Growth and Development of Technical Textiles in India – A Case Study of Hometech Industry

Introduction

The Indian Textile Industry being one of the oldest and leading industries has contributed a lot for the Indian as well as the world economy. The Indian history can never refuse its presence in effectively changing the social scenario of the country. Now, it is not only providing one of the basic necessities of life but also playing a key role through its contribution to industrial output, employment generation and the export earnings of the country. As per the latest data, it contributes about 17% to the country’s export earnings, 14% to industrial production and 4% to the GDP. It offers direct employment to over 35 million people including a large number of women, schedule castes and schedule tribes. The growth and development of the textile industry is directly depending on the progress of the economy of the nation because it is the second largest contributor of employment after agriculture in India. Technical textiles are accounted to be the fastest growing sector of the textile industry which 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.

In the global set-up, the textile consumption has been rapidly shifting from the conventional textile to Technical textile. There has been a sharp increase in the global demand for Technical Textiles due to its functional requirement like health and safety compliance, cost effectiveness, durability, high strength, light weight, versatility, customization, user friendliness, eco friendliness, logistic convenience etc. Therefore, the study examines the global and domestic scenario of Technical Textiles in detail and highlights how the Indian textiles industry is diversifying into value-added technical textiles to meet functional demands for precision applications. Among the diverse field of application of Technical Textiles, which is balanced for marvelous growth in fast developing economies like India, home furnishings, interior decorations and floor coverings are gaining significant importance because of specificity of their end uses. Therefore, the Home Textile market is recognized as an important part of Technical textiles because it is the only sector which transforms house into a home.

This is the new sector which is still not very familiar to the general public despite its increasing consumption and usage throughout the world. In fact, it is an
actual problem for the growth of the industry in India that people are not aware of the term “Hometech textiles”. Thus, the study provides the detailed account of global and Indian overview of Hometech industry. Furthermore, the classification and application of hometech textiles, raw material and technologies used for producing hometech products have also been discussed.

Major purpose of this thesis is to investigate the growth and development of the Hometech industry in India. The growth and development in Indian Hometech industry has been measured and analyzed by the researcher in terms of four parameters i.e. Production, Export, Import and Financial performance. For the purpose, appropriate statistical tools are used in order to check whether performance of the industry has improved significantly or not over the period of time.

**Statement of the Problem**

The present study is a modest attempt to measure the growth of the Hometech Industry in India and find out to what extent it has been developed. Some of the existing problems in this area are:

1. The published data signify that there has been an improvement in the production, exports and imports of the Hometech industry but there is a lack of research evidence in India with respect to the analysis of growth and development of the industry.

2. Another relevant problem is that there has been poor data collection on the part of the Ministry of Textiles. Data on production of the industry is not available for the years 2008-09, 2009-10 and 2010-11. There is a gap in secondary data.

3. Another issue is whether the existing government policies were effective enough to accelerate the growth of the industry and in turn improve production and trade.

In order to work out these problems a macro study has been taken to measure the growth of the industry in terms of broad parameters i.e. Production, Export and Import and at the same time a micro study is undertaken to analyze the financial performance of the Indian Hometech companies to assess the growth of the industry. The study finds out the reasons for the low growth of the industry and also suggests the measures to promote the growth of Hometech segment in India.
Review of Literature

The review of literature done sheds light on various gaps in the previous researches done in this field. The researcher intends to put in an honest effort to provide her sincere contribution in this regard. It is seen that in most works, market size, consumption, prospects and challenges of Technical Textiles in India and abroad are studied as was done in the case of Singh (2008), Chakrabarty (2008), Ramkumar (2009) and Mangat (2009). Majority of the study deals with its scope, significance, necessity, advantages, government initiatives and issues concerns for low growth of the industry, but lack concerns for its growth and development in India as in the case of Kothari (2009), Ramkumar (2010) and Marimuthu (2010). No work used the time series data from 2002 to 2012 to analyze the actual position of the industry in India. They have just taken into account the consumption and market size for the year 2007-2008 and made projections for the year 2012-13 as is seen in Teli and Kumar (2007), Ramkumar (2009), Patel (2010) and Singh (2010). Some studies highlight the problems as in the case of Chaudhary (2007) which reports that in spite of strong base of Indian textile industry in the world, its presence in technical textiles is negligible. The reason behind this negligence is the requirement of expensive equipment and skilled workers for producing the technical textile products, which are concentrated in developed countries. While some studies mention the theoretical aspects of Technical Textiles in India they do not measure the exports and imports of the industry in order to analyze its status in international trade as is seen in the case of Rakshit, Hira and Gangopadhyay (2007), Ramkumar (2009) and Kothari (2009). Some of them have devoted to show the importance and demand of various segments of the technical textile industry such as Geotech, Meditech, Buildtech, Agrotech but they did not even touch the Hometech segment as is seen in Anand (2008), Ibrahim, Eid, Hashem, Refai, and El-Hossamy (2010), Saxena, and Srivastava (2010) and Nath (2010). 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 reviewed 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 its growth and development over the period of time.
Objectives of the Study

