CHAPTER - II

REVIEW OF LITERATURE

2.1. Introduction

This chapter attempts to critically review the studies already conducted on paper industry relating to 1. Production, 2. Finance, 3. Employment, 4. Environment, 5. Raw materials and 6. Import substitution. The available literatures have been collected mainly from the Research papers published in various journals, books and reports. Review of literature helps to find out the relevance of the current study from the viewpoint of research gap. An attempt is made to review both theoretical and empirical studies pertaining to the paper industry.

2.2. Studies on Production

A study was carried out by Prabhakara Sharma on the “Break-even analysis of paper industry”. Primary data have been used for the analysis by means of field surveys. Cost analysis has been done with the help of secondary data obtained from various Statements of Accounts from various mills such as A, B, C, D and E. Out of 11 paper mills in coastal Andhra Pradesh region, 5 mills have been chosen for the study by means of stratified random sampling technique with one unit concentrating on urban area and the remaining 4 units on rural areas. Cost analysis has been done with the help of secondary data obtained from various statements of accounts. The period chosen for study was from 1993-94 to 1999-2000. The important conclusions of the study are: i) Among the five mills A, B, C, D and E, ‘A’ and ‘C’ have shown a better performance while that of B, D and E are in pathetic condition. ii) The paper
industry is undergoing difficulties such as obsolete machinery, out dated technology, high cost of production, dwindling supply of raw materials, and non-availability of skilled manpower.

Alka Subramanian’s study on “The Paper Industry Consumption Trends and Projections up to 2000 A.D”, has classified the paper and paper board into two categories, viz, i) Cultural paper – writing and printing papers ii) Industrial paper – wrapping and packing paper. The objective of the study was to examine the demand for cultural paper, industrial paper and newsprint. The author has used secondary data obtained from various sources, such as, ICICI Reports, Development Council Reports. The reference period of study was from 1986 to 2000. The author has used Adjusted R-squared, standard error of regression and Durbin Watson statistics for data analysis. Finally, the author has concluded that the Newsprint has registered a 5.3 per cent growth; industrial paper 6.32 per cent growth during the period 1986-2000.

Rupesh Kumar Pati, Prem Vrat and Pradeep Kumar have conducted a study on “Reverse Logistics Model in the Paper Industry”. The authors have assessed the impact of paper production on energy consumed, solid waste generation and water and air pollution. Secondary data was used for this study and the period chosen for study was from 1981-82 to 1993-94. They have emphasized that recycled paper can reduce energy consumption, reduce both air and water pollution, conserve forest resources, reduce water consumption. Therefore recycling of the paper is a necessary step in solving the real waste management problem.
Padmanabhan made an attempt to examine the “India’s Industrial growth and the global financial crisis”. The objective of the study was to find out the growth of the industries by sectors and by product groups. The author has used secondary data obtained from Central Statistical Organization, Textiles Commission, Department of Chemicals and petro-chemicals. The growth for paper and paper products was 2.7 per cent in 2007-08 and 1.3 per cent in 2008-2009 respectively. Most of the items in this product group have shown a decline in production in 2008-2009. The author has concluded that though India is self-sufficient in most forms of the paper, the industry has to face lot of problems such as high production cost, pollution, shortage of raw materials and acceptable quality.

