects under renewable energy (wind farm projects) and one under waste management (biogas) projects have been registered. About 2.60 lakh CERs (Certified Emission Reductions) have been issued by the CDM Executive Board of UNFCCC for the above projects.

### Carbon Offset / Sequestration

TNPL has developed green belt by planting 9,58,840 evergreen trees in an area of 739 acres in both the units. The company has also developed Pulpwood plantation in a cumulative area of about 1,87,680 acres between 2004 and 2020 under farm forestry and captive plantation schemes. The major plantation activities started after 2004 and increased step by step. The carbon sequestration also increased along with increased plantation area. For the year 2020-21 it is about 5.26 lakh tCO<sub>2</sub>e. Further, separate studies will be conducted through an external consultant to document the amount of carbon sequestered by the green belt plantations of TNPL.





Environmental Sustainability



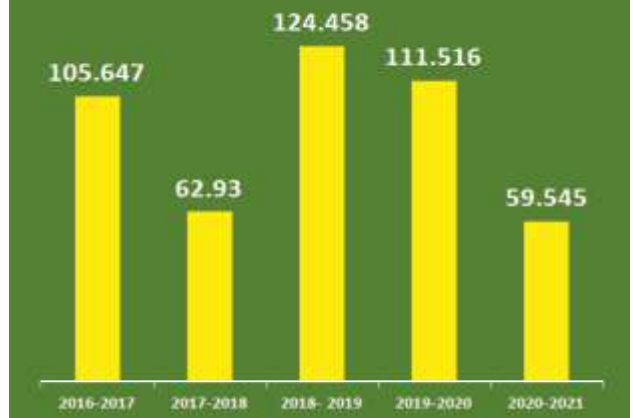
# Reusing Waste to Reshape

**74.68 lakh M<sup>3</sup>  
of Biogas Produced**

Used as replacement of

**602 MT** of Imported Coal &  
**3864 KL** of Furnace Oil

**Use of Agro Fuels in Steam Generation**  
(Kilo Tonnes of CO<sub>2</sub> emission per Annum)



TNPL considers waste generated from its various processes as a valuable resource and is working constantly towards identifying innovative techniques to utilize this resource efficiently.

As an environmentally conscious organization, TNPL has implemented a waste management plan with a focus on utilizing the waste generated back into the processes thereby eliminating waste and at the same time using it as an alternate fuel, saving fossil fuel and subsequently reducing carbon emissions.

The waste generated from various processes such as wood harvesting (wood, dust and bark), Bagasse processing (Bagasse pith) etc. is utilized as agro fuels in boilers. These materials are also used to develop wooden core plugs which replace plastic core plugs in paper reels.

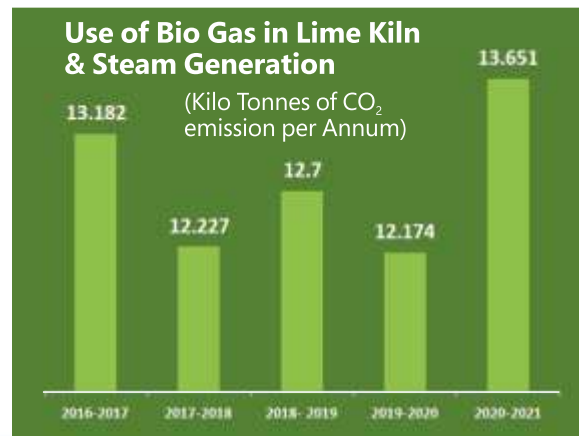
The wash effluents released during the processing of bagasse is used in bio-methanation plant to generate biogas. This biogas is then used in lime kiln and power boilers and helps replace 105 MT of imported Coal as well as 3848 KL of Furnace Oil.

Further, the company segregates bio-degradable and non-biodegradable waste and ensures proper disposal.

The waste water generated from the mill is treated in the respective waste water treatment plants and the entire water is used for irrigation in TNPL's own lands to an extent of 1650 acres supported by Unit 1, and 650 acres by Unit 2.

TNPL's R&D team is constantly working towards identifying techniques to effectively manage the waste. It has been able to use the waste plastics generated from the deinking plants in laying high quality CERAPLAST roads at TNPL Bagasse Yard.

