Chapter- 3

Indian Hometech Textile Industry

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INDIAN HOMETECH TEXTILE INDUSTRY

After learning about the Technical textiles let us learn about Hometech textiles (main focus of the research). The present chapter is devoted to study the overview of Hometech Textile industry in India. Depicting the description of Hometech products the chapter includes application of Hometech textiles, raw materials, technologies, challenges and profile of major manufacturers of Hometech products in India.

3.1 Introduction

The demography of India has been totally moved towards young population and the purchasing capability of this young population has been increasing. For this reason most of the developing countries are glancing at India as a global market and expecting that the application of technical textiles in this region will boost at a very high rate. However, the developed countries are much in advance of India with respect to manufacture and consumption of Technical Textile. They are now finding an immense prospective to take advantage of the Asian market thus, as per the industrial analysis, the field of technical textiles is considered to be fairly capable for the growth. Hence, those involved in textile business dealing with apparels are diversifying or adding new line to their business into Technical Textile segment with a great promise. 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.

"Home textiles if are to be praised it can be said that it transforms house into a home. Thus, Home Textile market is recognized as an important part of Technical textiles." (Alexander, 2010, p. 2) Actually, the time has gone when textile items such as curtains, bed spreads, bed linen and table linen were bought only during major festivals. Today, people purchases home furnishing items on regular basis because they want well – furnished and modern homes that could fill colors of newness and excitement to the life.
“In recent years due to consumer polarization, stiff competition within the industry and general access to media, role of textile design has changed in the country and elsewhere, both in terms of practice and appreciation” (Katiyar, 2008, p. 1). Therefore, People have now realized the role and status of textile design in a broader context. This chapter gives the capacity of understanding the overview of Hometech textile industry in India.

### 3.2 Hometech Textiles

The fashion industry has covered each and every product that can fill colors of novelty and enthusiasm to the life. On the account of special occasions where one wish to dress up tastefully or if it is our home interior in which we are craving for some radical improvements. Hometech textiles market is a true example of the most experimented area of fashion. Not even a single stone is left unturned to satisfy the idea of homemakers who want to bring exotic designs of bed sheets, curtains and many other home decorating materials in home. Therefore, “Home textile has become one of the largest technical textile segments comprising household textiles, furnishings and upholstered furniture industry.” (Pal, 2010, p. 8) The components of Hometech textiles used in household application and their products range from blinds used in the houses to the filter products used in the vacuum cleaner. These textiles are used in a domestic environment such as carpeting, interior decoration and furniture, cushion materials, floor coverings, textile-reinforced structure/fittings and fireproofing.

Hometech textile industry has become lively place in the textile industry in the last one decade in both India and elsewhere. The industry offers number of shades, fabrics and prints to pick and choose one that admires the color of your walls, the tiles of your kitchen, the wooden shade of your lobby and floor of your living hall. Hence, designers, producers and the marketers endeavor to comprehend the consumer aspirations better and thus the market has overflowed with both decent as well as designer home textiles.

Shanmugasundaram (2009) points out that “traditionally textiles have been an important part of the interior of human habitations, as well as human transportation system such as cars, buses, passenger trains, cruise ships or airplanes” (p. 2). In that respect textile served three basic purposes:
• "Decoration (carpets, wall coverings, curtains & drapes, table cloths, etc.);
• Comfort (Upholstery, seat covers, mattresses, bed sheets, blankets, carpets etc.);
• Safety (Safety belts and nets, air bags)." (Shanmugasundaram, 2009, p. 2)

While the basic functions remain unchanged, hometech makes such products more complex, multifunctional or even intelligent by adding the following functional properties:

Table 3.1: Functionality and Application of Hometech Textiles

<table>
<thead>
<tr>
<th>Functionality</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stain or water repellence</td>
<td>Table cloth, curtains, furniture, car, bus, train, airplane seats</td>
</tr>
<tr>
<td>Flame retardant</td>
<td>All possible textile interiors of buildings and transport systems</td>
</tr>
<tr>
<td>Anti-static behavior</td>
<td>Upholstery and seat covers</td>
</tr>
<tr>
<td>Anti-bacterial behavior</td>
<td>Bedding, medical textiles</td>
</tr>
<tr>
<td>UV- protection</td>
<td>Roofs, tents, awnings, blinds, curtains</td>
</tr>
<tr>
<td>Insect repellence</td>
<td>Tents, nets</td>
</tr>
<tr>
<td>Odour absorption</td>
<td>Beddings, furniture, car, bus, train, airplane seats</td>
</tr>
</tbody>
</table>


Based on the different reports, it is believed that Home textile sector will have significant share in future. There are several growth drivers of Hometech products prevailing i.e. modern life style, process complexities, requirement of specific products, search of better productivity, security situation etc. In current scenario, data reveals that majority of the developed countries have contributed a lot in Hometech textiles in comparison of developing countries.

3.2.1 Classification of Hometech Textiles

The following Technical textile products are covered under Hometech:

1. Fiberfil;
2. Mattress and pillow components;
3. Carpet backing cloth (Jute & synthetic);
4. Stuffed toys;
10. Furniture fabrics. (*fibre2fashion*, n.d.)

1. **Fiberfil:**

![Picture 3.1: Polyester Fiberfill](http://decsignco.com/main.asp?page=%7B5EA8D29E-5755-4ABA-B065-4C12019DF861%7D)

**Picture 3.1: Polyester Fiberfill**


![Picture 3.2: Polyester Fiber](http://dreamlandcomforts.com/RawMaterial.html)

**Picture 3.2: Polyester Fiber**


Fiberfil is used for the filling of decorative pillows, cushions, bolsters, quilts, comforters, mattresses, sleeping bags, mattress pads, furniture backs, soft toys, insulated garments and furniture cushions. Fiberfil is referred as polyester staple
fibers and used as an alternative to cotton for filling materials in India. Fiberfill has not properly accessed in the Indian industry but its penetration is expected to increase in future because of the increasing awareness about the product advantages.

**Key growth drivers**

The demand for fiberfill is derived from pillows, bolsters, quilts & comforters, mattress toppers, furniture cushion and backs, sleeping bags, non woven roof liners and carpets for automobiles.

2. **Carpet Backing Cloth:**

![Tufted Carpet Construction](source)

- Tufted
- Tuft
- Primary Backing Fabric
- Bonding Agent
- Secondary Backing Fabric


![Woven Carpets Construction](source)

- Woven
- Tuft
- Warp
- Weft


(CBC) is used as the backing material for both woven and tufted carpets. There are two types of CBC, one is primary carpet backing and another one is secondary carpet backing. Primary carpet backing is used for making the carpets in which yarn is
woven or tufted while secondary backing is used for smoothen the back surface of carpet, which locks individual tufts in place.

**Key growth drivers**

The demand driver for Carpet backing cloth is growth in the carpet industry.

3. **Stuffed Toys:**

**Picture 3.5: Stuffed Animals**


**Picture 3.6: Stuffed Toys**


Soft knitted fabrics are stuffed with filling material that form stuffed toys. Stuffed toys are also called as plush toys and soft toys. These toys are used as toys for kids, decoration at home, as gifts for birthdays, anniversary or other kind of specials days. The outer fabric of stuffed toys is made with fur, polyester felt, fleece, acrylic plush fabric etc. while, the skin is stuffed with foam, polyester staple fibre, cloth scrap, paper foam or cotton etc.
Key growth drivers

The demand for stuffed toys is limited to the urban areas and driven by the young demography on the occasion of festive season, Valentine’s Day and other occasions.

4. Blinds:

Picture 3.7: Window Blinds


Picture 3.8: Vertical Blinds


A window blind is made up of long strips of fabric or rigid material that used for covering window. Blinds are made up of aluminum, slats, cane, fabric louvers, poly vinyl louvers or specialized fabric sheet. Vertical blinds, roller blinds, roman
blinds and Venetian blinds are commonly used in India. They are mostly used in offices and commercial establishment in India.

**Key growth drivers**

The demand for blinds depends on commercial establishment and infrastructure development.

5. **HVAC filters:**

![Picture 3.9: Air Filters](source)


![Picture 3.10: Electronic or Eurostatic Filters](source)


HVAC represents ventilating, heating and air conditioning. The usage of HVAC systems are applied in industries, commercial and residential buildings where temperature and humidity require to be closely regulated. HVAC filters fall under the category of air filtration products. HVAC filters are used in split and window type air conditioners as well as centralized air conditioning.
Key growth drivers

The growth drivers of HVAC filters are HVAC systems, commercial and industrial buildings.

6. Filter Fabrics for Vacuum Cleaners:

Picture 3.11: Filter Fabric Paper


Picture 3.12: Woven & Non-Woven Filter Cloths for Dust Collectors / Filter Bags


A filter fabric is used in vacuum cleaners to remove the dust from the exhaust air. The Vacuum cleaners are mainly used in the houses and offices where carpet is employed on the floor in order to make them clean.

Key growth drivers

The demand drivers of filter fabrics are vacuum cleaner, increasing urbanization & disposable incomes, unavailability and rising cost of domestic help, increasing number of working women and increasing health awareness, increasing number of houses and offices.
7. Mattresses and Pillows:

**Picture 3.13: Foam for Mattresses and Pillows**


**Picture 3.14: Rubberized Coir Mattress**


A Mattress is a pad or mat placed on the bed to provide support to the body, which are filled by the material like foam, coir etc. Ticking fabric is used as protective fabric cover to hold the filling material in place. The wide range of colors and styles of ticking is available in the market, which are mostly made up of cotton. Pillows are also filled by the materials like feathers, foam and cotton etc. and ticking fabric is used for encasing them. The market for mattresses & pillows can be divided into three segments:

- Households
- Hotels
- Hospitals
Key growth drivers

The demand for mattresses & pillows is dependent on increasing family size, number of marriages, replacement time of the mattresses, awareness about the pros and cons of different type of mattresses etc.

8. Non-Woven Wipes:

![Picture 3.15: Spunlace Non woven Wipes](http://www diytrade.com/china/pd/2366847/spunlace_nonwoven_wipes.html)


![Picture 3.16: Non Woven Wipes](http://www.ittaindia.org/discover_technical_textiles.php?ID=21)


Non-Woven Wipes are used for the purpose of cleansing or disinfecting. Recently, they have become popular because of having the properties of softness and absorption. There are various applications of wet wipes such as Facial wipes, baby wipes, hand & body wipes, cleansing wipes, feminine hygiene wipes, medicated...
wipes, antibacterial wipes and personal hygiene wipes. Non-woven wipes are formed with polyester, viscose and polypropylene and manufactured by spun lace technology.

