VIBRANT GUJARAT

MANUFACTURING: SECTOR PROFILE
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1. Gujarat-Manufacturing Sector
The manufacturing industry of Gujarat can be categorized in the following industries:

- Textile and Textile Machinery
- Chemical machinery parts
- Auto and Auto Ancillaries
- Engineering Industry
- Pharmaceutical
- ESDM
- Textiles and textile Machinery
- Chemical machinery parts
- Engineering Industry
- Automobile & auto parts
- Gems and jewellery
- Pharmaceutical
- ESDM
• Manufacturing sector output of Gujarat stands at 13% of the total output of the total national output.
• The state is leader in production of Soda ash, Salt, Petrochemical downstream products and Export of Diamonds
• With the Manufacturing Policy – 2011, Gujarat aims to increase the share of manufacturing sector in total GSDP from 28.21% to 32% in the next five years
• Manufacturing Sector of Gujarat has shown almost 216% growth with CAGR of 10.11% over last 8 years

Sources : CMIE, ASI 2010-11 & Economic survey 2011-12
The key sectors identified by the Government for supporting the growth of manufacturing industry in Gujarat is broadly classified into Textiles, Engineering, Automobile and Auto Ancillaries, Chemical, Gems & Jewellery and Pharmaceutical.

<table>
<thead>
<tr>
<th>Focus Sector in the Manufacturing Industry of Gujarat</th>
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<tbody>
<tr>
<td>Textiles</td>
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<tr>
<td>• Conventional Textiles</td>
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<tr>
<td>• Technical Textiles</td>
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<tr>
<td>Engineering</td>
</tr>
<tr>
<td>• Precision Engineering including defense offsets</td>
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<tr>
<td>• Fabricated metal products</td>
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<tr>
<td>• machinery and equipment</td>
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<tr>
<td>Auto and Auto Ancillaries</td>
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<tr>
<td>• Automobiles and auto parts</td>
</tr>
<tr>
<td>• Research and Development</td>
</tr>
<tr>
<td>• Process and Design</td>
</tr>
<tr>
<td>Chemical</td>
</tr>
<tr>
<td>• Chemical Products</td>
</tr>
<tr>
<td>• Specialty Chemicals</td>
</tr>
<tr>
<td>• Coke refined petroleum products</td>
</tr>
<tr>
<td>Gems and Jewellery</td>
</tr>
<tr>
<td>• Precious gems and stones</td>
</tr>
<tr>
<td>• Diamond, Gold and Silver Jewellery</td>
</tr>
<tr>
<td>Pharmaceutical</td>
</tr>
<tr>
<td>• Pharma machinery</td>
</tr>
<tr>
<td>• Biotechnology</td>
</tr>
<tr>
<td>• APIs (active pharmaceutical ingredient)</td>
</tr>
<tr>
<td>Electronic System Design Manufacturing</td>
</tr>
<tr>
<td>• Telecom Products &amp; Equipment</td>
</tr>
<tr>
<td>• Electronic Components</td>
</tr>
<tr>
<td>• Semi - conductors</td>
</tr>
</tbody>
</table>

These key sectors contribute to ~ 80% of manufacturing sector output.
Gujarat Industrial Policy 2009

Major schemes and incentives to boost Manufacturing Sector in Gujarat

Assistance to MSMEs
- Interest Subsidy
- Venture capital
- Quality Certification
- Skill Enhancement
- Technology Acquisition Fund
- Patent Assistance
- Energy and water conservation
- Market Development Support
- Support for Ancillary/ Vendor Development
- Support to Auxiliary industries for value addition
- Assistance to R & D
- Cluster Development
- Rehabilitation of Sick Units

Improving Industrial Infrastructure
- Assistance to Critical infrastructure Projects
- Financial Assistance to Industrial Park

Assistance to Textiles and apparels
- Interest Subsidy
- Technical Textiles
- Technology Acquisition
- Apparel Training Institutions and Trainees
- Training in Power loom Sector
- Technological acquisition for value chain
- Support for development of Textile & Apparel Park

Assistance to Gems & Jewellery Sector
- Interest Subsidy
- Hall Mark Certification and Gems Testing Centre
- Assistance for Health & Safety Measures
- Support for development of Jewellery Park

Assistance to Chemical Industries
- Subsidy on electrical duty
- Labour law flexibility

Improvement of Technical Competence and Man Power
- Infrastructure support
- Venture Capital and Patent Assistance
- Support for R&D institutions

Enhancement of Technical Competence and Man Power
- Assistance Environment Management to MSMEs
- Assistance for encouraging green practices and Environmental Audit to MSMEs

Assistance to Environment Protection Measures and Infrastructure
- Assistance to Common Environment Infrastructure Facilities (CEIFs) in PPP
- Financial Assistance under Non PPP Projects
- Assistance for clean carbon credits (CERs and VERs) and reducing carbon footprints
- Assistance for strengthening the Regulation and Environmental Compliance

Assistance for Ancillary/ Vendor Development
- Support to Auxiliary industries for value addition
- Assistance to R & D
- Cluster Development
- Rehabilitation of Sick Units
Gujarat Industrial Policy 2009

Assistance to MSMEs

- Cluster Development in PPP Mode
- Interest Subsidy
- Technology Acquisition Fund
- Venture capital
- Promotion of Specific Sector
- Quality Certification
- Support for Ancillary/ Vendor Development

Market Development Support

- Support to R&D Institutions
- Patent Assistance
- Energy and water conservation
- Support to Auxiliary industries for value addition
- Rehabilitation of Sick Units
- Awards to best MSMEs
- Skill Enhancement
1.1 Textile Sector
1.1.1 Textile Sector: Global Scenario
Global textile and clothing industry is estimated to be worth about USD 4,395 billion as of 2012.

- With China leading the global textile trade, **India** ranks **second** with 8 per cent of the total textile trade.
- Technical Textiles/Industrial Textiles account for over 27 percent of all fiber consumed and more than 50 percent of the total textile activity in certain industrialized countries.
- Global Technical Textiles market was estimated ~ USD 127 billion in 2012.
- Global market for textile machinery is estimated to reach USD 22.9 billion by 2017.

Source: ICTN 2010, IBEF, Global Industry Analysts, Inc., D&B
1.1.2 Textile Sector:

India Scenario
India is the 2nd largest textile economy by production in the world after China and contributes ~14 percent to the total industrial production in India.

- India’s position in the global market
  - 2nd largest producer of cotton (18 percent of global production)
  - 2nd largest producer of silk
  - 3rd largest producer of cellulosic fibre / yarn
  - Largest producer of jute
- The size of India’s textile market in 2011 was USD 89 billion; the market is expected to expand at a CAGR of 10.1 percent over 2009-21 to reach at USD 223 in 2021.

