CHAPTER - IV

PROFILE OF THE SELECTED PAPER MILLS

4.1. Introduction - Paper Industry in Tamil Nadu

An attempt has been made in this chapter to discuss the profile of the two paper mills viz, Tamil Nadu Newsprints and Papers Limited and Seshasayee Papers and Boards Limited. Data for this chapter have been mainly collected from the Annual Reports of the respective paper mills.

Tamil Nadu is one of the well-developed states in terms of industrial development. It has enjoyed a significant position in India’s geopolitical space and economic progress. It has logistical advantages due to presence of three major sea ports, an international airport and several domestic airports. It possesses quality human resources. A peaceful industrial climate and a positive work culture which have strengthened Tamil Nadu’s standing in the industrial world. Tamil Nadu continues to be one of the forerunners in the production of paper and paper products. According to the Food and Agricultural Organization of the United Nations estimates India’ forest cover to be about 68 million hectares or 24 per cent of the country’ area and as the country’s forest cover is much below the desired level, the Government of Tamil Nadu established TNPL in 1979 to manufacture newsprint and paper using bagasse (sugar cane waste) as the primary raw material.

The Table 4.1 indicates the total production of 88 paper mills in the state of Tamil Nadu. In the year 2005-2006, the total production of paper was 3.7 lakh tonnes and it has increased continuously to 5.3 lakh tonnes in the year 2009 - 2010.
Table 4.1: Total Paper Production in Tamil Nadu (in lakh tonnes)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Paper Production in Tamil Nadu</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-2006</td>
<td>3.7</td>
</tr>
<tr>
<td>2006-2007</td>
<td>4.0</td>
</tr>
<tr>
<td>2007-2008</td>
<td>4.4</td>
</tr>
<tr>
<td>2008-2009</td>
<td>4.8</td>
</tr>
<tr>
<td>2009-2010</td>
<td>5.3</td>
</tr>
</tbody>
</table>

Source: Indian Pulp and Paper Technical Association Industrial Directory, 2010

Tamil Nadu is engaged in the manufacture of writing and printing of paper and newsprint. It is the second largest producer of writing and printing paper in Southern India and has the largest plant in the country in terms of capacity. Tamil Nadu is the largest producer of the bagasse based paper in the world. Especially most of it is manufactured in TNPL. The products are being marketed throughout the country and are also being exported to 20 countries, namely, Australia, Egypt, Greece, Indonesia, Jordan, Kenya, Malaysia, Nepal, Nigeria, Philippines, Singapore, Sri Lanka, South Africa, Taiwan, Turkey, U.A.E, UK and Yemen.

4.2. TAMILNADU NEWSPRINTS AND PAPER LIMITED

4.2.1. Introduction

The Tamil Nadu Newsprint and Papers Limited is the first successful integrated newsprint mill and it is a public undertaking of the Government of Tamil Nadu. It proves the values of mixed economic system, as the private and public sectors show up valuable co-ordination in economic activities. The top level administration of the TNPL is with the Government of Tamil Nadu. But at the lower level management level of administration and management are different from the public sector since the TNPL having entered into market system to issue shares and debentures, performs as a private organization. The Government of Tamil Nadu set up TNPL in 1979 as a Public Sector Company under the Companies Act, 1956. The TNPL is the largest paper mill in India.
The factory is situated at Kagithapuram in Karur District of Tamil Nadu. And it is 21kms away from Karur. The TNPL has been commissioned in 800 acres of land. Kagithapuram is a Tamil term derived from Kagitha (m) + Pura (m). Kagitham means paper and puram means place of living. According to a Government Order, a part of the Puchai Pugalur Panchayat and a part of
Thirukkaduthurai Village have been selected to commission TNPL and thus a new town panchyat of Kagithapuram was established in 1985. The Kagithapuram town panchayat consists of TNPL industrial colony and 12 other villages. There are certain characteristics of that area which are important to the location of Kagithapuram. They are:

- The village surrounding Kagithapuram are sugarcane surplus areas.
- Kagithapuram is a low intense industrial area that needs industrial development.
- The location is rural and industrially backward such that it had the chance to start a large industry like the TNPL.
- The basic infrastructure such as transport and communication are at a desirable level.
- Human resource availability is also at the desirable level.
- The basic environmental factors such as air, climate, weather, low population density characterizes the place and there is no forest close to the TNPL that could be degraded by it.

Karur district is covered with fairly developed network of roads, connecting all important towns and business centers with it. The National highways 7 and National highways 45 which go through this district and connect Tiruchirapalli town which is an important business and industrial centers in Tamil Nadu, facilitating easy transportation of raw materials and finished goods. The road transport helps to bring the basic raw material such as coal from Neyveli, woods from Palani hills, waste paper and pulp from Madras Seaport. In turn, the finished products such as newsprints and paper products are transported from TNPL to various places in the country. The Karur district has a well-developed network of railways suitable for industrial development. The board gauge railways at Pugalur connect the TNPL and
are utilized by the TNPL as complementary to road transport. The bulk of raw materials, machinery and finished products are transported by the rail transport with minimum freight charges. The nearest sea port is Nagapattinam which is about 200 kms away from TNPL. This small seaport is more suitable for export of finished goods of TNPL to the nearest countries of Sri Lanka, Malaysia, Cambodia and Indonesia. TNPL helps to earn foreign exchange through the international trade of its product paper. Continuous growth with latest technology has become a significant place in the Indian paper industry with the distinction of the “second largest producer of uncoated wood-free paper in the country”.

4. 2.2. Financial Structure of TNPL and Technology

Although TNPL is a public sector undertaking, its total amount of investment is a strain of the state finance. The TNPL’s project cost was Rs.2400 million in 1979, of which 980 million was accrued through the public shares and debentures issues. At that time the World Bank extended a loan of US $100 million for financing the cost of the project. The project cost in Rupee value would be Rs.8000 million. Encouraged by the performance, the company initiated the implementation of an expansion project by doubling its capacity. Under this scheme, it has erected a new paper machine supplied by J.M Voith of Germany. TNPL has already been availed of a loan of US $75 million by the World Bank and this has been used to finance the cost of the imported and indigenous equipment.