The main objectives of the study are given as under:

1. To explore the overall Growth and Development of Hometech industry in India.
2. To identify the key dimensions of Growth and Development of Hometech industry in India.
3. To analyze the trends in the key dimensions i.e. Production, Export, Import and Financial Performance, during the last decade, of Hometech industry in India.
4. To suggest/proposal strategies for Growth and Development of Hometech Industry in India.

Hypotheses of the study

The Hypotheses formed for the study are as follows:

1. \(H_0\) (Null Hypothesis): There is no significant difference in the Production of Hometech industry in India during 2002-2012.
   \(H_a\) (Alternate hypothesis): There is significant difference in the Production of Hometech industry in India during 2002-2012.

2. \(H_0\) (Null Hypothesis): There is no significant difference in the Exports of Hometech industry in India during 2002-2012.
   \(H_a\) (Alternate hypothesis): There is significant difference in the Exports of Hometech industry in India during 2002-2012.

3. \(H_0\) (Null Hypothesis): There is no significant difference in the Imports of Hometech industry in India during 2002-2012.
   \(H_a\) (Alternate hypothesis): There is significant difference in the Imports of Hometech industry in India during 2002-2012.

4. \(H_0\) (Null Hypothesis): There is no significant difference in the Financial Performance of Hometech industry in India during 2002-2012.
   \(H_a\) (Alternate hypothesis): There is significant difference in the Financial Performance of Hometech industry in India during 2002-2012.
Research Methodology

A quantitative, descriptive approach is adopted under study. The present work is based on the secondary and tertiary sources of data taken from the reports on Textiles and Technical Textiles published by Ministry of Textiles, Textile commissioner, FICCI and ASSOCHAM which have been suitably rearranged, classified and tabulated according to the requirement of the study.

Sources of the Data

As stated earlier the data and information collected during course of the study has been obtained from secondary and tertiary sources which are given as under:

- Ministry of Textiles, Udyog Bhawan, New Delhi.
- Textile Committee, Office of the Textile Commissioner, Mumbai.
- Federation of Indian Chambers of Commerce and Industry (FICCI), New Delhi.
- The Associated Chambers of Commerce and Industry of India (ASSOCHAM), New Delhi.
- Annual Reports of the Selected Companies.
- Journals.
- Magazines.
- Books.
- Various Websites

Sample Design for Financial Analysis

The study has been carried out at macro-level as well as micro-level. The macro study analyzes the growth and development of Hometech Industry in India in terms of production, import and export. The financial analysis of the Hometech companies has been carried out at micro-level by selecting six Hometech companies following the technique of non-probability sampling.

Population for fourth parameter: The total number of Hometech companies is 60 out of which the sample of 6 companies has been taken into account for the financial 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 representing the financial performance of the total Hometech industry. The companies, which are listed in stock exchange of India.

**Sample Size:** The sample size has 6 Hometech companies for the study which are given as follows:

1. Ginni Filaments Limited
2. Hanung Toys & Textiles Limited
3. Uniproducts (India) Limited
4. Reliance Industries Limited
5. Premier Polyfilm Limited
6. Arora Fibres Limited

**Presentation Instruments**

The data collected is analyzed and presented using tables, pie charts, line charts, graphs and bar diagrams etc.

**Statistical Tools and Techniques**

To prove the hypothesis and analyze the data collected from various sources, simple average mean, percentage, standard deviation, and Paired sample T-test has been applied in this study. The data has been analyzed with the help of Statistical Package for the Social Sciences (SPSS). The production, export, import and financial performance of the industry have been analyzed during the ten years period to see if there is any statistically significant change in growth and development of the Hometech industry, using “paired sample t-test” where:

\[ t_{\text{critical}} = 2.776; \ \text{Alpha} = .05, \ 2 \text{ tailed test}; \text{d.f.} = N(\text{pairs})-1 = 5-1 = 4. \]

**Scope of the Study**

The research work certainly throws light upon certain aspects where the government of India needs to work out. The study covers the period of 10 years that reveals whether the contribution of the government for the promotion of Hometech Industry is effective enough or needs more efforts in order to meet the domestic demand. The study is also extended to measure growth of the industry whether it is significantly improved or not during the 10 years taken under study.
Scheme of the Chapters

The present study is divided into six Chapters as mentioned below:

The **first** chapter is introductory in nature; it gives a synoptic view of the entire research work. It includes the Introduction to the industry, statement of problem and literature review on related work done earlier in this area. The chapter also explains the objectives of the study, scope of the study, period of the study, sample design and data collection, hypothesis, tools of analysis used in the study and finally limitations of the study.