Source: Ministry of Textiles, The Cotton Corporation of India Ltd., Technopak
Technical textiles, which has been growing at around twice the rate of textiles for clothing applications over the past few years, is now expected to post a CAGR of 20 per cent over FY11-17.

- Indian Technical textile/Industrial Textile market today is mainly focusing on Packtech, Clothtech and Hometech; while higher value added products like Medtech & Indutech still have to be expanded.
- The government has supported this industry with USD 1 billion help for SMEs and an exemption in custom duty for raw materials used by the sector as of 2012-13.
- Government plans to launch a USD 44.2 million mission for the promotion of technical textiles/industrial textiles, and cleared plans to set up a new research centre for the industry.
In the 12th Five Year Plan, the Government of India plans to spend USD 9.1 billion against USD 4 billion in the 11th Five Year Plan on textiles.

- Rising government focus and favorable policies to support the industry
- The industry accounts for nearly **11 per cent** of total exports of the country
- Exports grew to USD 33.3 billion in FY12 from USD 17.6 billion in FY06, implying a CAGR of 11.2 per cent
- India’s textiles products are exported to more than a hundred countries; of which USA and EU account for almost 2/3rd

**Textile Exports (USD billion)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-07</td>
<td>19.2</td>
</tr>
<tr>
<td>2007-08</td>
<td>22.2</td>
</tr>
<tr>
<td>2008-09</td>
<td>21.1</td>
</tr>
<tr>
<td>2009-10</td>
<td>22.4</td>
</tr>
<tr>
<td>2010-11</td>
<td>27.8</td>
</tr>
<tr>
<td>2011-12</td>
<td>33.3</td>
</tr>
</tbody>
</table>

CAGR: **11.6%**

**Planned outlay (USD billion)**

- **11th five year plan**: 4
- **12th five year plan**: 9.1

CAGR: **258%**

**Shares in textile exports (2011-12P)**

- Readymade Garments: 39%
- Cotton Textiles: 34%
- Manmade Textiles: 3%
- Handicrafts: 4%
- Silk & Handlooms: 3%
- Woolen & others: 17%

Source: GHERZI research, Ministry of Textile
1.1.3 Textile Sector: Gujarat Scenario
Gujarat is the leader in textile comprising of 1,560 medium and large textile unit

- Gujarat is the **largest producer** (33%) and **exporter** (60%) of **cotton** in the country
- Around **50%** of the country's art **silk fabric** is produced in Surat alone
- Gujarat is the **largest producer of denim** in India (65%) and the third largest in the world
- About 24-28% of fixed investment, production of Small Scale Industries are from textiles sector
- Gujarat has the **highest** number of medium and large **textile processing houses (over 600)** and is home to more than 50% of India's processing machinery manufacturers and 90% of weaving machinery manufacturers
- Gujarat contributes to over **one-fourth** of the country's technical textile output
- It is also the largest manufacturer of man made and filament fabric and the second largest manufacturer of cotton

*Source: Industries Commissionerate, iNDEXTb; Gujarat Chamber of Commerce and Industry; IBEF; GCCI*
Gujarat has leveraged the advantage of capital intensity in textile industry triggering capital and human productivity

- High raw material availability
  - Gujarat contributes to 62% of the overall petrochemical output of India and thus has facility to produce almost all varieties of man-made fibres
- Gujarat is the 2nd largest decentralized power loom concentrating state and doubled its capacity during last 8 Years (50,000 looms (cotton)/8lakh filament)
- Gujarat is the largest producer of cotton in the country with production of 93 lac bales in 2012-13 utilizing 24.97 lac hectares of land
- Present Capacity
  - Ginning – 1200 units
  - Spinning – 1.2 million working Spindle
  - Weaving – 50,000 looms
  - Processing (medium & large) – 600 Units (Yarn, Fabric & Garments)
  - Knitting & Apparel (small & medium) – 2,00,000 machines
  - Hand Printing – 1500 units in Jetpur alone

Source: Industries Commissionerate, iNDExTb
Gujarat’s Technical Textile

1,000 plus Technical Textiles units with presence in all the 12 sub-sectors of Technical Textiles

- Gujarat Technical Textiles market is estimated around Rs. 7737 crore in 2011-12 at current prices; contributing around 10% to the national Technical Textiles output
- Major units of technical textiles are mainly concentrated in Ahmedabad, Surat, Vadodara and Kutch
- There are more than 200 products classified as Technical Textiles under Protective Textiles, Agro Textiles, Geo Textiles, Automotive Textiles and Home Textiles

End usage by sub sector of technical market in Gujarat

- Packtech: 63%
- Hometech: 10%
- Clothtech: 9%
- Indutech: 8%
- Buildtech: 3%
- Others: 7%

Technical Textiles find application/usage in a variety of day-to-day applications as well as industrial applications. The large quantum end users of Technical Textiles are cement industry, horticulture industry, automobile industry, chemical industry, infrastructure etc

- Gujarat is the 5th largest cement producer in India. The sector is expected to grow in line with the growing Infrastructure in the state/country
- Gujarat is the Chemical hub of India; contributing to more than 50% of the overall Indian chemical output

Source: Industries Commissionerate, iNDEXTb; IBEF
Textile & Apparel SEZ (4)  
Integrated textile parks (7)  
Product clusters (18)  
Three dedicated textile SEZ are planned to be developed in Ahmedabad; while one such SEZ, Surat Apparel Park is functional.

Ahmedabad: Cotton and blended fabric, denim, made-ups, ladies’ garments, textile machinery and its parts

Surat for Art silk fabric, Synthetic textiles, Jari manufacturing, embroidery, textile machinery and its parts

Umargaon: Modern power looms, Synthetic suiting and shirting

Kutch: Textile Handicrafts

Saurashtra: Jetpur for Hand printing and processing units and Manavadar for Cotton ginning

Research & testing facility (2)
Educational infrastructure
DMIC influence area
Leading Industry players in Gujarat are spread across the state
28 ITI’s in Gujarat provide industrial training courses on Textile and Garment industry with an approximate intake of 5,876