**Key growth drivers**

The demand drivers for non-woven wipes are busy and changing life style, growing number of middle class families, increasing disposable income and product innovation.

9. Mosquito nets:

   **Picture 3.17: Queen Bed Folding Mosquito Net**


   **Picture 3.18: Circular Mosquito Net**

   ![Circular Mosquito Net](http://ffyamei.com/product_show.asp?id=103)


The mosquito net is used to get protection from mosquitoes; therefore, it has great demand in India. People prefer the use of mosquito nets in place of mosquito repellent mats, coils and ointment because it has no side effects. "Nylon net constitutes around 96% of the raw material cost of the mosquito net. The process of
manufacture of Nylon Mosquito Net is very simple. A piece of Net cut in rectangle size as per required size. The required rectangle size net along with Cotton Tape is spread on sewing Machine and stitched from one corner to the end” (Office of the Textile Commissioner, 2009, p. 413).

10. Furniture Fabric:

Picture 3.19: Cotton Fabric for Furniture


Picture 3.20: Micro Fiber Fabric for Furniture


A Fabric is applied in furniture mainly for seating purposes. Plastic, leather, synthetic leather and woven fabrics serve as covering while flock, kapok, down, fiber, foam rubber and hair are used in modern upholstery for padding purposes.
Key growth drivers

The growth drivers of furniture fabrics are real estate/housing boom, growth in tourism/hospitality industry, changing consumer demographics, increasing number of double income families, exposure to global products and ease of financing for consumer durables.

3.2.2 Application of Hometech Textiles

There are four types of application of Hometech Textiles which are given as follows:

1. Bed and bedding furnishings

In the market, there are large numbers of products which are classified into bedding furnishing. These furnishing products are easily available in the market with different fabrics, designs, patterns, color, styles and sizes for getting comfort and decoration (Bed & Bedding Furnishings, n.d.). The different types of bedding furnishings products are given below:

a) Bed covers: Bed covers are used to protect or hide the beds. Today, there are various types of bed covers available from cotton to silk. One can find different styles of bed covers in the market like fitted bed covers, embroidered bed covers, ruffle bed covers, quilted bed covers, patch work bed covers and throw bed covers (Bed Covers, n.d.).

b) Bed coverlets: Bed coverlets are bed topper that gives fresh and fun look to the bed. They make room luxurious by covering the whole bed but exclude bed pillows. Bed coverlets are available in different styles like cotton coverlet, satin coverlet, quilted coverlet, silk coverlet, crochet coverlet, tapestry coverlet, bamboo coverlet etc.

c) Bed comforters: Bed comforters are filled bed covers that make the bed stylish and much more comfortable. These comforters are filled with feathers, wool, cotton, silk, cashmere and synthetic fiber which come in various colours, prints, designs and different weights.

d) Bed spreads: Bed spread is placed over the bed that touches the floor. They are available in a wide variety of colours, shapes, designs, fabrics, sizes etc. and are
generally made with satin, silk, cotton, linen etc. There are three common styles of bed spreads i.e. fitted bed spreads, ruffle bed spreads and throw bed spreads.

e) **Blanket covers:** Blanket cover gives protection to the blankets from dust and used when bed spread is removed. Blanket covers are light weighted, decorative and thin which are made with silk, cotton, linen, cotton/blends etc.

f) **Bed sheets:** Bed sheets are used to cover the bed for making them comfortable enough to sit, extremely attractive and sleep on it. Various fabrics are used for sheets i.e. cotton, silk, satin, flannel, jersey, polyester, linen etc. There are various types of bed sheets such as organic bed sheets, bed linen sheets, flannel bed sheet, cotton bed sheet, silk bed sheet and satin bed sheet (**Pal, 2010**).

g) **Bed skirts:** Bed skirt is used to hide the box spring of the bed and hangs to the floor. These skirts are available in different pattern, color size, fabric and design which are made with chintz, chenille, velvet and matelesse. Today different types of bed skirts are available in the market such as linen bed skirt, silk bed skirt, plaid bed skirt, organza bed skirt and denim bed skirt.

h) **Duvet covers:** Duvet covers are designed to cover the duvets because duvets are not washable as the stuffing inside the duvet can be ruined with water while washing. Duvet covers give a glorious look to any bedroom and keep the duvet clean. These are made with cotton, linen, jacquard, microfiber, rayon, silk, satin, sued etc.

i) **Cushion covers:** Cushion covers are used to cover the cushions that give the elegant look to the room. The wide varieties of cushion covers are available depending on the shape and size. There are also different styles of cushion covers such as dyed cushion covers, beaded cushion covers, printed cushion covers, fancy cushion covers, baltik cushion covers, designer cushion covers, twill cushion covers, beaded cushion covers etc. (**Pal, 2010**).

j) **Bedding mattress cover:** Bedding mattress covers are designed to the keep away mattresses from dust, stains, dirt and bed bugs. The wide variety of appealing colors and prints of mattress covers comes in the market. There are three sizes of mattress covers available such as queen’s, king’s and double sizes or custom-design as per requirement.
k) **Pillow covers:** The decorative and comfortable pillow covers create a fresh and new look to the room. Different colors, pattern, fabric, and texture of pillow covers are available in the market. There are unique designs of pillow covers such as decorative pillow covers, lace pillow covers, beaded pillow covers, printed pillow covers, machine embroidered pillow covers, embossed pillow covers and quilted pillow covers (Pal, 2010).

l) **Throws:** Throws are used in almost every place of the home and add touch to the dining room furnishings, drawing room furnishings and bedding furnishings. There are various types of throw based on use such as pillow throws, blanket throws, comforter throws, rug throws, couch throws, bed throws and bed throws. Throws are made with silk, velvet, cotton, satin, fleece, polyester fur, cotton blends etc.

m) **Quilt covers:** Quilt covers are used to protect the quilts that also offer stylish look to the bedroom. Different kinds of fabric are used to make these quilt covers such as linen, cotton silk, satin etc. Quilt covers are available in different designs i.e. designer quilt covers, embroidered quilt covers and quilted quilt covers (Quilt Covers, n.d.).

2. **Kitchen furnishings**

   Kitchen is called as 'the heart of home.' The importance of kitchen in home increases the use of kitchen furnishings. Kitchen furnishings not only make the work easy and smooth but also amplify the beauty of our kitchen. These furnishings are made with textile having the qualities of durability, dirt rejection and absorbing moisture which is called as hometech textiles (Kitchen Furnishings, n.d.). There are various kitchen furnishing products which are as follows:

a) **Kitchen aprons:** Kitchen apron is a garment worn by women while working in the kitchen. It is used for hygienic reasons and protecting cloths from outer soiling and stains. These are made with cotton, linen, denim, polyester and plastic. Different styles of kitchen aprons are available such as retro kitchen apron, personalized kitchen apron, bib style kitchen apron, waist kitchen apron, funny kitchen apron and kitchen apron for kids.

b) **Kitchen towel:** Kitchen towels are used for drying pots and cleaning, shining glass ware and flat ware and covering rising bread dough. These are made with
terry cloth, linen, micro fiber and cotton and available in various designs such as checks, dobbay, jacquard, solid, embroidered and woven kitchen towels.

c) Mittens/Kitchen gloves: Mitten or Kitchen gloves are designed to cover the hand, encasing the four fingers together and the thumb separately. They are used to hold the kitchen items which are too hot with the bare hands. Mittens are mostly made with cotton fabric and cotton flax (Pal, 2010).

d) Napkins: Kitchen napkins are known as table napkins which are used at the table for wiping the mouth while eating. These are made with different kind of fabrics like polyester, twill, cotton, damask or blends of several fabrics.

e) Place Mats: Place mats are designed for preventing any damage during serving of hot dishes on tables. These are used on living room end tables, dining table and many other pieces of furniture. There are various types of place mats available such as embroidered, hand painted and stitched with decorative designs (Pal, 2010).

f) Tray cloth: Tray cloth is a piece of fabric used for covering a tray before serving. These are made with denim, paper, plastic and linen. They come in various colors, prints and attractive designs. There are extensive variety of tray cloth available in the market such as woven tray cloth, hand stitched tray cloth, damask tray cloth, printed tray cloth, crocheted tray cloth and embroidered tray cloth.

g) Dish cloth: Dish clothes are must kitchen furnishing item because it is used for wiping, cleaning and drying dishes. Dish clothes are made with absorbent fabric such as linen, cotton, hemp and jute. Different styles of dish clothes are floral, abstract prints, paisleys, geometrics and animals.

h) Pot holders: Pot holder is used to lift hot pots off the stove or from the oven for avoiding fingers burn or dropping cookware. Pot holders are filled with additional padding and quilted for heat resistance. There are four types of pot holders such as hand painted, hand – woven, machine printed and embroidered

3. Bathroom furnishings

Since, mid 90s Bath furnishings have undergone a big change. Today, people consider bath furnishing equally important as any other room. Modern home demands for stylish and well-furnished bathroom furnishings. Hence, India is manufacturing
beautiful, expensive and decorative items that could create lavish look to the bathroom (Bathroom Furnishings, n.d.). There are different types of bathroom furnishings available in the market which are as follows:

**a) Shower curtains:** Shower curtains are made by high quality material due to its functionality. They produce wonderful look to the bathroom and matches the modern lifestyle. There are various types of shower curtains such as contemporary shower curtains, hook less shower curtains, extra long shower curtains, luxury shower curtains, designer shower curtains and embroidered shower curtains.

**b) Bath robes:** Bath robes are very simple to the over coat which come in long single piece, covering from the under arms to above the knees and fastened by the wrap-style tie belt. There are various designs of bath robes offered in the market such as pillow covers, zip or have hook, button down robes, eye closure and hooded robes (Pal, 2010).

**c) Bath towels:** Bath towel is most required bathroom accessory which is used for drying body. Bath towels are available in different designs and styles such as designer bath towel, embroidered bath towel, decorative bath towel, luxury bath towel, personalized bath towel and monogrammed bath towel. Cotton is majorly used for making bath towels because it has high water absorbing tendency in addition, these towels are also made with cotton, silky-soft blend of polyester and nylon (Bath Towels, n.d.).

**d) Bath mats:** Bath mats are placed on the floor of a bathroom that provides a warm non-slip surface and absorb water. Bath mat can put outside the bath tub and inside the bath tub. These are offered with very attractive colors and creative designs that mostly made from uncut wrap pile weaves.

