

## Growing Global Demand of Technical Textiles

India currently consumes the products under all twelve categories, though not all of them are produced domestically. The percentage of indigenous production varies drastically across various products. India is a large producer of technical textiles products in Packtech, Clothtech, Hometech and Sportech segments, the products of which are primarily commodities. Unlike the conventional textile industry in India which is highly export intensive, the technical textile industry is an import intensive industry. Many products like baby diapers, adult diapers, PP spunbound fabric for disposables, wipes, protective clothing, hoses, webbings for seat belts, etc. are imported to a very large extent. As mentioned earlier, the products with high production levels in India with substantial exports are typically commodity products and are not very R&D intensive. These products include flexible intermediate bulk containers (FIBCs), tarpaulins, jute carpet backing, hessian, fishnets, surgical dressings, crop covers, etc. Size of the units manufacturing the products also varies to a large extent. There is significant number of small scale units manufacturing technical textile products; this segment is highly unorganised in nature. Although there are various large players present, the production of certain goods is still concentrated in the small scale segment like canvas tarpaulin, carpet backing, woven sacks, shoe laces, soft luggage, zip fasteners, stuffed toys, fabrication of awnings, canopies and blinds, etc.

There are a few Multi National Companies like Ahlstrom, Johnson & Johnson, Du Pont, Procter & Gamble, 3M, SKAPs, Kimberly Clark, etc. which are internationally very large players in technical textiles and have set up their units in India as well. There are some domestic players like SRF, Entremont Polycoaters, Kusumgarh Corporates, Supreme Nonwovens Pvt. Ltd., Garware Wall Ropes, Century Enka, Techfab India Ltd., Pacific Non Woven, Vardhman, Unimin, etc which are also very large players in this industry.

### **Segment-wise consumption of technical textiles in India**

The current market size<sup>1</sup> of technical textile in India is estimated to be around Rs 39,876 crore. The overall technical textile industry in India is expected to grow at the rate of 11% year on year and reach a market size of Rs 66,405 crore by the year 2012-13. The current technical textile consumption in India is estimated to be around Rs 37,118 crore which is estimated to increase to Rs 62,438 crore by 1 *Market Size includes domestic consumption and exports* the year 2012-13.

	Domestic Consumption (Rs crore)		Market Size <sup>#</sup> (Rs crore)	
	2007-08 (E)	2012-13 (P)	2007-08 (E)	2012-13 (P)
Agrotech	487	709	553	811
Meditech	1,514	2,263	1,669	2,263
Mobiltech	3,161	5,137	3,183	5,166
Packtech	14,067	25,913	14,630	26,753
Sportech	2,632	4,358	2,851	4,761
Buildtech	1,726	2,655	2,157	3,232
Clothtech	6,570	9,665	6,908	10,225
Homotech	3,191	5,300	3,263	5,392
Protech	1,259	2,021	1,302	2,075
Geotech	185	326	272	454
Oekotech*	68	160	68	160
Indutech	2,326	4,091	3,088	5,273
<b>Total</b>	<b>37,118</b>	<b>62,438</b>	<b>39,876</b>	<b>66,405</b>

\*Oekotech size has already been considered as a part of Geotech

Source: IMaCS Analysis

The largest category in the technical textiles industry of India is Packtech which has around 38% share. The domestic consumption of Packtech currently is around Rs 14,067 crore and is expected to grow at the rate of 13% year on year to reach Rs 25,913 crore by 2012-13. Another very significant segment in the Indian technical textiles market is Clothtech, which has over 17% share of the technical textiles consumption. However, consumption of this segment is expected to register a growth of around 8% year on year and reach Rs 9,665 crore by 2012-13.

## **Polyolefin Woven Sacks (excluding FIBC)**

### **Product Characteristics**

50 kgs 110 – 116 grams

*Source: Industry survey, IMaCS Analysis*

Cement bags on an average weigh 70g and fertilizer bags 130g.