• Major academic institutions that are offering training programmes include
  ▪ Ahmedabad Textile Industrial Research Association (ATIRA)
  ▪ Man-made Textile Research Association (MANTRA), Surat
  ▪ National Institute of Fashion Technology (NIFT), Gandhinagar
  ▪ Apparel and Leather Technics (ALT) Training College, Ahmedabad
  ▪ National Institute of Design (NID), Ahmedabad
  ▪ Surat Education and Research Society
• Gujarat has three engineering colleges in Ahmedabad, Vadodara and Surat, offering courses in Textile technology, Textile processing and Textile engineering
• NTC (National Textile Corporation) is planning to set up two CoE (Center of Excellence) in Guajrat
• Government provides assistance to apparel training institutions and trainees as well as training support to powerloom sector

Specific textile courses offered by ITIs
• Cutting and sewing
• Cutting and Embroidery and needle work
• Computer-aided dress making and dress design
• tailoring
• Pattern making
• Finishing garment checking

Source: Gujarat Chamber of Commerce and Industries
Composites are materials made from two or more substances with different physical or chemical properties
Union ministry of textiles, has declared ATIRA as a Centre of Excellence (CoE) for composites
Composite Centre – key components will help in the development of entire value chain

**R & D Centre (Product Development):** The R & D centre would have a pilot project for new product development. It would include machines for complete value chain

**Production centre:** It would serve 2 purposes:
- To produce the 1st batch of the product developed in the R&D centre
- It shall generate revenue for the centre

**Testing and certification:** Help test the products developed and provide certification. It would also provide testing for raw materials

**Design studio:** Development of new designs

**Branding and Marketing:** Help industry participate in National and International Exhibitions and organize conferences, seminars, workshops etc to educate the industry

**Skill development:** Training manpower with the latest technology
Attract at least 2,000 new units with an investment worth Rs. 10,000 crore by introducing Technical Textile Mission

Government of Gujarat’s development agenda
- Develop the entire value chain of the Textile Industry
- Value addition through focus on Technical Textiles
- Textile market in Gujarat by 2017 ~USD 25 billion
- Growth is envisaged to be driven by Technical Textiles which has use in more than 200 different products across sectors
- Technical Textiles of Gujarat will strive to capture 50% of the Indian market
- Capacity addition in next 5 years
  - Ginning – Additional 200 modernized units
  - Spinning – Tripling Capacity with additional 25 lakhs Spindle with modern technology
  - Weaving – Additional 1,00,000 Shuttle less and Automatic shuttle looms
  - Processing – Additional 60 Units (Yarn, Fabric & Garments)
  - Knitting & Apparel - Additional 2,00,000 stitching & supporting machines

Government of Gujarat planned to invest ~ USD 3.28 billion in textile industry which will also create 1 million jobs in the sector

Investment in next 5 years
- Spinning: 43%
- Weaving: 29%
- Processing: 6%
- Technical Textile: 5%
- Textile & spinning Park: 4%
- Knitting & Apparel: 13%

Source: Industries Commissionerate, iNDEXTb
## Key Interventions

Technology Mission on Technical Textiles (TMTT) focuses on standardization, creating common testing facilities with national / international accreditation and to provide support for the development of domestic & export markets for technical textiles

Expert group will develop strategy for the development of Technical Textiles sector

2 new Composite Centres for the development of Technical Textiles to be set up in Ahmedabad (existing centre in Ahmedabad to strengthened) and Surat district. (existing Government of India scheme for the development of such Composite Centres will be improved)

An International level CoE (Centre of Excellence) to be set up in the state focusing on technical textiles by NTC (National Textile Corporation) in collaboration with international firms from Japan, USA and Germany

2 new Technical Textile zones to be developed in Ahmedabad and Surat district

Additional 6% interest subsidy in addition to 5% interest subsidy and 10% capital subsidy by Government of India
Textile Sector
Gujarat Initiatives

<table>
<thead>
<tr>
<th>Key Government Initiatives</th>
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<tbody>
<tr>
<td><strong>Textile Industry Promotion Policy 2012</strong></td>
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<tr>
<td>Interest subsidy of 5% will be given without a ceiling for the period of five years on new plant and machinery for ginning and processing</td>
</tr>
<tr>
<td>7% on new plant and machinery for cotton spinning as well as for second-hand imported cotton spinning machinery with certain conditions without a ceiling for five years.</td>
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<tr>
<td>Power tariff concession on new investment for cotton spinning will be provided at Rs 1 per unit for five years and there will be refund of VAT paid by the unit on the purchase of raw material</td>
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<tr>
<td>Financial assistance to skill development centers for textile industry</td>
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<tr>
<td>Financial assistance for technology acquisition for value chain</td>
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<tr>
<td>Assistance for energy conservation, water conservation and environment compliance</td>
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<tr>
<td>The new policy is expected to attract an investment of over INR 20,000 crore creating new employment opportunities for over 2.5 million people, 50% of them being rural women, during the next five years</td>
</tr>
<tr>
<td>Support for establishing Textile &amp; Apparel Park : 1) 50% (max. INR 30 crore) for Spinning Park and 2) 50% (max. INR 10 crore) for Other Textile Park</td>
</tr>
<tr>
<td><strong>Conventional Textile</strong></td>
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<tr>
<td>-------------------------</td>
</tr>
<tr>
<td><strong>Agrotech</strong> Agro shading net, packing net for agro products</td>
</tr>
<tr>
<td><strong>Buildtech</strong> Scaffolding net</td>
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<tr>
<td><strong>Packtech</strong> Jumbo bags, FIBC, coated fabric for soft luggage</td>
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<tr>
<td><strong>Infrastructure Development</strong> Cotton integrated textile and apparel park</td>
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Industries Commissionerate

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1.2 Engineering Sector
1.2.1 Engineering Sector: Global Scenario
Engineering Industry can be classified into the following sectors:

1. **Globally, China is the largest producer and consumer of machine tools; contributing ~42% and ~30% of global consumption & production respectively.**
2. **Asia-Pacific is the largest producer; contributing 38.4% of the global market.**
3. **America and Asia Pacific region are the largest producers; contributing ~71% of the overall global production.**
4. **Globally, China is the largest producer and consumer of machine tools; contributing ~42% and ~30% of global consumption & production respectively.**
5. **North America, Europe, and North Asia are the largest service providers; contributing 91% of the overall global market.**

**Key global engineering segment output estimates (in USD billion):**

- **Electrical equipments**
- **Machine Tools**
- **Industrial Machinery**
- **Heavy Electrical equipments**
- **Engineering Services**

**Source:** 2012 World Machine Tools Output & Consumption Survey, IBISWorld Pvt Ltd, Datamonitor Plc
1.2.2 Engineering Sector: India

Scenario
Capital goods & engineering turnover is expected to reach USD 125.4 billion by 2017 from USD 57.6 billion in 2012