**e) Bath rugs:** Bath rugs are made with water absorbent material that give soft touch to the feet and absorb water in the feet. There are different patterns and designs available in the market which adds beauty and texture to the bathroom (Pal, 2010).

**f) Face towels:** Face towels are used as handkerchief as well as drying face after wash. These towels are made with cotton that is offered in wide range of design, colors and patterns. Terry and velour face towels are easily available and made
with cotton. Various colorful designs are printed on the surface of towels to provide a decorative look.

g) Hand towel: Hand towels are used to dry hands after washing. They are usually manufactured by cotton because it efficiently absorb and remove water from the hand. There are various styles of hand towels such as velour, jacquard, printed, terry and embellished. Tightly woven and securely stitched hand towels can last for years (Hand Towels, n.d.).

4. Drawing and dining room furnishings

Drawing and dining room represents overview of the whole house therefore, it becomes necessary to create artistic and modern look to the drawing and dining room. To make the room graceful and beautiful wide variety of designs, colors and shades are offered in the market (Drawing & Dining Room Furnishings, n.d.). The different kind of dining and drawing room furnishing products are given as below:

a) Table cloth: Table cloth is used to protect the table from heat and scratches. Table cloths are available with different patterns and designs such as printed table cloth, painted table cloth, embroidered table cloth and crochet table cloth. There are also various types of table cloth based on fabric i.e. plastic table cloth, silk table cloth, vinyl table cloth, polyester table cloth, cotton table cloth and linen table cloth.

b) Table mats: Table mats are extensively used in offices, home, restaurants and cafeterias to place the serving dishes. There are lots of different styles, designs, size and shapes of table mats offered that could add beauty, effectiveness and convenience to the table setting. Table mats are manufactured with synthetic fibers, cotton, straw, plastic, flax and jute.

c) Table skirting: Table skirting have so many pleats that cover the table legs providing luxurious look to the table decoration. There are lots of fabrics used to make table skirting keeping in mind the multiple choice of the customers such as linen, satin, velvet, polyester knit and poly-satin. Different types of table skirting are offered such as appliqué work, embroidery, hand-painting and printing (Table Skirting, n.d.).

d) Table runners: Table runner is a piece of fabric that serves as place mats as well as gives details to the table. It can be used on dining tables, side boards, mantels
and desk. Table runners are placed over a floor length table cloth that augments beauty of the table. Table runners are made with linen, polyester, silk, cotton and other exotic fabrics (Pal, 2010).

e) **Tea cozy:** Tea cozy is made to cover around the tea pot to keep the tea hot. To attain the functionality of keeping tea warm, tea cozies are made of thick layer of cotton or other pad. There are various types of tea cozy offered in the market such as hand painted tea cozy cover, hand woven tea cozy cover, machine printed tea cozy cover and embroidered tea cozy cover. Tea cozy covers are manufactured with linen, cotton, silk, denim, etc.

f) **Curtains:** Curtains are the most esteemed way of decoration that complete the look of any room i.e. dining, drawing and bedroom. There are lots of designs, styles, fabrics, colors and sizes of curtains available in the market which are manufactured with linen, cotton, silk, wool, rayon, polyester, nylon, jute and satin. There are four types of curtains such as window curtains, door curtains, sliding door curtains and designer shower curtains.

g) **Sofa covers:** Sofa cover provides new life to the sofa set by covering and protecting them from stains, pets, dust and kids. In addition, it hides the oldness of sofa set creating a great look to the room without spending a fortune. There are plenty of fabrics used for sofa covers i.e. linen, polyester, satin, cotton fabrics, checks and jacquard.

h) **Chair mats:** Chair mats give safeguard and protection to the floor as well as provide easy mobility of the chairs. Chair mats are mostly available in a clear texture, increasing the natural beauty of the carpet or wood floor. Chair mats allow casters to move more easily across a hard surface that help in reducing joint and lower back strain.

i) **Chair pads:** Chair pads upgrade the home decor, protect the chairs and make them comfortable. Chair pads are used on different seats of the home i.e. outdoor chairs, kitchen chairs, dining chairs, patio chairs, rocking chairs and couches. They are made with cotton, polyester and leather and available in different styles such as, braided chair pads, Hand hooked, foam chair pads, cushion chair pads etc. *(Chair Pads, n.d.)*
j) **Chair cover:** Chair covers give stylish look to the chairs by protecting them from stains, dirt or spill. These covers are made with cotton and other fabrics and three types of chair covers used at home such as slip chair covers, kitchen chair covers and folding chair covers. The wide variety of designs based on shape of the chair is offered such as tieback chair cover, fitted chair cover, square chair cover, stretchy chair cover, round chair cover and theme based chair cover.

k) **Pelmets:** Pelmet is a decorative cloth strip used to hide the curtain rod at the top of a window casing. These are available in different designs and styles that give great look to the room. Pelmets are offered with classic weaves, classic prints, modern weaves, every kind of woven silk, hand woven plains, strips and checks in cotton, wool plaids and trimmings, all in striking color combinations (*Pal, 2010*).

l) **Table cover:** Table cover is used for covering table that protect it from stains and wear & tear. There are different types of table covers based on designs such as embroidered table covers, printed table covers, lace work table covers, crochet table covers and painted table covers. The extensive variety of material is used for making table covers such as rayon, cotton, silk, jute, nylon, polyester, wool, plastic, satin, leather PVC, linen, denim, vinyl and other fabrics.

m) **Tassels:** Tassels are an unusual adornment for home décor that consist bunch of cords fastened at one end. It consists of three parts such as top, cord and skirt. The cord passes through the centre of the skirt and top to suspend the tassel. These are made with various materials like cotton, rayon, polyester, jute etc. The different designs of tassels are bobble fringe tassels, bullion tassels, cut tassels, combination tassels, molded tassels and beaded tassels (*Tassels, n.d.*).

### 3.2.3 Raw Material for Hometech Textiles

Home tech textiles are produced with a wide variety of fiber or filament according to the preferred characteristics of the end product. The fiber or filament used in textiles can be broadly classified as natural and Manmade (*Office of the Textile Commissioner, 2009*) which are given as follows:
1. Natural fiber

These fibers are a class of hair-like materials that are continuous filaments or are in discrete elongated pieces, similar to pieces of thread (Natural fiber, n.d.). Natural fibers play an outstanding role in Home tech textiles which include:

   a) Cotton: “Cotton accounts for half of the world’s consumption of fibers and is likely to remain so owing to many of its innate properties and for economic reasons” (Harrison, 1979, p. 2). Cotton is one of the key raw materials for the textile industry. It is being used for producing various Home tech products i.e. upholstery, wall décor, window textiles, filled textiles, kitchen textiles, bedroom textiles, quilted blankets, bedspreads and bathroom textiles.

   b) Jute: Jute is a soft, long, shiny vegetable fiber that can be turned into coarse, strong threads which is used as a raw material for the Home tech textile industry. “India is the largest producer of raw jute in the world” (Office of the Textile Commissioner, 2009, p. 624). It plays an important role in terms of specific characteristics for a particular application. Jute is used for producing carpets and wall decors.

   c) Silk: Silk is another fiber produced naturally by the silk worm which has high luster, high tenacity and good dimensional stability. It is used to manufacture some varieties of bind though the consumption is limited to high end products. India is contributing around 18% to the world production of silk. There are some major silk producing centers of India such as Tamil Naidu, Karnataka, West Bengal, Andhra Pradesh and Assam.

   d) Coir: “Coir is a natural fiber extracted from the husk of coconut and used in products such as floor mats, door mats, brushes, mattresses etc” (Coir, n.d.). India is producing world’s two third of coir. The coir industry in India is concentrated in Tamil Naidu, Kerela, Karnataka, Andhra Pradesh, Goa, Maharashtra, Lakshadweep, Andaman & Nicobar and Pondicherry.

2. Man Made fiber/filament

“Man made filaments are the fiber whose chemical composition, structure and properties are significantly modified during the manufacturing process” (Preston, n.d.). Manmade fibers have tailor made properties that makes it key raw material for
the Technical Textile industry. Manmade fibers which are used as raw material in Hometech textiles are:

a) **Viscose fiber/filament**: Viscose is a unique form of cellulose acetate used to make rayon and cellophane. It is used for manufacturing wipes because of having high absorbent properties. India is sufficient with viscose therefore; their imports are reducing over the years.

b) **Polyester**: “Polyester refers to the various polymers in which the back bones are formed by the esterification condensation of poly functional and acids” (*Polyester*, n.d.). It is a synthetic fiber which finds wide application in Technical textiles. It is most desirable fiber in Textile industry because of some unique features such as wrinkle resistance, mildew and abrasion resistance, shrinkage resistance etc. The fiber has variety of application in Hometech textiles such as upholstery, window textiles, wall décor, filled textiles, quilted, bedroom textiles, blankets, bathroom textiles and bed spreads.

c) **Nylon**: “Nylon is a synthetic fabric made from petroleum products” (*What is Nylon*, n.d.). Some of the unique properties of nylon that make it more popular in the Technical textile industry are good recovery, dimensional stability, high extensibility and relatively low moisture absorbency. It is used for producing carpets in Hometech textiles.

d) **Acrylic/Modacrylic**: “Acrylic fibers are defined as those which contain not less than 85% of acrylonitrile molecule” (*Office of the Textile Commissioner, 2009*, p. 632). Acrylic consists of resistance to weathering and UV rays and fire retardant properties. They are suitable for manufacturing blinds, carpet backing cloth and stuffed toys. However, they are losing their market share because of improving varieties of aramids, polypropylene and polyester.

e) **Polypropylene**: Polypropylene is a plastic polymer of having unique properties i.e. translucent, good chemical resistance, good fatigue resistance, good heat resistance, semi-rigid, integral hinge property. Therefore, it is majorly used for manufacturing technical textile products. Polypropylene finds application in Home tech textiles for producing carpets and furnishings.
3.2.4 Technologies for Hometech Textiles

1. **DREF Spinning:** DREF spinning technology is required for manufacturing core-spun yarns of having exceptional strength, consistent performance in sewing, excellence abrasion resistance and adequate elasticity. “It can also be used to produce yarns from aramid and glass fibers and with various core components including wires” (Horrocks and Anand, 2000, p. 49). The yarns can be used for producing backing material.

2. **Wrap Spinning:** “Wrap spinning is a yarn formation process in which a twist less staple fiber strand is wrapped by a continuous binder.” The wrap yarns are manufactured by this latest technology for producing various Hometech textile products. Wrap spinning is highly productive and suitable for various yarn linear densities which provide extra yarn strength or other special yarn features. The binders are used to complement the staple core or to introduce special yarn features (Horrocks and Anand, 2000, p. 148).