### **WOVEN BAG FABRIC DETAILS**

**Material** PP / HDPE

**Fabric Weave** 5x5 to 14x14 per sq. in. OR 20x20 to 56x56 per sq. dm.

**Tape Specification** Standard 2.5 mm. width.

Denier: 500 D to 2000 D

**Fabric Colour** Natural, Milky or coloured

**Additives** Ultra Violet Stabilized. TiO<sub>2</sub>, CaCO<sub>3</sub> or antislip coated or as specified.

**Lamination** Laminated or Unlaminated

**APPLICATIONS** Fertilizers, Cement, Sugar, Food grains, Salt, Flour, Cattle Feed, Seeds, Sand, Chemicals

The various advantages that HDPE/PP bags have conventional packing materials are:

- Higher Strength
- Light Weight
- Minimal Seepage

- Moisture Proof
- Long Lasting (Durable)
- □ Cheaper (as it can be reused)

**Market dynamics and key growth drivers**

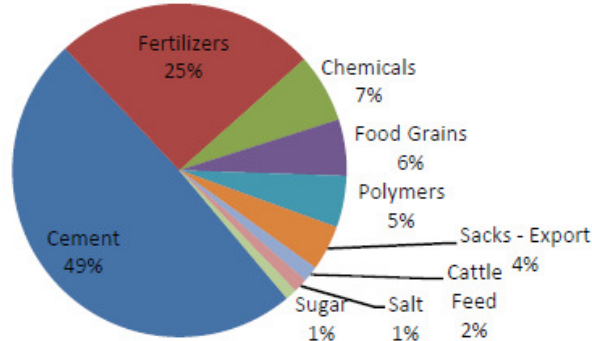
Polyolefin (HDPE/PP) woven sacks are versatile packing materials used extensively in the packing of

cement, fertilizers, thermo plastic raw materials, food grains, sugar etc. The list of user-industries

where they are used is:

1. Cement
2. Fertilizers
3. Chemicals
4. Food Grains
5. Cattle Feed
6. Salt
7. Sugar
8. Polymers
9. Sacks - Export
10. Others

**End user industries of PP/HDPE Woven sacks in India in 2006**



Source: AIFTMA –32<sup>nd</sup> Annual session Report, IMAcS Analysis

**Expected Growth rates of end-user industries**

Category	Expected Growth	Category	Expected Growth
Cement	12%	Polymers	4%
Fertilizers	10%	Cattle Feed	8%
Chemicals	10%	Salt	5%
Food Grains	6%	Sugar	4%
Sacks - Export	25%		

Source: Industry survey, IMAcS Analysis

PP/HDPE printed sandwich bags are made by sandwiching PP and HDPE. They have a very good appearance and are used for packaging costlier products like pesticides, seeds, wheat flour, high-end chemicals, etc. They may also be used for secondary packaging of smaller 1kg bags.

**Market Size**

The HDPE bags manufactured in India are used for domestic consumption as well as exported to Europe and US. The Woven sacks industry in India is expected to grow at a CAGR of 11% and reach a size of almost 1.127 million MT in the year 2012-13 from 0.641 million MT in 2007-08.

The current and future forecast of woven sacks consumption is given below:-

Market size for woven sacks	2007-08	2012-13
Quantity	0.641 million MT	1.127 million MT

Value	Rs 6,725 crore	Rs 12,950 crore
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Source: Industry survey, IMAcS Analysis

### Exports of woven sacks

The estimated export figures for woven sacks are as given below:-

HS Code	Description*	Exports	Exports
		Quantity	(in Rs crore)
		2007-08(E)	2007-08(E)
63053900	PP Nonwoven Sacks	53,200 pcs	Less than Rs 0.1 crore

Source: IBIS, DGCIS, IMAcS Analysis

\* Other woven sack exports are included in FIBC exports

The Indian packaging industry holds a lot of potential. The industry is still at a very nascent stage. The importance of packaging has still not been fully realized in the Indian market.

### Market Scenario

The per capita consumption of the packaging industry is only 3 kgs as compared to 100 kgs in developed countries. This is an indication of the market potential of the packaging industry. In the packaging segment, laminated products are the fastest growing segment, which was growing at a rate of 15%.

### Prospects

Polypropylene woven fabric (PP Woven Fabric) provides strong, dependable and economical packaging option for diverse industries across the globe. These fabrics are light in weight and ideally suited for packaging for many of finished goods for complete protection. PP/HDPE oriented sacks are becoming popular through out the world. This is because they are chemically inert & are water repellent & lighter in weight. They are free and possess sufficient strength and can easily be handled. These bags are expected to substitute jute and craft paper bags in several areas. PP bags enjoy a good market in India and will continue to do so in the coming years. Plastic woven sacks are rapidly replacing jute bags because they have often various advantages over the conventional jute fabrics as

packaging materials. They are also stronger and can withstand much higher impact loads. It has high demand everywhere.