Mathur, Thapliyal and Singh have made an analysis on the “Challenges confronting Indian paper industry in changing scenario”. The authors have used secondary data. The study period was from 2000 - 2001 to 2007 – 2008. This study aims at analyzing about the growth of the writing and newsprint paper and the challenges confronting the Indian paper industry. The authors has listed the following challenges before the Indian paper industry, 1) obsolescence of technology 2) non-availability of good quality fibrous raw materials 3) high cost of basic inputs 4) environmental issues 5) competition in global market. The authors have recommended that various agencies like IDBI, ICICI, should finance the industry through long term loans to upgrade the technology. The authors have concluded that adoption of modern technology, innovation and R and D support to the industry will play a major role to address the various challenges faced by the industry.
Palaniappan and Lakshmi conducted a study on the “An Econometric Analysis of Estimation of production function in Indian paper industry with special reference to factor productivities, returns to scale and elasticity of substitution”. The objective of the paper is to analyze factor productivities, marginal productivities of capital and labour, relative factor shares, return to scale, elasticity of substitution in Indian paper industry, time series analysis and Durbin Watson Statistics have been used as a statistical tools for analysis of the data. The variability of elasticity of substitution production function with and without time variable is estimated by using ordinary least squares method and elasticity of substitution between capital and labour are either zero or constant. Therefore the findings clearly rule out the possibility of variable elasticity of factors substitution in the Indian paper industry at the national level. i) no evidence for neutral technological progress. ii) from the time trend coefficient, it is evident that the paper industry has not benefited much from technological change during the study period. iii) the elasticity of substitution between capital and labour is unity. iv) the other findings indicate that the labour elasticity of output is found to be a more important factor than capital in terms of “factor elasticity”, “marginal productivity” and “relative contribution” to the output growth at All India level for paper industry.

An attempt has been made by Sudarsana Reddy, Mohan Reddy and Sivarami Reddy to analyze the “Paper industry in India – Problems and Prospects”. They analyzed the growth of Indian paper industry into two categories, namely, pre-planning period and post-planning period, Secondary data have been used for this study and the data was obtained from Respective Five Year plans and related documents, Planning Commission, Government of India. Industrial Data Bank-
Centre for Industrial and Economic Research, New Delhi, Express Investment Week, Journal of Industry and Commerce, The Hindu Survey of Indian Industry, Development Council for Pulp, Paper and Allied Industries, Government of India. The reference period of the study was 50 years from 1951 to 2000. The authors have stated that there has been a growth and development of paper industry in India during the Five Years Plans. They have also found out certain problems and challenges faced by the paper industry, viz, a) availability of raw materials, b) inadequate availability of energy, i.e. coal and power, c) lack of modernization, d) the internal savings was not sufficient for technological upgradation, e) pollution, f) poor profitability, g) lack of skilled manpower, h) underutilization of capacity, i) sickness in the industry, j) poor infrastructures, k) lack of commitment to innovation, 1) high cost of production, m) competition from global competitors. The authors have come out with suggestion that modernization is a must for the growth; good and efficient marketing techniques have to be developed.

Sarbapriya Ray has analyzed the “Measuring and decomposing sources of productivity performance in India’s paper and pulp industry under liberalized regime: A non-parametric approach”. This study aims at measuring productivity by decomposing it into technical change and technical efficiency change in India’s paper industry and assessing the impact of liberalization on productivity of Indian paper industry. Secondary data were collected for the study. The study is based on industry level as well as firm level. Time series data were collected from several issues of Annual Survey of Industries, National Accounts Statistics, Centre for monitoring Indian Economy (CMIE), and Economic Survey, Statistical Abstracts, RBI Bulletin on Currency and Finance, Handbook of Statistics on Indian Economy
and Office of Economic Advisor, Ministry of Industry. Twenty eight firms have been selected for this empirical analysis. Mean, Median, Standard deviation, skewness, Kurtosis, probability, Jarque-Bera test have been used as the statistical tool for this empirical study. The author has come out it with the following findings:

1) almost all the firms within the paper industry have large dispersion level of output, material, labour and capital. 2) negative skewness for material and positive skewness for capital, labour and output. 3) all the variables, capital, labour, output and material have a positive kurtosis. 4) Jarque-Bera test, a type of Lagrange multiplier test, was developed to test normality, heteroscedasticity and serial correlation of regression residuals. This test proves that the variables are normally distributed. The author has concluded that there is a decline in the growth rate of total factor productivity during post reforms period showing adverse impact of liberalization at aggregate level.