The key features of the TNPL

- The largest bagasse based plant in the world and a mill with largest production capacity in India, at a single location.
The only paper mill in India assisted by the World Bank.

Doubled the capacity within a period of 10 years from its inception.

Unique arrangement with the sugar mills for sourcing the raw material in the form of exchange of steam / fuel for bagasse.

State – of – the – art paper machine with built in flexibility for manufacturing both newsprint and printing and writing papers in the same machine.

4.2.3. Vision of TNPL

“To be the market leader in the manufactures of world class eco-friendly papers by adopting innovative technologies for sustainable development”.

4.2.4. TNPL’s Mission

- Attain leadership in paper technology.
- Promote the usage of bagasse in the manufactures of newsprint and printing & writing papers.
- Minimize environmental impact and becomes an environment friendly organization.

4.2.5. TNPL Product Profile

TNPL’s Branded Product

In the highly competitive market, TNPL has carved itself of being a market leader which offers high quality products for digital application.
TNPL Copier – Platinum

This is one of the widely used photocopy papers in India. It is manufactured with optimized fibre orientation. This ensures jamless duplex running wrinkle free copying with high dimensional stability. From high volume commercial copying to high quality specialty copying, this paper is the highest selling paper in India.

TNPL Copy Crown

This is the most preferred paper amongst the corporates and is used for all day-to-day needs of an office. This paper performs to its best when used in Laser, Inkjet, Plain paper fax machines and digital copiers. A high quality premium copy paper which is specially earmarked for export. This cut-sized papers comes in A4 size in 75 gsm and 80 gsm varieties.

TNPL Perfect Copier

This is best suited for high quality high volume printing documentation. It can be used with Inkjet and Laser Printers.

TNPL Eezee Write

TNPL’s ready-to-use packaged writing papers. This paper makes writing on it a pleasure. Writing paper are made available in popular sizes and gsms. This bright and smooth surfaced papers makes smooth writing on it.

TNPL – Printer’s Choice

High quality branded paper for publishing and printing.
**Eco-Friendly Exercise Notebooks**

To cater to the needs of student community, TNPL produces premium soft-bound notebooks. These notebooks come in an attractive and trendy wrapper designing, durable binding and high quality paper for smooth and hassle-free writing. TNPL notebooks come in different sizes and in attractive price ranges.

**Premium products for high quality printing paper by TNPL**

**Print Vista**

Print Vista is considered to be an ideal for high-end printing segments like diaries, calendars, annual reports, brochures and catalogues. The product comes with excellent surface features giving a fine texture and high opacity.

**Pigment Paper**

This is a specially designed paper and has the properties of a light-weight coated paper which is largely used in publications, brochures, magazines and annual reports.

**Elegant Printing**

This is one of the most preferred papers among printing segments like diaries, calendars manufactures and text book manufactures for its excellent surface finish and brightness.
Super Print Maplitho

This is an economic and best suited for high speed printing. This product consumes lesser Ink while favouring high degree of runnability.

Hi-tech Maplitho

An economical paper offering a high brightness, strength stiffness and is best suited for multi-color printing and high speed web offset printing.

Radiant printing

It is ideally suited for commercial grade printing of text books, brochures, and student exercise note books.

Ace Marvel

A wonderful product which is ideal for different end application requirements such as thermal and carbonless coating. With excellent internal bonding strength, this paper is used for making note books, dictionaries and computer stationery.

Off-set orienting

This is an ideal for high speed commercial offset printing, stationery and low-end text books.

Cream wove

This is an ideal for examination paper, general writing, text books and note books.
4.2.6. Technology of Tamil Nadu Newsprints and Papers Limited

A manufacturing unit can be globally competitive only through economies of scale and continuous up gradation of technology. Tamil Nadu Newsprints and Papers Limited has two high speed paper machines supplied by M/s. Beloit Walmsley Ltd., U.K. and M/s. Voith Paper, Germany. The paper machines have the unique flexibility of producing both newsprint and printing and writing paper. TNPL has started its growth from an initial capacity of 90,000 metric tonnes per annum. Through capacity extension and up gradation of machines, TNPL has continuously made efforts towards the betterment of its bagasse and paper technology. The Company has maintained its status as a globally competitive low cost producer. TNPL’s infrastructure consists two of the world’s finest new generation paper machines. On the whole, these machines can deliver 750 tonnes per day of printing and writing paper. The Nipcoflex Press shoe installed in both the machines facilitates increased machine speeds and quality of paper. The installation of two of the world’s best sheeting and packaging machinery has enhanced TNPL’ paper to international standards.

4.2.7. Mill Development Plan

The company has implemented mill development plan in May 2008. Under this plan, a new tonnes per day state-of-the –art hardwood pulp line with Elemental Chlorine Free (ECF) bleaching and 500 tonnes per day ECF bleaching plant for chemical bagasse pulp line has been installed. With the implementation of the mill development plan, TNPL has shifted from conventional bleaching to Elemental Chlorine Free (ECF) bleaching. This has made the plant more efficient and effective.
The mill development plan has helped in reduction of water consumption besides enhancing the paper production capacity from 2, 35,000 to 2, 45,000 tonnes. A new recovery boiler of 1300 tonnes per annum, a falling film evaporator of 350 tonnes per day water evaporation capacity, a new 20 Megawatt turbo generator and a fully integrated 15 tonnes per day chlorine-di-oxide plant have also been added as a part of the mill development plan.

4.2.8. Life Cycle Extension

TNPL has implemented the life cycle extension of paper machine I during April 2009. The old head box was replaced with a new head box. Improvements have been carried out in press frames, size press, pope reel and winder.

