CHAPTER II
DESIGN OF THE STUDY

2.1 INTRODUCTION

The handmade paper industry is one of the key khadi and village industrial activities converting waste into wealth. Raw material for the handmade paper units are hosiery cuttings, cloth cuttings, waste paper, agricultural wastes and fibrous plant wastes like banana stem, paddy straw, jute, bagasse, hemp, sisal and pineapple leaf fibres. These agricultural and industrial wastes can be effectively utilized in handmade paper production. Normally large paper mills use forest produces like logwood, pinewood, bamboo and other light wood as raw material for paper production. Increasing consumption rate in paper and related production will deplete forest cover and these scarce resources require very long periods to regenerate. In the contrary, the handmade paper industry does not require trees and uses only waste materials. They help to conserve the forest wealth which is the essential ingredient for improving the ozone cover and in controlling the increasing levels of carbon-di-oxide.

Moreover handmade paper is stronger than mill made paper due to the availability of less broken cellulose fibrous material for producing interlocking among the fibres in handmade paper. The effluents of handmade paper industry are not toxic as the production process uses small quantities of alkalies and bleaching materials. The production of mill made paper involves the use large dosages of alkalies, chemicals, gums etc. That make the effluents very toxic and affect the environment. Thus the handmade paper production process uses safe technologies and it is environment friendly.
The handmade paper industry also contributes to the economic wealth of the nation through significant value addition and employment generation. Total paper and Board production in the country was 40 lakh tonnes during 2000-2001 and the volume of production in the handmade paper sector was 17000 tonnes of different varieties and grades contributing to 0.5% of the total paper and board production in the country and providing employment to 16500 persons in rural areas. The handmade paper industry made exports valued at Rs.63 corers in 2000-01 thus earning valuable foreign exchange. Report on Ministry of Information and Broadcasting. The demand is estimated to be around 54.80 lakh tonnes in 2005-06. The growth in paper industry during 1999-2000 is 13.49 percent.’

Availability of raw materials in the form of rags, hosiery cuttings and agricultural materials have been estimated at 10 lakh tonnes per annum. And only 20,000 tonnes were utilized for the handmade paper production, representing 1.33 per cent of the raw material potential. Thus, about 98 per cent of raw material has been left unutilized inhibiting the wealth generation from waste. Therefore, it is necessary to study the performance of the handmade paper industry which has large untapped raw material potential and the impact of various economic parameters deciding the scope of the growth in future.

The present exercise therefore addresses the major issues and features that influence the economics of the handmade paper industry in Tamil Nadu.

2.2 REVIEW OF LITERATURE

At the early stage of the present exercise a review of the relevant literature was undertaken for an assessment of what has already been done by expert committees and researchers in the sphere of rural industries. The researcher collected reports, books and articles in the disciplines of rural industries, large-scale industries, economics, commerce and management.
The review also enabled the researcher to identify certain lacunae in the literature for further work and select appropriate tools of analysis for the present study.

2.2.1 Reports

The report of the evaluation committee for Khadi and Village Industries (1959)\(^3\), the report of the working group on Khadi and Village Industries (1965)\(^4\), The report of the Khadi Village Industries (1968)\(^5\), and the report of the Khadi and Village Industries Review Committee (1987)\(^6\) sought to evaluate the performance of khadi and village industries and to suggest measures for further strengthening these programmes.

The working group for Ninth Five Year plan (1997-2002)\(^7\) on KVIs has framed the following terms of reference.

i) Evolving strategies for improving the quality of KVI products and reduction in manufacturing costs;

ii) A systems of market intelligence for contractual product development and larger consumer acceptance; with organized industry, village industries operate in rural areas is highly scattered;

iii) Developing effective marketing system for KVI products; and

iv) Estimating the requirement for working capital and term loans and suggesting measures to improve the working efficiency and utilization of finance and other resources in the sector.

2.2.2 Books

Alexandra Soteriou (1999), in his book titled “Handmade Paper Making in India”, indicated that paper is undeniably a vehicle (or the flowering of Indian art, literature, history and religion, but where did it come from? Who made it and how? What was their inspiration? How has this ancient craft survived in today's India? Comprehensive and detailed, this book traces the nearly one thousand-year history of hand paper made making in India from the ancient sites in Gilgit and the Himalayas through the heartland of Mathura, Agra and Daulatabad to the western sites in Rajasthan and Gujarat to Pondicherry on the Bay of Bengal.


