

**TAMIL NADU NEWSPRINT AND PAPERS LIMITED**  
**KAGITHAPURAM -TAMIL NADU**

## **1.Company Profile**

### **Showing the way for making paper in next millennium ...**

India's largest Paper Mill at a single location, TAMIL NADU NEWSPRINT AND PAPERS LIMITED - better known as TNPL was promoted by Government of Tamil Nadu for manufacture of Newsprint and Printing and Writing Papers, using bagasse as the principal fibre source, which is otherwise burnt as in-house fuel in the sugar mill boilers to generate steam. The mill was conceptualised to meet the twin objectives of conserving the fast depleting forest resources and to reduce dependence on imported Newsprint.

TNPL is located at Kagithapuram in Karur District at about 400 Kms south west of Chennai. The mill was commissioned in October 1985 with an installed capacity of 90,000 tpa of Newsprint /Fine paper. Recognising the relevance of the project to the Indian pulp and Paper Industry and other sugar cane producing countries, the World Bank rendered a loan assistance of US \$ 100 million to finance the major portion of the Project cost. Within short period, the company achieved impressive results, with over 100% capacity utilisation. Encouraged by the success of the project, TNPL embarked upon an expansion programme in 1993, to double the production capacity from 90,000 tpa to 180,000 tpa. For the expansion project too, the World Bank followed up with keen interest and extended a direct loan assistance of US\$ 75 million. TNPL is one of the few companies to do a substantial expansion within a short period of inception. The mill has been achieving near 100% capacity utilisation for the expanded plant and has been achieving zero stock at the end of every financial year.

To enhance productivity and utilise the resources optimally, TNPL implemented a rebuild plan to upgrade the Paper Machines. Under the Machine rebuild, the PM#1 was provided with state-of-the-art shoe-press, improved wire cleaning system, drying system, state-of-the-art DCS and drives. The project was implemented in November 2002. Parallely, TNPL implemented a project to speed up the PM#2, during October 2002. The production capacity of TNPL, after the above modernisation programme, has been enhanced to 230,000 tpa, from 180,000 tpa. TNPL recently completed the Mill Development Plan (MDP) project at a capital outlay of Rs.612 Crore, to augment the capacity of the pulp mill and simultaneously making the mill more environment-friendly by way of adopting ECF techniques for bleaching. At the present operating level the turnover of the company is about Rs.1000 crore recording a PAT of Rs.113 crore during the year 2007-2008. The Mill has initiated action on the implementation of Mill Expansion plan (MEP) to install the third Paper machine, which will take the total production capacity of the mill to 400,000 tpa, making TNPL the largest paper mill in India at a single location.

TNPL procures its raw material for the mill, around 1 million MT, from 9 sugar mills, which are tied-up on a long term agreement for supply of bagasse in exchange of steam supplied by TNPL. For this purpose, TNPL has installed boilers at the respective sugar mills and in some cases joint installation of boilers at the sugar mills, to obtain bagasse in exchange for fuel supplied.

TNPL is a leading player in the Computer stationery market and also produces Copier paper of high quality. The quality standards maintained are exemplary and the mill has been certified ISO 9001 for the quality assurance scheme.

The mill has a modern effluent treatment plant which makes the treated water fit for discharging into the River. The mill has been awarded ISO 14001 certification for successfully implementing the Environment Management Plan. The mill's treated effluent is however utilised for raising cash crops in nearly 1700 acres of land abutting the mill premises without letting into the river. The land which was dry and arid once, are now lush green, and has raised the economic stature of the villagers around multi-fold.

Paper manufacturing is energy intensive consuming about 6-7 MT of steam and 1400-1500 units of power. TNPL takes continuous measures to keep energy consumption at optimum level. These measures have enabled the Company to achieve a good reduction in energy consumption in many areas. The Company meets its entire power requirements through captive generation. The Company has five turbo generators with a capacity of 81.12 MW. Surplus power is exported to the State Grid.

TNPL set up its first 15 MW wind farm power project at Devarkulam and Perungudi, the backward villages in Tirunelveli District, Tamil Nadu in the year 1993-94. The Company has enhanced the wind farm capacity to 35.5 MW in 5 phases. The wind farms generate about 5.5 crore units of electricity per annum. The entire green power is exported to the State grid. Two phases of wind farm of a total capacity of 6.75 MW have been registered with UNFCCC and 44,672 CERs have been received under Clean Development Mechanism (CDM) for the period upto July 2007.