- Due to fast pace industrialization & economic development there is a tremendous demand of capital goods & engineering market
- Indian construction equipment market to grow sevenfold from 2012 to 2020
- Engineering research & design segment revenues to increase fourfold by 2020
- Electrical equipment market size is expected to increase fourfold by 2022

Source: Department of heavy industries, NASSCOM
Engineering Industry

India Scenario: Industry Structure

Engineering

Heavy Engineering

- Textile machinery industry
- Cement machinery industry
- Sugar machinery industry
- Rubber machinery industry
- Material handling equipment industry
- Oil field equipment industry
- Metallurgical industry
- Mining machinery industry
- Dairy machinery industry
- Machine tool industry

Light Engineering

- Rolling Bearing Industry
- Medical and surgical instruments
- Process control instruments
- Industrial fasteners
- Ferrous castings
- Steel forgings
- Seamless steel pipes and tubes
- Electrical resistance welded (ERW) steel pipes and tubes
- Submerged-arc welded (SAW) pipes
- Bicycle industry

Source: Ministry of Heavy Industries & Department of Industrial Policy & Promotion
Engineering Industry
India Scenario: Exports

Engineering exports include transport equipment, capital goods, other machinery/equipment and light engineering products such as castings, forgings and fasteners.

- The engineering sector retained its **18 per cent share** in overall exports from the country which is the maximum in terms of sectoral contribution.
- Over 2007-08 to 2012-13, exports registered a **CAGR of 12.6 per cent**.
- Exports **target** for 2013-14 is estimated at **USD 125 billion**.
- **Transport equipment** is the leading contributor to engineering exports. The segment accounted for **32.5 per cent** of the total engineering exports during 2012-13.

**Engineering Exports (USD billion)**

- **2007-08**: 31.3
- **2008-09**: 45.3
- **2009-10**: 38.3
- **2010-11**: 58.1
- **2011-12**: 67.1
- **2012-13**: 56.7

**CAGR: 12.6%**

**Exports of principal commodities (2012-13)**

- **Transport equipment**: 32.50%
- **Machinery & instruments**: 14.10%
- **Manufacturers of metals**: 26.80%
- **Primary & semi furnished iron & steel**: 17.70%
- **Others**: 9%

Source: Engineering Export promotion Council
1.2.3 Engineering Sector: Gujarat

Scenario
Engineering sector of Gujarat contributes around **18%** to state’s **total industrial production** and around **9%** to the national engineering **output**.

Engineering sector in Gujarat comprises more than **300 units** in **large sector** and **75,00 units** in small and medium (SMEs) enterprises.

- The small-scale industry is a significant contributor to the production of brass parts, foundry, forging and machine tools, oil engines and electric motors, submersible pumps and industrial valves and bearings.

- Gujarat houses **83 product clusters**; out of which **30 are engineering product clusters**.

- The **brass parts cluster at Jamnagar** has over 5,000 small units and meets almost **70% of the entire requirement for brass parts in India**.

Source: IBEF
The Engineering SME cluster of Gujarat is mainly concentrated at Ahmedabad, Anand, Rajkot, Vadodara, Surendranagar, Jamnagar, Mehsana, Panchmahal and Kutch.

- Alang, a port in Bhavnagar, is the largest ship recycling yard in the world.
Engineering Industry

Gujarat Scenario: Presence across value chain

- Heavy engineering
  - Textile machinery
  - Ceramic machinery
  - Sugar machinery
  - Rubber machinery
  - Material handling equipment
  - Oil field equipment
  - Metallurgical machinery
  - Dairy machinery
  - Earth moving and construction machinery
  - Agricultural machinery

- Heavy electrical
  - Boilers
  - Turbines and generator sets
  - Transformers
  - Switchgear and control gear

- Heavy engineering and machine tools
  - Textile machinery
  - Ceramic machinery
  - Sugar machinery
  - Rubber machinery
  - Material handling equipment
  - Oil field equipment
  - Metallurgical machinery
  - Dairy machinery
  - Earth moving and construction machinery
  - Agricultural machinery

- Automotive
  - Passenger and utility vehicles
  - Auto components and auto ancillaries
Engineering Industry

Gujarat Scenario: Presence across value chain

- Light engineering
  - Low technology products
    - Roller bearings
    - Welding equipment and consumables
    - Casting and forging
    - Pipes and tubes
    - Fasteners
  - Plastic Machineries
    - Injection moulding
    - Extrusion
    - Blow moulding
    - Reprocessing
    - Extrusion coating
  - High technology products
    - Medical and surgical instruments
    - Process control instruments
    - Domestic appliances
    - Electronics

Logos of various companies are displayed below the diagram.
### Engineering Industry

**Gujarat Scenario: Industrial Infrastructure**

<table>
<thead>
<tr>
<th>Particular</th>
<th>Units</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special economic zones</td>
<td>2</td>
<td><img src="#" alt="Green Circle" /></td>
</tr>
<tr>
<td>Industrial Parks</td>
<td>18</td>
<td><img src="#" alt="Red Circle" /></td>
</tr>
<tr>
<td>DMIC influence area</td>
<td></td>
<td><img src="#" alt="Red Circle" /></td>
</tr>
</tbody>
</table>

#### Upcoming modern sector specific clusters planned on PPP mode

- **Engineering Plastics & Plastic Processing at Dahej**
- **Auto Components & Light Engineering at Halol**
- **Precision & Light Engineering at Sanand**

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*Source: GIDC*
Engineering Industry
Gujarat: Educational Infrastructure

- At the end of 2013, Gujarat is projected to have an intake capacity of 60,883 degree students in engineering
- More than 3,060 seats have been added in 2013 alone along with 4 new engineering colleges and institutions
- The tally leads for Mechanical Engineering with 16,230 seats, followed by Civil, Electrical and others

A healthy increase in seats offered is projected in coming years, with Mechanical Engineering increasing 130% from 2010 to 2013

Civil and Electrical Engineering seats more than doubled during the same period

Source: Gujarat Technical University
Gujarat Government has also encouraged skill development programs. **Skill development budget** has increased from INR 107 crore in 2001-02 to **INR 1000 crore in 2013-14**.

Government of Gujarat has also introduced number of effective schemes such as CTS (Craftsmen Training Scheme), ATS (Apprenticeship Training Scheme), KVK (Kaushalya Vardhan Kendra), short term courses. Under these schemes around **7,80,000 people have been trained**.