Leonard N. Rosenband (2000), in his book titled “Papermaking in nineteenth-century France”, gives us the history of handmade paper from the workshop up, offering the most comprehensive exploration available of the historical experience of papermaking. Rosenband explains how paper was made and explores the many conflicts and compromises between masters and men. The Montgolfier Archives are a rich source of information, providing records of daily output and procedures, including
complex rules ranging from the precise hours of meals and prayer to matters of propriety and personal sanitation. They also provide insight into the attitudes of the Montgolfier family and their workers-what they made of their trade, their labour, and one another.

Bhatt.T.B., (1956)\(^{15}\) in his book titled “Handmade paper Industry in India”, deals with several aspects such as History of handmade paper industry, processing methods and marketability of the handmade paper products.

2.2.3 Articles

Arunchandra Guha (1964)\(^{16}\), Charles K.S (1973)\(^{17}\), Sangle G.K (1969)\(^{18}\), Bhagwan Prasad (1981)\(^{19}\) and Peerzade (1982)\(^{20}\) have highlighted the role of small and village industries in the economic development activities of India.

Krishna.R.R, (2000)\(^{21}\) stressed the need for value added statements in financial reporting. He added that value added accounting is an innovative tool and adds a new dimension to the existing accounting and gives the details of wealth created by the firm during an accounting period. Value added accounting is sometimes called an alternative approach to income.

Kailasam L. (2002)\(^{22}\) in his article titled “Marginal Costing-A Dynamic Approach”, maintains that the non-incorporation of the period concept in marginal costing may lead to many inaccuracies. The author proposes to convert fixed costs also as functions of output/sales and form a break even function by dividing fixed cost functions by contribution functions.

Agarwal R.S, (1998)\(^{23}\) discusses the need for value added statement as the basis for performance appraisal and emphasized that value added statement is more appropriate than net profit concept.
Sheshagiri Rao', D. (1987)\textsuperscript{24} identified the outdated technology, the crude and age old process of manufacture, raw material problem, financial problem, lack of trained and dedicated personnel as problems affecting the handmade paper industry.

Ujval Radhakrishna (1994)\textsuperscript{24}, in his article “Marketing Potential of Handmade Paper with Special Reference to Mumbai and Ahmedabad” has analysed the marketing potential of handmade paper in Mumbai and Ahmedabad. He maintains that the DGS and D rate contract cannot be a reliable source due to the meagre orders given and the inordinate delay in settlement of the bills.

Gora. R.S, (1993)\textsuperscript{26} in his article "Need to Patronise Handmade Paper for a Greener World" has found that the national stationary show at New York last year drew the world’s attention to eco-friendly handmade paper and paper products. The experience gained at this show is sure to give a big boost to the Indian handmade paper industry by assuring its marketability. But this calls for careful handling of paper production to conform to world standards and the assistance of UNDP-KVIC handmade paper project could be harnessed for this purpose.

Narasimhulu.V.L, and Kulkarni. M.R, (1993)\textsuperscript{27}, have in “Export Potential of Handmade Paper” have found that the Indian handmade paper industry produces a host of varieties of paper by mainly recycling the waste materials such as cotton rags (in the form of tailor cutting and hosiery cuttings) and small quantities of waste paper. Agro fibres like jute, straw and banana are also used to blend with the primary fibres for mottling effect etc. This aspect with its eco-friendly nature earns for it an added advantage in the world market.

Rao G.V.K. et.al., (1986)\textsuperscript{28} surveyed 71 paper units-68 private, 2 co-operative and 1 KVIB.units) and investigated the detailed the accounts
of kalpi handmade paper industries in UP for the period 1980-81 to 1984-85.

Mishra ND et.al., (1987)\textsuperscript{29} in their paper pointed out the shortfalls in standardisation of machinery, technology and marketing strategy, training and technology and raw materials for handmade paper unit in general.