The **Second** Chapter gives the Indian as well as global overview of the Technical Textiles. Briefing the historical background of the industry, the chapter details the present position, production, export, import and testing facilities for the Technical Textiles available in India.

The **Third** chapter goes in to the depth about Hometech Textile industry in India. Describing the Hometech products, the chapter includes application of Hometech textiles, raw materials and technologies used for the Hometech products, global scenario, production and trade for Hometech textiles in India and challenges faced by the Indian Hometech industry.

In the **fourth** chapter, the analysis of growth and development of Hometech industry have been done by taking the parameters in terms of production, export and import. For facilitating the analysis and interpretation, the period of ten year is and Paired sample T- test is applied in order to compare the growth of Hometech industry during the selected period.

The **fifth** chapter is divided into two parts i.e. Chapter 5 (A) and Chapter 5 (B). A brief profile of selected units has been discussed in 5 (A). It examines the trend in financial position of the companies during the ten years and represents the financial position of the Hometech Industry in India by collective data of the six selected companies.

The chapter 5 (B) analyses the profitability, liquidity, solvency and turnover of selected units under study. For analysis and interpretation of data the accounting tools like net profit ratio, return on net worth ratio, return on net capital employed, current ratio, debt-equity ratio, funded debt to total capitalization ratio, capital gearing ratio
and activity ratio have been used by the researcher. The paired sample T-test has been applied to test the various ratios of the companies in order to evaluate the financial position in the selected time period.

The last and sixth chapter summarizes the entire research work; it discusses Findings, Problems and Suggestions. The problems and findings of the present study are drawn out of analysis and in the light of findings; suggestions are offered to accelerate the growth and development of Hometech Industry in India and also to improve the financial position of selected units.

**Major Findings of the Study**

The major findings and conclusions of this study have been narrated as under:-

1. **Production:** The production of Hometech industry shows a marvelous progress during 2007-12 due to infrastructure support by the government in terms of setting up of centers of excellence, fiscal policy, modification in TUFS and various other policies and schemes. It is found out that the growth rates of production were constant at 16.51 per cent during tenth plan while it increased during eleventh plan but at the fluctuating growth rates. The production of the industry was Rs. 883.39 cr. in the year 2002-03. It went up by 16.56 per cent in the year 2003-04 and it continues to rise during 2002-07 at the constant growth rate of 16.51 per cent and reached to Rs. 1628.74 cr. in 2006-07 while, during 2007-12 it tremendously rose except in the year 2008-09. In the year 2007-08, it increased at the huge rate of 208.52 per cent. During 2008-09 it declined by 24.43 per cent but thereafter it starts moving up and reached to Rs. 7831 cr. in the year 2011-12.

The paired sample t-test indicates that the difference in production is significant at 5% level of significance, between the mean score of 2002-07 and 2007-12 in the Hometech industry. The result suggests that the production of hometech industry has significantly improved during 2002-2012.

2. **Export:** The year 2007 witnessed global turmoil, which initially started as a financial crisis, later lead to economic crisis worldwide. The Indian textile sector, which was already shaking due to rupee appreciation and rising cotton prices, was hit hard than any other sector. Textile and apparel industry in India was punched hard by heavy interest rates, less domestic consumption and
cancelled export orders. Another reason for low exports is production of low quality hometech products that does not confirm the international standards in export market. Resulting in low exports in Hometech textiles industry during 2007-12. The exports of Hometech industry continuously rose during 2002-07 but at the diminishing growth rates. It was Rs. 146.52 cr. in the year 2002-03 and jumped by 953.04 per cent in 2003-04. It continued to rise and reached to Rs. 2578.16 cr. in the year 2006-07. On the other hand, it showed a decreasing trend in first half of the 2007-12 due to the recession and in the second half, it witnessed increasing trend. It was highest Rs. 3299.54 cr. in the year 2011-12 and lowest Rs. 2114.83 cr. in the year 2009-10.