Woven polypropylene bags or simply woven PP bags are considered to be the toughest packaging bags, widely used to pack materials for grain, milling and sugar industry. Additionally, these bags also find wide application in fodder industry, chemicals and fertilizers industry besides **cement industry** and other applications like sand, metal parts and concrete etc.

Woven polyethylene /polypropylene bags or simply woven HDPE/PP bags are, being used as an innovative and cost-effective packaging concept with light weight and the toughest packaging bags, in mainly cement **industries**, agricultural, Sugar, fodder, chemicals, fertilisers, Sand, metals and concretes etc. polypropylene bags have special linings that result in better resistant to humid conditions, in turn, leading to prolonged shelf life of the packed products. The HDPE/PP fabrics have high strength along with increased tear resistance. Hence, these bags can withstand rough handling during the process of transportation. HDPE (high density polyethylene) used in order to take advantage of its excellent protective barrier properties. Its chemical resistance properties also make it well suited for items such as containers for household chemicals and detergents.

PP (polypropylene) has high tensile strength, making it ideal for use as tough handling material . Because of its high melting point, polypropylene can be hot-filled with products..

PP Woven bags are the traditional bags in packaging industry due to their wide variety of usage, flexibility and strength. They are commonly used for packing fertilizers, feeds, grains, Barley, flour, salt, sugar, seeds, explosive, cement, coal, malt, rubbish and other lumpy and fine materials. PP Woven bags are made according to customers\' preferred specifications as to mesh, denier, G/ square meter, color, and width that varies from 35cm to 80 cm. Polypropylene bags or sacks are used for packing a wide range of Pulverous and free-flowing goods:

FOOD PRODUCTS: flour, corn, grain, animal feed, sugar, salt...

CHEMICALS: fertilizer, carbon, caustic soda...

PETROCHEMICALS: polymer granulate, PVC compound, master batches...

***MINERALS: Cement, calcium carbonate, gypsum, lime, sand...***

Based on the packaging requirements of customers and depending on product characteristics, filling, handling and storage requirements, these bags are available with various design options.

**Advantages of PP Woven bags:**

- 1) Very affordable.
- 2) Flexible and high strength.
- 3) Can be printed on both sides.
- 4) Can be stored in an open area due to UV-stability, up to 6 months.
- 5) Water and dust proof design due to inside PE liners or laminated on the outside; Hence, packed materials are protected from outside humidity.
- 6) Our environmental PP woven bags are recyclable entirely.
- 7) PP woven material.
- 8) Different dimensions available.
- 9) With or without lamination. 10) Flat or anti-slip weaving, coated or uncoated.

**Market Potential and Strength of the Project**

**2.2 The demand- supply scenario for HDPE/PP bags**

The trend in the various sectors in the textile industry in many industrialized countries indicate that the use of conventional textiles has reached a static level and its manufacture has become highly competitive, often unviable and many companies are switching over to value-added technical textiles with capability to meet functional demands for precision applications. As use of technical textiles is dictated by need, its pricing normally offers good margins. There is a steady growth of both consumption and production of technical textiles throughout the world.

Latest study on ‘World Market Forecasts for 2010 of technical textiles and industrial non-wovens’ by David Rigby Associates (DRA) indicates that :



- In the year 2000, the World market for technical textiles was estimated to have a volume of 16.7 mn. tonnes with a value of US\$ 92.88 billion.
- Average annual world-wide growth in volume terms is expected to be 3.60 percent for the period between 2000 to 2010.
- It is forecast that the global consumption of technical textiles will amount to 23.77 mn. tonnes by the year 2010 and a value of US\$ 127 billion.
- In the year 2000, the total textile fibre consumed in the World was 62.2 mn. tonnes, out of which consumption of technical textiles was 16.7 mn. tonnes. USA & western Europe accounted for 23 percent and 22 percent respectively, followed by China with 13 percent and Japan with 7 percent. Remaining 35 percent was consumed by other countries.
- In Asia, the annual growth rate is projected to be 4.23 percent during the period 2000-2010 as against 2.60 percent in North America and 2.14 percent in Western Europe.
- Technical textiles account for over 50 percent of the total textile activity in certain industrialised countries
- A view is gaining ground that technical textile industry in the developed world is maturing in some significant ways and growth of technical textiles in developed economies is expected to be moderate. In contrast, China, India and other countries in Asia, America and Eastern Europe are expected to experience healthy growth in the near future.