3. **Circular Knitting:** In this method, a fabric is formed by knitting that forms strong loops and process a wide spectrum of yarn made wide range of materials, blends and filaments on the one and same machine. This technology finds application in hometech for producing bath robes, dressing gowns, furnishing and upholstery.

4. **Warp Knitting:** “Warp knitting is a technology in which loops are made along the length of the fabric from each warp yarn and the intermeshing of loop takes place in a flat form or lengthwise basis” (Office of the Textile Commissioner, 2009, p. 76). It is one of the fastest methods of converting yarn into fabric in comparison with weaving and weft knitting. Warp knitting technology has been categorized into five technologies such as Raschel knitting technology, Tricot knitting technology, Spacer Fabrics knitting technology, Multiaxial knitting technology and Stitch-Bonding knitting technology.

5. **Raschel Technology:** In this technology, latch or compound needles are used to take up fabric parallel to the needle stems. Raschel machines are generally in a coarser gauge and provided with a trick plate. It uses more guide bars and requires a longer and slower needle movement. Raschel machines have warp beams on the top of the machine that make able machine to knit most types of
yarns such as staple yarns, and split films, etc. Raschael technology finds
application in hometech for producing curtains, curtain laces, table cloths, bed
covers, drapes, upholstery, carpets and velvets.

6. **Tricot Technology:** In this technology, bearded or compound needles are used to
take up fabric at approximately right angles to the needles. It is faster than
raschael which can successfully knit continuous-filament yarns. Tricot machines
have warp beam at the back of the machine and generally use sinker bar. Tricot
machine produces home tech products such as upholstery, technical fabrics, bed
linen, toweling, lining and nets.

7. **Stitch Bonding Technology:** This technology uses primarily air-laid and cross-
laid batts to modify the warp knitting machine and passes between the needles
and the guide bars. The compound needles are used to penetrate the batt on each
cycle of the machine. Stitch bonding technology carries out warp knitting action
with the overlaps on one side of the batt and the under laps on the other. It was
extensively used for curtaining in the past but now it is used as covering material
for mattresses and beds, as the fabric in training shoes and as backing fabric for
lamination *(Horrocks and Anand, 2000, p. 149).*

8. **Coating:** Coatings are largely limited to those technical textiles products that can
be produced in the form of a viscous liquid and can be spread on the surface of a
substrate as well *(Hall, 2010).* It hardens the coating by drying or curing process
and applied on sleeping bags, tents, flex fabrics for hoardings, architectural
membranes, interlinings, flame retardant fabrics etc. Therefore, “the coatings for
these products are limited to linear polymers, which can be coated as a polymer
melt or solution and on cooling form a solid film or form a solid film by
evaporation of the solvent” *(Horrocks and Anand, 2000, p. 174).*

### 3.3 Hometech Textiles: Global Overview

In the past years the Hometech industry has been witnessing tremendous
growth. At global level of the total technical textile market, Hometech contributes
about 7 percent of the share and the industry is expected to be dominated by technical
application of various textile materials in different forms in the next millennium. The
emerging technologies, viz.bio -technology, micro-electronics and material science
have urged on the globalization of science and technology. While global pattern of
production, consumption and trade have been significantly restructured by biotechnology and microelectronics on the other hand, new technologies like optical fibers, fine chemicals, high polymer plastics and resins, temperature-resistant textile fibers, fiber-reinforced composites etc. have provided better substitutes in the form of hometech textiles. Unlike conventional home textiles which are used traditionally for clothing or furnishing, hometech textiles are used by other industries of non-textile character in high tech and high performance applications. Such industries cover a wide range of fields like furniture, home furnishing, toys, floor coverings; Fiber filled Cushions, Mosquito Nets, Coir mattress, Wipes, Woven Fabric, Napkins, Fiber Fill, and Mattress Ticking etc. Over the world, home textiles have always played an important role in the comfort, protection and decoration of furnishings.

The most traditional Hometech products market has been quite fully grown in western economies such as furnishing, carpets, fabrics and mattresses. As far as developing countries are concerned, the growth in the market for home textiles in these areas is also expected to go faster because of increasing disposable incomes and the relatively growing wealthy middle classes. This situation will be favorable for the local producers in order to expand their manufacturing both for the finished products and for the supporting Hometech supply chain. “Global hometech textiles market (consumption) was estimated at around US$ 7,780 million in 2000 which had registered the growth of 4.5% in 2005.” Hometech stands at fourth rank in both volume and value terms. The US found to be the largest market while North America and Europe exports to emerging destinations such as Eastern Europe and the Middle East is gathering pace. Global demand for hometech textiles has led to increased investment in Indian technical textile industry (David Rigby Associates, 2010).

The following Table 3.2 exhibits the global market size of Hometech textiles from the year 2000 to 2012 which was estimated by David Rigby Associates, International Consultants who are the only agency following technical textiles.
Table 3.2: Global market size of Hometech textiles (2000-12)

<table>
<thead>
<tr>
<th>Years</th>
<th>Volume (000 tones)</th>
<th>value (US $ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2186</td>
<td>6750</td>
</tr>
<tr>
<td>2005</td>
<td>2499</td>
<td>7622</td>
</tr>
<tr>
<td>2007</td>
<td>2634</td>
<td>8086</td>
</tr>
<tr>
<td>2010</td>
<td>2853</td>
<td>8778</td>
</tr>
<tr>
<td>2012</td>
<td>3009.1</td>
<td>9006.3</td>
</tr>
<tr>
<td>CAGR (%)</td>
<td>2.7</td>
<td>2.66</td>
</tr>
</tbody>
</table>


As the above table 3.2 shows that in the year 2000, the market size for Hometech textiles was estimated to have a volume of 2186 tones with a value of US$ 6750 million. During 2005, the market size was at 2499 tones with a value of US$ 7622 million, which increased to a volume of 2634 tones with a value of US$ 8086 million in 2007 and 2853 tones with a value of US$ 8778 million in 2010. For yr. 2012, market size for Hometech is estimated at 3009.1 tones with a value of US$ 9006.3 million. This shows an average annual world-wide growth in volume terms at the rate of 2.7 percent during the period 2000 to 2012.

The following Table 3.3 shows end-use consumption analysis of Hometech textiles by region from year 1995 to 2010 with CAGR (%).
Table 3.3: World hometech consumption, 1995-2010, by region in volume terms (000 tones)

<table>
<thead>
<tr>
<th>Region</th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>95-00</th>
<th>00-05</th>
<th>05-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>801.8</td>
<td>903.6</td>
<td>911.9</td>
<td>917.4</td>
<td>950.4</td>
<td>983.6</td>
<td>1018.9</td>
<td>1040.2</td>
<td>1057.8</td>
<td>1075.2</td>
<td>1092.4</td>
<td>1109.9</td>
<td>2.4</td>
<td>2.4</td>
<td>1.7</td>
</tr>
<tr>
<td>South America</td>
<td>53.3</td>
<td>66</td>
<td>67.3</td>
<td>68.8</td>
<td>72.5</td>
<td>76.7</td>
<td>80.9</td>
<td>85.5</td>
<td>90.1</td>
<td>95</td>
<td>99.9</td>
<td>105.1</td>
<td>4.4</td>
<td>4.2</td>
<td>5.4</td>
</tr>
<tr>
<td>Western Europe</td>
<td>553.1</td>
<td>675.9</td>
<td>692</td>
<td>703.4</td>
<td>719.3</td>
<td>738.7</td>
<td>758.7</td>
<td>774.8</td>
<td>791</td>
<td>807.1</td>
<td>823</td>
<td>839.3</td>
<td>4.1</td>
<td>2.3</td>
<td>2</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>35.6</td>
<td>40.5</td>
<td>42.2</td>
<td>44.2</td>
<td>46.5</td>
<td>48.9</td>
<td>51.4</td>
<td>54.8</td>
<td>58.3</td>
<td>62</td>
<td>65.9</td>
<td>70.1</td>
<td>2.6</td>
<td>4.9</td>
<td>6.4</td>
</tr>
<tr>
<td>South Asia</td>
<td>34.8</td>
<td>50.4</td>
<td>53.6</td>
<td>57.1</td>
<td>61.6</td>
<td>66.4</td>
<td>71.4</td>
<td>77.2</td>
<td>83.4</td>
<td>89.9</td>
<td>96.8</td>
<td>104.2</td>
<td>7.7</td>
<td>7.2</td>
<td>7.9</td>
</tr>
<tr>
<td>North East Asia</td>
<td>234.8</td>
<td>284.3</td>
<td>289</td>
<td>293</td>
<td>303.3</td>
<td>314.6</td>
<td>326.7</td>
<td>338.5</td>
<td>351.5</td>
<td>365.1</td>
<td>379.2</td>
<td>394.1</td>
<td>3.9</td>
<td>2.8</td>
<td>3.8</td>
</tr>
<tr>
<td>South East Asia</td>
<td>28.8</td>
<td>37.5</td>
<td>38.8</td>
<td>40.3</td>
<td>43</td>
<td>45.8</td>
<td>49</td>
<td>52.3</td>
<td>55.9</td>
<td>59.7</td>
<td>63.6</td>
<td>67.7</td>
<td>5.4</td>
<td>5.5</td>
<td>6.7</td>
</tr>
<tr>
<td>Rest of the World</td>
<td>121.3</td>
<td>127.7</td>
<td>129.3</td>
<td>131.5</td>
<td>134.6</td>
<td>138.1</td>
<td>141.6</td>
<td>145.5</td>
<td>149.5</td>
<td>153.7</td>
<td>158.1</td>
<td>162.8</td>
<td>1</td>
<td>2.1</td>
<td>2.8</td>
</tr>
<tr>
<td>Total</td>
<td>1863.6</td>
<td>2185.9</td>
<td>2224</td>
<td>2255.7</td>
<td>2331.2</td>
<td>2412.7</td>
<td>2498.6</td>
<td>2568.7</td>
<td>2637.6</td>
<td>2707.7</td>
<td>2778.9</td>
<td>2853.1</td>
<td>3.2</td>
<td>2.7</td>
<td>2.7</td>
</tr>
</tbody>
</table>

The **world consumption** of Hometech textiles from year 1995 to 2010 has increased significantly as per given in above table 3.3. In the year 1995, the consumption for Hometech textiles was estimated to have a volume of 1863.6 tones which increased to 2185.9 tones during 2000 with a CAGR of 3.2% and further to 2498.6 tones with a CAGR of 2.7% in 2005. In 2010, the consumption was at 2853.1 tones with the same CAGR of 2.7%.