Source: Socio Economic Review 2012-13
5 precision engineering clusters will be developed in Jamnagar, Halol, Sanand, Lodhika, Mandal – these clusters will be developed by GIDC

Development of state-of-the-art industrial clusters and industry-focused investment regions

Centres of Excellence will be developed in each of these clusters

Introduction of reforms and flexible labor laws

The benefits of existing industrial park scheme will be extended to the tune of USD 3.2 million

Promotion and development of small and medium enterprises through various innovative initiatives

Units coming in these clusters will be provided single window clearances and streamlined & hassle-free procedures for obtaining various approvals

Introduction of cluster development measures to support and strengthen growth of the sector

Government will identify and provide large tracts of land for specialized trials of equipment

Promotion of institutions, such as Space Application Centre, Indo-German Tool Room, and Electronics & Quality Development Centre, which provide support to the engineering sector
1.2.4 Engineering Sector: Investment Opportunities
<table>
<thead>
<tr>
<th>Engineering service outsourcing</th>
<th>Material handling equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformers &amp; Boiler manufacturing</td>
<td>Power equipment manufacturing</td>
</tr>
<tr>
<td>Auto components</td>
<td>Infrastructure equipment</td>
</tr>
<tr>
<td>Defence offset</td>
<td>Modern cement and textile machinery</td>
</tr>
<tr>
<td>Material handling equipment</td>
<td>Turbines, transformers, generators</td>
</tr>
</tbody>
</table>
Industries Commissionerate

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http://ic.gujarat.gov.in/
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1.3 Automobile & Auto Ancillaries
1.3.1 Automobile & Auto Ancillaries: Global Scenario
As the global economy recovers from the financial shocks of the last five years, the automotive industry is playing a huge role in bringing it back to life.

- On present, the **global automotive industry** is estimated to **worth USD 800 billion**
- The global market for cars and other light vehicles will expand from 80 million units a year now to well over 100 million by 2020
- According to the World Bank just 18 people in every 1,000 own a car in India, while in China the figure is 58; hence there is huge untapped potential in this sector
- Emerging markets’ share of global sales will rise from 50 percent in 2012 to 60 percent by 2020

<table>
<thead>
<tr>
<th>World car production (million vehicles)</th>
<th>2012</th>
<th>2013</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>19.27</td>
<td>22.12</td>
<td>14.8</td>
</tr>
<tr>
<td>USA</td>
<td>10.33</td>
<td>11.05</td>
<td>6.9</td>
</tr>
<tr>
<td>Japan</td>
<td>9.94</td>
<td>9.63</td>
<td>-3.1</td>
</tr>
<tr>
<td>Germany</td>
<td>5.65</td>
<td>5.72</td>
<td>1.2</td>
</tr>
<tr>
<td>South Korea</td>
<td>4.56</td>
<td>4.52</td>
<td>-0.9</td>
</tr>
<tr>
<td>Brazil</td>
<td>3.34</td>
<td>3.74</td>
<td>9.9</td>
</tr>
</tbody>
</table>

### Global Car Sales Outlook (In millions)

- **North America**
  - 1990-99: 16.36
  - 2000-10: 17.97
  - 2011: 17.01
  - 2012: 15.22
  - 2013e: 17.11
  - 2014f: 18.89

- **South America**
  - 1990-99: 14.29
  - 2000-10: 17.01
  - 2011: 13.05
  - 2012: 16.7
  - 2013e: 15.9
  - 2014f: 15.6

- **Europe**
  - 1990-99: 6.91
  - 2000-10: 17.01
  - 2011: 15.22
  - 2012: 16.7
  - 2013e: 15.9
  - 2014f: 16

- **Asia**
  - 1990-99: 1.64
  - 2000-10: 2.68
  - 2011: 4.72
  - 2012: 27.25
  - 2013e: 29.98
  - 2014f: 32.38

Source: Clear Water Report, McKinsey; OICA
1.3.2 Automobile & Auto Ancillaries: India Scenario
By 2020, India's share in the global passenger vehicle market to double to 8 per cent from 4.8 per cent over 2013

- India is the world’s second largest two wheeler manufacturer in the world, the largest three wheeler market, the second largest tractor manufacturer in the world, the fourth largest car market and fifth largest commercial vehicle manufacturer in the world.
- Automobiles production increased at a CAGR of 12.2 per cent over FY05-13.
- Passenger vehicle sales to nearly triple by 2020E.
- The gross turnover of automobile manufacturers in India expanded at a CAGR of 17.7% over FY07-11.

Market share by volume (2012-13)

Market Break Up by Revenue (2011)

Source: SIAM; OICA
Automobile & Auto Ancillaries
Indian Scenario: Automobile Exports

Automobile export volumes increased at a CAGR of 19.1 per cent over FY05–13

- Two-wheeler segment reported the fastest growth (22.2 per cent) followed by three-wheelers (16.3 per cent) over FY05–13
- Exports of passenger vehicles registered the highest growth at 9.02 per cent in FY13
- Passenger vehicles comprised a sizeable 19 per cent of overall exports
- Two wheelers accounted for the largest share in exports (by volume) at 67 per cent in FY13

Source: SIAM
Turnover of the Indian auto component sector increased 20 per cent to USD 43.5 billion in FY 2011–12; growth is likely to remain robust at 8–10 per cent in FY 2012–13 with the auto component industry expected to reach USD 113 billion by 2020.

- Large firms play a dominant role in the organized sector; of the total production in the sector in FY10, large Indian firms accounted for a major share (at 43 per cent); MNCs formed 15 per cent.
- The number of manufacturing units in the unorganized sector are far higher than those in the organized one.

Production Breakup in Organized Sector

- 70% Unorganized
- 30% Organized

Production volume by market range

- 60% OEM
- 25% Replacements
- 15% Exports

Source: ACMA
India’s exports of auto components increased at a CAGR of 17.4 per cent to USD 6.9 billion during 2006-07 to 2011-12

- Exports will account for as much as **20 per cent of the total market** of auto ancillaries by **2020**
- Both domestic and export markets are almost similar in terms of potential share by different product types
- **Europe accounts** for the largest share of Indian auto components exports (36.0 per cent) followed by **Asia** (28.0 per cent) and **North America** (23.0 per cent)

**Value of auto component exports (USD billion)**

- **CAGR: 17.4%**
- 2006-07: 3.1
- 2007-08: 3.8
- 2008-09: 4
- 2009-10: 3.4
- 2010-11: 5.2
- 2011-12: 6.9

**Export market potential by components (2020E)**

- Engine & Exhaust: 31.60%
- Transmission & steering: 15.80%
- Suspension & Braking: 10.50%
- Interior: 7.90%
- Other Markets: 15.80%
- North America: 18.40%
- Western Europe: 12.90%
- Asia: 4.2
- Other Markets: 0.4