A study was conducted by Sarbapriya Ray on “Determinants of Total Factor Productivity Growth in Selected Manufacturing Industries in India”. The objective of this study is to identify and explore the factors that are responsible for total factor productivity growth. Secondary Data have been collected from Annual Survey of Industries, National Accounts Statistics, and Centre for Monitoring Indian Economy, Economic Survey, Statistical Abstracts, RBI Bulletin on Currency and Finance, Handbook of Statistics on Indian Economy. The reference period of this study was 25 years, from 1979-80 to 2003-2004. The author has stated that exports, import penetration ratio, growth in output, real effective exchange rate of Indian rupee with base year 1985, inflation, terms of trade, capacity utilization, investment on fixed machinery are the prime determinants of total factor productivity growth at the
sectoral level. The author has concluded that, 1) with regard to exports in paper industry; there is a significant negative effect on total factor productivity, 2) productivity growth has favourable effect in imports, 3) there is a positive relationship between growth of output and total factor productivity growth, 4) inflation leads to economic growth by generating employment and thus a positive relation between inflation and total factor productivity, 5) negative relationship is found between capacity utilization and the total factor productivity growth and 6) Growth in investment in fixed assets has a positive impact on total factor productivity growth.

Joseph Xavier and Josephine Stella’s Study on “Paper consumption bound to increase” examined the per capita consumption level of paper in India was 7.5 kg in 2008 and have increased to 8.3 kg in 2008. The Indian paper industry was expected to grow from 8.5 million tonnes in 2008-2009 to 13.95 million tonnes in 2015-2016. The authors have analyzed about the imports, exports and constraints faced by the Indian paper industry. India imports 2 million tonnes of pulp (softwood and hardwood) and waste paper from U.S.A, Europe, Dubai and Singapore. The importing cities are Chennai, Mumbai, Delhi, Cochin and Bangalore. Also India has surplus quantities of paper was exported to the countries in the Middle East, South Eastern countries, Eastern Europe and U.S.A. They have discussed about the major constraints faced by the Indian paper and pulp Industry such as technological obsolescence, high cost of production, shortage of raw materials and environmental challenges. Most of the paper mills have installed quality control systems. The authors have concluded that India have tremendous potential to improve the profit margins as the per capita consumption of paper is bound to increase rapidly.
Arivalagan and Sudhakar have examined the “Supply Chain and E-Commerce: Case from Paper Industry.” Supply chain management synchronizes the efforts of suppliers, manufactures, distributors, dealers and consumers involved in meeting consumers’ needs by exchange of information, goods and services across boundaries and delivering the right products to the right places at the right time at the right costs. E-commerce enables the organization to the electronic market place. The authors made an attempt to review the status of supply chain management and e-commerce in paper industry and have highlighted some of the issues and the challenges. The authors have stated the issues and challenges faced by the Indian paper industry, i) use of obsolete technologies, old plants and machineries, ii) raw material availability, iii) low scale of operation and capacity utilization, iv) lack of funds for modernization and expansion, v) rising cost of raw material, power, and fuel, chemical and labour and vi) lower productivity levels. The authors have concluded that there have been a tremendous development in developed countries with regard to supply chain management and e-commerce in pulp and paper industry. Due to lack of latest information technologies and infrastructure, e-commerce has not developed in Indian pulp and paper industry. The highly profitable companies in India will be moving towards e-commerce in future by implementing effective and efficient e-commerce projects.

Schumacher and Sathaye conducted a study on “India’s pulp and paper industry: Productivity and Energy efficiency.” They used both statistical and econometric analysis to estimate the productivity for the pulp and paper industries in India. Using a trans log specification, they reveal that technical progress in India’s pulp and paper sector has been biased towards the use of energy and material, while
it has been the capital and labour saving. The decline in productivity was caused largely by the protection afforded by high tariffs on imported paper products and other policies, which allowed inefficient small plants to enter the market and flourish. Their analysis shows that with liberalization and tighter environmental controls, the industry is moving towards higher efficiency and productivity.