The paired sample t-test reveals that the difference in export is not significant at 5% level of significance, between the mean score of 2002-07 and 2007-12 in the Hometech industry. The result suggests that the export of hometech industry has not significantly improved during 2002-2012.

3. Import: The Hometech imports witnessed an increasing trend during the selected period due to increasing consumption. During 2002-07, it registered exceptional growth rate i.e. 135.63 per cent over the previous year in 2003-04. It continues to rise and reached to Rs. 1070.02 cr. in the year 2006-07 while, during 2007-12 it was Rs. 1346.22 cr. in the year 2007-08 with increase in the growth rate of 25.81 per cent. It kept on rising and reached to Rs. 3470.80 cr. at the end of 2011-12.

The paired sample t-test shows that the difference in import is significant at 5% level of significance, between the mean score of 2002-07 and 2007-12 in the Hometech industry. The result suggests that the import of hometech industry has significantly improved during 2002-2012.

4. Financial performance evaluation through various ratios: The performance of the six selected Hometech units has been measured through various ratios. The ratios are grouped under 4 heads as stated below:

(A) Profitability Ratio
(B) Liquidity Ratio
(C) Solvency Ratios
(D) Turnover Ratio
(A) **Profitability Ratio:** The study has measured the profitability of the companies in terms of Net profit ratio, Return on Net worth or Shareholder’s fund Ratio and Return on Net Capital Employed Ratio. The results of the profitability of the unit are given as under:

i) **Net profit ratio:** The profitability of the industry did not improve during 2007-12. The net profit ratio witnessed a fluctuating trend during 2002-07. It was lowest 8.98 per cent in the year 2002-03 and highest 11.42 per cent in the year 2004-05. The next five years (2002-12) depicts the declining growth rates of Net profit ratio. It was highest 14.47 per cent in the year 2007-08 and lowest 6.05 per cent in the year 2011-12. In order to increase the net profit ratio, it is suggested that the firms should try to reduce cost of production that could increase the demand and selling price of the homtech products.

The paired sample t-test reveals that the difference in net profit ratio is not significant at 5% level of significance, between the mean score of 2002-07 and 2007-12 in the Homtech industry. **Hence, it is concluded that the net profit ratio of homtech industry has not significantly improved during 2002-2012.**

ii) **Return on net worth ratio:** The profitability of the owner’s investment and overall efficiency of the industry seems to decrease during 2007-12. The industry exhibited the increasing trend of return on net worth ratio during 2002-07. It shows highest 18.63 per cent in the year 2006-07 and lowest 13.60 per cent in the year 2002-03. During eleventh plan, it shows highest 23.83 per cent in 2007-08 and lowest 11.86 per cent in 2009-10.

The paired sample t-test shows that the difference in return on net worth ratio is not significant at 5% level of significance, between the mean score of both blocks in the Homtech industry. **The result suggests that the return on net worth ratio of homtech industry does not differ significantly during 2002-2012.**

iii) **Return on net capital employed:** The earning capacity of the capital employed in the Homtech industry has not improved during 2007-12. This ratio was highest 29.87 per cent in the year 2006-07 and shows the lowest 19.94 per cent in the year 2002-03 during first five years of the study period which indicate the increased growth rate on return on net capital employed. During 2007-12, the year 2007-08 shows the highest ratio by 30.54 per cent and the year 2009-10 shows the lowest
ratio by 18.23 per cent which indicates the decline growth rate on return on net capital employed. In the light of the above discussion, it is suggested that the hometech companies should undertake cost control measure so that increase net profit before interest and taxes of the company might enhance the return on net capital employed.

The paired sample t-test reveals that the difference in return on net capital employed is not significant at 5% level of significance, between the mean score of 2002-07 and 2007-12 in the Hometech industry. Hence, it is concluded that the return on net capital employed ratio of hometech industry has not significantly improved during 2002-2012.

(B) Liquidity Ratio: The liquidity of the companies has been measured through current ratio which result is given below:

i) Current ratio: The liquidity position of the industry did not improve during 2007-12. There was a slight fluctuation in the current ratios during 2002-07. The year 2002-03 shows highest ratio by 1.67 and the year 2004-5 shows lowest ratio by 1.33. While, during 2007-12 it was lowest 1.21 in the year 2008-09 and highest 1.70 in the year 2011-12.

The paired sample t-test reveals that the difference in current ratio is not significant at 5% level of significance, between the mean score of both the five year blocks in the Hometech industry. Hence, it is concluded that the liquidity position of hometech industry has not significantly improved during 2002-2012.