**Export Market potential (USD billion)**

- 2009: 4.1
- 2015(E): 10.6
- 2020(E): 12.9

Source: ACMA
1.3.3 Automobile & Auto Ancillaries: Gujarat Scenario
Gujarat is emerging as a key investment destination for the major automobile players. Gujarat has a strong educational infrastructure in the automobile sector. 27 colleges provide technical education in automobiles sector with an annual intake capacity of 1,980. Additionally, 111 colleges provide technical education in the mechanical field with an annual intake capacity of 13,650.
Gujarat is one of the leading states in owning vehicles with 1,44,13,717 total vehicles in FY 2011-12

- Gujarat is one of the top three states in India in terms of the number of registered vehicles
- Low transaction cost for accessing market in the western and northern India.
- The Delhi-Mumbai Dedicated Freight Corridor project will provide excellent rail connectivity for the auto sector in Sanand and for other industries.
- Cluster development approach and strengthening emerging clusters will add to the state’s ability to attract further industrial investments

Source: Commissionerate of Transport, Government of Gujarat
In Gujarat, Auto and auto ancillary industry covers,

- Assembling and manufacturing automobiles
- Manufacture of auto components for all types of vehicles
- CNG kits for automobiles
- Industrial automotive bearings
- Sheet Metal Parts
- Automotive casting and other precision parts
- Automobile gears
- Automobile design centre
- Auto ancillary SEZ/Park

Cluster development approach and strengthening emerging clusters will add to the strength of the state in attracting further industrial investments.

Source: Government of Gujarat
## Auto & Auto Ancillary
### Gujarat Scenario: Major Auto Clusters

#### Sanand

<table>
<thead>
<tr>
<th>Connectivity element</th>
<th>Location</th>
<th>Distance/ Connectivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airport</td>
<td>Ahmedabad</td>
<td>30 Km/SH</td>
</tr>
<tr>
<td>Nearest port</td>
<td>Kandla/Mundra</td>
<td>300-400 Km</td>
</tr>
<tr>
<td>Nearest City</td>
<td>Ahmedabad</td>
<td>30 kms/SH</td>
</tr>
<tr>
<td>NH/ State Highway</td>
<td>NH 8A/ SH</td>
<td>20 kms/ On 4 lane SH</td>
</tr>
<tr>
<td>Nearest Railway junction</td>
<td>Ahmedabad</td>
<td>30 Kms/ SH</td>
</tr>
<tr>
<td>Nearest Railway line</td>
<td>Viramgam- Sanand</td>
<td>&lt; 5 km</td>
</tr>
</tbody>
</table>

#### Halol

<table>
<thead>
<tr>
<th>Connectivity element</th>
<th>Location</th>
<th>Distance/ Connectivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airport</td>
<td>Vadodara Domestic Airport</td>
<td>35 Km</td>
</tr>
<tr>
<td>Nearest port</td>
<td>Dahej Cargo Port</td>
<td>185 Km</td>
</tr>
<tr>
<td>Nearest City</td>
<td>Vadodara</td>
<td>SH 87</td>
</tr>
<tr>
<td>NH/ State Highway</td>
<td>NH 8 &amp; NE 1</td>
<td>On 4 lane SH No 87</td>
</tr>
<tr>
<td>Nearest Railway line</td>
<td>Vadodara to Godhra</td>
<td>&lt; 5 km</td>
</tr>
<tr>
<td>Freight Corridor</td>
<td>Delhi Mumbai Industrial Corridor (DMIC)</td>
<td>35 Km through SH 87</td>
</tr>
</tbody>
</table>

Source: GIDC
### Auto & Auto Ancillary

**Gujarat Scenario: Major Automobile Players**

- **GMI Pvt Ltd** has invested ~ USD 327.86 million in its plant in Halol
  - Added investment of ~ USD 163.93 million to increase capacity to 1,10,000 units

- **Tata Motors Ltd** has invested ~ USD 475 million for its Nano plant in Sanand
  - The plant has the capacity to manufacture 250,000 units per year

- **Atul Auto Ltd**, a Rajkot based three-wheeler company has invested ~ USD 10.33 million for setting up a 24,000 per annum capacity in Shapar near Rajkot

- **Bombardier Transportation India Ltd.** has invested ~ USD 33.93 million to set up its wagon manufacturing plant at Savli in Vadodara district

- **Asia MotorWorks Ltd**, manufacturer of heavy commercial trucks has invested ~ USD 229.5 million to set up its factory at Bhuj with an annual capacity of 50,000 vehicles

- **CEAT Ltd**, the flagship company of RPG Enterprises Ltd setting up a tyre making facility in Halol with an estimated investment of ~ USD 245.9 million

- **The Company** set up a plant with a capacity of 6.75 lakh tyres per annum at Limda, Baroda
<table>
<thead>
<tr>
<th>Company</th>
<th>Project Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maruti Suzuki</td>
<td>Rs 4,000-crore plant at Bechraji in Mehsana district of north Gujarat is likely to be commissioned by fiscal year 2016-17.</td>
</tr>
<tr>
<td>Ford India</td>
<td>Ford India has set up its second manufacturing facility in the country at Sanand in Gujarat for a total investment of USD 1 billion (INR 6000 crore). The plant will be commissioned by 2014.</td>
</tr>
<tr>
<td>Honda Motorcycles and Scooters India (HMSI)</td>
<td>Honda Motorcycles and Scooters India (HMSI) plans to invest over 1,000 crore to set up a manufacturing unit near Mandal region and has already acquired 200 acres land.</td>
</tr>
<tr>
<td>Hero MotoCorp</td>
<td>Hero MotoCorp is in the final stages of acquiring land at Halol, Gujarat. It will invest INR 1,100 crore in the new project, with annual capacity will be 12 lakh units, going up to 18 lakh units in the second phase.</td>
</tr>
</tbody>
</table>
1.3.4 Automobile & Auto Ancillaries: Gujarat Scenario - 2020
By 2020, Gujarat aims to achieve 10% of Engineering output from Auto and auto components from current level of 3.7%.