The following **Chart 3.1** represents the consumption of Hometech textiles in 2010 by region (%):

**Chart 3.1: End-use consumption of Hometech textiles in 2010, by region (%)**

![Chart 3.1: End-use consumption of Hometech textiles in 2010, by region (%)](image)

**Source:** David Rigby Associates. (Personal Communication, 2003). HOMETECH: Technical components for Furniture, interior textiles and floor coverings

The above chart 3.1 reveals that the major consumers of the Hometech products are America, followed by British and Asia. Over 42.58% of consumption was found in North and South America followed by Western and Eastern Europe with a share of 32.2% and South Asia, North East Asia and South East Asia together representing a share of 20% while rest of the world constitutes a share of 5.7% only.

The following **Table 3.4** provides a further analysis of Technical Textiles consumption by application area, its rank by size and growth rates from 2000 to 2010:
Table 3.4: World technical textiles consumption by application area, showing rank by size in 2000 and 2010 and growth rates from 2000 to 2010, in volume and value terms

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Packtech</td>
<td>1</td>
<td>1</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Mobiltech</td>
<td>2</td>
<td>2</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Indutech</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Hometech</td>
<td>4</td>
<td>4</td>
<td>12</td>
<td>4</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Buildtech</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Meditech</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>8</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Agrotech</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Clothtech</td>
<td>8</td>
<td>8</td>
<td>11</td>
<td>5</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Sportech</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>2</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Geotech</td>
<td>10</td>
<td>10</td>
<td>2</td>
<td>12</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Protech</td>
<td>11</td>
<td>11</td>
<td>6</td>
<td>9</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Oekotech</td>
<td>12</td>
<td>12</td>
<td>1</td>
<td>11</td>
<td>11</td>
<td>1</td>
</tr>
</tbody>
</table>


The above table 3.4 shows ranking of various segments of technical textiles by volume and value as well as by growth rates between 2000 and 2010. This authenticates that Packtech and Mobiltech are the largest sectors; in volume despite they are also growing at slow speed. In contrast, other smaller sectors such as Geotech and Protech attain most growth. The noticeable difference between volume and value ratings is greatest for Packtech (large volumes but very low unit values) and Sporttech (low volumes but very high unit values). Hometech has attained fourth largest rank in both volume and value terms. But, growth rates of hometech are the lowest of all that shows generally restricted opportunities for further textile penetration, low growth for final demand for household goods and a sturdy switch from woven to lighter and nonwoven components that are lower priced.
Technical textiles play an important role in the production of many furnishings, household textiles, and floor coverings such as curtain tapes, carpet backings, fiberfill and wadding for furniture and mattresses. “Almost 2.2 mn tons of textile products were consumed in this sector in the year 2000. This is set to increase modestly to nearly 2.9 mn tons by 2010 with a value of US$ 8.8 bn.” As studied earlier, the markets for such Hometech products have been quite matured in Western economies, India and China have also attained the highest growth rates of Hometech textiles over recent years and the forecast has revealed continuous growth of about 5% per annum in the short term. Increasing globalization of the industry will definitely improve this trend internationally. Therefore, the trade opportunities will increase not only for low cost suppliers into the more developed markets, but will also open prospects for western manufacturers to spread out their export business in the developing markets.

Reasons for Highly Recurring Global Hometech Market

The demand for Hometech application area, as with many technical textiles end products witnessing severe ups and downs with the economic cycle due to the unemployment levels, real incomes, interest rates, etc. This recurring nature of Hometech is brutal for its growth which is given as follows:

- Many Hometech products such as upholstered furniture, beds and carpets represent ‘big ticket’ consumer purchases which are easily deferrable. The demand for these products is more inconsistent than most of the other end use segments. The demand for hometech products is not similar to other segments of technical textiles like waterproof coats, which purchase does not signify such a major investment for the consumer or like medical products where demand is less interwoven to the economic cycle or like car tyres, protective clothing which replacement cannot be easily postponed.

- The highly recurring housing market which is depending on the rate of interest and consumer confidence influence the Hometech sector. The rate of interest impact on the mortgage cost of property as well as on borrowing cost of major purchase. As far as major ‘soft’ household textiles are concerned their purchases are easily deferrable and directly reflect movements in the house market such as
curtains that impacts on the use of header tape and duvets that impacts on the consumption of fiberfill (David Rigby Associates, 2010).

- A contract trend in non-domestic application also influences the demand for Hometech end products because this also changes at regular intervals since, it is interwoven with the level of activities in the infrastructure development, capital spending and construction for example hospitals, new and refurbished offices, and hotels. Consequently, direct and indirect suppliers of this market encounter major ups and downs in their business.

3.4 Indian Market for Hometech

“Though, globally Hometech contributes about 7 percent of the share whereas it accounts for about 6 percent of the Indian technical textile market” (Ministry of Textiles, 2004, p. 95). The various products that occupy their place significantly in Indian market are as follows:

Special synthetic fiber which is popularly known as fiberfill has been developed as an alternative to cotton for filling purposes in India because it has bulk, loft, resilience and air circulation which make a product softer, durable and light weighted. In India, fiberfill has to compete with cotton and cotton waste because it is commonly used for filling material. As per the Report on Performance of Chemical & Petrochemical Industry at a Glance, “the installed capacity of Polyester Staple Fiberfill in India is 47400 MT.” (Office of the Textile Commissioner, 2009, p. 383) Fiberfill has low penetration in the Indian Technical textile industry because the end use consumers are unaware of the benefits of using various kinds of filling material other than cotton. Therefore, change in cotton prices significantly affects the demand for fiberfill. As per ECTT report, the installed capacity and production of Fiberfill has remained fairly stable over the last two years and its penetration is expected to increase in future due to increasing awareness about the product benefits. Major manufacturers of fiberfill in India are Reliance Industries Limited, Arora Fibre Limited, Ganesh Polytex Limited, Futura Polyesters Limited (IOC Limited), Harish Fiber Limited, etc. Reliance Industries Ltd. is one of the largest exporter and manufacturer of Fiberfill. The Fiberfill is imported from China and about 80% of the fiberfill is majorly exported to USA and Argentina.
Synthetic fabric is used to manufacture **Primary backing** while **Secondary backing** is made of both woven polypropylene and jute. But, now it is being replaced with synthetic fabric to produce both primary & secondary carpet due to certain inherent advantages of synthetic backing over the jute backing such as light weight, more flexible, easier to install and can be recycled easily. The demand for Carpet backing cloth is driven by growth in the carpet industry. Majority of the Indian carpet manufacturers are engaged in export and 95% of the carpets are exported to USA. “The carpet export witnessed a decline in recent years because of rupee appreciation against dollar.” *(Office of the Textile Commissioner, 2009, p. 387)*

However, observing the growth of key industry players the carpet exports are expected to remain stagnant in future and due to replacement of jute with the synthetic fabric, marginal growth is expected in the synthetic carpet backing cloth. “The market for jute CBC is expected to decrease to 3673 MT by 2012-13 (falling at 5% year on year) whereas the demand for synthetic CBC is expected to increase to 164 million sq m by 2012-13 registering a growth of 5% year on year” *(Office of the Textile Commissioner, 2009, p. 387)*. Major producers of CBC are Champadany Industries Ltd., Kolkata, Auckland Jute Mills, Kolkata, Mohan Jute Mills Ltd., Kolkata, Gloster Jute Mills Ltd., Kolkata and Birla Corporation Ltd. India import Jute CBC mainly from Bangladesh, around 60% synthetic CBC from Germany while rest from Belgium and Saudi. Bangladesh has highest share in the export market for jute CBC in comparison of India which has very low export of jute CBC. India exports synthetic CBC mainly to USA.

The Indian **stuffed toys** market can be said to be seasonal in nature and it is still at its infant stage in comparison to developed countries. The upper middle and the upper class who are more aware people buy good branded quality soft toys from organized producers. Otherwise, majority of the Indian population buys the unbranded low-priced toys from smaller stores and street sellers. The demand for imported toys is likely to be higher than the domestically produced toys because Chinese and other imported toys are available in more varieties and at lower rates. Stuffed toys production requires good quality of fur fabrics and locally available fabric is not of desired quality therefore they are imported from China, Korea, and Hong Kong. The industry is classified in the organized sector and unorganized home based units. About 500 unorganized home based units are concentrated in Delhi, Noida, Mumbai.
Kolkata but the products do not meet international quality standards because their production is carried out manually. Whereas about 70 organized manufacturers are equipped with modern tools and machines in order to facilitate mass production and some of them are Hanung toys, Kridnak Udyog and Sunlord apparels. Stuffed toys are imported from China, France, Srilanka, Singapore and Thailand while exported to USA, Denmark, Saudi Arabia and Tanzania.

The usage of blinds in household sector has been found to be very low in India, while they have become an accepted covering for windows and chambers in offices and commercial establishments for maintaining privacy. Vertical blinds, roller blinds, Venetian blinds and roman blinds are commonly used in India. “Recently, the indigenous variety of blind popularly known as chick is in demand. Modified varieties of chicks which have more textile and lesser bamboo, also called ‘bamcot’ are also in fashion these days” (Ministry of Textiles, 2004, p. 100).

Blinds are imported from Germany, china, France, Taiwan, Spain, Australia and USA while exported to Netherlands, UK, Germany, Italy, Ghana, Senegal, France, USA, Austria, Sweden and Singapore. “Various components used in a blind such as hangers, spacers, head rails, interlocking chain, sliding channel, runner, end cap set, bottom weight, tilting chain, etc. are domestically procured as well as imported from Taiwan, China and few European countries while, synthetic coated fabric strips are imported from Taiwan and China” (Office of the Textile Commissioner, 2009, p. 396). In India, different producers manufacture fabric and non-fabric components of blinds and one dealer assemble them for final installation. Moreover, various blind manufacturers do not manufacture fabric because they are only fabricators and do contract manufacturing for production of coated fabrics. There are large number of players producing blinds in unorganized sector and organized sector accounting for approximately 15% of the total market. The major players for blinds in the organized sector are Hunter Douglas, Aerolux India Private Limited, Viesta and Mac Décor Ltd.