Chirayil conducted a study on “Economic reform and productivity growth in Indian paper and paper products industry- A Non-parametric analysis”. The author has applied the Malmquist productivity Index in order to estimate total factor productivity growth and its components (efficiency, change and technological progress) in Indian paper and paper products industry during pre and post reform period. The obtained estimates of total factor productivity change at the aggregate and the sectoral level indicates that the net impact of economic reforms on the productivity growth of paper and paper products industry has negative. It was evident in the study that the negative total factor productivity change has decreased from -8.6 per cent to -5.2 per cent in the post reform period in paper and paper products industry at the aggregate level. It was found in the study that the technical efficiency change and technical change was the deteriorating factor for productivity in Indian paper and paper products industry. The results of the study suggest that specific policies should be implemented in order to improve the efficiency as well as technical progress, thus ultimately facilitating long-run productivity growth.

Ramesh Chandra Gupta conducted a study on “A Report on the Bangladesh Pulp and Paper Industry”. The author has stated that in Bangladesh, the domestic paper industry is grouped into two categories, the first owned and controlled by the
government and the second being owned and promoted by the private sector. Bamboo, the primary raw material is available in abundance and the forest resources are untapped in Bangladesh. The author found that: 1) there are at least two thousand four hundred paper merchants in Bangladesh with more than one thousand of those situated in Dhaka, 2) there are nearly 250 importers and indenters of paper and boards in the country, 3) with increasing population and government taking steps for removal of poverty and illiteracy and emphasis on garment exports, there is enough potential for the demand of paper and paper boards.

Ogunwusi has analyzed the “Strategies for increasing the pulp and paper capacities in Nigeria”. The pulp and paper capacity is low in Nigeria and there were only three mills established by the government. There was a full utilization of capacities and the economy as such depended locally on import of paper and paper products. The use of agro - residues can be encouraged as a raw material for producing paper. The government should encourage establishment of small scale paper mills so that gradually the dependence on imports can be reduced. The government should put forth necessary efforts to have stable power supply so that the pulp and paper industry which is energy intensive can be developed.

Fassil Nebebe and Dennis Kira made an attempt to study “Estimating elasticities in pulp and paper industry: An Economic Analysis of Canadian Regions”. Secondary data have been obtained from various reports such as Statistics Canada Publications, Statistical Abstracts of United States, IMF Statistical Year books. The demand for paper is assumed to depend on its price and the price of substitute goods. The Bayesian and empirical Bayes approaches are used in this
study. The authors have obtained results with respect to long-term elasticity’s of demand in each region with respect to price, income and price of substitutes. They have concluded that the economic activities and prices are important factors for all the regions.

Deborah Young has analyzed about the “State of the U.S. Paper industry”. He has studied about exports of various paper products for 1992 and 1993. The author has used secondary data obtained from various reports. The period chosen for study was 2 years from 1992 to 1993. The U.S Paper Industry consists of wood pulp, recovered paper, newsprint, printing, writing and related paper, special industrial paper, tissue paper, kraft linerboard, bleached paper board and converted products. Important findings of the U.S paper and pulp industry are as follows: 1) There was a continuous growth in the U.S pulp and paper exports. 2) Exports of converted paper and paper board products, primarily to Mexico and Canada made strong gains in 1993. 3) With the 1993 implementation of North American Free Trade Agreement (NAFTA) and agreement in the Uruguay Round of multilateral trade negotiations to reduce or eliminate tariffs and to improve the exports significantly. The economic growth in the United States attracted significantly higher levels of paper and paper boards.

Gary Stanley made an attempt to study about the “Paperboards, Imports and Exports to fuel - 1997 Growth”. The author has studied about the U.S paper and allied products industry. The author has used secondary data for this study and the reference period of the study was from 1995 to 1996. The performance of the industry was analyzed with regard to the earnings, total employment and exports.
The U.S. Paper and Pulp industry experienced a fall in the domestic and foreign demand and declining prices and down in the inventories. As a result of decrease in demand, declining prices and a down in the inventories, there was a considerable decrease in the industry’s earnings in 1996. The level of employment has fluctuated during the past five years as there were changes in the supply, demand and price. Also, there was a decline in the U.S. exports of paper and allied products. The author has also discussed about the impact of GATT on the U.S paper and allied products industry. The on-going implementation of the General Agreement on Tariffs and Trade (GATT) which was started in 1998 by World Trade Organization (WTO) has a positive impact on the U.S paper and allied products industry. Also, the U.S and Japanese governments met several times and entered into agreement in 1992. The author has concluded that 1) increase in demand for U.S paper and allied products industries, 2) expansion of sales opportunities both in domestic market as well as in foreign markets.