The upcoming Special Investment Regions (SIR) will act as global investment destinations, supported by modern infrastructure, premium civic amenities, centers of excellence and proactive policy framework.
### Auto & Auto Ancillary

**Government Initiatives & Interventions and Key Government Bodies**

- **Auto Policy 2002**
  - An initiative by Government of India, provides automatic approval for foreign equity investment up to 100 per cent; no minimum investment criteria
  - Encourage R&D by offering rebates on R&D expenditure

- **Automotive Mission Plan (AMP) 2006–16**
  - Setting up of a technology modernization fund focused on SMEs
  - Establishment of automotive training institutes, auto design centers and special auto parks

- **NATRiPs**
  - Set up at a total cost of USD 388.5 million to enable the industry to be on par with global standards
  - Nine R&D centers of excellence with focus on low-cost manufacturing and product development solutions

- **Encouragement by Dept. of Heavy Industries & Public Enterprises**
  - Worked towards reduction of excise duty on small cars and increase budgetary allocation for R&D
  - Weighted increase in R&D expenditure to 200 per cent from 150 per cent (in-house) and 175 per cent from 125 per cent (outsourced)

- **Union Budget FY14**
  - Proposal to allocate USD2.7 billion for JNNURM to bolster sales volumes of Medium and Heavy Commercial Vehicles (MHCV)
1.3.5 Automobile & Auto Ancillaries: Investment Opportunities
Auto & Auto Ancillary

Investment Opportunities: Automobiles

India is fast emerging as a global R&D hub

- Strong support from the government; setting up of NATRiP centres
- Private players, such as Hyundai, Suzuki, GM, keen to set up R&D base in India
- Strong education base, large skilled English-speaking manpower
- Comparative advantage in terms of cost

Opportunities for creating sizeable market segments through innovations

- The world’s cheapest car (Tata Nano) has directed focus on the low-income market
- Bajaj Auto, Hero MotoCorp and M&M plan to jointly develop a technology for two-wheelers to run on natural gas
- Electric cars likely to be a sizeable market segment in the coming decade

Small-car manufacturing hub

- General Motors, Nissan and Toyota announced plans to make India their global hub for small cars
- Light vehicle sales estimated to cross 3 million by the end of 2012
- Strong export potential in ultra low-cost cars segment (to developing and emerging markets)

Source: IBEF
Auto & Auto Ancillary

Investment Opportunities: Auto Ancillaries

R&D
- Joint R&D with Indian companies for new product development and process innovation

Process & Design
- Partnerships with Indian SMEs to address product and process technologies
- Off shoring manufacturing design work to JVs or partners based in India

Manufacturing
- Greenfield manufacturing facilities in India to meet the robust domestic demand potential
- Establish India as a key link in the global auto components supply chain

Customer Service
- Opportunity for strategic alliance to cover global customers

Source: IBEF
Industries Commissionerate

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1.4 Chemical Industry
1.4.1 Chemical Industry:
Global Scenario
By 2020, developing countries would be home to 31 per cent of global chemical production, and 33 per cent of global chemical consumption

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialty Chemicals</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Petrochemicals</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Commodity Chemicals</td>
<td>8%</td>
<td>7%</td>
</tr>
<tr>
<td>Polymers</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Others</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

- **Global market** of chemical industry was estimated to be worth **USD 3 trillion** in 2012 excluding pharmaceuticals
- Future growth of chemical industry is linked with demand in Asia, Middle East and Latin America
- Europe, North America are likely to report modest growth (~2%), lower than anticipated global GDP growth
- China is likely to emerge as the largest chemical region in the world by 2020
- India and other Asian countries are also indicating promising potential
- For the emerging markets, commodity chemicals is one of the promising sectors. Specialty chemicals segment will be triggered by some companies having multiple business models across various markets

Source: OECD, UNEP, IHS
1.4.2 Chemical Industry:

India Scenario
Chemical industry's current turnover is about USD 30.8 billion which is 14% of the total manufacturing output of the country

- Indian chemical industry ranks **12th in the world** by volume in the production of chemicals
- **Total production** in the Indian chemical industry was **8,374 MT in FY12**, a 2.5 per cent rise over FY11
- With 74% of the total production share, alkali chemicals form the largest segment in the Indian chemical industry
- India’s growing per capita consumption and demand for agriculture-related chemicals offers huge scope of growth for the sector in the future
- In India, consumption of petrochemical products is still one of the lowest in the world; hence there is a huge untapped potential in this sector

### Production share of major chemicals

**FY13**
- 16% - Inorganic chemicals
- 74% - Alkali chemicals
- 2% - Dye & dyestuff
- 1% - Organic chemicals
- 7% - Pesticides

### Production of major chemicals (000'MT)

<table>
<thead>
<tr>
<th>Year</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-07</td>
<td>7605</td>
</tr>
<tr>
<td>2007-08</td>
<td>7823</td>
</tr>
<tr>
<td>2008-09</td>
<td>7423</td>
</tr>
<tr>
<td>2009-10</td>
<td>7651</td>
</tr>
<tr>
<td>2010-11</td>
<td>8170</td>
</tr>
<tr>
<td>2011-12</td>
<td>8374</td>
</tr>
</tbody>
</table>

Source: Department of Chemicals & Petrochemicals
Chemical Sector
Segments & Characteristics of India chemical sector

Key segments of India Chemical Industry

- **Base chemicals**
  - Petrochemicals, man-made fibres, industrial gases, fertilizers, chlor-alkali and other organic and inorganic chemicals

- **Specialty chemicals**
  - Dyes and pigments, leather chemicals, construction chemicals, personal care and other specialty chemicals

- **Pharmaceuticals**
  - Active Pharmaceutical Ingredients (APIs) and formulations

- **Agrochemicals**
  - Insecticides, herbicides, fungicides and other crop protection chemicals

- **Biotechnology**
  - Bio-pharma, bio-agri and bio-industrial products

Characteristics of India Chemical Industry

- **High domestic demand potential**
- **Focus on new segments such as specialty and knowledge chemicals**
- **Gujarat and Maharashtra have emerged as most favored zones**
- **Fragmented industry**
- **Increase in focus on R&D**

Source: KPMG, TSMG
Exports have been rising over the year but still India is a net importer of chemicals

- **Total exports** of chemicals grew from USD 3.5 billion in FY03 to **USD 16.1 billion in FY12**, a **CAGR of 18.7 per cent**
- India has been a major importer of chemicals; the sector made up 5 per cent of India’s total imports in FY12
- Total imports of chemicals grew from USD 3.7 billion in FY03 to USD 24.0 billion in FY12, a **CAGR of 23 per cent**
- During FY13, organic chemicals constituted **70 per cent of India’s total chemical exports**, followed by dyes & dyestuff at 11 per cent

Source: FICCI, Department of Chemicals & Petrochemicals – Gov. of India
1.4.3 Chemical Industry:
Gujarat Scenario
Gujarat, the hub of chemical industry in India, accounts for 62% of India’s petrochemical production, 53% of other chemicals production and 18% of India’s chemical exports