HVAC filters are used in window type air conditioners, split and centralized air conditioning but the need of filter media for window type air conditioners or split differs from producer to producer because the media is usually washable. “In a centralized air conditioner the filters are housed in the Air handling unit. An air handler or air handling unit, (often abbreviated as AHU), is a device used for
conditioning and circulating air as a part of heating, ventilating, and air-conditioning (HVAC) system” (Office of the Textile Commissioner, 2009, p. 400).

The quality of filter media for centralized air conditioning is dependent on certain requirements like desired quality of air, number of air handling units, air flow rate etc. Different sizes of the filters are easily available that use different filtration media based on these parameters. As per ECTT, with continued investments in infrastructure, the commercial air-conditioning industry is expected to grow at 20% per annum over the next few years. The major producers of Air filtration products are Thermadyne Private Limited (Faridabad), Spectrum Filtration Pvt. Ltd (Kolkata), John Fowler (Bangalore), Anfilco Limited (Gurgaon) and CRE Industries (Delhi). The filter manufacturers source the filter media from outside. The requirement for Nonwoven filter media is primarily met by imports. Some of the Indian manufacturers are Dinesh Mills, Mech Tech Industries (Ahmedabad), Biyani Industrial Fabrics (Indore) and Supreme Nonwoven. The import of filter media takes place from Germany, Netherlands, Taiwan, China and USA. The HEPA filters are imported from USA, Malaysia, China, and Netherlands. The exports from India of HVAC filters and filter media are negligible (Chaudhary and Shahid, 2013).

In India, the demand of filters for vacuum cleaner is driven by the demand for vacuum cleaners. Filter fabrics used in vacuum cleaners are outsourced in India because they are not manufactured by vacuum cleaner manufacturers therefore, they are majorly imported. There is negligence of the import of filter fabric used in vacuum cleaners but they are imported as a part of vacuum cleaners. In India there is no export of HVAC filters and filter media (Chaudhary and Shahid, 2013).

The Indian market for mattresses and pillows can be classified into three segments such as Households, Hotels and Hospitals. Mattresses are usually purchased with purchase of a new bed and they are generally replaced in 8-10 years. Indian people are not aware about the pros and cons of different type of mattresses, thus, cost plays an important role in the purchasing decision. Distribution network play an important role in this industry because Mattresses and pillows are bulky that leads to high transportation and ware housing costs. As per industry sources the demand for all kind of mattresses and pillows is expected to have a moderate growth rate of 3%. The major manufacturers of mattresses are Kurlon Ltd. and Sleepwell (Chaudhary and Shahid, 2013).
The penetration of **wipes** in the Indian household sector is limited in India but because of growing number of middle class families, increasing disposable income and changing lifestyle its demand is increasing gradually in the urban areas. Moreover, product innovations and expanding applications are also the key factor to boost the demand for wipes. In India, non woven fabric is imported and converted into wipes. Wipes are imported from China, Singapore, Canada, Germany, USA and UAE. The export of nonwoven wipes is negligible. Ginni Filaments Ltd, Anjani Nonwovens and Birla Cellulose are the major manufacturers of wipes in India (Chaudhary and Shahid, 2013).

The **mosquito nets** industry in India growing rapidly at around 10-15% per year and is expected to maintain its growth trend in the future. In India, about 80-100 lakhs of the mosquito nets are manufactured every year for domestic purpose. The nylon tyre fabric in India is majorly produced by large number of small-scale producers. There are 75 small-scale units engaged in manufacturing mosquito nets in Karur, Tamil Nadu itself manufacturing around 170-180 MT of mosquito nets per annum (per unit). All the required machineries and raw materials for producing nets are available in India but nylon is sourced from local players like Haldia and Reliance (Chaudhary and Shahid, 2013).

Indian **Furniture** industry is divided into three segments such as Home furniture, Office furniture and Contract furniture. Hair, fiber, flock, foam rubber, down, and kapok are used for seating purposes whereas woven fabrics, plastics, leather and synthetic leather used for coverings. In Indian furniture market, home furniture constitute largest share of about 65% of the furniture sales. The Office furniture segment accounting for about 20% and the Contract segment has 15% share (Chaudhary and Shahid, 2013).

The Furniture which is manufactured indigenously rules the Indian market with around 62% market share of which upholstered home furniture comprise 30%. Wooden furniture constitutes the largest share around 65% of the furniture in India followed by metal furniture with a 25% share and plastic furniture with a 10% share. “Furnishing fabric finds application majorly in the wooden furniture segment.”(Office of the Textile Commissioner, 2009, p. 415)
Artificial leather is imported from China, Taiwan, Korea, Canada and USA. Flock fabric is imported from China and Belgium. The velvet fabric is also imported from China. Artificial leather is exported to UAE, Saudi Arabia and USA, France, Sri Lanka, Italy and Mozambique. India also exports velvet fabric and flock fabric to USA, UAE, Germany, Italy, Sri Lanka and Turkey. Flock fabric exported to UAE, UK, Tanzania, Switzerland and Sri Lanka.

The following Chart 3.2 exhibits the value-wise share of various products in Indian Hometech market during the year 2009-10:

**Chart 3.2: Value-wise share of various products in Indian Hometech market (2009-10)**

![Chart showing share of various products in Indian Hometech market](chart.png)

- **Furniture fabrics**: 37%
- **Mattresses & Pillow components**: 18%
- **Blinds**: 13%
- **Stuffed Toys**: 10%
- **Fiberfill**: 13%
- **Carpet backing cloth**: 5%
- **Mosquitonets**: 4%


Technical textiles market under Hometech stood at US$ 1,353.3 million during 2009-10. Furniture fabric alone has a share of 37% under the Hometech segment followed by Mattresses and pillow components with 18%, 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 above chart 3.2.
The following chart 3.3 shows the value-wise CAGR for Hometech products (from 2009-10 to 2012-13)

**Chart 3.3: Value-wise CAGR for Hometech products (from 2009-10 to 2012-13)**

<table>
<thead>
<tr>
<th>Product</th>
<th>CAGR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furniture fabrics</td>
<td>14%</td>
</tr>
<tr>
<td>Mattress/pillow components</td>
<td>7%</td>
</tr>
<tr>
<td>Blinds</td>
<td>15%</td>
</tr>
<tr>
<td>Stuffed toys</td>
<td>15%</td>
</tr>
<tr>
<td>Fibrefill</td>
<td>5%</td>
</tr>
<tr>
<td>Carpet backing cloth</td>
<td>5%</td>
</tr>
<tr>
<td>Mosquito nets</td>
<td>10%</td>
</tr>
<tr>
<td>Vacuum cleaner filter</td>
<td>15%</td>
</tr>
<tr>
<td>Non woven wipes</td>
<td>15%</td>
</tr>
<tr>
<td>HVAC filters</td>
<td>23%</td>
</tr>
</tbody>
</table>

*Overall CAGR: 11.7%*


"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" *(ICRA Management Consulting Services, 2010, p. 11).* The above chart 3.3 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 Information Technology/ IT-enabled services (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.

**India’s import of Hometech Products from other countries**

Following list gives the details of countries to which India imports Hometech products:
1. Fiberfill – China
2. Jute CBC – Bangladesh
3. Synthetic CBC – Germany, Belgium and Saudi Arabia
4. Stuffed Toys – China, France, Singapore, Sri Lanka and Thailand
5. Knitted Fabric – China, Korea and Hong Kong
6. Synthetic coated fabric strips – Taiwan and China
7. Ready Blinds – Germany, Australia and USA
8. Blind Fabric – China
9. Venetian Blinds – France
10. Roller Blind Fabric – France
11. Filter Media – Germany, Netherlands, Taiwan, China and USA
12. Mattresses, Pillows and Home furnishings – Taiwan, China and Malaysia
13. Non woven Wipes – China, Singapore, Canada, Germany, USA and UAE
14. Artificial leather and Flock fabric – China, Taiwan, Korea, Canada and USA
15. Velvet Fabric – China, Italy, Hong Kong and Turkey
16. HEPA Filters – Malaysia, China, USA and Netherlands

India’s Export of Hometech Textiles to Other Countries

Following list gives the details of the countries to which India exports Hometech products:
1. Synthetic CBC – USA
2. Stuffed Toys and Home furnishings – USA, Denmark, Tanzania and Saudi Arabia
3. Blinds – Netherlands, UK, Germany, Italy, Ghana, Senegal, France and Singapore
4. Artificial Leather – UAE, Saudi Arabia, USA, France, Sri Lanka, Italy and Mozambique
5. Velvet Fabric – UAE, Germany, Italy, Sri Lanka and Turkey
6. Flock Fabric – UAE, UK, Tanzania, Switzerland and Sri Lanka

3.5 Manufacturers of Hometech products in India

A list of 60 companies is obtained from Ministry of Textiles, which is most reliable document because all operations regarding Technical Textiles are under the Ministry of Textiles that is given as follows (Technotex, n.d.):
1. Ajanta Games: Stuffed Toys
2. Apex Polytex Pvt. Ltd: Fiber filled Cushions
3. Arora Fibres Ltd: Fibre Fill-PSF
4. Bharath Textiles: Mosquito Nets
5. Bhm Corporation: Air Conditions Component
6. Chester S Pvt Ltd: Leather Furniture
7. Creative Educational Aids Pvt. Ltd.: Toys, School Toys
8. Challenge Manufacturing: Toys
9. Foam Matting (India) Ltd.: Coir mattress
10. Gyasi Ram Sons: Mosquito Net Fancy Net Filter
11. Growrich Horivert Private: Blinds
12. Gitanjali Fabrics: Home Furnishing
13. Ginni Filaments: Wipes
14. Hanung Toys & Textiles Ltd.: Soft Toys, Cushions, Home Furnishing Items
15. Jasco-Handicrafts: Soft Toys, Children Furnishing
16. Jain Venetion Blinds Ind.: Blinds
17. Jewel Enterprise: Toys
18. Jbc International: Coconut Fabric Products (matress)
20. Kingstin International: Saddlery
22. Kridnak Udyog: Stuff Toys
23. Kals Tex Pvt. Ltd.: Textile Made -Up
24. Katalist Cnsultants Pvt. Ltd.: Leathers, Ear Plugs
25. Kurlon: Mattresses, pillow and home furnishings
26. Karur HDPE Mono filaments /Mosquito Manufacturers Association: Mosquito Nets / Hygiene
27. Kalaivani Textiles: Woven Fabric
28. Keetex Textile: Abrasive backing cloth
29. Leather Seller: Saddlery
30. Mac Decor Ltd 5: Blinds
31. Mayur Vesbas: Fabric Carpet
32. Macram Design Studio: Home Furnishing Goods, pillow cases
33. Olympic Ind: Floor Covering
34. Omar International: Saddlery
35. Prakash Carpets P. Ltd: Carpets
36. Premier Poly Film Ltd: PVC Floor covering
37. Pravdeep Overseas Ltd: Quilts
38. Quality Carpets: Carpets
39. Raspiners: Cushion Fiber
40. Rashmi Industries: Shoes ,Toys And Dolls
41. Rmg Polyester India Ltd.: PVC Floor covering
42. Rank exports: Napkins
43. Raj Quilt: Quilts
44. Reliance Industries Ltd: Fibre Fill-PSF
45. Simrons Rags: Carpet Cloth
46. Shyam Textiles: Mosquito Net Cloth
47. Shikhar Oversease Ltd: Blinds
48. Saira Toys: Toys
49. Sager Industries: Toys
50. Soft Options: Pillow Cases
51. Shivam Plastic Cleaning Aids: Mops, Brushes, Wipers and Plastic House Hold
52. Sanghvi Techno Products: Fiber Fill
53. S. P. Sports: Mattress
54. Sleepwell Mattresses: mattresses, Pillows
55. Tsekel Exports Pvt. Ltd: Floor Covering
56. Trend Setters: Mattress Ticking
57. TajMahal furnishers: Sofa, Bed
58. Uniproducts (I): Floor Coverings
59. Vadain International Holding Pvt. Ltd.: Blinds & Curtains
60. Xpo Services: Home Tech Webbings