The company is currently pursuing a detailed study with the Central Institute of Plastic Engineering and Technology (CIPET), Chennai in order to develop specifications for shrink film, stretch film, core plugs and transparent tape, for possible source reduction to contain the impact to the environment.



View of the Water Treatment Plant at Unit 1

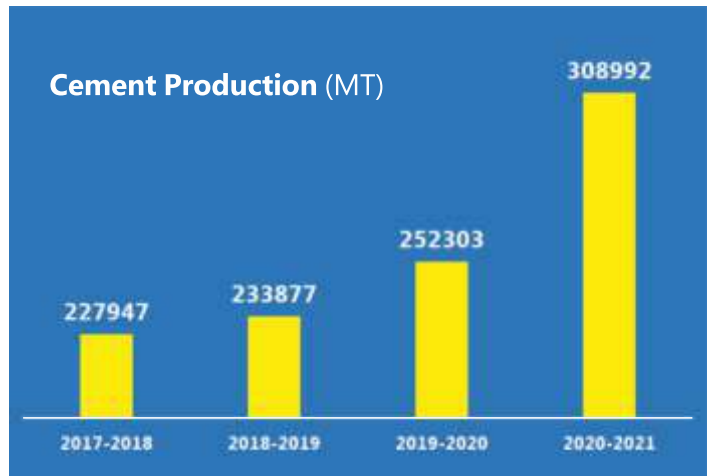


## Cement Plant: Generating value from Waste

TNPL is the first and only company in the Indian Paper Industry to have established a cement manufacturing factory to convert the inorganic solid waste including lime sludge and fly ash generated from the pulp, paper and paper board mill into high grade cement, as part of its solid waste management system.

The company produces two categories of cement i.e. Portland Pozzolana Cement (PPC) and Ordinary Portland Cement (OPC). The cement production capacity was also recently increased from 600 TPD to 900 TPD.

Solid Waste, MT	2017-2018	2018-2019	2019-2020	2020-2021
Lime sludge	19772	52635	59963	56322
Flyash	85674	119646	135032	93785
Deinking Plant Sludge	0	9090	16613	14735
Lime Grits & Sludge from Paper Machine Coating	6706	11373	8248	7505



## Biodiversity Conservation



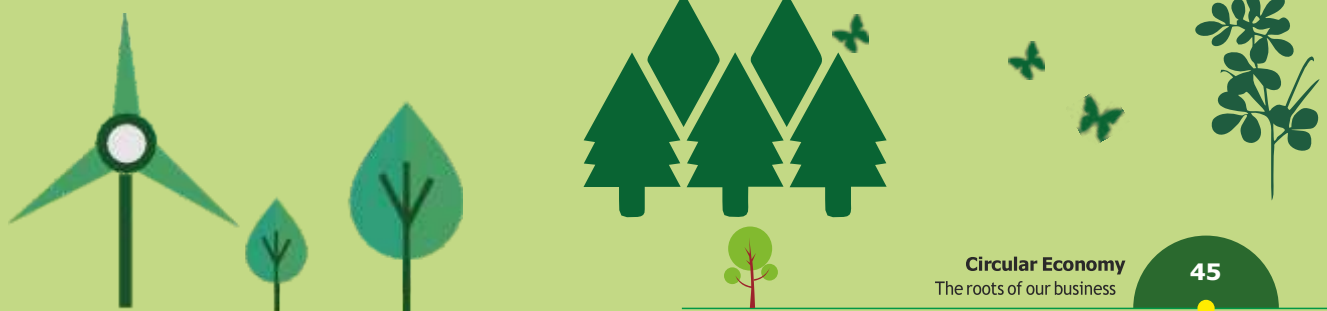
TNPL has always been at the helm of undertaking newer techniques in order to minimize impact on the environment. It is constantly working to protect and preserve the biodiversity around its plant locations, increase the green cover and achieve environmental objectives through sustained R&D improvements in process and technology. With this in mind, at Unit-1, green belt was developed and maintained in 56.53 ha inside factory premises i.e., 40.36% of the total area with 1.67 lakh trees of 49 species and 42.89 ha inside colony premises, which is 60% of the total area that contains 1.06 lakhs trees of 73 different species. In addition to the green belt species, lawns have been developed and maintained in over 1 lakh sq.mt inside the factory and the colony.