Global consumption of Polypropylene (PP) is expected to witness healthy growth rate and cross 51 million metric tons by 2010. The resin is expected to evolve as one of the leading polyolefin's in the near future. Polypropylene finds extensive application in Extrusion, Injection Molding, and Blow Molding industries. Polypropylene is one of the major polyolefin's used in the packaging industry. Asia-Pacific represents the largest market for PP, consuming an estimated 16.8 million metric tons in 2007, followed by Europe and the United States. Collectively the three regions are estimated to account for

more than three-fourths of the global consumption of PP. Asia-Pacific region is also projected to be the fastest growing market, followed by South America

The Polypropylene industry is witnessing emergence of new PP companies, and the change of ownership of the existing players. Most of the new players are private owned companies that are headquartered in the Middle East, particularly in Saudi Arabia. Global capacity utilization rate is expected to be as high as 80 percent. Large numbers of PP plants owned by the major players are recording 100% capacity utilization rates, with their entire stocks being sold out. Europe and the US are demonstrating impressive capacity utilizations. Increasing numbers of industry players are expanding their production capacities to meet the augmenting demand for PP resin. However, on the other hand, as the demand for propylene is outstripping gasoline demand, supply of propylene monomer is becoming tighter by the day. Nevertheless, plans are underway to start on-purpose production of propylene in future. China continues to be the significant importer of polypropylene and drive the market for PP along with India.

The market is characterized by the presence of privately owned specialized manufacturers as well as chemical powerhouses. Key players in the marketplace include

- Alfa S.A. De C.V., Basell Polyolefins, Borealis A/S, Innovene, Dow Chemical Company, DSM NV, Equistar Chemicals, ExxonMobil Chemical Co.,Huntsman Corporation, Mitsubishi Chemical Corporation, Reliance Industries Ltd.,Royal Dutch/Shell Group, Saudi Basic Industries Corporation (SABIC),Sunoco Chemicals,UBE Industries Ltd.,and Union Carbide.

***India is the world's second largest producer of cement after China with industry capacity of over 200 million tones (MT). With the boost given by the government to various infrastructure projects, road networks and housing facilities, growth in the cement consumption is anticipated in the coming years.***

The modern Indian cement plants are state-of-the-art plants and amongst the best in the world. The cement industry comprises of 134 large cement plants with an installed capacity of 173.08 million tones and more than 350 operating mini-cement plants, with an estimated capacity of 11.10 million tones per annum, making a total installed capacity

of 184.18 million tonnes in the last fiscal, as per the Department of Industrial Policy and Promotion's latest data.

***In order to meet the expanding demand, cement companies are fast developing new plants. The cement industry is poised to add 111 MT of annual capacity by the end of 2009–10 (FY 2010), riding on the back of approximately 141 outstanding cement projects.***

According to a report by the ICRA Industry Monitor, the installed capacity is expected to increase to 241 MTPA by FY 2010-end. India's cement industry is likely to record an annual growth of 10 per cent in the coming years with higher domestic demand resulting in increased capacity utilization...

***The major raw material suppliers like Reliance Ind. Ltd. and GAIL are aggressively promoting HDPE/PP woven sacks for the existing as well as new users. One of biggest oil producer Indion OIL has started manufacturing PP granules manufacturing plant.***

The market potential increase from 5.7 lakh tones with a value of Rs.3705 crores in 2003-04 to 11 lakh tones valued at Rs.7021 crores by 2009-10.

**Segment-wise market size of technical textiles**

Volume – ‘000 tonnes and Value – US\$ mn.