The Company has always been innovative in converting waste into wealth. The bio-methanation plant commissioned during the year 2003-04 for generating methane gas from bagasse wash water has generated 231.50 lakh m<sup>3</sup> of methane gas till 31.3.2008. The methane gas used in lime kiln in replacement of furnace oil facilitated a savings of Rs.23.81 crore upto 31.3.2008. The project has been registered with UNFCC as the country's first CDM project in the waste management sector. The project has generated 163209 CERs upto 31.12.2007.

The Confederation of Indian Industry (CII) has recognised the Bio-Methanation plant as "Innovative Project" and bestowed on the Company the award "Excellence in Energy Management".

In line with the Forest Policy Guidelines to meet the pulpwood requirements, TNPL started implementing pulpwood plantation programmes during the year 2004-05 through two distinctive schemes, namely, Farm Forestry and Captive Plantation. In a short span of four years, the Company has raised pulpwood plantation in 29,966 acres of land involving 6,213 farmers. The Company has planned to increase the plantation area by about 15,000 acres per annum to reach the target of one lakh acres by the year 2012-13.

Pulp and Paper Industry has strong relationship with biotechnology, as raw materials for paper come from the plant source. Realising the importance of biotechnology and its application to the Paper Industry, the Company has set up two major research facilities to work on Plant Biotechnology (plant Tissue Culture and Microbial Biotechnology and bio-energy) in a built up area of 6000 sq.ft. The Company has developed Tissue Culture Protocol for two clones.

The Company has also set up a state-of-art Clonal Propagation and Research Centre (CPRC) for producing about 1.5 crore high quality clones per annum. The saplings raised here are distributed to the farmers at subsidized rates. This is the largest clonal production, research and development centre in the country at a single location with world-class infrastructure facilities. The CRPC comprises of 8000 sq. metre of fogging and misting chambers, 4000 sq.metre of hardening chamber and 10,000 sq. metre of open nursery with updated technology on par with international standards. Mini gardens and breeding orchards are being established in CPRC to carry out breeding and tree improvement woks.

TNPL is committed the society and as part of its social responsibility has implemented several community welfare measures for the benefits of the villages around the mill. TNPL executed a drinking water scheme at a cost of Rs.35 lakhs, for the benefit of these people. TNPL participates by providing financial assistance to infrastructure and road development around its premises. TNPL conducts medical camps at regular intervals in the surrounding villages giving treatment to the patients and supplying medicines free of cost. In addition, these camps focus on educating the people on aspects related to hygiene and good health. Camps are also conducted to look after the welfare of the cattle and livestock around the villages. On the education front, TNPL conducts various skill development courses like Computer training, Apparel training for the poor children and women from the nearby villages and also encourages sports and cultural activities. TNPL has set apart Rs.1 Crore every year towards fulfilling its various obligations under Corporate Social Responsibility.

While carrying forward the Corporate philosophy of customer satisfaction and quality, TNPL strives to make a qualitative difference in the life of the dependent people & to protect the Environment for the generations to come. This has propelled it towards a far reaching tomorrow where everyone can share, resources and live close to nature.

Notwithstanding the highly fluctuating market conditions of paper in India, TNPL has been achieving consistently high capacity utilisation of over 100% and an unique record of "ZERO STOCK" at the end of each financial year since 1989-90, except for 1997-98. TNPL is an ISO 9001 and ISO 14000 certified company with its commitment to satisfy customers with products developed using eco-friendly raw material and at competitive prices. Environmental solution with an approach of sustainable development has always drawn top priority at TNPL.

## ii) Energy Consumption

Cost of Energy in TNPL reduced substantially over manufacturing cost for the last 3 years, which is a good achievement specially for a Newsprint and Printing & Writing Paper Manufacturing mill with 70% Bagasse as raw material. The details of Energy cost for the last 3 years are given below:

		<b><u>2005-2006</u></b>	<b><u>2006-2007</u></b>	<b><u>2007-08</u></b>
Finished Production	(Tons)	2,30,079	2,31,161	2,45,471
Sales Turn over	(Rs.in Lakhs)	77,567.10	85,483.73	93,852.71
Manufacturing Cost	(Rs.in Lakhs)	49,517.42	53,669.14	57,364.57
Power Cost	(Rs.in Lakhs)	6,996.63	7,349.26	7,897.60
Fuel Cost	(Rs.in Lakhs)	5,326.02	5,966.49	6,346.76
Energy Cost	(Rs.in Lakhs)	12,322.65	13,315.74	14,244.36
Energy Cost over Manufacturing Cost	(%)	24.89 %	24.81 %	24.83%
Power/ton of Paper	(Kwh)	1476	1460	1434

- Specific Power consumption is for Newsprint and Printing and Writing Paper combine.
- The power consumption is high for Newsprint.
- The raw material is bagasse 70%, wood 30%. The power consumption is high for Bagasse paper.