4.2.9. Mill Expansion Plan

TNPL has started the mill expansion plan with a capital outlay in this was Rs.1000 crores. The mill expansion plan aimed at increasing the paper production capacity from 2, 45,000 tonnes to 4, 00,000 tonnes per annum. The machine has 5.45 deckle operating at 1100 meter per minute speed capable of producing pigmented and surfaced sized varieties. The mill expansion plan involves installation of a state-of-the-art paper machine with a production capacity of 1, 55,000 tonnes per annum of fine paper, for improving the better pulp quality, backward integration of chemical bagasse pulp line by installing high efficient washers for the brown stock pulp with oxygen delignification and closing the brown loop to enhance the environmental performance and installing a multi-fuel boiler with steam generation capacity of 125 tonnes per hour. This leads to the reduction in the environmental
damage by using less water and less chemicals. This project was completed by June 2010.

4.2.10. De-inking Plant

In the meanwhile taking into consideration, the additional requirement of pulp, the company has installed a de-inking plant and this project was completed by 2011. De-inking is the process of removing ink and various types of contaminants from waste paper and makes reusable pulp for paper making. De-inking plant line gives tremendous flexibility in managing the raw material supply chain to meet the annual production target. Installation of a 300 tonnes per day De-inked pulp line was completed for enhancing the paper production.

4.2.11. Revamping of steam and power system

To improve the energy efficiency, the company has replaced 3 old low pressure boilers with a total capacity of 180 tonnes per hour with a new 120 tonnes per hour high pressure boiler. Also the company has made efforts to replace the two old TG sets of total capacity of 18 Mega Watt with a new high efficient TG of 40 Mega Watt capacity to augment the in house power generation to meet the additional requirement of power. This project was also completed by September 2011. With the revamping of steam and power system, TNPL has become self-sufficient in power.
4.2.12. Lime Sludge Management

The lime sludge generation from the recovery cycle and the fly ash generated from the power boilers are combined to convert them into high grade cement with the installation of a mini cement plan within the factory.

4.2.13. Installation of PCC and WGCC plant on BOO basis

Precipitated calcium carbonate (PCC) and Wet Ground Calcium Carbonate (WGCC) are used as fillers. TNPL has entered into an agreement with M.s Omya India Limited, a fully owned subsidiary of M/s.Omya ,Switzerland to st up PCC and WGCC plant on Build, Own and Operate basis.

4.2.14. ISO Certification

Continuous growth with latest technology TNPL has become a significant place in the Indian paper industry with the distinction of the “second largest producer of uncoated wood- free paper in the country”. TNPL has obtained the ISO 9001-2000 certification from Rheinisch Westfalischer Technischer Überwachungs Verein (German Technical Monitoring Society) of Germany for development, manufacture and supply of newsprint and printing & writing paper. It has also obtained the prestigious ISO 141001 certification from RMTUV of Germany for successfully establishing and applying environmental management system for development, manufacture and supply of paper.
4.2.15. TNPL and Environment

TNPL is fully committed to the environment upholding human safety and well-being. The commitment is reflected in TNPL’s minimum impact best process technology, green production, resources conservation, responsible waste management and reduced pollution load, making it one of the most environmentally compliant paper mills in the country. The usage of bagasse as a primary raw material helps to conserve over 30,000 acres of forest land in a year. TNPL’s effluent treated water is used for irrigation in 1500 acres of land abutting the factory. These lands are now under continuous use of production of sugarcane, sunflower, tapioca, groundnut and gingili. The wind farm for power generation at Devarkulam and Perungudi in 1993-94. The TNPL is the first Clean Development Mechanism (CDM) project in world in pulp and paper industry. It is also the first CDM project in India in the waste management sector registered units UNFCCC(United Nations Framework Convention on Climatic Change). TNPL have installed tallest chemical recovery boiler. TNPL primarily uses bagasse, an environmentally benign raw material, for producing paper instead of wood and thereby avoids denudation of trees in more than 40,000 acres every year.

4.2.16. TNPL and Captive Plantation

Captive plantations are raised in the lands belonging to the Company, government departments, educational institutions and individuals on a revenue sharing basis or on a lease rental basis. The minimum criteria for captive plantation is that the land should be a block of 25 acres and above in single location where less than 25 acres is also considered only in the case of adjoining lands of existing
captive plantation, provided the adjoining areas should be contiguous to the existing plantation. TNPL enters into a Memorandum of Understanding with the owners of such lands for raising captive plantation and undertaking the responsibility of land development, maintenance of plantation and harvests on the pulp wood at TNPL’s expense. The land would be taken either on long term lease spanning over a period of 6 to 30 years or on gross revenue sharing basis. The plantation is raised in a barren land, the produce is shared between TNPL and the land owner on a 70-30 basis and in case of wet lands, the revenue sharing pattern is 60: 40. In the case of lease mode, the rent for a barren land is Rs.1, 000/- per acre, whereas for an irrigated land it is Rs.3, 000/- per acre every year paid to land owner and the entire product is taken by TNPL. TNPL has raised plantation in 37556 acres involving 8,235 farmers in twenty eight districts in Tamil Nadu under farm forestry scheme and 2,735 acres under captive plantation scheme. TNPL has established pulpwood plantations in 40,291 acres. TNPL has started the plantation programme under two categories, namely, farm forestry and captive plantation. Under the farm forestry scheme, plantations were raised in 1,890 acres of dry farm lands involving 480 farmers in six districts of Tamil Nadu. Under this scheme, 15.51 lakhs of Eucalyptus hybrid variety and casuarina seedling were supplied to the farmers at subsidized cost. Farmers were supplied 33,000 Eucalyptus clonal ramets under this scheme. Bank loans have been arranged for the farmers for raising pulp wood plantation in their dry lands. Bipartite agreement have been signed with 435 farmers with assured purchase of pulp wood at the prevailing market rate at the time of harvest subject to the minimum price guaranteed in the agreement. TNPL proposes to raise pulpwood plantation in 5, 000 acres under farm forestry scheme. Under the captive
plantation programme, TNPL has raised pulpwood plantation in 1, 185 acres comprising lands leased from the government under the Comprehensive Wasteland Development Programme and other public agencies. TNPL proposes to raise pulpwood plantation in 1,000 acres under the captive plantation programme.