Hseu and Shang conducted a study on “Productivity changes of pulp and paper industry in OECD countries 1991-2000- A non-parametric Malmquist approach.” They used index by using the nonparametric-frontier approach and decomposed the index into two components: technical change and efficiency change. Their results showed that the productivity change of pulp and paper industry in OECD countries ranged from Switzerland’s 0.9 per cent to Japan’s 2.4 per cent over the sample period. The Nordic nations (Finland, Norway and Sweden) recorded 1.2 per cent to 1.5 per cent improvement in their performance. The productivity of the Canadian pulp and paper industry increased by 2 per cent while that of its counterpart United States has increased only by 0.8 per cent.
2.3. Studies on Finance

Waghmare Shivaji and Ravichandra Reddy have studied the “Performance of Fixed Assets Management in Small Scale Paper Mills: A Micro study”. The objective of the study were to appraise the structure and growth of fixed assets, to evaluate the financing pattern of assets, to test the efficiency of fixed assets, to assess the impact of fixed assets in sales and profits and to examine the adequacy of depreciation provision. The authors have taken four mills as sample to analyze the performance of fixed assets. Secondary data were collected from profit and loss account and the study is conducted for a period of 10 years from 1998 – 2007. The authors have made a comparative study on the structure of fixed assets in 4 sample paper mills. They have come out with the following findings: 1) Fixed assets investment was significant in the paper industry. It has exceeded the investment in current assets. In two of the paper mills, there was a reverse trend showing the results of investments in fixed assets have exceeded the current assets. 2) The plant and machinery has occupied prime position. All the paper mills have registered a positive annual growth rate 3) Ownership funds are insufficient to finance fixed assets requirements in the industry. The use of borrowed funds has become compulsory in financing the fixed assets. 4) There is a sound financial practice because in all the sample mills, long term funds were sufficient to finance not only the entire fixed assets but also a part of the current assets.

Sudarsana Reddy, Raghunatha Reddy and Mohan Reddy made an attempt to analyze the “Financing Pattern and Utilization of Fixed Assets in Large Scale Paper Industry in Andhra Pradesh”. The objective is to evaluate the financing pattern,
efficiency of fixed assets, and the impact of fixed assets on sales. Secondary data were collected and the period of study was 7 years from 1997-98 to 2003-2004. Ratio analysis, Trend analysis, Coefficient of correlation has been used as the tools for analysis. The researchers has observed that owners’ funds were adequate to finance the entire fixed assets and a part of current assets too. The declining trend on turnover rate of fixed assets indicated that the fixed assets were utilized inefficiently due to shortage of raw materials, power cuts and equipment. They concluded that the growth rate of fixed assets was more than that of sales growth and the industry reveals that the indices of gross block and depreciation were in upward direction.

Sudarsana Reddy, Sivarami Reddy and Mohan Reddy conducted a study on “Debtors management: A case study of Andhra Pradesh paper Industry”. The objective of the study was to evaluate the performance of the debtor’s management of the paper industry in Andhra Pradesh. The data have been collected from various reports of all the six mills that have been selected as sample for the study. The reference period of the study was from 1989-90 to 1999. Standard deviation has been used to analyze the data. They have concluded that the increase in sales and decline in debtor’s size indicate that the credit policy implemented by the paper mills is effective. The dues from the default customers can be collected by taking appropriate measures as and when required.