(C) Solvency Ratios: The solvency of the firms have been measured through three ratios i.e. debt-equity ratio, funded debt to total capitalization ratio and capital gearing ratio. The results of the solvency in hometech companies are given as under:

i) Debt-equity ratio: It is seen that the proportion of equity share capital is increased in comparison to total debt funds during 2007-12. This ratio is highest in the year 2002-03 by 1.07 and lowest in the year 2005-06 by 0.80 during 2002-07. During 2007-12, the year 2008-09 shows highest debt-equity ratio by 0.93 and the year 2011-12 shows the lowest ratio by 0.76.

The paired sample t-test reveals that the difference in debt-equity ratio is not significant at 5% level of significance, between the mean score of both the blocks
in the Hometech industry. **Hence, it is concluded that the debt-equity ratio of hometech industry has not significantly improved during 2002-2012.**

**Funded debt to total capitalization ratio:** The funded debt to total capitalization ratio seems to decline in 2007-12 because of decrease in the amount of secured and unsecured loan for the purpose of funding. The ratio was highest in the year 2002-03 by 39.71 per cent. This year onwards, it began to decline and was 30.64 per cent in the year 2006-07. During the year 2008-09 shows the highest ratio by 37.09 per cent and the year 2011-12 shows lowest ratio by 26.60 per cent. The funded debt to total capitalization ratio seems to be declined in 2007-12 because of decrease in the amount of secured and unsecured loan for the purpose of funding.

The paired sample t-test indicates that the difference in funded debt to total capitalization ratio is not significant at 5% level of significance, between the mean score of 2002-07 and 2007-12 in the Hometech industry. **Hence, it is concluded that the funded debt to total capitalization ratio of hometech industry has not significantly improved during 2002-2012.**

**ii) Capital gearing ratio:** It is found out that during 2007-12 the proportion of equity capital is high in comparison to fixed cost bearing capital, which indicates the low geared capital structure with minimum risk but low profit. The capital gearing ratio was highest in the year 2006-07 by 2.27 and lowest ratio is in the year 2002-04 by 1.52. During the year 2011-12 shows highest capital gearing ratio by 2.46 and the year 2008-09 shows lowest ratio by 1.70. Therefore, researcher can conclude that in 2007-12 the proportion of fixed cost bearing capital is high in compare to equity capital.

The paired sample t-test indicates that the difference in capital gearing ratio is not significant at 5% level of significance, between the mean score of both the block of years in the Hometech industry. **Hence, it is concluded that the capital gearing ratio of hometech industry has not significantly improved during 2002-2012.**

**(D) Activity or Turnover Ratio:** The study has measured turnover of the units through Inventory turnover ratio. The result of this ratio are given as under:

**Inventory turnover ratio:** It is seen that during 2007-12 sales are greater than average inventory and comparatively higher ratio than 2002-07. The inventory turnover ratio witnessed an increasing trend in hometech companies during 2002-07.
The year 2002-03 shows the highest turnover 6.06 times and shows lowest turnover 9.11 times in the year 2006-07. While it exhibits a fluctuating trend during 2007-12. The year 2008-09 shows the highest turnover 9.37 times and the year 2009-10 shows the lowest turnover 7.01 times.

The paired sample t-test indicates that the difference in inventory turnover ratio is not significant at 5% level of significance, between the mean score of 2002-07 and 2007-12 in the Hometech industry. Hence, it is concluded that the inventory turnover ratio of hometech industry has not significantly improved during 2002-2012.

The results suggest on the basis of testing various ratios of the firms through Paired Sample t-Test that statistically the Financial Performance of the hometech industry has not significantly improved during the study period. The null hypothesis is accepted while alternate hypothesis is rejected, proving that there is no significant difference in the Financial Performance of Hometech industry in India during 2002-2012.

Major problems faced by the Hometech industry in India

The factors responsible for the slow growth rate of Hometech textile industry in India are given below:

1. Lack of awareness

The primary reason for low consumption of Hometech Textiles in India is lack of awareness about the application of Hometech textiles and its benefits for the end product and user. Although, the Textile Commissioners Office under the Ministry of Textiles, Government of India is trying its best to create awareness about technical textiles by conducting training workshops, seminars and conferences, but it is not positively increasing the awareness about Hometech segment. Information on domestic and foreign market demand for various Hometech textiles products is not available to the investors.