4.2.17. Clonal Propagation and Research Centre

TNPL established clonal propagation and research center (CPRCD) to achieve self-sufficiency in planting material and production of quality clonal / seedling plants with a capacity of 15 million plants per annum. The clonal production center was started with mini clonal garden of open nursery with updated technological innovations as per international standards. The clonal production center was established at an outlay of about Rs.500 lakhs. This is considered to be a milestone in the plantation activities and assured quality planning material availability throughout the year. The above plantation schemes are being implemented throughout Tamil Nadu through 10 Regional offices in Karur, Manaparai, Tirunelveli, Karaikudi, Pudukottai, Namakkal, Tiruchy, Thanjavur, Jayangondam and Panruti and providing advice and technical assistance to the tree growers. TNPL has acquired 780 acres of land for the original project and developed as a part of its factory and non-factory buildings and housing colony. The corporate office is located at Guindy, Chennai.

4.2.18. Awards and Accolades

In pursuit of excellence, TNPL has won many awards for its continuous innovations and constant improvement in all spheres of its activity.
Best paper Mill Awards 2007-2008

The TNPL has bagged the prestigious "Best Paper Mill of the year 2007-2008 award" in recognition of the Indian paper mill which sets an example in the areas of productivity, quality, human resources development, research and development, developing export markets and community services besides striving to attain global competitiveness.

The company received the award 2001–2002 for overall performance, approaches for meeting social obligations, ensuring global competitiveness and sustainable development and technology.

Certificate of Excellence

TNPL bagged the certificate of excellence in productivity, quality, innovation and management from the Institute of Economics Studies, New Delhi.

Export Award

TNPL has received the CAPEXIL "Special Export Award" for 10 consecutive years for its outstanding performance. The Government of India has given "Trading House" status to TNPL recognizing the export performance. TNPL has also been bestowed the "Nityashree Award" by the Federation of Indian Export Organization (FIEO) for the high degree of excellence as it has demonstrated in exports.
Excellence in cost management

TNPL has bagged the ICWAI National Awards for "Excellence in cost management" in 2008 under the category of public sector manufacturing organization. The Award was given by the "Institute of Cost and Works Accountants of India" (ICWAI) for the best costing practices adopted by the company.

Energy Award

TNPL has received "National Award" for Excellence in Energy Management in 2009 and 2010 and has received the "Best Energy Conservation Award" for the year 2007 from the Government of Tamil Nadu. The company received the National Conservation Award in the office building sector in the year 2006 from the Ministry of Power, Government of India, New Delhi. TNPL has bagged the National Energy Conservation Award for the year 2001 from Government of India in recognition of its outstanding achievement in energy management.

Best Corporate Citizen

Loyola Institute of Business Administration (LIBA) Chennai, judged TNPL as the "Best Corporate Citizen 1999" and bestowed the Mother Theresa Award by recognizing its outstanding social commitment, exploring eco-friendly technology, professional management, customer friendly and community caring enterprise.

Excellence in Corporate Governance

The Institute of Company Secretaries of India (ICSI), New Delhi has conferred on TNPL, the National Award for "Excellence in Corporate Governance"
in 2004 and this was the first time such a prestigious award in Corporate Governance was been given to a state public sector undertaking.

**Environment Award**

TNPL has bagged Green Award in 2012, for excellence in water management, and most innovative environmental projects awards.

**Corporate Social Responsibility Award**

TNPL has bagged the CSR award from Government of Tamil Nadu for its extra ordinary services rendered to rural and urban development through its CSR activities.

**4.2.19. TNPL and Safety**

TNPL has adopted a clearly defined occupational health and safety policy. Personal protective equipment are provided to all employees. Safety Training Programmes on various safety aspects are conducted regularly to improve safety awareness and compliance among the employees. Safety Committee with representatives from the Management and Workmen have been constituted. Safety Committee meeting are conducted periodically and suggestions are implemented. Accidents and incidents within the factory are documented and preventive/corrective actions are taken. Two mobile fire tenders are available within the mill.

**4.2.20. Printing and Writing paper**

Tamil Nadu Newsprints and Papers Limited makes direct sales as well as sells the printing and writing papers through Indentors. TNPL is having a network of Indentors throughout the country. The indentors procure order from a customer and
are responsible till the company receives payment from that customer. The indentors are appointed by the company taking into consideration certain factors such as financial status, past performance and experience. The indentors will collect the orders from the retailers and forward the same to the marketing department of the company. The indentors take risk and process the orders from the consumers and retailers for which they are guaranteed for a turnover discount per metric tonnes. The marketing department consolidates the orders and gives information to production department for manufacture of required paper with the date of paper despatch. The production department produces the particular variety of paper and delivers it to the marketing godown. Then the marketing department will inform the customer and the Head Office marketing department. Then the finished product will be arranged for transportation. Exports are done through export dealers. Some of the major consumers of TNPL are: M/S. Navaneet Publications, Ahmedabad, Tamil Nadu Text Book Corporation, Kerala Book and Publication Society and Director of Stationary and Printing.

The competitors for TNPL are JK Papers, Seshasayee Papers and Paper Boards Limited, ITC Bhadrachalam Papers Limited, Ballarpur Industries and Sirpur Papers.

TNPL is committed to:

- Produce eco-friendly quality paper adopting environment friendly technologies
- Improve environmental performance through sustained R & D efforts and continual improvement in the processes
- Comply with all relevant environmental legislation and regulation
• Stimulate rational use of resources through behavioural and technological improvements
• Minimize waste and maximize recycling/reuse
• Creating social and ecological awareness among the work force.

4.2.21. Corporate Social Responsibility

Tamil Nadu Newsprints and Papers Limited have constituted a Corporate Social Responsibility Committee consisting of five independent Directors as members of the Committee. The Committee has formulated a CSR Policy. As per revised CSR policy formulated after implementation of the Companies Act, the company is committed to spend at least 2 per cent of the profits after tax of the previous year for CSR activities but not lower than 2 per cent of average of previous three years profit after tax. TNPL has spent Rs.327 lakhs for CSR activities during 2013-2014 and has proposed an allocation of Rs.450 lakhs for CSR activities during the year 2014-2015.