Sahu has conducted a study on “A simplified model for liquidity analysis of paper companies”. This study aimed at developing a simple model by incorporating the current and quick ratios for determining the fact that the liquidity management process of the Indian paper industry was effective or not. Secondary data were
obtained from the Volume 10 of the Stock Exchange Official Directory, Mumbai. Twelve paper mills have been grouped under two categories, effective and non-effective in terms of liquidity management. Multiple Discriminant Analysis (MDA) is used for calculating the current ratio and quick ratio. The reference year for the study was 1997-1998. The author has concluded that out of twelve companies, nine companies/paper mills were effective and 3 were non-effective in liquidity management. Therefore liquidity plays a significant role in the successful functioning of paper mills, and a sound financial management policy helps to manage the current assets efficiently. The paper mills have adequate liquid resources to meet their current needs.

Dhameja (1972) conducted a study on “Dividend behaviour in Indian Paper Industry 1950-65”. The study examined the statistical significance of various factor influencing dividend policy in Indian paper industry. The variables used were net profit of the previous year dividend, weighted average of past profits, depreciation, cash flow earnings (net and gross), change in sales, accumulated reserves and provision for tax. The tools used in the study were linear multiple regression and coefficient of determination. The author has concluded that the increase in profit did not result in an equivalent increase in dividend and vice-versa. Dividend determination was influenced by the past year’s profits and fluctuations in the earnings did not have much influence on dividend. Fluctuations in dividend determination were influenced by current year’s earnings, while changes in sales have a positive influence on dividend. Further, it was ascertained from the study that the lagged dividend was directly associated with current year dividend.
Sarbapriya Ray has conducted a study on “Financial Performance of Paper and Paper Product Companies in India in Post-liberalization Period”. The objective of the study was to evaluate the financial performance of paper and paper product companies in India during 2000-2001 to 2008-2009. The study was conducted on the secondary data collected from CMIE on profit and loss account, balance sheet and Annual reports and 133 companies comprising paper industry have been selected as Samples. Ratio analysis, arithmetic mean, coefficient of variation, multiple regression and “t test” has been used as the statistical tools. The financial performance has been evaluated in seven dimensions namely, financial profitability, financial structure, operating efficiency, profit appropriation, fixed assets, age, current assets efficiency, and liquidity position. The author has come out with the following findings: 1) The return on equity, return on capital employed and return on total assets are gradually increasing during the study period which shows that the investors as well as the entrepreneurs are happy. 2) Total debt to net fixed asset and total debt to capital employed were very low and a majority of the assets are financed through equity rather than debt. 3) The firms within the paper and paper product industry have sufficient liquid or current asset to meet liquid or current liability which was a good sign for sound liquidity position of the industry. 4) Though the dividend rate was moderately high, dividend payment was proportionately low which indicates that enormous portion of profit was retained for future growth or investment. 5) The current assets and resources were utilized more efficiently. 6) The management of the industry has achieved operational efficiency with minimization of waste and maximization of resource capabilities because of capital employed turnover, net fixed asset turnover and total asset turnover.
Sahay and Singh have conducted a study on the “Indian Corporate Environmental and Financial Performance Empirical relationship between them”. The authors have made analysis about Indian pulp and paper industry, Indian Automobile Industry, Indian Caustic and Chlorine industry. The reference period of the study period was 1998 – 1999. Secondary Data has been collected from various reports of all 23 Companies. The authors found that i) Indian pulp and paper industry was far behind in terms of technology and capacity, ii) Indian companies were highly dependent on forest for the raw material, iii) All the functional parameters had negative correlation with environmental performance, iv) Net sales, Profit Before Depreciation Interest and Tax, Net worth and total assets declined with better environmental performance, v) Internal and External factors influence environment.

Vjayakumar and Karunaitahal conducted a study on “Corporate size and capital structure- An empirical analysis of Indian paper and pulp industry.” The objective of the study was to find out whether there was any systematic relationship between the corporate size and capital structure of selected large scale companies in Indian paper industry. The reference period of the study was 1997-98 to 2009-10. Data were collected from BSE Official Directory, CMIE publications, published Annual reports of the companies, Annual Economic Research (CIER’s) Industrial Data Book and publications of the Indian Pulp and Paper Technical Association (IPPTA). Simple regression technique has been used as the statistical tool by taking debt equity ratio as dependent variable and fixed assets as independent variable. The regression analysis showed a positive relationship between the size of the fixed assets and debt equity of the whole Indian paper industry, but in case of large scale
sector, there was a negative relationship between the size of the fixed assets and debt equity during the study period. The relationship between fixed assets and capital structure was negative (six out of ten companies) but statistically significant in all the selected companies.