## iii) Energy Conservation Commitment, Policy and Setup

The Company has fixed target of reducing Specific Energy Consumption by 5% each year for 4 years to reach International Norms at the end of 4 years.

The company has constituted Energy Conservation Cell consisting of GM (EI and OS), DGM (Utility), Chief Manager (Energy), Manager (Pulp mill), Dy. Manager (Paper Machine) and Dy. Manager (Energy). The cell will work under Director (Operations ) I/c, the Chief of the Mill. The cell meets once in two months to review the operating parameters of energy, which are prepared and monitored on daily basis.

The Energy cell conducts periodically walk through inspection in the mill and record the energy wastage / saving proposals and work out implementation. 5 members of TNPL have undergone training and certified Energy Auditors ( 2members by FICCI and 3 Members by Fuel users association).

#### **iv) Energy Conservation Achievements**

Paper Industry is highly energy intensive with the Energy Bills in the range of Rs 50 -100 Crores per annum for large size mills. The savings in energy generation and consumption costs are the major factors for an industry to sustain market fluctuation and profitability.

#### **ENERGY CONSERVATION PROJECTS IMPLEMENTED DURING 2007-2008**

##### **1. Installation of Centrifugal Air Compressors**

Investment (Rs Lakhs)	150
Savings per annum (Rs Lakhs )	52.25

7 Nos. Reciprocating Air Compressors replaced with 2 Nos. Energy efficient Turbo Air Compressors resulting in savings of 19,00,000 Kwh per annum.

##### **2. Installation of Vapour Absorption Machine**

Investment (Rs Lakhs)	250
Savings per annum (Rs Lakhs )	113

Installation of Vapour Absorption Machine of 1000 TR capacity and replacing the existing Freon -22 gas Vapour Compression System and Replacing all Window Split AC units Mill wide

##### **3 Installation of Single High Efficiency Recovery Boiler**

Investment (Rs Lakhs)	8000
Savings per annum (Rs Lakhs )	823.7

Installation of single high capacity Recovery boiler with higher efficiency that can fire 1300 TPD and 3.4kg/kg of dry solids to replace the old two recovery boilers of firing capacity of 650 tons/day. A benefit of net additional steam of 30 t per day at 64 Kg/ Sq. cm is achieved by stopping the old boilers and firing the solids in the new recovery boiler. The total annual savings of Rs. 82.37 million. The savings will be got in the next year.

##### **4 Installation of Falling Film Evaporator of 350 TPH capacity.**

Investment (Rs Lakhs)	4000
Savings per annum (Rs Lakhs )	271.66

Installation of Falling Film Evaporator of 350 TPH and steam economy of 6.45 T/T at a cost of Rs 40 Crore,

#### **5. Replacment of energy efficient fan in Cogen Cooling tower.**

Investment (Rs Lakhs)	2
Savings per annum (Rs Lakhs )	1.95

In Co-Generation Cooling Tower one no. of the fan (30KW ) repalced with energy efficient fan (22KW) with increased air flow and achieved 65,000 kwh savings per annum

#### **6. Air pre- heater tubes changing in Boiler # 4**

Investment (Rs Lakhs)	2
Savings per annum (Rs Lakhs )	9

Boiler # 4 -Air pre-heater damaged tubes replaced and arrested heavy air infiltration and power saving of 3,00,000 kwh per annum on ID and FD fans achieved.

#### **7. Replacing 1000 Nos. fluorescent lamps with Energy efficient lamps**

Investment (Rs Lakhs)	.56
Savings per annum (Rs Lakhs )	1.51

1000 Nos. of Fluorescent lamps were replaced with Energy Efficient Lamps with annual energy savings of 55,000 units.

#### **8. Firing Bio methane gas in Lime Kiln**

Investment (Rs Lakhs)	Nil
Savings per annum (Rs Lakhs )	648.11

55 Lakh Cu.m of Bio methane gas is generated from baggasse wash water and fired in Lime kiln & boiler and saved 3303 KL of Furnace oil.