2. Lack of demand

There is lack of demand for Hometech textiles as it is only used as an alternative when traditional home textiles are not appropriate. This is mainly because of lack of awareness among the consumers about the benefits of using Hometech
textiles. This lack of awareness is hindering the potential demand of Hometech textiles in India.

3. Higher cost of raw material

The conventional home textiles are export intensive, on the contrary hometech textiles are import intensive products. Many products required as raw material for this industry are imported from the foreign countries (i.e., knitted fabric, fur fabric, filter fabric for vacuum cleaner, woven fabric etc.). The major production of this industry is providing to the domestic demand. Though, the large scale units are engaged in producing various hometech products like fiberfill, stuffed toys, non woven wipes, floor coverings etc. but still many of the hometech textiles products that are not produced domestically in adequate quantity have to be imported to accomplish the domestic demand. This makes raw materials for hometech textiles costly in India which is one of the main reasons for low consumption of hometech textiles.

4. Lack of Research and Development

A major concern related to development of hometech products is lack of indigenous research and development in the area of hometech textiles. Further, the technology required for manufacturing of most of the hometech textiles is proprietary and very expensive. High cost and low demand have also discouraged Indian players to produce hometech textiles indigenously.

5. Lack of skilled labor or manpower

The manpower available in India is not too skilled in their technical and managerial skill which is one of the major hurdles for the expansion of Hometech sector in India. As this is a high-tech segment and very skilled workforce is required for manufacturing hometech products. India having a large population labor that is cheaper but these people are needed to be trained and educated to confirm to the specifications, the quality control and quality culture of the hometech textiles.

6. Lack of regulatory norms by the Government

One of the reasons for low penetration of hometech textiles is lack of regulatory norms by the government to boost the market development of hometech in India.
7. Lack of Processes, machineries and equipments

For the production of Hometech textiles, degree of accuracy required for the end use requirement and rigidity of the leading specifications, the product processes, machinery and equipments are to be selected. However, it is observed that for large areas of home textiles application, India has a quite good infrastructure of spinning, weaving, knitting, wet-processing, impregnation and lamination etc. but it is not adequate for producing the varieties of Hometech Textiles. Existing raw materials, machinery and know-how are needed to be geared to produce certain range of hometech textiles in India and to ensure adequate impact in globalization.

8. Lack of Technology and Know-how

The share of unorganized sector in production of the hometech textiles in the country is around 40 per cent in which scale of operation is limited and technology is relatively outdated. The major obstacle for expansion of the sector is low demand, which clarifies the high share of operations in small scale sector in order to meet the skinny demand spread all over the country. This is also the cause for huge technological gap between technology used in competitor countries and that used in India.

9. Lack of Testing facilities

One important feature in both development activities and production of hometech textiles is devotion to certain specified standards for dependable and sustained performance of such products for intended purpose. The international standards for most of the common products have been laid down by agencies like ASTM, BS, EN, Deutsche Industries norm (DIN), GHOST etc. (Ministry of Textiles, 1999). Because of wide varieties of products using technical textiles, the centralized test laboratories are not paying attention towards hometech segment to cater all such testing services and performance evaluation.

10. Lack of Quality assurance

The products of hometech textiles are ruled by much stricter tolerance of parameters and will, therefore, have little value, if they do not match to the rigid specifications. Unfortunately, Indian hometech manufacturers, particularly medium
and small scale are not able to afford the in-built quality assurance system for producing hometech products because of the very high cost.

11. Bottlenecks for Entrepreneurs

In order to promote the production of hometech textiles, the primary need would be to catch the attention of entrepreneurs in the field of hometech textiles. Entrepreneurs are still keeping away from the hometech textiles in view of the following hindrances:

(i) The aspects of Hometech textile and marketing are highly multifaceted and Indian entrepreneurs in textiles have not exposed with this difficult situation therefore, they have genuine doubts and anxieties about success in such ventures;

(ii) Hometech textiles demand specific raw materials, machinery and equipment, which are mostly imported and therefore, requiring huge capital towards the project cost;

(iii) Hometech textiles being at a growing stage in India, innovation of technology for product development and establishing specific markets with enough volumes require huge working capital for a minimum period of 5 years, so the entrepreneur could anticipate fruits of high value addition usually associated with hometech textiles.

(iv) The developed countries are well-experienced in various aspects of hometech textiles and financial strength, while Indian entrepreneurs have little or no experience or knowledge in this direction;

(v) The existing norms and mandatory requirements of hometech textiles in India are either outdated or non-existing that makes difficult task for entrepreneurs of launching hometech textiles to end users in the Indian market.