Singh S.N. et.al., (1998)\textsuperscript{30} have highlighted the need for product development keeping in view the end customers. He found out the workers’ need for motivation and training for the proper utilization of the equipment for ensuring quality of supply and delivery in time.

2.2.4 Unpublished Theses


Sudalaimuthu (1981)\textsuperscript{32} in his “Adoptability of Accepted Marketing Practices in Khadi and Village Industries” studied the marketing practices as adopted in Khadi and Village Industries. He has recommended modernization in the form of attractive packing and imaginative advertisement besides expansion of the varieties of products.

Meenakshisundaram (1991)\textsuperscript{33}, in his work “Khadi and Village Industries Institutions in Tamil Nadu-A Study of Financial Performance’ examines the financial performance of selected agencies of Khadi and Village Industries in Tamil Nadu. It recommends the introduction of production and planning, inventory control and collection drive ror rejuvenating the management of working capital and improving them towards the benchmark level.

Hrinatha Reddy (2000-)\textsuperscript{34}, in “Working Capital Management in Small Scale Industries-A Study of Cuddapah District, Andhra Pradesh” has suggested that control over working capital can be exercised through the
preparation of periodical working capital reports at least once a month. The preparation of periodical working capital reports enables the SSI units to properly monitor and control their working capital.

Thillainayagam (1991)\textsuperscript{33}, in “A Study of Manpower Resource Inventory in Kohima District, Nagaland” made a detailed study of the manpower resource inventory patterns for undertaking rural development activities in Kohima District, Nagaland.

Kannan Nair (1998) in his study “Khadi and Village Industries in Dindigul District-A Study of Finance Performance” has analysed the trends in production and sales, fund flow pattern and profitability.

Rachakrishnan (1998)\textsuperscript{17}, in his study “Khadi and Village Industries in Tiruchirapally District-A Study of Financial Management”, has suggested the introduction of a common marketing organization catering to the needs of Khadi institution in order to reduce the cost of marketing.

Soundaian (2000)\textsuperscript{19} in his study “Performance of Handmade Paper Industry in Tamil Nadu”, has suggested that a high level technical committee may be constituted, duly involving KV1C and KVIB officials for the development of the handmade paper industry.

Anand, (April, 2000)\textsuperscript{39} in his study “Management of Non-Edible Oil soap Industrial Units-A Performance Analysis”, found that policy measures are essential for the revitalization of non-edible oil soap industrial units and other Village Industries in the realistic development of Indian rural economy.
Palanivel, (1999) in his study “Balaji Paper Pulp Toys at Villiyanoor, Pondicherry-A Case Study”, found out that the pulp toys industry is eco-friendly labour intensive and provides good employment to women and in suitable for uneducated rural youth.

2.3 STATEMENT OF THE PROBLEM

The review of literature reveals that investigation into the status of the handmade paper industry has highlighted the role of the handmade paper industry in India’s rural economy, the need to protect these industries, the scope of the handmade paper industry, the environmental impact of the industry, the role of various agricultural waste fibrous materials in the manufacture of handmade paper, technical means and the varieties of handmade paper for various uses. Little attention has been paid to studies related to overall economic performance covering the production and sales trends, the productivity of the industry, the capital output ratio and the management of working capital of the handmade paper industry. A few studies have been confined to individual performances in terms of production and sales. To fill this gap, the present study makes an ‘Economic Analysis of the Handmade Paper Industry in Tamil Nadu’.

2.4 OBJECTIVES OF THE WORK

The work proposes to analyse all the issues relating to economic analysis of the handmade paper units operating in Tamil Nadu under the purview of Tamil Nadu Khadi and Village Industries Board, Chennai and Kahdi and Village Industries Commission, Mumbai. It mainly focuses on raw materials, production and sales, productivity of labour, marginal cost and working capital management which, are the crucial factors determining the economical scope of the handmade paper industry. However, the specific objectives of the work are to,

i) Identify the varieties of raw material, used by the sample units;

ii) Measure trends in production and sales over a period of time;
iii) Estimate the employment generation potentiality of the study units and labour productivity;
i v) Measure the capital output efficiency of these units;
v) Compute the marginal cost of production; and
vi) Assess the management of working capital.

2.5 HYPOTHESES

1. The handmade paper industry operates on the principle of ‘conversion of waste into wealth’. Hence all the study units use only waste materials namely hosiery cuttings, rags, waste paper for paper production;
2. As the handmade paper units use lower level of technologies, and market linkages are absent, the growth rate in production and sales is very meagre;
3. Handmade paper units are labour intensive in nature and per capita investment and per capital earnings will be low aid; due to low technological base, the labour productivity will be low.
4. Use of appropriate technology tools in the handmade paper industry will improve capital output ratio of the units.
5. Absence of professional management in the handmade paper units has led to higher marginal costs and lack of control over costs and prices.
6. In the absence of vigorous marketing strategies, the operating cycles of the working capital management would be very long.

The above hypotheses guided the researcher in deciding the direction of the present research work.

2.6 METHODOLOGY

2.6.1 SCHEME OF SAMPLE

The study covers the all the handmade paper units operating in Tamil Nadu.
Tamil Nadu Khadi and Village Industries Board, Chennai established around 25 handmade paper units in Tamil Nadu since 1960. This has been reduced due to continuous losses and problems of sickness.

As on 2000-01, only four units, are reported functioning and all the four units have been considered for the study. All India Khadi and Village Industries Commission, Mumbai directly funds one handmade paper unit at Thiruchengodu under directly aided category, which runs on the same principles of the Tamil Nadu Khadi and Village Industries Board Units. This has also been included in the sample. This is the only unit functioning with the certification of KVIC and KVIB.

Thus the sample consists of the following five units operating in Tamil Nadu.

1. Handmade Paper Unit, Pidagam, Villupuram District.
2. Handmade Paper Unit, Ponnavarayankottai, Pattukkottai Tan jure District
3. Handmade Paper Unit, Sembagapudur, Erodu District.
4. Handmade Paper Unit, Gandhiji Asharam Thiruchengodu, Namakkal District.
5. Handmade Paper Unit, Veeragavapuram, Poonthmalli, Chennai

The sample covered all the handmade paper units operating in Tamil Nadu with the certification of KVIC, Mumbai and Tamil Nadu KVIB, Chennai.

2.6.2 PROFILE OF THE SAMPLE UNITS

2.6.2.1 Handmade Paper Unit, Pidagam

The Pidagam Hand Made Paper Unit is located at Pidagam 4 km south of Villupuram. Pidagam paper unit was established in 1962 by the Tamil Nadu Government by order No:MS1475/ILC (Khadi and Village
industries Board) dated 26.1.1962 for providing gainful employment to the rural people of the area.

The paper unit is situated in an area of 82 cents. Three pucca buildings were constructed with RCC roofing and there is a well with good water source attached with an overhead tank. All these buildings were constructed at a cost of Rs.2.19 lakhs. There are nine permanent staff working in the unit in various positions and another forty one workers are employed on daily wages.

The unit had 105 workers at the beginning and functioned in three shifts producing varieties of handmade paper.

The unit produced the following varieties of papers viz., I ligh-yradr paper, High-grade cards, bond paper, manifold paper, Table pads, covers, carry bags, writing paper, files and office covers.

For its raw materials requirements the unit depends upon the central pool supply from TNKVIB Chennai through the Assistant Director’s office at Villupuram. Orders are issued by TNKVIB Central Office, Chennai to the raw material suppliers operating throughout the state, mostly parties at Chennai to issue materials after receiving an indent from the unit.

The following machineries and equipments are available at this unit:

<table>
<thead>
<tr>
<th>S.No</th>
<th>Particulars</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Beaters “30 x 36” 100 kgs. Capacity</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Beaters (small) “24 x 30” 50 kg Capacity</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Screw press</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Hydraulic press “35 x 45”</td>
<td>1</td>
</tr>
<tr>
<td>5.</td>
<td>Calendaring Machine “36 x 12”</td>
<td>1</td>
</tr>
<tr>
<td>6.</td>
<td>Paper Cutting Machine 36”</td>
<td>1</td>
</tr>
<tr>
<td>7.</td>
<td>Dipping vats</td>
<td>9</td>
</tr>
<tr>
<td>8.</td>
<td>Auto vats</td>
<td>6</td>
</tr>
<tr>
<td>9.</td>
<td>Rag chopper</td>
<td>1</td>
</tr>
</tbody>
</table>
With the above machineries and equipments, the unit’s installed capacity per annum is 50 metric tones. Value addition on finished goods of paper and boards are ensured in a sincere manner by converting the paper and boards into matching colour envelops and letter heads, file covers, scribbling pads, telephone diaries, fancy shopping bags duly marbled stationery note books by ensuring ruling on writing and bond papers in full swing.

2.6.2.2 Handmade Paper Unit, Ponnavarayankottai

The HMP unit at Ponnavarayankottai near Pattukkottai was established in 1983 by the Tamil Nadu Government by order No TJ 1214 (Khadi and village industries Board) dated 20.09.1983 for providing gainful employment to rural people.

The paper unit building is accommodated in an area of 7 1/2 cents. The total area of the paper unit is 81 cents. At the beginning 30 labourers were employed in the unit. At present only seven labourers are working in Ponnavarayankottai Handmade Paper unit. The unit is having good potable water from a bore well.

The following machinery and equipments are available at this unit:

<table>
<thead>
<tr>
<th>S.No</th>
<th>Particulars</th>
<th>(Numbers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Beater 100 kgs. Capacity</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Hydraulic press</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Paper lifting vats</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Calendering machine 18”x36”</td>
<td>1</td>
</tr>
<tr>
<td>5.</td>
<td>Cutting machine 36” (hand operated)</td>
<td>1</td>
</tr>
</tbody>
</table>

The total cost of these machineries is Rs.1.5 lakhs. This is another viable unit of TNKVIB which produces high grade paper and boards. Many experienced workers are employed in this unit and excellent papers of high grade varieties are in production. But the workers are dissatisfied
with the low wage structure introduced by TNKVIB. They are demanding the introduction of the minimum wage rate policy of the Government which the TNKVIB has not effected so far.

The unit produces varieties of handmade paper and card board and is also engaged in the conversion process by producing card board boxes. For its raw material requirements, the unit depends upon the central pool supply of TN KVIB, Tanjore, through the Assistant Director’s Office at Tanjore. Directions are issued from TNKVIB Central Office, Tanjore to the raw material suppliers operating throughout the state to issue raw materials. Mostly parties at Thirupur, Musiri, Erode, Madurai and Sivakasi are directed to supply the materials.

2.6.23 Handmade Paper Unit, Shenbagapudur

The F1MP unit at Shenbagapudur was established in 1956 by the T.N. Government order No. Ms.309 (Khadi and Village Industries Board) dated 14.03.1957 for providing gainful employment to the local unemployed rural population.

The paper unit is accommodated in an area of 5.50 acres. Nine pucca buildings with asbestos and RCC roofing and two thatched roofing sheds were constructed a cost of Rs.2.19 lakhs. There are nine permanent staff and forty-five workers on daily wages working in the unit.

The following machineries and equipments are available at this unit:

<table>
<thead>
<tr>
<th>S.No</th>
<th>Particulars</th>
<th>(Numbers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Beaters 50 kg. Capacity and 100 kgs. Capacity</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Screw press</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Hydraulic press</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Paper lifting vats</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>Calendaring machine 18”x3 6”</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Cutting machine 36”</td>
<td>2</td>
</tr>
</tbody>
</table>
7. Ruling machine 1
8. Trays for marbling process 2
9. Platform balance 300 kg. Capacity 1

All the above machineries cost Rs. 1.97 lakhs at the time of purchase.

This is another successful unit of TNKVIB manufacturing high grade varieties of paper and boards. Many experienced workers are employed it; this unit and excellent papers of high grade varieties are in production. These workers are also not satisfied with the wage structure introduced by TNKVIB and they too want at least minimum wages as per the Act of the Tamil Nadu government.

The major varieties of handmade paper production at this unit are writing paper: High grade cards, bond paper and manifold paper. For its raw material requirements, the unit depends upon the central pool supply from TNKVIB, Chennai through the Assistant Director’s office at Erode like other units functioning under TNKVIB. Directions are issued from TNKVIB Central Office, Chennai to the raw material suppliers operating throughout the state. Mostly parties at Chennai, Musiri, Thirupur, FTode, Madurai and Sivakasi are directed to supply the same. These industrial/textile belts are situated within the radius of 200 kms. In view of the policy of the TNKVIB of centralized raw material supply, the cost effectiveness of dearer raw material is affecting the product cost to a greater extent.

Despite of all these disadvantages the unit produces very good high grade papers and boards, which is liked by many lovers of eco-friendly papers for its elegance. And most of the products of this unit are disposed off through their channel of marketing outlets like hot cake, leaving very less quantity as work in progress and as finished goods.
### 2.6.2.4 Handmade Paper Unit, Thiruchengodu

At Zamin Ellampalli, Thiruchengodu, in Namakkal District under the research and development programme of KVIC, in the year 1985-86, cylinder mould vat (CMV) was introduced. The unit is located on the left bank of River Cauvery. Good potable water is available at this unit. The unit is surrounded by paddy and sugarcane fields. As perennial water supply is ensured for agricultural activities villagers in and around Zamin Ellampalli are having work in agricultural activities throughout the year. Surplus labourers of agricultural activities are engaged in this HMP unit. Unlike other TNKVIB units, this particulars unit is promoted by KVIC directly by supp'ying required machineries and equipments of appropriate technology and by posting a technical supervisor to look alter the day-to-day routine. On CMV machine, multi layer file card sheets alone are manufactured duly ensuring compactness, colour, even-thickness. This file card sheet has high demand among customers and there is a ready market for this product. The unit has established marketing tie-up with the reputed Gandhi Ashram, Government and non-Government Organisations. After successful trial was ensured by KVIC, the entire plant was transferred to Gandhi Ashram’s total management.

The following machineries and equipments are available with the unit:

<table>
<thead>
<tr>
<th>S-No</th>
<th>Particulars</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>36” face value of CMV</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>30” x 36” Beater</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Pulp tank with stirrer duly attached with motor</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Calendering machine 12” x 36”</td>
<td>1</td>
</tr>
<tr>
<td>5.</td>
<td>Cutting machine 36”</td>
<td>1</td>
</tr>
<tr>
<td>6.</td>
<td>Trolleys</td>
<td>2</td>
</tr>
<tr>
<td>7.</td>
<td>Tao-sucky (for paper drying)</td>
<td>1</td>
</tr>
</tbody>
</table>
The entire unit is housed in an area of 6000 sq. ft. The unit is well managed and is registering profit year after year besides providing gainful employment opportunities to local people.

All amenities to workers are also made available in this unit as per the Factory Act. Workers’ wages also taken care of by the Gandhi Ashram and there is no displeasure with the management.

Many experienced workers are employed in this unit and excellent papers of high-grade varieties are produced.

2.6.2.5 Handmade Paper unit, Veeraragavapuram

The handmade paper unit is situated at Veeraragavapuram, 3 km North of Poonthmalli, Chennai. The Veeraragavapuram unit was established in the year 1971 by the order of Tamil Nadu Government No: B.P.M.S 409 Khadi and Village Industries Board dated 22.7.1964 for providing gainful employment to the unemployed rural youth.

The paper unit is located in an area of 1.17 acres. The unit is functioning in a pucca building at a constructed cost of Rs.82657.12. The unit had 35 workers at the beginning and functioned in two shifts producing varieties of handmade paper.

The following machineries and equipments are available at this unit:

<table>
<thead>
<tr>
<th>S.No</th>
<th>Particulars</th>
<th>(Numbers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Beater 100 kgs. Capacity</td>
<td>2</td>
</tr>
<tr>
<td>2.</td>
<td>Screw press</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>Hydraulic press</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Paper lifting vats</td>
<td>6</td>
</tr>
<tr>
<td>5.</td>
<td>Calendering machine 18”x36”</td>
<td>1</td>
</tr>
<tr>
<td>6.</td>
<td>Cutting machine 36”</td>
<td>1</td>
</tr>
<tr>
<td>7.</td>
<td>Ruling machine</td>
<td>1</td>
</tr>
</tbody>
</table>
With the above machineries and equipments, the unit’s installed capacity per annum is 45 metric tones. Value addition on finished goods of file and boards are ensured in a sincere manner by converting the hard board, writing pad, sweet box, office covers, tabulate covers and other packing materials.

2.6.3 Data Base

The study mainly uses secondary data collected from registers and annual audited statements of final accounts of the sample units. In addition, other particulars have been collected from the Directorate of Tamil Nadu Khadi and Village Industries Board, Chennai.

2.6.4 TECHNIQUES AND TOOLS OF ANALYSIS

The study employs the following techniques and tools for evaluating the performances of the sample units.

(i) Growth rates in terms of M'value (in linear equation) and trend curves (in polynomial equation) for assessing the performance in production and sales.

(ii) Labour productivity index for comparing the inter unit performances

(iii) Multiple regression analysis was used to determine the variables in controlling capital out put ratio.

(iv) Marginal cost analysis to find out the efficacy of the units in controlling costs and prices.

(v) Estimation of component cycles in operating cycle and turnover of working capital ratio

The study uses linear equation of the model y = a + mx and polynomial equation of y= ax^3 + bx^2 + cx +d to assess the trends in production and sales. In terms of linear equations, the value of ‘M’ will indicate the rate of growth in production and sales over a period of time. At
many times, business variables like the value of production and sales may not follow a linear trend and the optimally fit polynomial equation are used for determining the increase or decreasing nature of the variables to compare it with the other study units. ‘Mathematical version III’ software package has been used to make polynomial equations and further analysis.

Labour productivity and index of productivity per rupee of wages paid have been used to assess the productivity values of the study units over a period of time. Index of productivity per rupee of wages paid reflect the value addition made by the unit per rupee of wages paid. This measure is an innovative tool developed by the researcher to measure the intensity of labour utilization by the units. Higher the index values reflect the better utilization of labour and high value addition in respect of wages paid and vice-versa.

Marginal cost analysis had been done to study the trends in costs and prices of the study units and also to assess the ability and efficiency of the firms in controlling costs and prices. Total cost of production should be elastic with the total volume of production. Inelastic cost behaviour indicate the firms inability to control costs and prices and profit margins.

Management of working capital has been evaluated through measurement of operating cycles. As the handmade paper units use simple technologies and rely mostly on manual power, working capital management has crucial role in deciding the profitability of the units. Thus, longer operating cycles speak about the inefficient management of working capital and shorter operating cycles reflect the efficient management.

Thus the parameters selected in the analysis have significant impact in the future prospects of the study units and it will also help to spell out the reasons for lack lustre performance.
2.6.5 PERIOD OF THE STUDY

The period covers the performance of the sample handmade paper units for a period often years from 1991-92 to 2000-01.

2.6.6 CHAPTER PLAN

The study consists of seven chapters.

1. First chapter deals with an introduction to the handmade paper Industry in India
2. Chapter two covers the review of literature and design of the study.
3. In chapter three raw material usage, the trends in production and sales have been discussed.
4. In chapter four, the employment trends, labour productivity and per capita earnings have been computed and analysed.
5. In chapter five, the capital output ratios and marginal costs have been covered.
6. Chapter six contains study of operating cycles of the working capital management in the sample units.
7. Chapter seven consists of summary of the findings and recommendations of the study.

2.6.7 SCOPE AND LIMITATIONS OF THE STUDY

The handmade paper units in Tamil Nadu showed a lacklustre performance over the years and the scope of the present work is to evaluate the performance of the operating units in terms of economic parameters like production, sales, employment generation, labour productivity, capital output ratio, marginal cost and management of working capital. The sample covered only the units operating under the purview of Khadi and Village Industries Commission, Mumbai and Tamil Nadu KVIB, Chennai. A larger sample consisting of private by owned handmade paper units operating in Tamil Nadu could not be adopted due to resource constraints of the researcher.
Khadi and Village Industries are capital cheap and labour intensive. So the volume and value of production and sales can not be compared with organized sector. One of the village industry which provide large scale employment with very minimum capital in handmade paper industry. A large number of male and female workers are necessary in each process of this industry. The per capita investment in this industry is less than Rupees fifty thousand. Conceding the higher employment opportunity the other factors such as volume and value of production can be ignored in this Industry.

2.7 OPERATIONAL DEFINITIONS OF CONCEPTS

Village Industry

Village Industry means any industry located in rural area (population of which does not exceed 20,000) which produces any goods and services with or without use of power and in which the fixed capital investment (on plant and machinery, land and building) per head of an artisan or a worker does not exceed Rs.50,000.

Paper

The name ‘Paper’ comes from papyrus for paper was introduced into Europe when papyrus was still in general use Papyrus. This word is the name of a plant which grew in ancient Egypt by the River Nile, and also to a lesser extent in Palestine. The papyrus is a straight, tall, reed like water plant.

Handmade Paper (HMP)

Wet layer of paper /board made by hand (manual) with simple equipments.

Mill Paper

Material manufactured in thin sheets from the pulp of wood or other fibrous substances, by use of machinery for writing or printing on or as wrapping material.
Beater

RCC trough in an elongated cylindrical size with perfect half circle at its both end duly housed with rollers bed plate both with blades for ensuring paper pulping process.

Pulp Cistern

Storage tank for beaten paper pulp.

Stock

Stock is the mixture of work-in-progress beaten pulp along with water in beater trough for further processes.

Auto Vat

An equipment advised for paper formation and lifting process.

Mould

Mould is a rectangular wooden frame duly fixed with 40/60/80/100 wire mesh with supporting wire mesh of 6 or 8 on barbed wooden supporting frames and duly felted on the prime of moulds top surface units both length and breath frames alone enabling for wet web (sheet) formation on durable in the presence of water in vat.

Deckle

Deckle is the rectangular supporting frame with an upper and lower deckle enabling the mould of fix in between and hooked with “J” hooks enabling oscillation while sheet formation and to create natural suction of air while raising the level of lower deckle with the pedaling arrangement made in the vat.

Cylinder Mould Vat (CMV)

An equipment of intermediate technology using power. It is a hollow cylindrical drum with 36” face wire mesh on its surface, housed in a RCC tank, in water enabling sheet/paper formation on rotation of cylinder mould.
Impression Paper

Typing paper of tissue variety weighing less than 20 GSM manufactured by hand for typing and writing purpose.

File Boards

Handmade paper with more rag/fibre content weighing between 100 and 200 GSM used for making file covers.

Mill Boards

Cheap variety of packing boards made out of waste papers and waste boards exceeding 100 GSM.

Coloured Wrapper Sheets

Mixed colour papers weighing less than 30 GSM used for wrapping and packing purposes.

Bond Paper

Paper manufacture with 80 100 percent cotton rags, as raw material weighing 15 to 20 GSM with smooth finish.

Growth Rate

Growth rate is the average percentage of increase or decrease in a particular quantity or value with respect to any period of time.

Operating Cycle

The average time taken by a firm to convert materials or bought-out components into a finished product, sell it, and collect payment for the sale.

Production Cost

The cost of converting factor inputs into higher valued outputs of goods and services. The costs of manufacturing products include costs of raw materials, labour costs, depreciation and maintenance of plant and equipment and rent, rates, lighting and heating of factory buildings.

Marginal Cost

Because of the law of diminishing marginal returns, marginal cost, after reaching a minimum rises with further increases in output.
**Average Variable Cost**

Because the average product of the variable input generally rises and then fads with increases in output, average variable cost decreases and then rises with increases in output.

**Capital Output Ratio**

Capital Output Ratio is the ratio of the value of fixed assets used by the sample units for producing one rupee value of paper/board/products by manufacture.

**Productivity**

In economic theory the output of any factor of production - and, labour or capital - per unit of input.

**Productivity of Capital**

Output produced per unit of capital employed.

**Productivity of Labour**

Output produced per unit of labour employed; usually measured per worker or per worker-hour.

**Rupee**

Rupee is a unit of Indian currency with rupees in plural. One rupee is equal to US$ 0.0208 and one US $ is ranging between Rs.47.50 (as on 31.12.2002).
REFERENCES

Reports


Books


Articles


Unpublished Thesis