A study was conducted on the “Performance analysis of North American Pulp, Paper and Packaging companies” by a group of experts consisting of Dorothy Paun, Amy Bjorkman, Christopher Nelson, Samuel Fleishman, Larry Mason, Shawn Wilson, Jeremy Ness, Joseph Roos and Richard Gustafson. Secondary data were used. The financial measures studied in this industry are net annual sales, return in equity shares, earnings per share, capital expenditures and international activities. The authors have concluded that the international demand for paper will be growing and the recent financial crisis in the Asian region has slowed consumption and North American firms exporting to Asia were experiencing a decrease in sales. The mergers and acquisitions of certain big paper companies have resulted in the growth of pulp and paper industry.

2.4. Studies on Employment

Basavarajappa and Ishwara Prasad analyzed the “Manpower management in Paper Industry: An Analysis”. The objective of the study was to identify the policies and procedures regarding recruitment, selection, promotions, transfer, pay structure, incentives and grievances of the employees. The authors have found that the workforce employed in the Paper Industry was more experienced instead of raw hand. Clarity, timeliness, effective communication has increased the satisfaction level of the employees. The skills of the workers and discharging their duties in
paper industry are still questionable. When compared with Hong Kong and Singapore, the competitive strength of paper industry particularly Karnataka is poor. The authors have suggested that the Paper industry should establish and maintain a separate R&D Department not only related to methods and techniques of production but also to correct the loopholes and limitations of manpower procurement, development and maintenance.

An attempt was made by Sharma to evaluate the “Paper industry for employment potential”. The objective of the study was to analyze the employment potential and training of personnel in the paper industry. The reference period of the study was from 1969 to 1978. Secondary data were collected from the Report on Employment in Paper Industry, Government of India, Directorate General of Employment and Training, Ministry of Labour, New Delhi, Report on the Task force for Pulp, Paper and Allied Industries, Government of India, Planning Commission, Annual Survey of Industries and Census of Manufacturing Industries issued by CSO, Government of India, Calcutta. The author found that the employment has increased at an average growth of 4.81 per cent per annum during the period 1969 – 1978. Training and imparting of Knowledge was very much needed while the resources were not sufficient to impart training to the individuals. Resources should be allocated for giving training to the workers. The author has concluded that training to the personnel has to be planned and provided for optimal choices. The paper industry should therefore plan and organize proper training to its personnel to give boost in all developmental fields.
2.5. Studies on Environment

Arun Ghosh conducted a study on “Education and Environment Contribution of Paper Industry”. The objective of the study was to analyze the denudation of forest wealth and the rise in the price of printing paper, notebooks and textbooks beyond the reach of school children. Secondary data have been collected from Annual Reports of various paper industries located at North, West, South and East. There has been a considerable development in the growth of Paper Industry. The annual growth rate over 1951-86 was 8.7 per cent for capacity utilization and 7.4 per cent for production. The author has found that i) The paper industry has been a major contributor to the increasing denudation of our forest wealth; ii) The industry has also contributed to environmental pollution through its effluent which have killed marine life and rendered river water as impotable. iii) The imports of paper could not be reduced. The author has suggested that India need a new policy on the paper industry both the Ministry of Education and the Ministry of Industry with their full participation and co-operation.

Gopinath Pradhan and Kaustuva Barik have examined the “Environment friendly behaviour and competitiveness - A study of pulp and paper industry in India”. Secondary data have been obtained from the Reports of Indian Paper Manufacturers Association (IPMA) and reports from Government of India. Regression analysis was used for analyzing the empirical evidence. Indian pulp and paper industry as one of the most polluting industries has been chosen for the case study. The authors have discussed that the industry was characterized by a declining technical change and diseconomies of scale and they have concluded that there is an
inverse relationship between the environment and degrading behaviour i.e. these factors moved in opposite direction.