12. Absence of Centers of Excellence for Hometech Textiles

Though, there are number of IITS/Textiles Institutes and eight Centers of Excellences (COEs) present in India i.e. Geotech(BTRA), Agrotech (SASMIRA), Meditech (SITRA) & Protech (NITRA), Composite (ATIRA), Non-Woven (DKTE). Indutech (PSG College) and Sportech which are providing latest testing facilities national / international accreditation, information centre, facilities for training.
prototype development facilities etc. but unfortunately, there is no single center of excellence for Hometech Textiles in India.

Suggestions for the promotion of Hometech textiles in India

In the light of the analysis and findings, following suggestions are reproduced for the development of hometech sector in India:-

1. Hometech textiles consume both types of fibres i.e. natural as well as manmade. India is a traditional producer of many natural fibres like jute, cotton, coir etc. and manmade fibres like Nylon, polyethylene, polyester, fibre glass etc. It is suggested that the producers should try to use these indigenously available fibres for the production of Hometech products. However, other specialized fibres or yarns, which are not produced indigenously and they are very expensive, should be permitted to be imported at concessional customs duty of 5 percent and should also be exempted from Countervailing Duty (CVD).

2. A complete database of hometech textiles units in the country is necessary for making policy decisions. Therefore, a baseline survey of hometech textiles units should be carried out to get the information on the number of units, type of units, type of products produced, investment, turnover etc.

3. Most of the hometech textiles machineries are not produced in the country therefore; the units are compelled to import the same. Some of the technical textile machineries are already covered under the concessional customs duty of 5 percent. It is suggested that the focusing on hometech segment a complete list of hometech textile machinery should be covered under the concessional customs duty list and should be exempted from Countervailing Duty (CVD).

4. The specific rate of duty has been levied on fabrics, garments and made-ups to protect the interest of the indigenous industry from cheap imports. In order to protect the interest of the indigenous hometech textiles industry which would invest in large scale projects, it is suggested that the duty should be levied on the specific rate of duty or advalorem duty, whichever is higher basis, to protect such units from cheap imports of hometech products.

5. There is a wide spread import of substandard or non-specification hometech textiles products into India such as stuffed toys, blinds, carpet etc. This is also
affecting the growth of hometech manufacturing in India, as Indian manufacturers have to compete against these false and sub-standard products at low prices. Thus, it is suggested that the imports of hometech products should be regulated and established standards for the same.

6. For the encouragement of hometech textiles industry in India, it is necessary that numbers of centers of excellence should be opened for hometech items in India on the lines of such centers in U.K. Such centers can be set up to provide infrastructure support at one place for the convenience of the producers of hometech textiles. It is suggested that 3 centers of excellence for hometech segment should be set up during the Twelfth Five year plan period. The centre of excellence should have the following facilities:

(i) Facilities for testing and evaluation of hometech textiles with national and international accreditation;
(ii) Development of resource centre, equipped with technical literature, reference material, books, a sample bank, standards, testing procedures etc.;
(iii) Facilities for training of core personnel;
(iv) Facilities for training of personnel from industry.
(v) Facilities for product development.

The Centre of Excellence could be recognized based on open tender inviting quotations from all the IITs, TRAs and other engineering institutes. It is estimated that fund requirement for setting up of the Centre of Excellence would be approximately Rs. 15 crore for each centre. Thus, the total financial outlay for setting up 3 centers for these centres would be Rs.45 crore during the Twelfth Five Year Plan.

7. There is shortage of qualified personnel in the hometech textiles sector in the country. This is one of the reasons for the slow growth of hometech textiles. To encourage setting up of the hometech textiles units, it is suggested that a pool of hometech textiles experts should be created in the country. The hometech textiles institutes should be set up in private – public partnership for facilitating training in different aspects of manufacturing of hometech textiles items,
particularly furniture fabric, which is one of the most important segments of the hometech textiles industry.

8. For the purpose of creating awareness among the entrepreneurs in the field of technical textiles SASMIRA has been organizing seminars and workshops in various segments of technical textiles for the past one decade but not a single workshop has been planned for hometech segment. Therefore, it is suggested to organize seminars and workshops on Hometech textiles.

9. Home textile producers venturing into the area of hometech textiles should look at the level of their domestic technologies, know-how and competence and should try to modify them to the extent possible to the requisite level. If it is unavoidable to import technology for the production of hometech textiles, it is suggested that efforts should be aimed at acquiring modern technology as far as possible and be prepared to invest, assimilate, innovate and improve the technology.

10. It is observed that the policies for technical textiles formulated from time to time have made no reference to hometech textiles. This is also a major factor of absence of entrepreneurs in Hometech segments. Therefore, the researcher suggested that a serious, practical and integrated approach should be adopted and supportive policy for hometech should be formulated and implemented by the government.

11. It is suggested that the hometech textiles should be included in the existing curriculum of different branches of textile and apparel technology courses that would enables Textile Engineers to know about hometech textiles.

12. It is appropriate on the part of the producers of hometech textiles to install the essential testing rigs and equipments to keep a strict control over the quality. But it is not possible for the small and medium scale units due to very high cost of such equipments. Therefore, it is suggested that the government should take initiative for this and execute an urgent action plan for creation of testing facilities in the appropriate textile research association’s (TRA’s) laboratories in a planned manner.

13. It is suggested that the hometech manufacturers should plan an integral quality assurance system for the plant manufacturing hometech textiles.
14. In order to encourage the production of hometech textiles, the initial need would be to attract entrepreneurs in the field of hometech textiles. Following are the issues which are necessary for boosting investments in hometech sector in India.

i) Emphasis on the marketing knowhow of hometech textiles;

ii) Creation of hometech sectors in India that needs to spread more awareness on the importance of creating hometech sector base in India for the technical textile industry;

iii) Need for an Indian trade delegation to US and Europe as a measure to make tie-up between international trade bodies related to hometech textiles and

iv) Distribution of information on how to develop useable hometech textile products from raw materials such as fibres and fabrics involving different processing methods such as spinning, weaving, knitting and nonwovens.

v) Need for creating domestic machinery manufacturers for hometech textiles

**Suggestions for Improving the Financial Position of Selected Hometech Companies**

On the basis of analysis, the researcher has found the following suggestions for the betterment of the selected hometech companies:

1. In order to get economies of large-scale production, the hometech companies should try to increase the production. It will help out in raising the rate of return on capital employed.

2. In order to increase the financial effectiveness of the companies, it is suggested to control the cost of goods sold and operating expenses.

3. The management should try to adopt cost reduction techniques in their companies to increase the demand and selling price of the hometech products.

4. In order to enjoy better operational efficiency of the assets and capital employed, it is suggested to improve the quantum of sales.
5. To reduce power and fuel cost, it is suggested that the companies should find out other alternatives for this.

6. The selected hometech companies should try to match the amount of working with the sales trends. For this purpose, where there is a deficit of working capital, they should try to build on adequate amount of working capital while, if there is an excessive working capital, it should be invested either in trade securities or should be used to repay borrowings.

7. In order to reduce factory overheads and to utilize their fixed assets properly, it is suggested that the companies should try to utilize their production capacity fully.

8. The burden of interest has produced a worsening effect and reduced the percentage of net profit. It is suggested that the companies should try to increase the owner's fund to reduce the interest burden gradually.

9. To strengthen the financial performance of the companies, long-term funds have to be used to finance core current assets and a part of temporary current assets. The companies should try to reduce the over sized short term loans and advances and get rid of the risk by arranging finance regularly.

10. The policy of borrowed financing in selected hometech companies under study was not proper. So the companies are suggested to use widely the borrowed funds and should try to reduce the fixed charges burden gradually by decreasing borrowed funds and by enhancing the owner’s fund. For this purpose, companies should expand their equity share capital by issuing new equity shares.

11. The government should improve the infrastructure facilities for regular supply of raw materials and the final product.

12. The government is suggested to minimize the subsidy and encourage the capital market for the hometech companies.

**Future Research Directions of the Study**

This study is not an end itself with its concluding results. In fact its results, with their entrenched limitations, involve many more inferences, possible contributions to theories and practice and future research opportunities. At the end,
the researcher tries to convey the message that this thesis is not an end, but a starting point for an educational journey.

It is challenging to open out and list all the possibilities for a future research agenda since so many research opportunities have arisen from this study. The present study has analyzed the growth and development of Hometech industry in India. In view of the gaps in the present study, further research can be undertaken with reference to following areas of Technical Textiles:

1. Growth and development of Technical Textile in India can also be analyzed with the addition of some other parameters such as investment and employment.

2. Studies could also examine the growth and development in other segments of Technical Textiles in India.

3. Further, financial analysis of Technical Textiles industry in India can be investigated to judge the financial position of the Industry.

4. Financial Analysis in other segments of Technical Textiles industry in India can be studied to judge the financial position of the selected segment.

5. Furthermore, growth and development or financial analysis of the Technical Textiles or any selected segment can be evaluated in other countries.