TNPL has also developed a Biodiversity Park around its Unit-1 in Kagithapuram with over 100 species of trees covering 6.07 hectares of land. The Biodiversity Park is assessed periodically to ensure proper maintenance. Recently, TNPL has also included another 60 species of trees/shrubs of flowering, fruit bearing, medicinal trees within the park. These flowering plants have attracted fauna such as butterfly, various birds, reptiles and animals that have helped in increasing the pollination rate and enhance the overall microclimate of the location.

The green belt developed around Unit-2 in Mondipatti is about 650 acres of land which houses 6.84 lakh of trees, which covers 55% of the total area with 123 species. In addition to these, landscapes were developed and are being maintained in an area of about 27,248 sq.mt in factory and colony. These initiatives have helped in making the ecosystem more balanced, leading to stability and a conducive environment. This is evident by the presence of 123 tree species, 26 species of shrubs, 124 species of herbs, 16 species of grass, 35 species of medicinal plants, 91 varieties of birds, 88 varieties of orthopods, 16 species of reptiles, 10 species of mammals and 2 amphibians. Besides making the surrounding more beautiful, these areas have helped to restore water balance, capture fugitive emissions as well as attenuate the noise generated within the plant.



***TNPL is constantly working to protect and preserve the biodiversity around its plant locations, increase the green cover and achieve its environmental objectives through sustained R&D in process and technology.***





## Societal Sustainability

# Standing tall and strong

## Our people

TNPL values its employees greatly as it is their hard work and dedication that is driving the organization. In today's dynamic and continuously changing business world, it is the human assets that differentiate us from our competitors. The skills set and knowledge of our employees together contribute towards the growth of our organization.

We are proud of our diverse workforce. Today we are a family of over 10000+ dedicated workforce, including several with special needs.

To facilitate holistic development of our employees, we have implemented a periodical performance appraisal system across the organization. Key Performance Indicators (KPI) is set for the organization, the departments and the senior executives at the beginning of each year. It serves as a medium to recognize and reward employees and to ensure that they feel valued for the work that they do. This results in better relations between management and employees, increase in job satisfaction and helps improve employees' sense of loyalty toward the company.

**10000<sup>+</sup>**  
**Workforce**



TNPL has four recognised trade unions representing the needs and concerns of our workers. 97.66% of permanent workmen are members of these trade unions.

We have put in place policies and procedures for employee welfare such as prevention of sexual harassment at workplace, child labor, forced labor, etc. There have been no incidents of child labor, forced and involuntary labor, sexual harassment or any form of harassment.

## ***Training & Development***

TNPL believes in creating a culture that nurtures talent. Our various training programmes and workshops are designed with an objective to upgrade the skills and knowledge of our employees. The annual training calendar lists down various programmes that are scheduled for the year.

A portal for Training section has been created, wherein the soft copy of the training details in-house training programme circulars, external training materials received from organizers / participants on various topics are available. As a result employees have the access to training material and can use it as per their convenience. Further, on-the-job training and industrial visits are also organized. The safety trainings are an integral part of our training portfolio.

In addition to organizing various programmes in-house, we provide support to attend programmes and seminars organized by different agencies such as FICCI, CII, IIMs, and NITIE, etc.

An awareness programme on **5S** was organized with an objective to achieve managerial excellence.

***We are proud of our diverse workforce. Today we are a family of over 10000+ dedicated workforce, including several with special needs.***



As part of developing skill and improving the employability of the youth, TNPL has engaged 22 Graduate Apprentices, 39 Diploma Apprentices as per the guidance of the Board of Apprenticeship Training, Chennai and 26 ITI Apprentices as per the guidance of The Regional Joint Director of Training, Trichy / Asst. Director of Training, Related Instruction Centre, Trichy at our Factory Unit I, Unit II and Cement Plant under the Apprentices Act, 1961.

### **Employee Benefits**

TNPL offers high quality employee benefits as a means to boost employee morale and productivity. These benefit plans are designed to support employees throughout their job tenure and post retirement.

Employee benefits include health insurance, pension plans, superannuation, and contribution towards provident fund, gratuity, and much more.

### **Occupational Health & Safety**

Occupational Health & Safety is a top priority at TNPL. With our efficient systems, processes and state-of-the-art technology, we ensure that we provide our employees with a safe and healthy workplace. The culture of safety is promoted by top management and percolates down the organization.

The occupational health & safety policy acts as a guidance document towards establishing and implementing programs that will reduce workplace hazards, protect lives and promote employee health. A dedicated safety committee with representatives from both Management and Workmen has also been constituted with an objective to manage prospective hazards. In case of an incident or accident, investigation is conducted and corrective action is implemented within a stipulated amount of time.

As a proactive organization, we have identified various hazards associated with our processes and have implemented measures to mitigate the same. Employees including contractual ones are trained on various aspects such as handling of hazardous chemicals, material handling, usage of PPEs, electrical safety, road safety, first aid, fire-fighting, etc.

In order to inculcate a safety behavior, various initiatives are taken by the management such as display of safety signage across the shop floor, providing PPEs (Personal Protective Equipment) etc. Further to dealing with emergencies, we have an on-site and off-site emergency plan; periodic mock drills for hazardous chemical leakages and fire incident are conducted to ensure the effectiveness of emergency preparedness. In addition we have fully equipped occupational health centres at both our units.

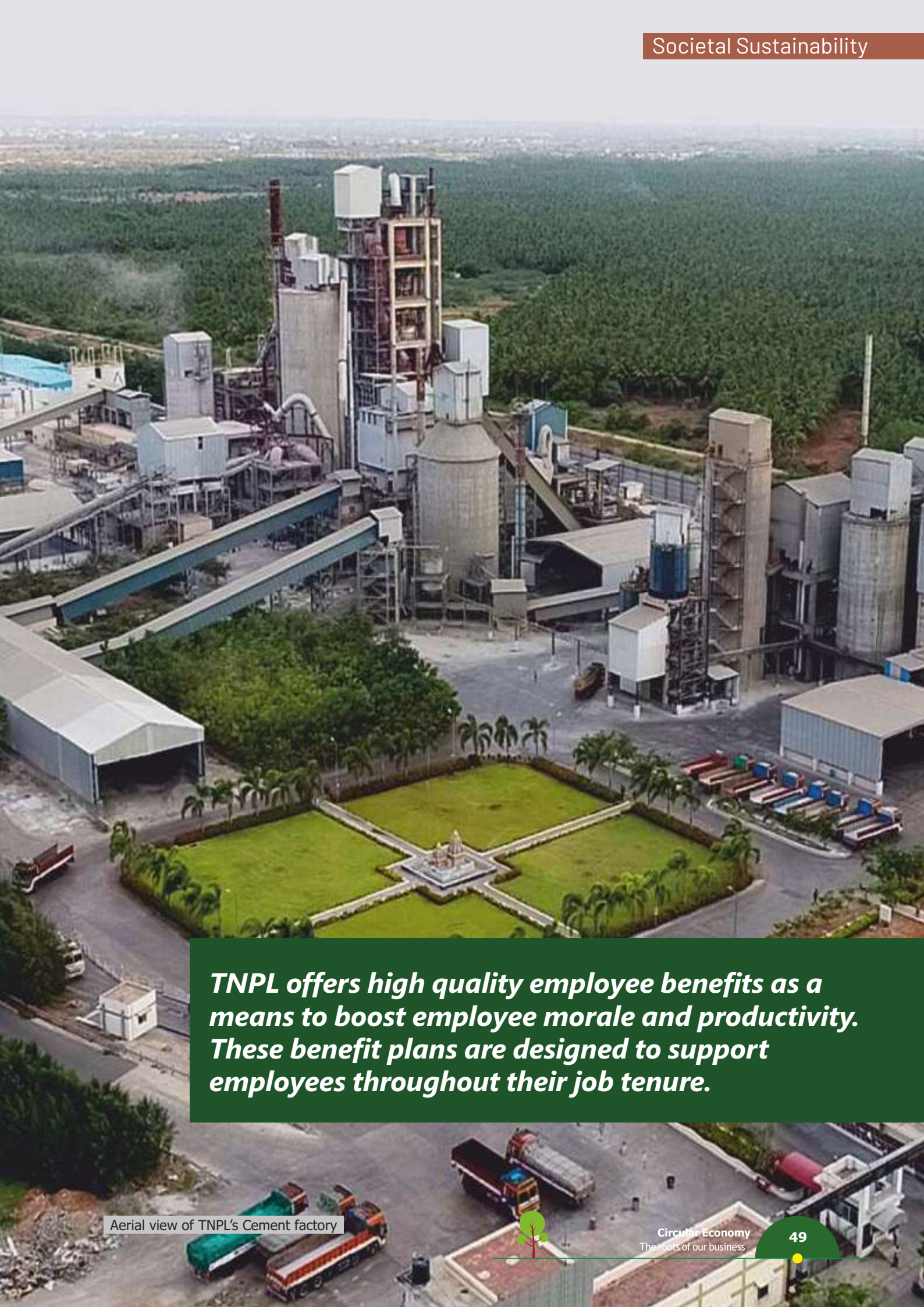
### **Employee Healthcare**

We provide our employees with best healthcare facilities. In case of serious illness such as Cancer, Kidney Transplantation, Paralysis, Leprosy etc., we offer financial support to the employee covering entire medical expense in addition to sanctioning a leave for a period of 180 days.

Further, under a Special Medical Assistance Scheme, 50% of the hospitalization expenses for the employee and their dependents are borne by the Company. A Comprehensive Master health Check-up is done for employees four times at ages 40, 50, 55, and 59. Every year, Audiometry test is conducted for those employees, who are exposed to high noise areas. Once in two years, eye test is being carried out for employees, who are in the driving occupation.







***TNPL offers high quality employee benefits as a means to boost employee morale and productivity. These benefit plans are designed to support employees throughout their job tenure.***

Aerial view of TNPL's Cement factory





Societal Sustainability

# Building an Inclusive Community

**Direct impact**

TNPL's innovative business model has a direct bearing on the welfare of its huge workforce and the community at large.

**CSR Activities**

TNPL also involves itself with the surrounding communities through welfare programmes designed to make their living standards better.