Technical Textile Sectors	Year						CARG (%)	
	2000		2005		2010		Volume	Value
	Volume	Value	Volume	Value	Volume	Value		
Mobiltech	2479	25629	2828	26861	3338	29282	3.02	1.34
Indutech	2205	13405	2624	16687	3257	21528	3.98	4.85
Sporttech	989	13897	1153	16052	1382	19062	3.40	3.21
Buildtech	1648	5872	2033	7296	2591	9325	4.63	4.73
Homotech	2186	6750	2499	7622	2853	8778	2.70	2.66
Clothtech	1238	6070	1413	7014	1656	8306	2.95	3.19
Meditech	1543	5391	1928	6670	2380	8238	4.43	4.33
Agrotech	1381	5541	1615	6568	1958	8079	3.55	3.84
Protech	238	5193	279	5873	340	6857	3.63	2.82
<b>Packtech</b>	<b>2552</b>	<b>4393</b>	<b>2990</b>	<b>5329</b>	<b>3606</b>	<b>6630</b>	<b>3.52</b>	<b>4.20</b>
Geotech	255	740	319	927	413	1203	4.94	4.98
<b>Total</b>	<b>16714</b>	<b>92881</b>	<b>19681</b>	<b>106899</b>	<b>23774</b>	<b>127288</b>	<b>3.59</b>	<b>3.20</b>
of which Oekotech	214	800	287	1039	400	1389	6.45	5.67

Source : DRA.

3. It is observed that as per David Rigby Associates the technical textiles is expected to grow at around 3.60 percent in volume terms and 3.20 percent in value terms.

Differential growth rates in volume and value terms indicate pressure on margin and/or production of low value items.

4. Mobiletech which is largest segment of the technical textile industry is expected to experience maximum differential between Compounded Annual Rate of Growth (CARG) in quantum & value terms.

Contribution of the different segments to the market size of the technical textiles is given below:

**Region-wise technical textile consumption:**

The maximum consumption of technical textiles is in USA & Western Europe and Japan, together these three regions account for 65 percent of the consumption of technical textiles in the world.

**Technical textile consumption by Region**

<b>Region</b>	<b>Technical Textiles consumption (%)</b>
USA	23
Western Europe	22
China	13
Japan	7
Rest of the World	35

Source : DRA.

**Fibre consumption in technical textiles :**

\*Technical textiles are predominantly man-made fibre/yarn based because of inherent advantages of strength & versatility of such fibre/yarn and this trend is expected to continue in future also as per details given below:

**Fibre consumption in technical textiles**

Volume – ‘000 tonnes

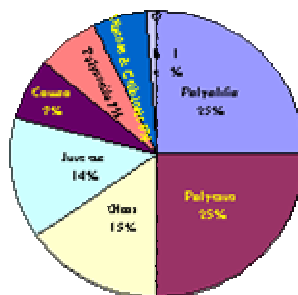
Fibre Type	Year			CARG (%)
	2000	2005	2010	
Natural	3462	3839	4447	2.54
Man-made / Inorganic	13252	15843	19327	3.85
<b>Total</b>	<b>16714</b>	<b>19682</b>	<b>23774</b>	<b>3.59</b>

Source : DRA.

\* The share of Man Made/Inorganic fibre in the total fibre/yarn consumption is expected to increase from 79% in 2000 to 81% in 2010.

\* Fibre-wise consumption of technical textiles for the year 2000 indicates that polyolefin and polyester accounted for 50 percent of the consumption followed by glass and jute etc. at 15 percent and 14 percent respectively. Fibre-wise consumption details are given below:

**Fibre consumption in technical textiles**



Source : DRA.

\* It is also observed that despite considerable attention paid to higher value speciality fibres such as aramids and carbon fibre, the standard textile fibres account for 99 percent of all textile materials used in technical textile applications.

**Product-wise consumption of technical textiles :** Technical textiles are consumed in the form of unspun fibres, yarn and in the fabric form. Product-wise consumption of technical textiles for the year 2000 is given below-

Volume – ‘000 tonnes

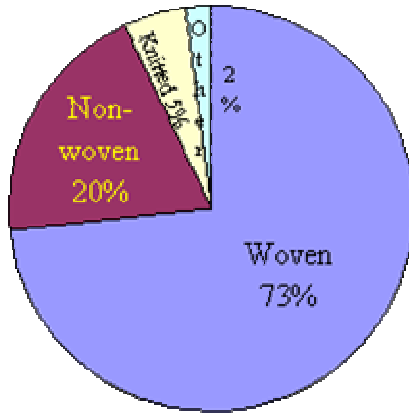
Final Textile product	Year					
	2000		2005		2010	
	Volume	% to Total	Volume	% to Total	Volume	% to Total
Unspun fibres	4004	23.96	4774	24.25	5763	24.24
Yarn type products	1570	9.39	1776	9.02	2079	8.74
Fabrics	11140	66.65	13133	66.73	15932	67.02
<b>Total</b>	<b>16714</b>	<b>100.00</b>	<b>19683</b>	<b>100.00</b>	<b>23774</b>	<b>100.00</b>

Source : DRA.