3.6 Hometech Production Hubs in India

The Hometech industry is widely distributed in India. There are various centers for the production of hometech in India, which has been working since decades. The major hometech hubs in India are:
Panipat: The Panipat home textile industry is a major producer of woolen home textile products. The city of Panipat is famous for producing “Panja durries”. The industry is moving towards the development because of the availability of raw materials and economies of scale that leads to low cost of production. Some of the outstanding players in Panipat for producing home textiles are SPJ Textiles Pvt. Ltd., Mahajan overseas, Palliwal Exports and Liberty.

Chennai: Chennai is a major production and export hub for Home textiles. Due to the good infrastructural facilities, it is well connect with other parts of the world via air, road and water. Most of the home textile producers in Chennai source raw materials from Karur and generate products of better quality within a short period of time. “Loyal has an exclusive division for home textiles. Its core business deals in designing and lining bed linen, bathing items and upholstery like flat fitted pillows, shams, duvets, comfort shells with and without down proof, bed skirts, shower curtains and sofa covers” (Loyal Textile Mills LTD, n.d.).

Cannanore: Cannanore is well known for the production of Home textiles. The fabric produced by the Cannanore home textile industry has a different kind of look and shine because of the availability of water. The producers in Cannanore use fabric such as silk, cotton and viscose that add value with the help of beadwork, sequin work and embroidery.

Karur: Karur is a small town in Southern India, which is well known for the production of bedspreads, pillow covers, kitchen and table linen. Manufacturers in Karur mainly produces cotton home textile using hand looms and traders supply home textile raw material throughout India. “The hand-loom products being exported have been broadly classified under three heads viz., kitchen, bathroom and bedroom furnishing items” (Karur, n.d.). The major markets of Karur for the supply of raw material are Panipat, Delhi and Mumbai. Karur produces best quality of the products and gets the advantage of reduced cost because of the large-scale production.

Delhi: Delhi is one of the major production and export centers of home textiles. The producers of home textiles in Delhi do not face many problems due to the efficient infrastructure and easy availability of skilled work force. They source raw material from Panipat and add value to it. The eminent players in Home textile in Delhi are Modelama, orient craft, Handicrafts collection, Vrindavan overseas and Trendsetters.
“MODELAMA has the most modern manufacturing plants in the country. The company deploys over 3000 imported sewing machines for its manufacturing operation of constructed garments.” (Modelama Exports Ltd, n.d.).

**Bengalooru:** Bengalooru, previously Bangalore, is also a manufacturing and export hub for home textiles. The manufacturers in Bengalooru largely produce fabrics by way of power looms that is source to other parts of India for value addition. The Bengalooru home textile industries especially produce silk and experimenting with fabrics such as wool silk, artificial silk and cotton silk among other fabrics due to the high price of pure silk. Sleepzone is one of the leading mattress and furniture dealers of south India as a unit of Innovative sleep systems (Sleepzone, n.d.)

**Mumbai:** Mumbai, previously Bombay, the large metropolis, is the major production and export centre for home textiles. The home textile producers in Mumbai source their raw material from Salem, Karur, Bengalooru and Erode, into which value addition is done. They produce large quantities of products of the best quality because of the available technology, skilled labor and good infrastructure facility. The major players of Home textiles in Mumbai are Siyaram, Alok and S Kumars. Oracle Exports was established in September 1992 which has now entered in the world of International Business with confidence for promoting Indian Textiles abroad (“Oracle exports”, n.d.).

**Jaipur:** Jaipur is commonly known as pink city, which has now become a significant centre for the Home textiles production. Jaipur have an advantage of lower wage rates but faces tough competition from Delhi due to the geographical proximity between the two regions. As a tourist destination, Jaipur has developed as a Home textile production and export centre. “Jaipur Rugs is one of the renowned market players engaged in the manufacturing and export business of superior quality wool, wool-silk, pure silk and contemporary rugs and carpets.” (Jaipur Rugs Company Private Limited, n.d.)

**Mirzapur and Bhadohi:** These are small cities located in Uttar Pradesh known for the production of floor coverings and carpets. Mirzapur and Bhadohi are not much develop for achieving optimum growth because of the poor roads, lack of hotel facilities and lack of reliable power supply. OBEETEE of Mirzapur is “India’s leading
producer and exporter of exquisite hand-knotted, hand-tufted and flat woven carpets.”(Obeetee, n.d.)

3.7 Major obstacles for the growth of Hometech products

On survey and qualitative investigation, it was found that in spite of vast resources, cheap labor and entrepreneurial skills the industry is not growing at a significant pace. Some of the major obstacles for the growth of Hometech products are:

1. Availability of cheaper imported products.

2. The stuffed toys market of India is suffering from cheaper Chinese imports because domestic market is not well developed as the good quality fur fabrics are not available and buyers are not aware of different qualities available in soft toys.

3. The Production base of number of Indian Hometech products is characterized by small players with low technology that do not conform to international standards in export market.

4. The synthetic carpet backing and cheaper jute import from Bangladesh is creating tough competition for domestic jute carpet backing industry.

5. The penetration of fiberfill in India is extremely low because of the usage of traditional cotton fill, low level of product awareness and lack of knowledge about the desired performance characteristics in comfort products.

6. The demand for wipes is low in India because of the lack of awareness of benefits of non woven products.

3.8 Government’s Initiatives for the Growth and Development of Technical Textiles in India

“India is the 2\textsuperscript{nd} largest textile economy in the world after China but its contribution in the global technical textile industry is insignificant.” However, India has highly skilled and technical manpower, abundance of raw material that can be used to surge its growth in technical textile industry, but its potential has not been fully utilized in this field. The negligence of government towards this sector and the
unavailability of proper market database are constraining the growth and development of technical textiles in India (Ministry of Textiles, 2004, preface).

Recently, the government has realized the importance of technical textiles and started to take an action plan for the promotion of the industry during tenth five year plan. Therefore, India is gradually growing in technical textile sector and new technologies like plasma coating, composites, intelligent textiles, soft shell technology, nano technology, retro-reflective material are surging the growth of technical textile industry.

Following are the initiatives taken by government for the growth and development of technical textiles in India:

**A. Policies and Support for the Technical textiles in India during Tenth Five Year Plan (2002-2007)**

Realizing the potential of technical textiles in the country, the Government constituted an Expert Committee on Technical Textiles (ECTT) in the year 2002 and the committee submitted its report in July, 2004. The committee had analyzed the growth of the technical textiles industry thus it estimated the production, consumption, export and import up to the year 2007-08 and made projections for the year 2012-13.

**Expert committee on Technical Textiles (ECTT):** The expert committee on technical textiles was constituted by the government comprising of experts from all the segments of the technical textile industry to-

- “Assess the market size and potential of technical textiles;
- Identify and prepare project profiles for the potential items;
- Formulate an action plan to promote the growth of technical textiles” (Ministry of Textiles, 2007, p. 12)

The committee suggested a **five year action plan** to enhance the growth and development of the technical textile industry in India which are given as under:

- **Identified potential products:** The committee identified 25 potential products based on industry’s capability, infrastructure and market potential;
• Setting up of Inter-Ministerial Committee (IMC): The committee suggested to set up Inter-Ministerial committee (IMC) to regulate, control, assess, and take necessary actions for the promotion of technical textiles and government constituted a committee as on dated 30.12.2003;

• Setting up of Centers of Excellence (CoEs): The committee recommended setting up of centers of excellence on the lines of such centers established in UK by entrusting each centre a separate product to provide infrastructure support at one place for the convenience of the manufacturers of technical textiles. The committee recommended essential facilities to be created in the CoEs which are: facilities for testing and evaluation, testing facilities as per national and international accreditation, development of Resource centre with I.T. infrastructure, creation of pilot and laboratory scale facilities at centers of excellence for a particular product/segment, facilities for training of core personnel, facilities for regular training of personnel from the industry and creating awareness to generate interest of the entrepreneurs in the technical textile industry;

• Setting up of Steering committee for growth and development of Technical textiles (SCGDTT): The committee suggested to set up SCGDTT to review and monitor the growth of the technical textile industry and also the activities of centers of excellence;

• Funding pattern: The committee suggested that government should provide initially 100 percent funding for setting up centers of excellence and developmental work for R&D. Moreover, the UK model for Faraday partnership should be adopted which provides for 50 percent funding by government and 50 percent by the concerned industry segment;

• Policy Support: The committee gave suggestions for providing fiscal and financial support for the specific items of technical textiles including its raw material and machinery;

• Modifications in TUFS: The committee recommended increasing the interest incentive on technical textiles projects under TUFS from 5 per cent to 8 per cent and continuing the interest subsidy for projects sanctioned up to 31.3.2010;
• **Standards for Technical Textiles**: The committee recommended that government/BIS should set up standards in line with international standards for different items of technical textiles to facilitate adherence to stringent functional requirements and parameters;

• **Regulatory Framework**: The committee recommended statutory framework for some items.

• **Research and development Network**: The committee suggested the creation of networking of research and development agencies relating to Technical textiles (Ministry of Textiles, 2004).

**B. Policy support and schemes for the promotion of Technical Textiles in India during Eleventh Five Year Plan (2002-2012)**

The Government has recognized the technical textile industry as a most powerful industry during the Eleventh Five Year Plan for that it has proposed infrastructure support in terms of setting up of centers of excellence, fiscal policy support and modification in TUFS for integrating a special privilege for this industry. For the use of technical textiles, a regulatory framework is proposed on account of the inherent reward of using such products. Such products are flame retardant fabrics in public places, geotextiles, nonwoven gauze, nonwoven disposable healthcare items in hospitals, sponges and dressings in hospitals, and airbags in automotives (Ministry of Textiles, 2006).

Following are the policies formulated by government for the growth and development of the industry in India:

1. **Scheme for Growth and Development of Technical Textiles (SGDTT)**: SGDTT was launched during 2007-08 comprising for 3 components which are given as follows:

   a) **Baseline survey report of Technical Textile industry**: ICRA Management Consultancy Services (IMaCS) has carried out a survey which provide details on technology, raw material, machinery for technical textiles and details on all the exporters, importers and producers of all segments of Technical Textiles (Ministry of Textile, 2011).
b) **Creation of Awareness**: Under this constituent, more than 60 numbers of workshops, Seminars and Training programs were organized by Office of the Textile Commissioner across the country *(Ministry of Textile, 2011).*

c) **Setting up of four Centers of Excellence (CoEs)**: The centers of excellence which were set up given as follows:

- Bombay Textile Research Association (BTRA) in association with IIT, Mumbai for Geotech;
- Silk & Art Silk Manufacturing Industry Research Association (SASMIRA) for Agrotech;
- Northern India Textile Research Association (NITRA) in association with IIT, Delhi, for Protech;
- Southern India Textile Research Association (SITRA) in association with IIT, Delhi, for Meditech *(Ministry of Textile, 2011).*

2. **National Textile Policy**: Textile policy of the government of India realized the future growth of technical textiles and pronounces clearly to give priority for its growth and development.

3. **Technology Mission on Technical Textiles (from 2010-11 to 2014-15)**: Government has recently launched TMTT with two mini missions for a period of five years (from 2010-11 to 2014-15) which are given as follows:

   **Mini Mission-I** of Technology Mission on Technical Textiles has an aims of creating common testing facilities with national and international accreditation, standardization, upgradation of existing four centers of excellence, incubation centre by setting up four new centers of excellence and indigenous development of prototypes and resource center with IT infrastructure. “Apart from the upgradation of the 4 existing COEs, 4 new COEs have already been selected and they are in the process of setting up of facilities” which are given as follows *(Ministry of Textile, 2011, p. 262):*

   - DKTE Engineering College for Nonwovens,
   - ATIRA for composites,
   - PSG College of Engineering for Indutech and
   - Institute of Chemical Technology (ICT) for Sportech
“The aim of Mini Mission-II is to provide fund support for 5 components i.e. a) support for business start-up b) providing fund for organizing workshops c) market development support for marketing support to bulk and institutional buyers d) social compliance through standardization, regulatory measures e) market development support for export sales and f) contract research and development through IITs/TRAs/Textile Institutes. The activities under both the Mini-Missions are already underway” (Ministry of Textile, 2011, 263).

4. Fiscal and Financial support:

- The excise duty on man-made fiber/yarn has reduced from 16% to 8%, which has given so many benefits to the technical textile industry.

- The government has reduced the custom duty on polyester staple fibers, polyester filament yarns and polyester chips from 10% to 5%.

- Aramid yarns is used for the production of bulletproof jackets which are supplied to armed forces have been exempted from both Counter-Veiling-Duty (CVD) and customs duty (Office of the Textile Commissioner, 2009).

- Major machineries for the production of technical textiles have been covered under the concessional list of 5% basic custom duty.

- The sanitary napkins/baby diapers have been de-reserved, which were earlier reserved for Small Scale Industries (SSI) and was blocking the way of the setting up of large-scale units in this segment.

- The technical textile products which are supplied to World Bank assisted projects have been exempted from customs duty and Central Value Added Tax (CENVAT). On the other hand, raw materials for manufacturing such items attract normal rate of duty therefore, local manufacturers of finished goods stand at detrimental position in comparison with imported products (Ministry of Textiles, 2004).

5. Coverage of Technical textiles under Technology Fund Scheme (TUFS):

- TUFS has covered all machineries for the production of different items of technical textiles. In addition, it covers second hand imported nonwoven machinery and converting machinery for nonwoven items with 10 years vintage and residual life of 10 years. Under this scheme, there is 5% interest
reimbursement and 10% capital subsidy for specified processing machinery, specified machinery required in manufacture of technical textiles and garmenting machinery (Ministry of Textiles, 2007).

- “As on date 46 projects with projects cost of US$ 216 mn. have already been sanctioned under TUFS” (Ministry of Textiles, 2007, p. 13).


The National Fiber Policy 2010-11 has been designed considering the possible expansion of technical textiles both for domestic and international demands. Specialty fibers are special man-made fibers which are used for producing various technical textile products thus; its requirement is directly related with the manufacturing base of technical textiles in the country and its growth. The regular fibers comprises of 70% of the total fiber used in technical textiles which includes synthetic fibers and natural fibers such as viscose, polyester, polypropylene, and nylon whereas specialty fibers comprise the remaining 30%. Out of the specialty fibers, specialty variants of regular fiber comprise 25% of the total specialty fibers of 30%, while the high performance fibers comprise only 5%. The National Fiber Policy has focused only on 30% of these specialty fibers which involves specialty variants of regular fiber and hi-tech or high performance fibers. The policy has paid attention towards indigenous development of specialty fibers for achieving near self-support in the key raw materials which are needed for the manufacturing of technical textiles. Besides, the policy also endeavored to offer essential force for escalating the usage of technical textiles. This effort would definitely reach the country at that technological level where the developed world exist (Ministry of Textiles, 2010).

7. Steering Committee on Growth & Development of Technical Textiles (SCGDTT): The government has set up Steering committee and designated SASMIRA as a nodal agency for Technical Textiles under the chairmanship of textile commissioner. The SCGDTT has been constituted by the government for regulating, controlling and assessing the growth of technical textile industry and also for controlling the activities of centers of excellence.

8. Standards: Office of Textile Commissioner has constituted four committees on standards for Protech, Agrotech, Geotech and Meditech to formulate draft standards for these segments in order to speed up the process of notification of standards by
Bureau of Indian Standards (BIS). Furthermore, government has identified 3 committees for the non-woven, composites and Indutech which include technical institutions, experts from industry, government bodies etc. with director of respective center of excellence as convener. In addition, another committee has also been constituted in year 2006 for the formulation of standards on Meditech and Geotech with Director Bombay Textile Research Association as convener (Ministry of Textiles, 2011).

9. R&D Projects by Textile Research Associations (TRAs): During the Eleventh Five Year Plan, the Textile Research Associations have completed some research and development projects on technical textiles and some are already in the pipeline (Ministry of Textiles, 2011).

10. Focus Product Scheme (FPS) for Technical Textiles

The scheme is aimed at incentivizing export of those products which have high export intensity or employment potential that can counterbalance infrastructure inefficiencies and other related costs involved in promoting these products. "Exports of notified products to all countries (including SEZ units) shall be entitled for Duty Credit scrip equivalent to 2 % of FOB value of exports (in free foreign exchange). As per DGFT’s Policy Circular No. 42 (RE-2010)/2009-14 dated 21 October 2011, there are 33 Technical textile products that are allowed for FPS benefits under this scheme" (Wazir Advisors & EYPL, 2013, p. 49).

11. Foreign Direct Investment Policy in Textiles

India is one of the promising destinations amongst emerging countries for Foreign Direct Investment in the textile sector because of having most liberal and transparent policies in FDI. In India, 100% FDI is permitted in the textile sector under the automatic route which means the sector does not require any prior approval either by the Government of India or Reserve Bank of India (RBI) but the RBI Regional Office should be informed within 30 days of receipt of inward remittance (Office of the Textile Commissioner, n.d.).

Ministry of Textiles has established FDI Cell to catch the attention of FDI in the textile sector in India. The FDI cell operates with the following objectives:
• "To provide assistance and advisory support (including liaison with other organizations and State Governments);
• Assist foreign companies in finding out joint venture partners;
• To sort out operational problems;
• Maintenance and monitoring of data pertaining to domestic textile production and foreign investment" (Office of the Textile Commissioner, n.d.).

12. Policies and regulations mandating and recommending the use of technical textile products:

The government has formulated policies and regulations mandating the use of technical textile products in different technical textile segments which are followed by developed countries such as Packtech, Geotech, Mobiltech, Meditech, Protech, Buildtech, Sportech, Hometech and Oekotech. Following is a concise depiction of policies and regulations which mandate and recommend the use of Hometech products (Research Focus):

➢ "For the hometech segment, there are regulations in place for fire safety of Furniture and Furnishings in U.K. The Furniture and Furnishings (Fire) (Safety) Regulations 1988 put levels of fire resistance for furnishings, domestic upholstered furniture and other products holding upholstery. These regulations do not mandate the use of hometech products but encourages the use of these products as hometech" (Office of the Textile Commissioner, 2009, p. 766).

➢ "There are set Flammability Test Procedure for the use of seating furniture in public places in U.S. These set standards are mandated to be met and test procedures are compulsory to be followed. These regulations mandate the use of hometech products which meets the resistance requirements set standards, etc."(Office of the Textile Commissioner, 2009, p. 767).
3.9 Conclusion

Hometech textile is one of the emerging areas with huge potential in the Technical Textile field all over the world. This sector has its own specific place in the market. From the study, it is clear that the Hometech textile market in India is growing fast and tremendously driven by the increasing purchasing power of the middle income group of the country.

The Hometech textile market leads to innovative new products. There is opportunity and requirement for functional, cost-effective materials in India. However, the Indian market for Hometech is fragmented and multifaceted. The market is rather small but shows quite strong growth and products are generally of high unit values. Due to increasing purchasing power of middle income group, increasing trend of designs, patterns, size and styling of Home furnishing items, Hometech has become an increasingly attractive segment.

It is a market that offers opportunity, but demands development and testing which should be done prior to adopting new products. However, India’s research institutions are doing an admirable work in promoting technical textiles but there is negligence in the field of Hometech segment. Therefore, there is a need for more efforts to hold the significant position in this sector. Research institutions in the west have progressed significantly in almost all the aspects of technical textiles. So, it would be worthwhile to innovate or import some of these technologies to bring our production to a higher plane.
References


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