4.2.22. Energy Consumption of TNPL

TNPL has purchased and owned power for the manufacture of papers. The data presented in the Table 4:2 clearly indicate the power consumption details of the TNPL such as the units of power used for the production of paper, energy charges, MD and other charges, total charges and the rate per unit under the Purchased category and units generated through steam turbine generator, cost per unit and units generated through wind turbine generator and cost per unit under the category of owned generation. Under the purchased category, there are fluctuations in the total amount and under the own generation category, there are fluctuations in both steam turbine generation as well as in wind turbine generation.
Table 4.2: Energy and Power consumption of TNPL.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Power - Unit in KWH</th>
<th>Purchased Unit charges in lakhs</th>
<th>MD Charges</th>
<th>Total Amount</th>
<th>Rate per unit</th>
<th>Own generation through steam turbine generator</th>
<th>Cost per unit</th>
<th>Own generation through wind turbine generator</th>
<th>Cost per unit (Tc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-2002</td>
<td>138.72</td>
<td>494.52</td>
<td>515.91</td>
<td>1,010.49</td>
<td>7.28</td>
<td>3,297.76</td>
<td>1.43</td>
<td>265.51</td>
<td>2.36</td>
</tr>
<tr>
<td>2002-2003</td>
<td>8.74</td>
<td>29.39</td>
<td>412.35</td>
<td>441.74</td>
<td>3.36</td>
<td>4,113.35</td>
<td>1.2</td>
<td>267.03</td>
<td>2.14</td>
</tr>
<tr>
<td>2003-2004</td>
<td>12.15</td>
<td>43.52</td>
<td>366.7</td>
<td>410.22</td>
<td>3.58</td>
<td>4,129.64</td>
<td>1.33</td>
<td>282.95</td>
<td>2.07</td>
</tr>
<tr>
<td>2004-2005</td>
<td>14.52</td>
<td>53.38</td>
<td>346.37</td>
<td>399.91</td>
<td>3.68</td>
<td>3,810.56</td>
<td>1.58</td>
<td>348.86</td>
<td>2.14</td>
</tr>
<tr>
<td>2005-2006</td>
<td>14.76</td>
<td>54.23</td>
<td>362.07</td>
<td>416.3</td>
<td>3.68</td>
<td>4,280.18</td>
<td>1.64</td>
<td>309.31</td>
<td>2.64</td>
</tr>
<tr>
<td>2006-2007</td>
<td>44.59</td>
<td>163.87</td>
<td>345.2</td>
<td>509.07</td>
<td>3.68</td>
<td>4,492.62</td>
<td>1.75</td>
<td>451.81</td>
<td>2.62</td>
</tr>
<tr>
<td>2007-2008</td>
<td>24.31</td>
<td>89.68</td>
<td>378.65</td>
<td>468.34</td>
<td>3.69</td>
<td>4,143.98</td>
<td>1.75</td>
<td>543.19</td>
<td>2.67</td>
</tr>
<tr>
<td>2008-2009</td>
<td>8.73</td>
<td>32.09</td>
<td>567.61</td>
<td>599.7</td>
<td>3.68</td>
<td>3,994.88</td>
<td>2.53</td>
<td>526.6</td>
<td>2.67</td>
</tr>
<tr>
<td>2009-2010</td>
<td>21.72</td>
<td>79.83</td>
<td>339.48</td>
<td>419.31</td>
<td>3.68</td>
<td>4,103.81</td>
<td>2.06</td>
<td>644.3</td>
<td>1.92</td>
</tr>
<tr>
<td>2010-2011</td>
<td>16.01</td>
<td>64.65</td>
<td>354.68</td>
<td>419.33</td>
<td>4.04</td>
<td>4,561.23</td>
<td>2.37</td>
<td>598.7</td>
<td>2.02</td>
</tr>
<tr>
<td>2011-2012</td>
<td>92.49</td>
<td>388.47</td>
<td>515.13</td>
<td>903.6</td>
<td>4.2</td>
<td>5,325.71</td>
<td>2.66</td>
<td>507.28</td>
<td>2.17</td>
</tr>
<tr>
<td>2012-2013</td>
<td>88.19</td>
<td>571.64</td>
<td>391.37</td>
<td>963.01</td>
<td>6.48</td>
<td>5,233.31</td>
<td>2.73</td>
<td>586.59</td>
<td>1.76</td>
</tr>
<tr>
<td>2013-2014</td>
<td>45.06</td>
<td>327.32</td>
<td>621.41</td>
<td>948.74</td>
<td>7.26</td>
<td>5,650.3</td>
<td>3.01</td>
<td>522.07</td>
<td>2.07</td>
</tr>
</tbody>
</table>

Source: Annual Reports of TNPL (various years)
4.2.23. Fuel Consumption of TNPL

The data presented in the Table 4:3 states that TNPL has used indigenous coal, imported coal, raw lignite, furnace oil, pith, agro fuel, black liquor solids, lagoon sludge, bio-methane gas, MLSS pith and others, wood bark/dust for manufacturing papers. The quantity of each and every component except furnace oil has been represented in the Table 4:3 in terms of metric tonnes and furnace oil in terms of litres for the manufacture of papers by TNPL.
Table 4.3: Fuel consumption of TNPL

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Indigenous coal</th>
<th>Imported coal</th>
<th>Raw lignite</th>
<th>Fur-nace oil</th>
<th>Pith</th>
<th>Agro fuel</th>
<th>Black liquor solids</th>
<th>Lagoon sludge</th>
<th>Bio-methane gas</th>
<th>MLSS Pith and others</th>
<th>Wood bark/dust</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-2002</td>
<td>17704</td>
<td>239719</td>
<td>32974</td>
<td>9308</td>
<td>86759</td>
<td>13883</td>
<td>180133</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002-2003</td>
<td>45819</td>
<td>257887</td>
<td>15475</td>
<td>8209</td>
<td>81939</td>
<td>8230</td>
<td>180257</td>
<td>14364</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003-2004</td>
<td>8598</td>
<td>269609</td>
<td>2089</td>
<td>9831</td>
<td>89324</td>
<td>2459</td>
<td>207385</td>
<td>23737</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004-2005</td>
<td>44528</td>
<td>272746</td>
<td>6006</td>
<td>7723</td>
<td>104643</td>
<td>7167</td>
<td>199071</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005-2006</td>
<td>4136</td>
<td>360803</td>
<td>0</td>
<td>8092</td>
<td>88950</td>
<td>2037</td>
<td>228991</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006-2007</td>
<td>2637</td>
<td>370456</td>
<td>4343</td>
<td>7760</td>
<td>69039</td>
<td>549</td>
<td>234560</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007-2008</td>
<td>14814</td>
<td>270203</td>
<td>52074</td>
<td>7562</td>
<td>61385</td>
<td>23747</td>
<td>227371</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-2009</td>
<td>62629</td>
<td>210045</td>
<td>40277</td>
<td>13813</td>
<td>95193</td>
<td>6034</td>
<td>346437</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009-2010</td>
<td>59423</td>
<td>212514</td>
<td>0</td>
<td>12688</td>
<td>35031</td>
<td>134</td>
<td>402067</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010-2011</td>
<td>45236</td>
<td>272706</td>
<td>0</td>
<td>12781</td>
<td>42391</td>
<td>1664</td>
<td>404719</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-2012</td>
<td>31708</td>
<td>344841</td>
<td>0</td>
<td>13779</td>
<td>77022</td>
<td>1100</td>
<td>458946</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012-2013</td>
<td>19648</td>
<td>356969</td>
<td>0</td>
<td>13282</td>
<td>69992</td>
<td>504</td>
<td>483015</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013-2014</td>
<td>13882</td>
<td>413431</td>
<td>1626</td>
<td>16235</td>
<td>84487</td>
<td>380</td>
<td>475281</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Annual Reports of TNPL (various years)
TNPL, Kagithapuram, Karur district is next to Velayuthampalayam and is located in Tamil Nadu, India. The factory premises are shown below

Figure 4.1 Factory Premises of TNPL, Kagithapuram
4.3 Seshasayee Paper and Boards Limited (SPBL) - company profile

4.3.1. Introduction

Seshasayee Paper and Boards Limited (SPBL), the flagship company belonging to "ESVIN GROUP" operates an integrated pulp, paper and paper board Mill at Pallipalayam, Erode–638007, Namakkal District, Tamil Nadu, India. SPBL was incorporated in June 1960 and was promoted by Seshasayee Brothers (Pvt) Limited in association with a foreign collaborator M/s Parsons and Whitemore, South East Asia Inc, U.S.A. After commencement of commercial production, having fulfilled their performance guarantee obligation, the foreign collaborators withdrew in 1969. SPBL commenced commercial production in December 1962, on commissioning 20,000 integrated facilities with two paper machines (paper machine I) and (paper machine II) capable of producing writing, printing, kraft and poster varieties of paper. In the year 1968 the mill expanded the capacity to 35,000 tonnes per annum by adding a 3rd paper machine viz., Yankee machine to produce lightweight posters. The plant capacity was expanded to 35,000 tonnes per annum in 1967-68 by modification of paper machine 2 and in addition a third paper machine (paper machine-3) at the cost of Rs 34 million was partly financed by the All India Financial Institutions. In the second stage, expansion was undertaken in 1976, capacity was enhanced to 55,000 tonnes per annum through addition of a 60 tonnes per annum new paper machine (paper machine-4). Cost of the project, including cost of chemical recovery boiler and other facilities of enhanced requirement of utilities, was estimated at Rs 145 million and remaining amount was borne by the company.
The company embarked on an expansion/modernization project to enhance its production capacity from 60,000 tonnes per annum to 1,15,000 tonnes per annum and to upgrade some of the existing facilities at an estimated cost of 1,890 million. The social expansion/modernization was completed in December 2000 and production was commenced.

4.3 Pallipalayam Map
4.3.2. Raw materials

The company’s paper plant was originally designed for using bagasse, as the primary raw material mixed with 20 per cent bamboo fibre. Bagasse was obtained from Ponni Sugar and Chemicals. The company shifted over to the use of hardwood at the time of its expansion undertaken in 1978. Raw material mix underwent a substantial change with bamboo and hardwood forming 60 per cent and 40 per cent respectively, of its raw material consumption with the commissioning of more wood based industry in Tamil Nadu. There was again an apprehension about availability of hardwood. As a long term strategy, the company has decided on restructuring use of bagasse which was seen to be most reliable sources of fibre for the entire industry. In 1984, the company promoted Ponni Sugars and Chemicals Limited as the captive source of bagasse supply.

4.3.3. Environmental Protection

The company attaches paramount importance to the conservation and improvement of the environment. In its efforts to improve the environmental protection measures, the company has installed

1. two electro static precipitations for its boilers to control the dust emissions
2. an aerobic lagoon for high BOD liquid effluents,
3. a secondary treatment system for liquid effluent and
4. an electro static precipitator and cascade evaporator to the recovery boiler.
4.3.4. Technology adopted by SPBL

SPBL commenced commercial production in December 1962, on commissioning a 20,000 tpa integrated facility, comprising a pulp mill and two paper machines (PM-1 and PM-2), capable of producing, writing, printing, Kraft and poster varieties of paper. The plant capacity was expanded to 35,000 tpa in 1967-68, by modification of pm-2 and addition of a third paper machine (PM-3). The cost of expansion part financed by All India Financial Institutions (Rs. 31 Millions). In the second stage of expansion, undertaken in 1976, capacity was enhanced to 55,000 tpa, through addition of a 60 tpa new paper machine (pm-4). Cost of the project, including cost of a chemical Recovery Boiler and other facilities for enhanced requirements of utilities, was estimated at Rs. 176 million. The same was part financed by term loans from institutions and Banks to the extent of Rs.145 million and the balance out of internal generation . The mill was designed to use bamboo as primary raw material for manufacturing its pulp and paper. Later hard woods like Eucalyptus supplemented bamboo in large measure. Ponni Sugars was established in 1984. It can acquire the required bagasse raw material from the Ponni Sugars and chemicals, which is located adjacent to the factory. Considerable research and development is undertaken by the mill which already helped it to identify a wide spectrum of primary raw materials to supplement the conventional raw materials, namely bamboo, for manufacture of pulp and paper, joint research is also undertaken with a neighboring agricultural university for growing new strains of fast 72 growing species of wood which can be used as raw material with advantage.
4.3.5. SPBL’s vision

To excel as a trusted, socially responsible and customer driven organization providing maximum value of all stakeholders.

4.3.6. SPBL’s Mission

To manufacture quality products at a competitive cost through technology and teamwork.

4.3.7. Product profile

The company manufactures various colour printing papers, copier papers, eco-copier, cream wave, wood free papers, maplitho, poster papers, pulp boards, color bristle paper boards and Kraft papers.

4.3.8. Awards

SPBL has received various awards given by Government of India, Government of Tamil Nadu and Industry Association. Some of the awards received by SPBL are:

- Capacity utilization award
- Energy conservation award
- Environmental protection award
- Safety award
- Export performance award
- Good industrial relations award
- TERI corporate environmental award.
Accreditation

The company’s quality of the products continue to be covered by the “ISO 9001” accreditation awarded by Det Norske Veritas, The Netherlands. The company has also been accredited with “ISO 14001” certification by Det Norske, The Netherlands.

4.3.9. Contract farming

SPBL have launched the contract farming programme wherein the SPBL provides the technical expertise for growing eucalyptus and casurina. The Company continues to provide quality Clonal Seedlings of Eucalyptus as well as Casuarina at subsidized rates to interested farmers and assist them with technical help to achieve higher yields. Technical support for this initiative is provided by the Department of Tree Breeding of Forest College and Research Institute, Mettupalayam, attached to Tamil Nadu Agricultural University, Coimbatore through a collaborative research project. Farmers owning 19,098 acres were benefitted by such support. The Company’s vision is to ensure that more trees are grown than what the company needs for maintaining capacity pulp production, thus ensuring Greening of the State. Accordingly the company will continue to help farmers in planting at least 18,000 – 20,000 acres of land in the state, year after year. This massive tree farming initiative is helping the company to achieve “Wood Positive” status.
4.3.10. Lift Irrigation

Seshasayee Papers and Boards Limited has introduced an innovative scheme for using its treated effluent. Even though its treated water meets the surface water discharge standards, instead of letting it into the river, SPBL diverts its treated water for the cultivation of sugarcane, transforming barren dry land to wet land. The mill has converted the surrounding dry lands to wet lands. Seshasayee Papers and Boards Limited have entered into a tripartite agreement with the local farmers’ society and its sister concern, Ponni Sugars (Erode). According to this agreement, the treated water from SPBL is supplied at free of cost to local farmers for the cultivation of sugarcane. The farmers sell the sugarcane to Ponni Sugars and Ponni Sugars produce the sugar and supplies the bagasse to Seshasayee Paper and Boards Limited.

4.3.11. CSR Activities

Seshasayee Paper and Boards Limited has actively and effectively involved in the social, economic and cultural development of the communities surrounding in and around the production areas.

4.3.12. Environment Policy

SPBL’s Environmental Policy are committed to:

- Manufacture quality papers in a clean, green and safe environment
- Continuously improve its environmental performance by reducing air emissions, process effluences and solid waste
- Maximize the use of eco-friendly materials and methods in the manufacturing processes
- Optimize usage of resources like water, power, fuel and raw materials
• Comply with relevant regulations
• Train and motivate the human resources to be environmentally responsible
• Make this policy known to all interested parties.

4.3.13. Energy and Power Consumption of SPBL

The data presented in the Table 4.4 gives the energy and power consumed by the SPBL towards the production of papers. The Tirunelveli unit was started in the year 2012. There are fluctuations in the unit consumed, unit charges, MD charges, total amount, rate per unit and the power generated through steam turbine generators and wind turbine generators.

Table 4.4: Energy and Power consumption.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Power - Unit in KWH</th>
<th>Unit charges in lakhs</th>
<th>MD Charges</th>
<th>Total Amount</th>
<th>Rate per unit</th>
<th>Own generation through steam turbine generator</th>
<th>Cost per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001 - 2002</td>
<td>5,89,99,721</td>
<td></td>
<td></td>
<td>2,60,44,863</td>
<td>4.39</td>
<td>4,82,634</td>
<td>4.48</td>
</tr>
<tr>
<td>2002 - 2003</td>
<td>57,93,369</td>
<td></td>
<td></td>
<td>2,49,39,984</td>
<td>4.3</td>
<td>3,35,591</td>
<td>3.46</td>
</tr>
<tr>
<td>2003 - 2004</td>
<td>994.7</td>
<td></td>
<td></td>
<td>4,090.2</td>
<td>4.15</td>
<td>591.68</td>
<td>1.6</td>
</tr>
<tr>
<td>2004 - 2005</td>
<td>983.43</td>
<td></td>
<td></td>
<td>4,293.76</td>
<td>4.36</td>
<td>802.83</td>
<td>1.53</td>
</tr>
<tr>
<td>2005 - 2006</td>
<td>1085.62</td>
<td>3,960.41</td>
<td>631.59</td>
<td>4,582</td>
<td>3.63</td>
<td>535.4</td>
<td>1.96</td>
</tr>
<tr>
<td>2006 - 2007</td>
<td>385.64</td>
<td>1,397.43</td>
<td>586.1</td>
<td>1,983.53</td>
<td>3.62</td>
<td>1,418.9</td>
<td>1.67</td>
</tr>
<tr>
<td>2007 - 2008</td>
<td>252.2</td>
<td>922.63</td>
<td>686.49</td>
<td>1,609.12</td>
<td>3.66</td>
<td>1,537.23</td>
<td>1.54</td>
</tr>
<tr>
<td>2008 - 2009</td>
<td>183.16</td>
<td>672.01</td>
<td>576.35</td>
<td>1,248.96</td>
<td>3.66</td>
<td>1,587.43</td>
<td>1.6</td>
</tr>
<tr>
<td>2009 - 2010</td>
<td>213.12</td>
<td>780.51</td>
<td>498.91</td>
<td>1,279.42</td>
<td>3.56</td>
<td>1,739.77</td>
<td>2.38</td>
</tr>
<tr>
<td>2010 - 2011</td>
<td>101.52</td>
<td>449.29</td>
<td>456.87</td>
<td>905.86</td>
<td>4.42</td>
<td>2,007.81</td>
<td>2.64</td>
</tr>
<tr>
<td>2011 - 2012</td>
<td>122.26</td>
<td>556.16</td>
<td>474.32</td>
<td>1,030.48</td>
<td>4.54</td>
<td>2,039.05</td>
<td>3.16</td>
</tr>
<tr>
<td>2012 - 2013</td>
<td>315.15</td>
<td>2,672.07</td>
<td>820.82</td>
<td>3,487.39</td>
<td>15.82</td>
<td>2,309.88</td>
<td>9.38</td>
</tr>
<tr>
<td>(including</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tirunelveli)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013 - 2014</td>
<td>455.49</td>
<td>2,880.13</td>
<td>841.83</td>
<td>3,721.94</td>
<td>12.58</td>
<td>2,253.87</td>
<td>8.34</td>
</tr>
</tbody>
</table>

Source: Annual Reports of Seshasayee Papers and Boards Limited (various years)
4.3.14. Fuel Consumption of SPBL

The data presented in the Table 4.5 indicate that SPBL has used coal, raw lignite, Coconut shell, furnace oil and other fuels for manufacturing paper.

Table 4.5: Fuel Consumption of SPBL

<table>
<thead>
<tr>
<th>Year</th>
<th>Coal (in tonnes)</th>
<th>Raw Lignite (in tonnes)</th>
<th>Furnace oil (in litres)</th>
<th>Coconut shell</th>
<th>Other fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-2002</td>
<td>10,738</td>
<td>-</td>
<td>2,73,625 (in tonnes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002-2003</td>
<td>90,153</td>
<td>22,140</td>
<td>802</td>
<td>-</td>
<td>2,166</td>
</tr>
<tr>
<td>2003-2004</td>
<td>96,078</td>
<td>19,318</td>
<td>663</td>
<td>-</td>
<td>689</td>
</tr>
<tr>
<td>2004-2005</td>
<td>89,182</td>
<td>12,839</td>
<td>574</td>
<td>-</td>
<td>12,777</td>
</tr>
<tr>
<td>2005-2006</td>
<td>1,52,937</td>
<td>-</td>
<td>906</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2006-2007</td>
<td>1,55,054</td>
<td>-</td>
<td>959</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>2007-2008</td>
<td>1,47,109</td>
<td>6,106</td>
<td>1,296</td>
<td>3953</td>
<td>-</td>
</tr>
<tr>
<td>2008-2009</td>
<td>1,32,981</td>
<td>18,148</td>
<td>3,316</td>
<td>3356</td>
<td>17</td>
</tr>
<tr>
<td>2009-2010</td>
<td>1,49,392</td>
<td>21,830</td>
<td>10,065</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>2010-2011</td>
<td>1,69,067</td>
<td>-</td>
<td>8,224</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2011-2012</td>
<td>1,80,133</td>
<td>-</td>
<td>5,945</td>
<td>-</td>
<td>28.50</td>
</tr>
<tr>
<td>2012-2013</td>
<td>1,89,255</td>
<td>-</td>
<td>6,685</td>
<td>-</td>
<td>46,707</td>
</tr>
<tr>
<td>2013-2014</td>
<td>1,65,472</td>
<td>-</td>
<td>7,116</td>
<td>-</td>
<td>76,719</td>
</tr>
</tbody>
</table>

Source: Annual Reports of SPBL (various years)

4.3.15. SPBL and Safety

SPBL has won the following safety awards, instituted by the Government of Tamil Nadu for the year 2012, in respect of units which worked for more than 10 lakh man hours in a year:

1. For highest reduction in accident rate when compared to previous year - First prize.
2. For lowest weighted frequency rate in accidents when compared to other industries coming under the same classification and group – First prize and

3. For longest accident free period in man hours – First prize.

The figure 4:2 gives the premises location of Seshasayee Papers and Boards Limited.

Figure 4.2 Mill premises of Seshasayee Papers and Boards Limited
4.4. Conclusion

An attempt has been made to discuss the profile of the selected paper mills, viz., TNPL and SPBL. Section one of the chapter deals with the profile of TNPL which explains the vision and mission of TNPL, the various products such as copier-platinum, copy crown, perfect copier, Eezee write, print vista, pigment paper, elegant printing, super print maplitho, Hi-tech maplitho, radiant printing, Ace Marvel and cream wove manufactured by TNPL. TNPL uses power through own generation with steam turbine generators and wind turbine generators. It consumes indigenous coal, imported coal, raw lignite, furnace oil, pith, agro fuel, black liquor solids, bio-0methane gas, MLSS pith and others for manufacturing papers. TNPL has received many awards and accolades.

Section two of the chapter discusses the profile of the Seshasayee Papers and Boards Limited wherein the vision and mission of SPBL is explained alongwith the products produced such as clour printing papers, copier papers, eco-copier, cream wove, wood free papers, maplitho, poster papers, pulp boards, colour bristle paper boards and kraft papers. It uses power through own generation with steam turbine generators. The Company uses coal, raw lignite, furnace oil, coconut shell and other fuel for the manufacture of papers.

References:

1. Annual Reports of Tamil Nadu Newsprints and Papers Limited, Various years.