#### **9.Installation of additional Reactor of Bio-Methanisation Plant**

Investment (Rs Lakhs)	650
Savings per annum (Rs Lakhs )	180

Installation of additional Reactor of Bio-Methanisation Plant to generate 18 lakh cubic metre per annum additional Methane Gas equivalent to 900 KL of Furnace Oil per annum

## 10.Firing Waste Effluent Sludge generated in the plant

Investment (Rs Lakhs)	N I L
Savings per annum (Rs Lakhs )	45.14

15500 MT of Waste Effluent Sludge generated in the plant fired in the Boiler and saved 2250 MT of Coal

### v) Energy Conservation Plans and Target

The target of reducing energy consumption by 5 % every year for 4 years is fixed by the company. The Energy Cell and Certified Energy Auditors of the company are regularly inspecting mill sections to find and arrest energy waste. We are propagating awareness among all employees for Energy Conservation

### (vi) Environment and Safety

#### Environment

TNPL is ISO 14000 Certified Company. This clearly demonstrates the commitment of TNPL management on genuine sustainable development. Thanks on a whole series of measures such as changes in process, improved effluent treatment systems, better management of solid wastes through recycling, continuous monitoring. TNPL can confidently assert that it is among the best environmentally compliant mills in India.

Currently, TNPL' s effluents completely adhere on the norms set by the TNPCB. TNPL's efforts are geared to go further. Pilot studies have established that the MLSS generated from the activated sludge process together with some pith can be compressed. The resultant compose has been well received by farmers. The bagasse wash stream can be processed through an up flow anaerobic reactor to reduce the BOD/COD and to generate biogas. This is planned to be implemented shortly. The biogas can replace furnace oil in the lime kiln.

On air quality, TNPL has installed ESPs for all 5 Nos. of coal fired boilers and 3 Nos. Soda Recovery black liquor fired boilers. The SPM of Stacks are maintained at 80 mg/m<sup>3</sup> much below the norms of 150 mg/m<sup>3</sup> specified by TNPCB.

The Loyola Institute of Business Administration (LIBA) Chennai has adjudged TNPL as the " Best Corporate Citizen 1999" and bestowed the prestigious Mother Teresa Award by recognizing TNPL' s outstanding social commitment, professional management, exploring eco-friendly technology, ethically conscious and compassionate concern for the welfare of the weak and underprivileged.

As a testimony of TNPL' s commitment to the protection of the environment, Worldwide Fund for nature India has accorded permission to TNPL to use their " Panda " logo in TNPL's branded products.

## **Safety**

TNPL has a clearly defined Safety Policy. The Safety Policy specifies in detail the responsibility for implementation of Safety measures. Prevention of personal injury, accident Reporting System and Statutory Reporting System.

TNPL's Safety Committee is represented by Management members and workmen members nominated by Unions. Periodic committee meetings are conducted and suggestions of the members are implemented.. TNPL Safety Committee Members had visited other paper mills like HNL- Kottayam and MPM – Bhadravathi to observe the safety measures adopted in these mills and to improve our mill's safety standards.

Periodic Mock Drills on major hazardous chemicals like Chlorine Gas leakage and major incidents like fire were conducted. Accidents and incidents within the Factory have been documented and preventive corrective measures are implemented.

Periodic training programmes are conducted for workmen, officers and staff. Special training programme on safe handling of Chlorine and fire are organised.

Periodic testing of all pressure vessels like Air Receivers, Digesters, Pressure filters are carried out in collaboration with The Deputy Chief Inspector of Factories (Testing and Safety). Periodic testing of lifting tackles/machines are carried out by competent persons from TNPL authorised by Chief Inspector of Factories, Tamil Nadu.

Loss Prevention Association of India Limited, Chennai conducted mill wide Safety Audit. Their findings and recommendations are implemented to prevent personal injury and property damage.

TNPL has been provided with mobile and fixed fire hydrant system/facilities. Two mobile fire tenders are available. The entire mill is provided with fire hydrant points with pressure water mains.

All Safety reporting systems, testing procedures, inspection procedures are brought under ISO 9001 Documentation. Periodic audits are conducted.

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