TNPL is driven by a vision to improve the quality of life of the surrounding communities. The programmes are designed with an aim to empower community members, thereby creating stronger and more connected communities.

Apart from the CSR initiatives, TNPL creates positive social impacts through its innovative business model that involves its process and raw material management.





## Direct Impacts

TNPL's Captive and Farm Plantation schemes have been instrumental for local and marginalized farmers to gain livelihood and financial independence. These programmes are mutually beneficial for both the farmers and for TNPL. It facilitates in sustainable procurement of wood while allowing the farmers to gain access to technological

experts, hybrid quality of seeds at subsidized rate and an assured income.

These schemes are economically viable, socially compatible and people centric and have helped many local and small farmers safeguard regular income and improve their quality of living.

*Schemes implemented over*  
**1,87,680** acres

**1,68,466** acres  
*are under the Farm Forestry scheme*

**19,214** acres  
*under Captive Plantation Scheme*

*Benefitting*  
**35,000+** farmers

*TNPL has obtained* **1.79 million MT** *of pulpwood directly from farmers*



***TNPL's farm plantation scheme targets local and marginalized farmers. Any land which is capable of growing pulpwood is eligible under this scheme.***



### ***Farm Plantation Scheme***

TNPL's farm plantation scheme targets local and marginalized farmers. Any land which is capable of growing pulpwood is eligible under this scheme. Farmers are encouraged to grow Eucalyptus, Casuarina, Melia and Subabul trees in blocks or with agricultural crop, as wind breaks in bunds and field boundaries.

This scheme is applicable to the dry land farmers as these plant varieties can thrive in water scarce regions.

A team of experts visits the site regularly and provides technical support to the farmers right from planting of the seedlings to nourishment of the trees.

TNPL ensures that the wood is being procured at the prevalent market price or minimum support price, whichever is higher. We also support the harvesting as well as transportation.

### ***Captive Plantation Scheme***

This scheme is applicable to any company, government, educational institute or large land holding personnel with land measuring 50+ acres. The land is used to cultivate pulpwood and the revenue is shared or dealt with on a lease rental basis. The land is taken up on either a long term lease of 10 to 30 years or a gross revenue sharing basis (70:30).

TNPL takes up the responsibility for implementation, maintenance and harvesting of trees. TNPL utilizes its team of subject area experts in arriving at ecologically compatible solutions for farmers to overcome varying climatic conditions, water availability, etc.



## CSR Activities

TNPL employs strategic CSR where programmes are designed in consultation with the respective communities thereby focusing on value creation. Prior to initiating a project TNPL carries out a needs assessment survey. As a part of the survey it invites proposals from eight of the adjacent town panchayats and five village panchayats. The senior executives from the CSR team evaluate the needs of the panchayats. After due considerations, a final proposal is drawn and placed before the CSR Committee comprising of independent Directors for consideration and

approval. The key milestones, expected results and outcome have been mapped for each initiative. The strategic planning, implementation, evaluation and review will thus ensure wider outreach across each of the projects. TNPL covers a radius of 5-10 Km around its mills in Kagithapuram and Mayanur in Karur and Mondipatti in Tiruchirappalli. We undertake Community Development activities in association with various government bodies, Bankers, Agricultural Institutions, Government and Private Hospitals, Skill development Institutions, etc.



Sewing machine operator training



Distribution of drinking water



## Environment and Sanitation

TNPL has implemented various programs with an objective to create a positive impact on the environment and improve sanitation facilities. 40 farmers have been trained in association with Hans Roever Institute, Perambalur on production & utilization of natural fertilisers. 40 villagers also actively participated.



Blood donation camp underway



Typewriting training session

## Soil and Water Conservation

Under the initiatives to conserve soil and water, the company works in the areas of desilting of bunds and supply of potable drinking water to the communities.

## Social Development

Social development initiatives focuses on the social upliftment of the communities through increased participation of women, enhanced literacy, social audits and community participation, etc. TNPL has provided support to flood affected people of Thavittupalayam village in Karur district, Tamil Nadu. In addition TNPL also supplies drinking water to 8 nearby villages during water shortage.

## Livelihood and Economic Development

TNPL has implemented various programmes imparting relevant skills to the local residents, thereby giving them livelihood opportunities.

The company organized training programmes for selection of police constables. 24 participants were successful in securing employment. Vocational training programmes in areas such as tailoring, typewriting, jewellery making, etc. were also organized, benefitting 270 people from the community development programme.





### **Education**

TNPL's educational initiatives focuses on areas including providing free education to underprivileged, facilitating better learning through coaching classes, organizing cultural competitions, promoting sports, etc. Some of TNPL's programmes include events such as Coaching classes that were conducted at 7 Government schools benefitting 590 students. Further, 5 students received monetary support to study paper technology. Theme-based Talent Expo for overall development of school children are also organised periodically.

Sports tournaments are organized periodically, with an objective to promote sports and healthy living amongst youth.

### **Healthcare and Medical Services**

In its endeavour to provide quality healthcare services to the members of the community, TNPL organises free medical camps, assists in child and health nutrition, and work in the area of women health, assists differently abled, etc.

### **COVID related activities**

To battle COVID-19 pandemic, TNPL is providing medical equipments viz. Digital BP Apparatus, Sanitizers, N-95 Masks, Disposable Masks, Disposable Hand Gloves, Infrared Thermometers, Pulse Oximeters, Glucometers to the surrounding Government Hospitals and Primary Health Centres, Kabasurakudineer and disposable masks to the general public, medical assistance to the





needy people, aids and appliances to the differently abled persons, assistance / honoring COVID-19 frontline warriors such as doctors, pharmacists, staff nurses, NCD staff nurses, lab technicians, village health nurses and sanitary workers.

A special Covid Treatment Centre having 300 beds, including 152 with oxygen has been established at TNPL Community Centre. TNPL has imported necessary equipment for supply of oxygen at a cost of Rs.1Crore.

### **Infrastructure Development**

TNPL is supporting public infrastructure such as parks, roads, culverts, cremation facilities, storm water drainage systems, bus shelters, solar street lighting, etc.

### **Heritage and Cultural activities**

TNPL also plays a significant role in conservation of heritage buildings, promotion of arts and crafts, facilitating literary activities, music, dance, drama, besides carrying out facelift of recognized places of worship and sites of historical importance.

All the CSR activities are intended to empower the community to have a healthy and better livelihood to improve the quality of life of the communities in and around its mill.

*Further details on TNPL's CSR initiatives are available on our website [www.tnpl.com](http://www.tnpl.com).*



Covid Treatment Centre



Distributing masks to general public



Distributing Kabasura Kudineer to general public





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