It is observed that the maximum consumption is in the form of fabric at 67 percent followed by unspun fibre at 24 percent and yarn at 9 percent. The same trend is expected to continue till 2010.

The global end-use of technical textiles is predominantly in fabric form and that too in woven fabric form. Global end-use of technical textile fabric is given below in Chart

**Global end-use of technical textile fabric**



Source : DRA.

**It is observed that 73 percent of the fabric consumed is woven, 20 percent non-woven, followed by 5 percent of knitted fabric. Non-wovens constitute an important segment of the technical textile fabrics.**

### **Major Technical Textile Products**

There are many technical textiles having numerous applications. More important examples of technical textile products are given below

#### **Examples of technical textile products**

<b>1.</b>	<b><i>Fibres</i></b>	Reinforcement for composites, cushioning, fillings, electrical components, Insulation, Sports equipment, toys.
<b>2.</b>	<b><i>Yarn type products</i></b>	Sutures, Ropes, Fishing gears, shoe components, swings, etc.
<b>3.</b>	<b><i>Fabrics</i></b>	
<b>(i)</b>	<b><i>Woven fabrics</i></b>	Filtration, <b><i>Flexible Bulk Containers</i></b> , Conveyor belts, <b><i>luggage</i></b> , carpet and carpet backing, PVC coating substrates, Tarpaulin, Furniture components, Bed Ticking, Protective clothing, Electrical components, Geotextiles, sports and leisure wear, Wound care, Bandages, Insulation tapes, Narrow fabrics, Compression bandages.



(ii)	<b>Knitted fabrics</b>	Luggage, Fishing nets, Shoe components, Cleaning cloths, Filtration, Protective clothing, Sports and leisure wear, PVC coating substrates, knitted geogrids.
(iii)	<b>Non-wovens</b>	Coverstock-sanitary napkins & diapers, Pollution Control and other Air & liquid filtration, Garment Interlinings & Waddings, Geotextiles, Carpets-Home & Automotive, Shoe Components, Insulations, Cleaning Wipes, Personal & Medical disposables Furniture Industry, PVC coating substrates.

Technical textiles have entered our lives extensively, though we may not be aware of the extent of their usage. Major future growth areas of technical textiles in the global context are projected to be :

- Medical & Personal Hygiene;**  **Sports and leisure;**
- Environmental protection;**  **Pollution Control & Filtration;**
- Garment & Shoe Industry.** Source : ECTT report

High Mineral resources rich Chhattisgarh state has been famous for its rice mills, cement and steel plants. Durg, Raipur, Korba and Bilaspur are the leading districts in the field of industrial development in the State. Chhattisgarh is agricultural chief land & due to large production of rice. Chhattisgarh is commonly known as "Rice Bowl of India" (Dhan Ka Katora). Minerals base factories, Dairy industries, Cement industries, Fish nourishing & Handicrafts industries are the chief occupation of this state's people. Other chief crops of Chhattisgarh are Gram, Wheat, Maize, Kodo-Kutki & Tuar etc.

Currently 9 manufactures of PP bags are providing their services locally, in spite of local manufacturers presences, a large volume of bags are being served by other state suppliers. In addition that 9 Indian cement companies will invest a total of Rs.57.1 billion to set up nine cement plants in Chhattisgarh, a minister in the state government has signed MOU on august 2008. This will increase the volume of PP bags exponentially. All

above facts encourage promoters to set up proposed plant in Raipur, Chhattisgarh mainly focused on cement and agriculture industry, where PP and HDPE bags are being purchased consistently in volume. Also , set up of new plants will help to reduce cost of bags by avoiding entry taxes and freight cost on large volume being procured from out side states.

**Demand drivers :**

Infrastructure & construction sector the major demand drivers. Some demand determinants -

- Economic growth
- Industrial activity
- Real estate business
- Construction activity
- Investments in the core sector

**Future Growth:**

- Growth in the housing sector
- Central road fund established for national highways and
- Railway over bridges to provide the necessary impetus
- Expansion plans, Greenfield projects on the anvil