Raghu Veer analyzed about the “Positioning of Indian Paper Industry to face the Ecological Challenges of Tomorrow”. The author found that 1) Indian paper industry has noticed the importance of Elemental chlorine-free (ECF) bleaching 2) The Ministry of Environment and Forest (MOEF) has launched the charter on “Corporate Responsibility for Environmental Protection” in March 2003 and this charter has set targets with respect to conservation of water, energy, recovery of chemicals, reduction in pollution, elimination of toxic pollution in a sound manner 3) In future, the paper industry might change as it may become secondary by-product while synthetic gas becomes primary products. Hydrogen will be used directly in fuel and the cellulose fibres for paper-making are a by-product and lower yields are preferable to maximize hydrogen production.

Bhupesh Kumar Sharma conducted a study on “Impact of paper industry on Environment: A case study of the Nagaon Paper mill. The objective of the study was to investigate the impact of paper production in environment with reference to loss of agricultural productivity and damage to health. The study was based on both secondary and primary data. The main source of secondary data were collected from the Hindustan Paper Corporation limited: Nagaon Paper mill unit. Primary data have been collected through a sample survey of eleven villages with 110 households. Statistical tools such as average, ratio and per cent, regression have been used. The author has concluded that as far as the impact of Nagaon Paper Mill is concerned, there was no adverse effect on the agricultural productivity as the distance from the
mill increases the production decreases. The pollution generated by the mill has affected the health of the people.

John McClelland and John Horowitz have conducted a study on “The Costs of Water Pollution Regulation in the Pulp and Paper industry”. This study estimates the marginal cost of water pollution for Pulp and Paper Plants. The authors have used an econometric model to analyze the marginal costs of water pollution. The authors concluded that the Pulp and Paper Plants incur substantial materials, energy and labour costs and why these costs are not known. They have also concluded that there are unobserved costs of regulation or benefits from over compliance and therefore the exact nature of these regulatory costs are not clear and worthy for research.

2.6. Studies on Raw Materials

Manish Kumar and Deepak Kumar have examined about the “Pulping of Banana stem”. Banana stem has no use after harvesting the fruit and the same can be used as pulp for the production of fibre, film and paper. The author has explained the process of pulping and has concluded that the result of pulping of banana pseudo-stem a waste of product after harvesting can be used as a potential source of cellulose to make high valued cellulose based products such as paper and fibre.

2.7. Studies on Input substitution

Ramaswamy, Vaidya, Bennis, and Hoogeveen have conducted a study on “Input Substitution in the Indian Paper Industry”. They investigated the patterns of input substitution and price elasticity for firms which used wastepaper as their
primary material input. The authors used a trans log cost function approach with three variable input factors (labour, energy, material) and fixed capital input. They concluded that a substitution relationship between the three inputs. Furthermore, they found that a light substitution relationship between imported and domestic wastepaper, given the total material cost.

2.8. Conclusion

An attempt has been made to review the available literature related to the study in this second chapter. Most of the studies were conducted based on the secondary data. The studies based on production clearly indicate that no systematic effort has been made to compare the public enterprise with that of private enterprise. Studies were also conducted based on the finance position of various paper mills in India especially on the paper mills concentrated in Andhra Pradesh. There were also studies based on employment with respective to policies and practices, performance appraisal, pay structure, incentives and grievances of the employees working in Paper and Pulp industries. Attempts were made to conduct studies on environment and raw materials wherein measures taken up by the various paper mills to prevent the environment and the availability of alternative raw materials for the manufacture of paper were discussed. The review of literature enable the Researcher to choose the topic for this study particularly with respect to comparison of public sector enterprise, Tamil Nadu Newsprints and Papers Limited with that of Private sector enterprise, Seshasayee Papers and Boards Limited in terms of production and sales turnover and to analyze the relationship between the income and expenditure of the respective paper mills. Hence there is a need for a detailed study in this respect as
well as on the corporate social responsibilities undertaken by both the enterprises and measures taken to prevent the environment.

References:


