Published Papers
FINANCIAL ANALYSIS OF INDIAN HOMETECH INDUSTRY IN TENTH AND ELEVENTH FIVE YEAR PLAN

ASIYA CHAUDHARY¹ & NAZNEEN SHAHID²

¹Assistant Professor, Department of Commerce, Aligarh Muslim University, Aligarh, India
²Research Scholar, Department of Commerce, Aligarh Muslim University, Aligarh, India

ABSTRACT

Hometech Textiles have attracted considerable attention that is other than fabrics, nonwovens and composite reinforcements, lies in the field of furniture, household textiles and furnishing. This sector has got its significance in today’s corporate world due to the consumer’s changes in life style, process complexities, requirement of specific products, demand for comfort, security situation and well – furnished and modern homes. Hometech industry is considered as one of the emerging areas with huge potential in the Technical Textile field all over the world, the Indian companies are expected to perform well in eleventh plan in order to meet consumer’s demand. From the various literature reviews it is found that there is no conclusive work done about the financial performance of Hometech industry in India.

In recent years, the government has realized the significance of Hometech textiles and taken some steps for the promotion of this sector in India. Hence, there is a need to look into the trend of financial analysis of Indian Hometech Industry. The present study is an attempt to find out the difference in Eleventh five year plan performance compared with Tenth plan in terms of profitability, liquidity, leverage and turnover. The scope of the study is limited to selected companies in India which are taken as sample to represent the total population. The statistical tools used are descriptive statistics, paired sample t-test.

KEYWORDS: Technical Textiles, Hometech, Financial Performance, Five Year Plan

INTRODUCTION

Hometech Textiles has often been referred to as the sunshine sector in India and there is little doubt about the growth of Hometech textiles industry in the years to come. It is the emerging field for investments in India. Hometech is the third largest segment of the technical textiles industry which accounted for around 12 per cent share in 2010-11. It includes textiles used in households, particularly for interior decoration and furniture, carpeting against sun, cushion materials and floor and wall coverings. Some of the hometech products are fiberfill, mattress and pillow fabric, furniture fabric, blinds, mosquito nets and non-woven wipes carpet cloth (CRISIL Research, 2012)

Hometech is that part of Technical Textiles which converts house into home. Now days, all fabrics which are used in the homes come under the Hometech. The present day Hometech fabrics made in India are exported to several countries. The production value of such Hometech fabrics produced in India was over Rs.1,000 Crore in 2003-2004 and predicted double in the previous years and expected to touch nearly or over Rs.4,000 crores by the year 2014-2015 (http://skgrao.hubpages.com, n.d.).

The enablers for the increasing market growth of Hometech include growth of the industry sectors, increasing per capita income of consumers, increasing acceptance of products and various schemes which have been implemented by the government in order to develop this sector.
INDIAN HOMETECH INDUSTRY

Home textile industry has become sparkling place in the textile industry in the last one decade in both India and elsewhere. Designers, producers and the marketers make an effort to appreciate the consumer aspirations better. The market today has flooded with both decent as well as designer home textiles. There are many shades, fabrics and prints available to pick and choose that admires the color of your walls, the tiles of your kitchen, the wooden shade of your lobby and floor of your living hall.

The following Technical textile products are covered under Hometech:

- Fiberfill;
- Mattress and pillow components;
- Carpet backing cloth (Jute & synthetic);
- Stuffed toys;
- Blinds;
- HVAC Filters;
- Filter cloth for vacuum cleaners;
- Non Woven wipes;
- Mosquito nets;
- Furniture fabrics.

Value-Wise Share of Various Products in Indian Hometech Market (2009-10)

Technical textiles market under Hometech stood at US$ 1,353.3 million (2009-10). Furniture fabric alone has a share of 37% under the Hometech segment. Mattresses and pillow components constitute around 18% of the technical textile usage under the Hometech segment followed by blinds with a share of 13%, fiberfill with a share of 13%, stuffed toys with around 10%, carpet backing cloth with a share of 5% and mosquito nets with around 4%. The HVAC filters, vacuum filter fabrics and non woven wipes segment are very small and constitute only 1% of the total Hometech segment, as shown in the following Figure 1:

![Figure 1: Value-Wise Share of Hometech Products in Indian Market (2009-10)]

Source: Baseline Survey of the Technical Textile Industry in India, IMaCS Analysis
Value-Wise CAGR for Hometech Products (from 2009-10 to 2012-13)

The market for Hometech products is expected to grow at a rate of 11.7% annually and reach a size of US$ 1,887.4 million by 2012-13 (IMaCS Analysis, 2010). The following Figure 2 depicts that heating ventilating and air-conditioning (HVAC) filters, filter fabrics, nonwoven wipes, blinds, furniture fabrics and stuff toys are the high growth potential areas. The growth of commercial air-conditioning industry will drive the demand for HVAC filters on account of continued investments in segments like IT/ITeS, retail, entertainment, pharma, healthcare, hospitality, telecom and banking. The demand for stuff toys and nonwoven wipes will be driven due to rising disposable income and changing lifestyle. Increasing construction activity and increasing popularity of blinds will drive the demand for blinds.

![Overall CAGR: 11.7%](image)

Figure 2: Value-Wise CAGR for Hometech Products (from 2009-10 to 2012-13)

Source: Baseline Survey of the Technical Textile Industry in India, IMaCS Analysis

PREVIOUS STUDIES

The trade perspective examined the India's trade for Technical Textiles in the past decade i.e. from the year 2001-2002 to 2009-2010.

Research Gap

The review of literature thus reveals a gap in so far as no study is specific in dealing with the Hometech segment of the Technical textiles in India. Nor does any work review above tried to examine the financial performance of the Indian Hometech industry in general and selected companies in particular. The present study is an earnest attempt in the direction of bridging this gap. It is devoted entirely to the Hometech industry in India for measuring the financial performance of the Hometech industry from 2002 to 2012.

OBJECTIVES OF THE STUDY

• To determine the profitability position of the Hometech industry in India during tenth and eleventh five year plan.
• To reveal the liquidity position of the Hometech industry in India during tenth and eleventh five year plan.
• To examine the leverage of the Hometech industry in India during tenth and eleventh five year plan.
• To find out the turnover of the Hometech industry in India during tenth and eleventh five year plan.

Hypothesis

Based on the research gap areas from the literature survey, the following research hypothesis is tested:

• H0: There is no difference between X* and Xl* five year plan in profitability of the Hometech Industry in India.
• H0: There is no difference between X* and Xl* five year plan in liquidity position of the Hometech Industry in India.
• H0: There is no difference between X* and Xl* five year plan in leverage standards of the Hometech Industry in India.
• H0: There is no difference between X* and Xl* five year plan in turnover of the Hometech Industry in India.

SCOPE OF THE STUDY

Since the government of India realized the importance of this sector in the year 2002 and implemented various schemes for the promotion of technical textile industry, the period of ten year is divided into two plan periods i.e. tenth and eleventh plan and a comparative analysis is made of the performance of Hometech industry under both plans on the basis of financial analysis of the selected companies. The sample of six companies has been taken into account for analysis because they are contributing 63.46% of the total production of Hometech industry in India.

RESEARCH METHODOLOGY

For the purpose of measuring financial performance of Hometech industry, various ratios are employed, for which a collective data relating to profits, sales, net worth, current assets, current liabilities, debt, total capitalization and share capital are taken into consideration. Later, the collective data are utilized to workout various ratios to measure the financial performance of the industry and verify the assumed hypothesis.

The study is carried out over various years under consideration using Accounting Based Approach in terms of different financial parameters which are given as below:
Financial Analysis of Indian Hometech Industry in Tenth and Eleventh Five Year Plan

Profitability Parameters are

- Net Profit Ratio: Net profit/Net Sales * 100
- Return on Net worth ratio: Net profit (after interest & tax) / Shareholders’ Funds
- Return on Net Capital Employed: Operating Profit/Net Capital Employed

Liquidity Parameter is

- Current Ratio: Current Assets / Current Liabilities

Leverage Parameters are

- Debt-Equity Ratio: Outsider’s fund/Shareholders fund
- Funded debt to total capitalization ratio: Funded debt / Total capitalization *100
- Capital Gearing ratio: Equity Share capital + Reserves & surplus / Preference capital + long term debt bearing fixed interest

Turnover Parameter is

- Inventory Turnover Ratio: Net Sales / Average Stock

STATISTICAL TOOLS, TECHNIQUES AND DATA ANALYSIS

To prove the hypothesis and analyze the data collected from various sources, Paired Sample t-test has been applied in this study. The data has been analyzed with the help of SPSS and MS-Excel. Tenth and Eleventh five year plan performance ratios are computed for the entire set of sample companies and compared to see if there is any statistically significant change in performance of the Hometech industry, using “paired sample t-test” at confidence level of 0.05 or 95%, d.f.=4, tabular value = 2.776 (2-tailed).

SAMPLING TECHNIQUE AND SELECTION

The sample of six companies has been taken into account for analysis because they are contributing 63.46% of the total production of Hometech industry in India. Therefore, the total performance measured through sample units is assumed to be representative of the financial performance of the total Hometech industry.

The financial accounts of the following Hometech companies have been chosen for the study:

- Ginni Filaments Limited
- Hanung Toys & Textiles Limited
- Uniproducts (India) Limited
- Reliance Industries Limited
- Premier Polyfilm Limited
- Arora Fibres Limited

Contribution (%) of the Selected Units to the Total Hometech Production during the Year 2011-12

The Figure 3 given below depicts the production share (%) of the selected Hometech companies to the total...
Hometech production in the year 2011-12.

![Diagram showing share (%) of selected Hometech units during 2011-12](image)

**Figure 3: Showing the Share (%) of Selected Hometech Units during 2011-12**

**Source:** Self Developed

The total value of the **Hometech** production was Rs. 7831 cr. in the year 2011-12 out of which production value of selected companies stood at Rs. 4970.58 cr. and remaining companies stood at Rs. 2860.42 cr. The production of **RIL** was at 2159.79 cr. constituting the largest share 27.58 per cent to the total production as shown in above Figure 3. The production value of **HANUNG** was at Rs. 1745.49 cr. which constitutes 22.29 per cent to the total hometech production. The production of **GINNIFILA** was 610.11 cr. having the 7.79 per cent share to the total production. The production value of **ARORAFIB** was Rs. 232.89 cr. which gives around 2.97 per cent share to the total hometech production. The total value of **UIL** production was Rs. 155.2 cr. which gives 1.98 per cent share to the total production. The production of **PPL** was Rs. 67.10 cr. which gives smallest share around 0.85 per cent.

**DATA COLLECTION**


**LIMITATIONS OF THE STUDY**

- Only six companies have been selected for performance appraisal of entire Hometech industry of India which might not be the true representation of the population.
- The study is limited to 10 years i.e. five years for Tenth plan and five years for Eleventh plan.
- The micro study is based on ratio analysis which has its own limitations. As we know that ratio analysis has, like all other methods, limited value and application, it cannot reveal exact picture of the financial performance and its conclusion are not always reliable.
- Financial analysis does not depict those facts which cannot be expressed in terms of money, for example efficiency of workers, reputation and prestige of the management.
RESULTS AND DISCUSSIONS

The study is carried out by adding the data relating to profits, sales, assets, liabilities, debt, share capital etc. of the companies and later using this collective data, various ratios has been worked out over the years. The following table 1 provides the results of Paired sample t- tests followed by observations about the differences in financial performance between tenth and eleventh five year plan periods.

<table>
<thead>
<tr>
<th>Financial Ratios</th>
<th>Mean</th>
<th>Mean Difference</th>
<th>t Value</th>
<th>P-Value (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Net profit ratio</td>
<td>10.44</td>
<td>9.56</td>
<td>0.87</td>
<td>0.483</td>
</tr>
<tr>
<td>2. Return on net worth ratio</td>
<td>16.84</td>
<td>14.65</td>
<td>2.19</td>
<td>0.689</td>
</tr>
<tr>
<td>3. Return on net capital employed ratio</td>
<td>26.67</td>
<td>22.66</td>
<td>4.006</td>
<td>0.913</td>
</tr>
<tr>
<td>4. Current ratio</td>
<td>1.38</td>
<td>1.34</td>
<td>0.038</td>
<td>0.247</td>
</tr>
<tr>
<td>5. Debt equity ratio</td>
<td>0.92</td>
<td>0.83</td>
<td>0.092</td>
<td>1.793</td>
</tr>
<tr>
<td>6. Funded debt to total capitalization ratio</td>
<td>34.23</td>
<td>31.53</td>
<td>2.7</td>
<td>1.667</td>
</tr>
<tr>
<td>7. Capital gearing ratio</td>
<td>1.95</td>
<td>2.15</td>
<td>0.198</td>
<td>1.553</td>
</tr>
<tr>
<td>8. Inventory turnover ratio</td>
<td>7.8</td>
<td>8.54</td>
<td>0.74</td>
<td>0.823</td>
</tr>
</tbody>
</table>

Analysis of Profitability Standards

- The net profit ratio reflects the efficiency of the management in manufacturing, selling, administrative and other activities of the firm. The mean value of net profit ratio during X\textsuperscript{th} and XI\textsuperscript{th} plan is worked out as 10.44 and 9.56 respectively which show that the profitability of the companies has declined during the eleventh plan.

- The return on net worth ratio indicates the profitability of the owner’s investment and measures the overall efficiency of a firm. The mean value of return on net worth ratio during X\textsuperscript{th} and XI\textsuperscript{th} plan is worked out as 16.84 and 14.65 respectively which show that the profitability of the owner’s investment has declined during the eleventh plan.

- The return on net capital employed indicates the percentage of return on capital employed in the business that shows the overall profitability and efficiency of the business. The mean value of return on net capital employed during X\textsuperscript{th} and XI\textsuperscript{th} plan is worked out as 26.67 and 22.66 respectively which show that the percentage of return on capital employed in the companies has declined during the eleventh plan.

- Based on the results of the paired sample t-test analysis at 95% confidence level, the Null Hypothesis H\textsubscript{0}: “There is no difference between X\textsuperscript{th} and XI\textsuperscript{th} five year plan in profitability of the Hometech Industry in India” was not rejected, since paired sample t-test failed to reveal a statistically reliable difference between the X\textsuperscript{th} and XI\textsuperscript{th} plan mean values of Hometech companies, \( t_{\text{cal}} \text{ value} < t_{\text{tab}} \text{ value} \) and \( p \text{ value} > \alpha = 0.05 \) for all the select profitability standards in sample companies under study. Hence, Null hypothesis is accepted.

Analysis of Liquidity Position

- Current ratio is a measure of general liquidity and used to make the analysis of a short-term financial position or liquidity of a firm. A relatively high current ratio indicates the firm’s ability to pay its current obligation in time while, a relatively low current ratio represents that the liquidity position of the firm is not good. A ratio equal or near to the rule of thumb of 2:1 is considered to be satisfactory. The mean value of current ratio during X\textsuperscript{th} and
XI plan is worked out as 1.38 and 1.34 respectively which show that the short term liquidity position of the companies has not improved during the eleventh plan.

- Based on the results of the paired sample t-test analysis at 95% confidence level, the Null Hypothesis $H_0$: “There is no difference between $X^*$ and $X_{11}^*$ five year plan in liquidity position of the Hometech Industry in India” was not rejected, since paired sample t-test failed to reveal a statistically reliable difference between the $X^*$ and $X_{11}^*$ plan mean values of Hometech companies, $t_{\text{cal}}$ value < $t_{\text{tab}}$ value and $p$ value > $0.05$ for the selected liquidity standard in sample companies under study. Hence, Null hypothesis is accepted.

### Analysis of Leverage Standards

- The Debt-Equity ratio: Debt-Equity ratio is used to analyze the long term solvency of the business and indicates the margin of safety to the creditors. A high ratio indicates greater risk to creditors while lower ratio indicates higher degree of protection to creditors but the shareholders are deprived of benefits of trading on equity/leverage. Generally, a Debt-Equity Ratio of 1:1 is considered satisfactory. The mean value of debt-equity ratio during $X^*$ and $X_{11}^*$ plan is worked out as 0.92 and 0.83 respectively which show that the long term solvency of the companies has improved and indicates higher degree of protection to creditors during the eleventh plan but it is not significantly decreased.

- The funded debt to total capitalization ratio establishes a link between the long term funds raised from outsiders and total long term funds available in the business. The higher percentage of ratio means that a higher proportion of debt is used for the permanent financing for the firm as opposed to investor funds. The mean value of funded debt to total capitalization ratio during $X^*$ and $X_{11}^*$ plan is worked out as 34.23 and 31.53 respectively which show that the proportion of long term debt has declined indicating the lesser risk, safety and reduced chances of bankruptcy of the companies during eleventh plan period but it is not significantly decreased.

- The capital gearing ratio is used to describe the relationship between equity share capital including reserves and surpluses to preference share capital and other fixed interest-bearing loans. If equity share capital is lower than the loan capital, the capital structure is said to be 'high geared'. On the other hand, if the equity share capital is higher than the loan capital, the capital structure is said to be 'low geared' and is said 'even geared' if both are same. The mean value of capital gearing ratio during $X^*$ plan and $X_{11}^*$ is worked out as 1.95 and 2.15 respectively which shows that the equity share capital has increased in compare to loan capital. This reflect the 'low geared' capital structure indicating minimum risk but low profit during eleventh plan in compare to tenth plan but it has not significantly increased.

- Based on the results of the paired sample t-test analysis at 95% confidence level, the Null Hypothesis $H_0$: “There is no difference between $X^*$ and $X_{11}^*$ five year plan in leverage standards of the Hometech Industry in India” was not rejected, since paired sample t-test failed to reveal a statistically reliable difference between the $X^*$ and $X_{11}^*$ plan mean values of Hometech companies, $t_{\text{cal}}$ value < $t_{\text{tab}}$ value and $p$ value > $0.05$ for the selected leverage standards in sample companies under study. Hence, Null hypothesis is accepted.

### Analysis of Turnover Standard

- The inventory turnover ratio measures the efficiency of the firm in managing and selling its inventory. This ratio shows the liquidity of the firm's inventory and also helps the owner to determine how they can increase their sales through inventory control. The mean value of inventory turnover ratio during $X^*$ plan and $X_{11}^*$ is worked out as
7.8 and 8.54 respectively which show that the liquidity of the firm’s inventory has increased during eleventh plan but it has not significantly increased.

- Based on the results of the paired sample t-test analysis at 95% confidence level, the Null Hypothesis H0: “There is no difference between Xth and XIth five year plan in turnover standard of the Hometech Industry in India” was not rejected, since paired sample t-test failed to reveal a statistically reliable difference between the Xth and XIth plan mean values of Hometech companies, $t_{calc} < t_{tab}$ value and $p$ value > $\alpha = 0.05$ for the selected leverage standards in sample companies under study. Hence, Null hypothesis is accepted.

Summary of t-Test Results

From the following Table 2 it is observed that for the Hometech companies, the profitability and liquidity have gone down in the eleventh plan period. Ignoring statistical significance, the leverage and turnover have improved.

Table 2: Summary of t-Test Result Tenth and Eleventh Five Year Plan Performance

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenth plan net profit ratio - eleventh plan net profit ratio</td>
<td>- *</td>
</tr>
<tr>
<td>Tenth plan return on net worth ratio - eleventh plan return on net worth ratio</td>
<td>- *</td>
</tr>
<tr>
<td>Tenth plan return on net capital employed ratio - eleventh plan return on net capital employed ratio</td>
<td>- *</td>
</tr>
<tr>
<td>Tenth plan current ratio - eleventh plan current ratio</td>
<td>- *</td>
</tr>
<tr>
<td>Tenth plan debt equity ratio - eleventh plan debt equity ratio</td>
<td>- *</td>
</tr>
<tr>
<td>Tenth plan funded debt to total capitalization ratio - eleventh plan funded debt to total capitalization ratio</td>
<td>- *</td>
</tr>
<tr>
<td>Tenth plan capital gearing ratio - eleventh plan capital gearing ratio</td>
<td>+ *</td>
</tr>
<tr>
<td>Tenth plan inventory turnover ratio - eleventh plan inventory turnover ratio</td>
<td>+ *</td>
</tr>
</tbody>
</table>

Source: Evaluated from Test Undertaken

The sign + refers to increase in ratio
The sign - refers to decrease in ratio
The sign * refers to statistically insignificant

CONCLUSIONS

The result shows that there is declined in debt-equity ratio and funded debt to total capitalization ratio which indicate the insignificant improvement during the eleventh plan period. The capital gearing ratio has insignificantly increased which indicate the low geared capital structure while the insignificant increase in inventory turnover ratio indicate the improvement during the eleventh plan. The other ratios i.e. net profit ratio, return on net worth ratio, return on net capital employed and current ratio have insignificantly declined during Eleventh five year plan period which demonstrates the negative sign for the industry. The result from paired sample t-test at significant level of 95% illustrated that there is no significance difference in the defined financial performance standards between tenth and eleventh plan period due to the significance value is greater than 0.05. Hence, this study has not rejected the null hypotheses which consider that there are no significant improvements in Hometech industry’s performance during eleventh plan and rejected the alternative hypothesis which considers that there is significance improvement in hometech industry’s performance during eleventh plan for the sample under consideration. The insignificant change in the financial performance of Hometech industry during eleventh plan period in compare to tenth plan period proves that there is no improvement in the performance of the industry over the period of ten years.
REFERENCES


Growth And Development Of Technical Textiles In India:
A Comparative Analysis Of Tenth And Eleventh Five Year Plan

Dr. Asiya Chaudhary,
Assistant Professor, Department of Commerce,
Aligarh Muslim University, Aligarh, India

Ms. Nazneen Shahid,
Research Scholar, Department of Commerce,
Aligarh Muslim University, Aligarh, India

Abstract

This paper examines the growth and development of the Technical Textile industry in India covering a decade from 2002 to 2012. Further, the researchers compare the eleventh five year plan period performance of the Indian Technical Textile Industry with tenth five year plan period performance in order to know the progress over the years. The growth and development of the industry is measured in terms of production, export and import. For the purpose of study, Paired sample t Test is being used in order to compare the both plan period performance i.e. tenth and eleventh plan. The results reveal the statistically reliable difference between the tenth and eleventh plan mean values of the three selected parameters in Technical Textile industry, which leads to a conclusion that growth of the industry has improved significantly during the eleventh five year plan.

Key Words: Technical Textiles, Production, Export, Import, Five Year Plan, India

Introduction

Technical textiles are accounted to be the fastest growing sector of the textile industry and it is manufacturing towards high tech, high performance fabric designed not just to look attractive, but to present a significant added value in terms of functionality. The Textile industry is not only experiencing for clothing application but also continuing a major outlook towards non-clothing application of textiles known as Technical textiles. Technical textiles are growing at twice rate of textiles for clothing applications and now providing more than half of total textile production.

The distinctiveness and confrontation of technical textiles lies in the need to support and apply the principles of textile science and technology to give solutions, in the main to technological problems but also often to engineering problems as well. With the emphasis on measurable textile performance in a particular field of application, this requires the technologist to have not
only deep knowledge of fibres and textile science and technology but also be aware of the application and the scientists, technologists and engineers who service it. Thus the producer of geo textiles requires core knowledge of the world of civil engineering, and the home textile producer, needs deep knowledge about the field of home furnishing, home decoration and floor coverings. This chain endeavors to bridge a gap between producer and end-user. The main principles involved in the selection of raw materials and their conversion into yams and fabrics followed by dyeing, finishing and coating of technical textiles are explored, followed by the raw materials, processing techniques, finishing, specifications, properties and special technical and commercial features of a wide range of specific areas of application (Horrocks and Anand, 2000).

Technical Textile is one of the emerging areas for investment in India because it has immense potential to gear up the traditional textile industry. The sector is categorized under 12 segments in India out of which Hometech, Meditech, Mobiltech and Geotech are the promising fields. There is no doubt that India’s research institutions are doing a praiseworthy work in promoting Technical Textiles particularly in the Hometech and Meditech fields but need lot more efforts. It would be certainly worth our while to import some of the technologies from the western countries which have progressed in all application of Technical Textiles, to reach our research findings up to the next higher plane.

Segments

The classification on the basis of different segments has been developed by Techtextil; Messe Frankfurt Exhibition GmbH which is widely used in Europe, North America and Asia. The classifications are:

1. Agrotech (Ago-textiles)
2. Buildtech (Construction-textiles)
3. Clothtech (Clothing-textiles)
4. Geotech (Geo-textiles)
5. Hometech (Domestic textiles)
6. Indutech (Industrial textiles)
7. Meditech (Medical textiles)
8. Mobiltech (Textiles used in transport)
9. Oekotech or Eco-tech (Environmentally friendly textiles)
10. Packtech (Packaging textiles)
11. Protech (Packaging textiles)
12. Sportech (Sports textiles)

Technical Textiles - An Indian Scenario

Technical textile industry in India comes under an initial stage as it contributes only 3% of total consumption. But, it would be mistaken to say that India’s technical textile industry is still inactive. It has awakened to the vast potential of the technical textile sector and is predicted to grow faster in next two decades than the growth endures by US and Europe in last three decades. This wish can be contented by the growing middle class, young and educated population. It is expected that Technical Textile would be one of the most promising sectors in this growth. And the factors like, the global economic change, strong government support, the introduction of
appropriate legislation, the development of tests and standards, and widespread recognition of the need for more trained personnel, etc. also playing the valuable role in driving the industry to the farthest destination (Patel, 2010). Thus it will be right to say that Technical Textiles in India is like latent volcano which is preparing to explode.

The Indian industry produces items of all the twelve segments of the technical textile industry, though not all of them are produced domestically. Some items are produced in large quantity while some other items are produced in small quantity; therefore, demand is met through imports. The production of technical textiles in India and with substantial exports are not very R&D intensive such as tarpaulins, jute carpet backing, hessian, crop covers, fishnets, surgical dressings etc. While the products that need R&D are imported largely like adult diapers, baby diapers, polypropylene spun bond fabric for disposables, hoses, wipes and protective clothing etc.

There are some large domestic players in this industry like Kusumgarh corporate, Supreme Nonwovens Pvt. Ltd., Techfab unimin, Garware wall ropes, Pacific nonwoven etc (Office of the Textile Commissioner, 2009). Size of the manufacturing units that are producing technical textile products in India varies to a large extent. There are number of multinational large players as well engaged in technical textiles who have set up their manufacturing facilities in India like Du pont, 3M, SKAPs, Procter & Gamble, Johnson & Johnson, Kimberly clark etc.

"There are over 3000 units manufacturing technical textiles, mostly in small scale sector. About 2/3rd of the production is of commodity products, only 1/3rd is high-end. The pre-dominant segments are Packtech, Clothtech, Hometech and Sportech. These segments primarily include commodity products and not very R&D intensive. Though India is the second largest textile economy after China, its contribution in the global technical textile industry is only 9% to the total consumption" (Joshi, 2011).

India can play a major role in this field because of the availability of abundant raw materials and highly skilled and technical work force. India is a largest producer of Clothtech, Packtech, and Sportech segments of technical textiles. The overall growth of technical textiles is estimated at 14% per annum and the market size for technical textiles will increase from Rs. 37100 crores in 2007-08 to Rs. 62420 crores in 2012-13 (ICRA study 2009) at a CAGR of 11%.

The consumption of Indian technical textiles is low in comparison of other developed countries (Ministry of Textiles 2006):

USA : 23%
Europe : 22%
China : 13%
India : 04%

The constraints in the growth of Indian technical textile industry are: lack of basic infrastructure, skilled work force, testing facilities, lack of comprehensive database on technical textiles, lack of awareness, non-availability of main raw materials etc. that are needed to be taken into account for the promotion of technical textiles in India. Some strategies should be implemented related to application areas, raw material, manufacturing facilities, R&D and quality assurance,
development of domestic and export market of technical textiles. Although, the government has taken various initiatives to emerge this sector realizing that India has great potential to make an impact on technical textile industry in near future.

Literature Review


Research Gap

The review of literature thus reveals a gap in so far as no study is specific in dealing with growth and development of the Technical textiles in India. Nor does any work review above tried to compare the tenth plan performance of the Indian Technical Textile industry with eleventh plan period performance. The present study is an earnest attempt in the direction of bridging this gap. It is devoted entirely to the Technical Textile industry in India for measuring the production,
export and import performance from 2002 to 2012. Furthermore, a comparative analysis is made of the performance of Technical textile industry under both plans on the basis of three parameters.

Statement of the Problem

Technical Textiles is an important part of the textile industry and its growth will have an important bearing on overall growth of the textile industry. In spite of the fact that the growth of the technical textile industry would necessarily meet the specific physical and functional needs of the consumers and would create additional employment opportunities in coming years, it is disheartening to note that India does not find significant place for its global consumption by way of production or consumption in this sector at present. However, the growth of small & medium enterprises in the Technical Textiles sector has been very significant. As on date there are 3000 units manufacturing technical textiles in the country, of which about 90% are in SME sector; and around 1000 units have commenced production during the last 5 years (Ministry of Textiles, 2010). The present study is a modest attempt to measure the growth of the Technical Textile Industry in India and find out to what extent it has progressed. The issue is whether the government policies were effective enough to accelerate the growth of the industry and in turn improve production and trade. The study strives to find out if the growth of the industry has taken place and whether it has been at least significant enough to meet the domestic consumption.

Objectives

1. To search upon the overall growth and development of Indian Technical Textile industry during Tenth and Eleventh five year plan.
2. To make a comparative analysis of the Indian Technical Textile industry between Tenth and Eleventh Five year plan in terms of Production, Export and Import.
3. To explore whether production, export and import of Technical Textile industry have changed significantly or not between Tenth and Eleventh five year plan.

Hypothesis

1. \( H_0 \) (Null Hypothesis): There is no significant difference in the production of Technical Textile industry in India between tenth and eleventh five year plan.
2. \( H_0 \) (Null Hypothesis): There is no significant difference in the export of Technical Textile industry in India between tenth and eleventh five year plan.
3. \( H_0 \) (Null Hypothesis): There is no significant difference in the import of Technical Textile industry in India between tenth and eleventh five year plan.
Data Collection Method

The study is based on the secondary and tertiary sources of data taken from the reports of Textiles and Technical Textiles published by Ministry of Textiles which have been suitably rearranged, classified and tabulated according to the requirement of the study. Besides, some data has been collected from the books and magazine relating to the industry, published paper, various newspapers, bulletins and some information has been browsed from the internet of the related websites.

Hypothesis Testing Methodology

The paper studies the growth and development of Technical Textile industry in India in the past decade in terms of production, export and import. The study covers the period of 10 years i.e. from 2002-03 to 2011-12 which has been divided into two plan periods i.e. Tenth plan (2002-07) and Eleventh plan (2007-12). To prove the hypothesis and analyze the data collected from various sources, Paired Sample t-test has been applied in this study. The data has been analyzed with the help of SPSS and MS-Excel. Tenth and Eleventh five year plan performance in terms of production, export and import have been compared to see if there is any statistically significant change in performance of the Technical Textiles industry, using “paired sample t-test” at confidence level of 0.05 or 95%, d.f.=4, tabular value = 2.776 (2-tailed).

Limitations of the Study

The following are some main limitations of the study:

1. This study is mainly based on secondary data derived from the published reports of the Ministry of Textiles. The reliability and the findings are contingent upon the data published in the reports.

2. The biggest limitation of the study has been the non-availability of time-series data on production of Technical Textile industry in India.

3. There is an insufficient maintenance of data and information by the Ministry of Textiles.

4. The study is limited to five years of Tenth plan and five years of Eleventh plan.
5. Only three parameters are considered in this study to measure the growth of the industry because of non-availability of data.

Graphic Analysis and Interpretation

The Charts and Graphical analysis are based on Appendices 1 and 2. Graphs are the best medium through which we can show the trends of the Industry's growth and development. Here with the help of the graphs the Researchers have analyzed the trend of Production, Export and Import in Indian Technical Textile industry during Tenth and Eleventh five year plan period. These graphs also show the growth trend all the three parameters i.e. production, export and import. Through this we can analyze the growth and development of the Industry in the past decade. The figures in Appendix - I have been depicted in the Chart 1(a) and Chart 1(b). From the Charts 1(a) and 1(b), we can analyze the production, export and import trend of Technical Textiles in India during Tenth five year plan (2002-07).

From the Chart 1(a) we can see the Technical textile industry's performance during the tenth plan. The technical textile production, export and import were at Rs. 17015.06 cr., 5486.87 cr. and 1843 cr. respectively in the year 2002-03. After that production kept on rising and reached to 26076.1cr. at the end of the plan i.e. during 2006-07. As far as exports are concerned, it continuously increased during tenth plan period except in the year 2005-06. As regards imports, it came up to Rs. 10582.84 cr. in the year 2003-04 and increased tremendously during the study period and reached to Rs. 18453.98 cr. in 2006-07.

Chart 1 (a): Production, Export and Import of Technical Textile industry during Tenth Five Year Plan

![Tenth Five Year Plan Chart](chart.png)

Source: Appendix 1

From the Chart 1 (b) we can observed the fluctuating trend of production growth of the industry during tenth plan. It increased by 12.42 per cent in the year 2003-04 and came down in 2004-05 by 9.98 per cent. Thereafter it started rising and were 10.78 per cent and 11.88 per cent during
2005-06 and 2006-07 respectively. During 2003-04 the technical textile exports and imports witnessed exceptional improvement by 130.37 per cent and 325.30 per cent respectively. In the following year 2005-06 export declined by 10.78 per cent but improved by 21.99 per cent at the end of the plan i.e. 2006-07. The import continuously increased during the period but at the decreasing growth rates over the previous years.

Chart 1 (b): Growth in Production, Export and Import of Technical Textile industry during Tenth Five Year Plan

![Chart](chart.png)

Source: Appendix 1

The figures in Appendix 2 have been depicted in the Chart 2 (a) and Chart 2 (b). From the Charts 2 (a) and 2 (b), we can analyze the production, export and import trend of Technical Textiles in India during Eleventh five year plan (2007-12).

Chart 2 (a) shows an interesting trend in production of the industry during Eleventh plan period. It was 41756 cr. in the year 2007-08 and continuously rose during the study period except 2008-09 and reached to Rs. 63202 cr. at the end of the plan i.e. 2011-12. The export shows a marvelous progress during the study period. It was 22163.27 cr. in the year 2007-08 and reached to Rs. 47085.37 cr. during 2011-12. As regard import, it also depicts an increasing trend. It was 21401 cr. in the year 2007-08 and reached to Rs. 50533.82 cr. at the end of the plan i.e. 2011-12.
From chart 2 (b) we see negative growth in production of the industry by 10.44 per cent in 2008-09 due to the global recession during this period but thereafter it started improving and registered 42.31 per cent growth rate during 2011-12. As trend shows, growth in exports and import tremendously increased but at the fluctuating rates during the eleventh plan period. During 2008-09, export came up by 22.24 per cent but in the next year i.e. 2009-10 it slightly improved by 5.88 per cent. During 2010-11, it jumped by 38.25 per cent and thereafter it increased by 18.73 per cent at the end of the plan. As far as import is concerned, it improved by 36.99 per cent in the year 2008-09. But, during 2009-10 it came up at the lower rate i.e. 7.77 per cent. In the next years i.e. 2010-11 and 2011-12, it went up at the constant rate by 26 per cent.
Analysis and Findings on the Basis of Hypothesis Formulated

The study is carried out by analyzing the growth and development of Technical Textiles industry in terms of production, export and import during tenth and eleventh plan period and later Paired sample t-tests has been employed for the comparative analysis between Tenth and Eleventh five year plan period. This study endeavors to measure growth of the industry as well as test whether it is significantly improved or not during the Eleventh plan in compare to Tenth plan. The following table 1 provides the results of Paired sample t-tests followed by observations about the differences in production, export and import performance between tenth and eleventh five year plan periods.

Table 1: Results of T value and p value in each hypothesis (Production, Export and Import)

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Mean</th>
<th>Mean Difference</th>
<th>t value</th>
<th>P-value (2-tailed)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>( H_{01} = X^{th} \text{ plan production} - X^{th} \text{ plan production} )</td>
<td>21314</td>
<td>45533</td>
<td>-24210</td>
<td>7.126</td>
<td>Significant</td>
</tr>
<tr>
<td>( H_{02} = X^{th} \text{ plan export} - X^{th} \text{ plan export} )</td>
<td>12505</td>
<td>32937</td>
<td>-20430</td>
<td>5.922</td>
<td>Significant</td>
</tr>
<tr>
<td>( H_{03} = X^{th} \text{ plan import} - X^{th} \text{ plan import} )</td>
<td>10522</td>
<td>34575</td>
<td>-24050</td>
<td>10.508</td>
<td>Significant</td>
</tr>
</tbody>
</table>

At 95% confidence level
Source: Computed through SPSS
1. Production Analysis

- The mean value of production during tenth and eleventh plan is worked out as 21314 and 45533 respectively which show that the production of the industry has increased during the eleventh plan period.

- Based on the above results of the paired sample t-test analysis at 95% confidence level, the Null Hypothesis \( H_0 \): "On average, there is no difference between Tenth and Eleventh five year plan in production of the Technical Textile Industry in India" was rejected, since paired sample t-test reveal a statistically reliable difference between the Xth and XIth plan mean values of production in Technical Textile industry, \( p \) value (sig. 2-tailed) is worked out as 0.002 which is lesser than (alpha) 0.05 \([p \text{ value}<\alpha=0.05]\). Thus, Null hypothesis is rejected while alternate hypothesis is accepted. Hence it is proved that the production of Technical Textile industry has improved significantly during eleventh five year plan in compare to tenth five year plan.

2. Export Analysis

- The mean value of export during tenth and eleventh plan is worked out as 12505 and 32937 respectively which show that the export of the industry has increased during the eleventh plan period.

- Based on the above results of the paired sample t-test analysis at 95% confidence level, the Null Hypothesis \( H_0 \): "On average, there is no difference between Tenth and Eleventh five year plan in export of the Technical Textile Industry in India" was rejected, since paired sample t-test reveal a statistically reliable difference between the Xth and XIth plan mean values of export in Technical Textile industry, \( p \) value (sig. 2-tailed) is worked out as 0.004 which is lesser than (alpha) 0.05 \([p \text{ value}<\alpha=0.05]\). Thus, Null hypothesis is rejected while alternate hypothesis is accepted. Hence it is proved that the export of Technical Textile industry has improved significantly during eleventh five year plan in compare to tenth five year plan.

3. Import Analysis

- The mean value of import during tenth and eleventh plan is worked out as 10522 and 34575 respectively which show that the import of the industry has increased during the eleventh plan period.

- Based on the above results of the paired sample t-test analysis at 95% confidence level, the Null Hypothesis \( H_0 \): "On average, there is no difference between Tenth and Eleventh five year plan in import of the Technical Textile Industry in India" was rejected, since paired sample t-test reveal a statistically reliable difference between the Xth and XIth plan mean values of import in Technical Textile industry, \( p \) value (sig. 2-tailed) is worked out as 0.00 which is lesser than (alpha) 0.05 \([p \text{ value}<\alpha=0.05]\). Thus, Null hypothesis is rejected while alternate hypothesis is accepted. Hence it is proved that the import of Technical Textile industry has improved significantly during eleventh five year plan in compare to tenth five year plan.
Summary of t Test Results

From the following Table 2 it is observed that for the Technical Textile industry, the production, export and import have gone up in the eleventh plan period. Moreover, all three variables have increased significantly during the later plan thus; all null hypotheses are rejected while alternate hypotheses are accepted.

Table 2: Summary of results of hypothesis testing (Production, Export and Import)

<table>
<thead>
<tr>
<th>No.</th>
<th>Hypothesis</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₀₁</td>
<td>Ho (Null hypothesis): On average, there is no difference between tenth and eleventh plan in the production of Technical Textile industry in India</td>
<td>Rejected</td>
</tr>
<tr>
<td>H₀₂</td>
<td>Ho (Null hypothesis): On average, there is no difference between tenth and eleventh plan in the export of Technical Textile industry in India</td>
<td>Rejected</td>
</tr>
<tr>
<td>H₀₃</td>
<td>Ho (Null hypothesis): On average, there is no difference between tenth and eleventh plan in the import of Technical Textile industry in India</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

Source: Evaluated from test undertaken

Conclusion

The present study evaluates the growth and development of the Technical Textile industry in order to find out whether growth of the industry has improved significantly or not during eleventh five year plan in compare to tenth plan. Paired sample t Test has been employed under this study to analyze the result and derive conclusion. The study concludes that production, export and import of the Technical Textile industry have augmented which indicate the significant improvement during the eleventh plan period. The results from paired sample t-test at significant level of 95% illustrated that there is significant difference in the selected parameters between tenth and eleventh plan period due to the significance values which are lesser than 0.05. Hence, this study has rejected the null hypotheses which consider that there are significant improvements in growth and development of Technical Textiles in India during eleventh plan and accepted the alternative hypothesis.
References


Ministry of Textiles. (2006, 12 Dec.). Presentation on Technical Textiles with focus on the use of ‘Geo Textiles’


Appendices

Appendix 1

Production, Export and Import of the Technical Textile Industry in India during Tenth Five Year Plan

<table>
<thead>
<tr>
<th>Years</th>
<th>Production</th>
<th>Growth (%)</th>
<th>Export</th>
<th>Growth (%)</th>
<th>Import</th>
<th>Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-03</td>
<td>17015.7</td>
<td></td>
<td>5486.87</td>
<td></td>
<td>1843</td>
<td></td>
</tr>
<tr>
<td>2003-04</td>
<td>19129.59</td>
<td>12.42</td>
<td>12632.81</td>
<td>10.78</td>
<td>7838.35</td>
<td>325.30</td>
</tr>
<tr>
<td>2004-05</td>
<td>21039.64</td>
<td>9.98</td>
<td>14897.82</td>
<td>11.88</td>
<td>10582.84</td>
<td>35.01</td>
</tr>
<tr>
<td>2005-06</td>
<td>23306.8</td>
<td>10.78</td>
<td>13292.11</td>
<td>-10.78</td>
<td>13893.64</td>
<td>31.28</td>
</tr>
<tr>
<td>2006-07</td>
<td>26076.1</td>
<td>11.88</td>
<td>16214.74</td>
<td>21.99</td>
<td>18453.98</td>
<td>32.82</td>
</tr>
</tbody>
</table>

Source: 1) Production data: Report of the working group on Textiles & Jute industry for the Tenth Five year plan (2007-12). In Expert Committee on Technical Textiles Report from 2002-03 to 2006-07


Appendix 2

Production, Export and Import of the Technical Textile Industry in India during Eleventh Five Year Plan

<table>
<thead>
<tr>
<th>Years</th>
<th>Production</th>
<th>Growth (%)</th>
<th>Export</th>
<th>Growth (%)</th>
<th>Import</th>
<th>Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>41756</td>
<td></td>
<td>22163.27</td>
<td></td>
<td>21401</td>
<td></td>
</tr>
<tr>
<td>2008-09</td>
<td>37392.6</td>
<td>-10.45</td>
<td>27092.84</td>
<td>22.24</td>
<td>29318.23</td>
<td>36.99</td>
</tr>
<tr>
<td>2009-10</td>
<td>40901.9</td>
<td>9.39</td>
<td>28685.61</td>
<td>5.88</td>
<td>31597.64</td>
<td>7.77</td>
</tr>
<tr>
<td>2010-11</td>
<td>44411.2</td>
<td>8.58</td>
<td>39658.83</td>
<td>38.25</td>
<td>40021.84</td>
<td>26.66</td>
</tr>
<tr>
<td>2011-12</td>
<td>63202</td>
<td>42.31</td>
<td>47085.37</td>
<td>18.73</td>
<td>50533.82</td>
<td>26.27</td>
</tr>
</tbody>
</table>
Notes: i) Data for years 2008-09, 2009-10 and 2010-11 have been calculated by using extrapolation.