- The chemical industry in Gujarat is a significant component of State's economy with **revenues at ~ INR 4,50,000 crore** in 2012
- Gujarat's chemical & petrochemicals industry comprises of about **500 large and medium scale** industrial units, about **16,000 of small scale industrial units** and other factory units and provides **16% of employment**
- Government support, world class infrastructure, strategic location, availability of skilled workforce and raw material makes Gujarat a preferred location for chemical plants
- About **6600 chemicals & petrochemicals are produced** in the state
- Largest supplier of bio fertilizers, seeds, urea and other fertilizers
- Also Gujarat has taken the lead to promote **environment friendly practices** through Effluent Treatment Plant; currently 28 such plants are operational and further 6 are proposed

Source: FICCI, Department of Chemicals & Petrochemicals – Gov. of Gujarat; GPCB
### Chemical sector

**Gujarat: Chemicals & Petrochemicals Complexes**

Some of the largest chemicals & petrochemicals complexes of World are present in Gujarat

<table>
<thead>
<tr>
<th>Refineries (87MTPA)</th>
<th>Chemical and LNG terminal (15MTPA)</th>
<th>Petrochemical complexes</th>
<th>Chlor Alkali plants (1MMTPA)</th>
<th>Soda Ash plants (3 MMTPA)</th>
<th>Chemical Fertilizer plants</th>
<th>Agro Chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOCL</td>
<td>Petronet LNG terminal Dahej</td>
<td>IPCL</td>
<td>GACL</td>
<td>Tata Chemicals</td>
<td>IFFCO</td>
<td>Baroda Agro</td>
</tr>
<tr>
<td>RIL</td>
<td>LNG Hazira</td>
<td>RIL</td>
<td>IPCL</td>
<td>Gujarat Heavy Chemicals</td>
<td>UPL</td>
<td>Aristo Biotech</td>
</tr>
<tr>
<td>Essar</td>
<td>Chemical port terminal Dahej</td>
<td>ONGC</td>
<td>UPL</td>
<td>Nirma</td>
<td>GSFC</td>
<td>Super Crop Safe Ltd</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shriram</td>
<td>Saurashtra Chemicals</td>
<td>GNFC</td>
<td>Excel Crop Care</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Atul</td>
<td>Dhrangadhra Chemicals</td>
<td>KRIBHCO</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Indian Rayon</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figures indicate capacities in MTPA as of 2012

Source: Department of Chemicals & Petrochemicals – Gov. of India, MOPNG
PCPIR is a specifically delineated Investment Region planned for the establishment of production facilities for petroleum, chemicals and petrochemicals.

- Spread over 453 sq km of brown-field area in the coastal belt of Gulf of Khambhat in Bharuch District
- Vicinity of other existing GIDC chemical estates, viz. Jhagadia, Ankleshwar, Panoli and onsite chemical port terminal & LNG terminal at Dahej
- The proposed SEZ in PCPIR includes, petrochemical and downstream petrochemical industries, synthetic organic chemicals, industrial gas producing industry, packaging industry, shipbuilding/fabricating unit and other small chemical industries

Source: Gujarat Industrial Development Corporation
Chemical sector
Gujarat: PCPIR Advantage

Export promotion measures
Chemical port terminal and chemical storage facility at Dahej

Well established infrastructure
- Notified and Operational Dahej SEZ
- Formally approved Ceramics SEZ at Jhagadia
- Quality work force, peaceful labour, least man days lost

Regulatory Framework
- Gujarat SIR Act, 2009
- Gujarat SEZ Act 2004
- Notified Area Authority under GIDC Act, 1962
- Gujarat Town Planning and Urban Development Act, 1976
- Gujarat Infrastructure Development Act, 1999

Availability of natural resources
- Concentration of Petroleum, Chemical and Petrochemical estates across the district
- Rich natural resources and feedstock availability

Location advantage
- With a capacity of 22MMTPA, Dahej port is present in the region
- The anchorage is at a distance of 5 km from the old port and 6 km from a container terminal in Jageshwar, Bharuch

Road and rail
- National Highway 8 passes through the district, connecting it with Ahmedabad (182 km) and Mumbai (362 km), along with the DMIC
- Delhi-Mumbai broad gauge railway line, Bharuch-Dahej railway line

Airport connectivity
- The nearest airport is present in Vadodara which is 100 km away from the region.
- Ahmedabad International Airport is 200 km

Support infrastructure
- LNG terminal, liquid fuel jetty and solid cargo jetty
- Two 220 KV power substations at Dahej and Vilayat, three 66 KV sub-stations at Dahej, Luna and Vilayat
- Water Supply by GIDC and GWSSB; Gas Supply by GGCL

Source: Gujarat Industrial Development Corporation
Gujarat aspires to become a beacon of comprehensive social and economic development.

**Chemical sector**

**Gujarat: Policy Interventions**

**Industrial Policy 2009**

- **Thrust Sectors**
  - Manufacturing
  - Services
  - Infrastructure
  - Regional Focus
  - FDI/NRI

- **Incentives**
  - Various Sector specific
  - Subsidy on electricity duty
  - Upgradation of industrial estates

- **HR/Labour**
  - Labour law flexibility
  - Industry-academia collaboration
  - Support for development of specialized institutes

- **Business Environment**
  - Single window clearance
  - Marketing support
  - Grievance redressal
  - Information centers

- **Infrastructure**
  - Support for Urban
  - Physical Industrial

**Licensing Policy**

- In Chemical Sector, 100% FDI is permissible. Manufacture of most chemical products inter-alia covering organic/inorganic, dyestuffs & Pesticides is de-licensed.
- The entrepreneurs need to submit only IEM with the Department of Industrial Policy & Promotion.
- Hazardous products come under compulsory licensing policy.

**Custom Duty**

- Customs Duty on most Organic, Inorganic Chemicals, Pharmaceuticals, Fertilizers and other miscellaneous chemicals is 7-10%

**Excise Duty**

- On almost all chemicals the excise duty is 16%

**VAT Duty**

- VAT on most chemicals reduced to 5% in Gujarat

Source: Industries Commissionerate – Government of Gujarat
As per Industrial Policy, 2009 Government of Gujarat has developed SEZs, SIRs and Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR) to encourage the investments in chemicals sector.

- Interest Subsidy on eligible parameters
- Venture Capital & Patent Assistance
- Quality Certification & Skill Enhancement
- Technology Acquisition Fund
- Support to R&D Institutions
- Market Development Support
- Support for Vendor Development
- Support to auxiliary industries for value addition
- Cluster Development in PPP mode
- Rehabilitation of Sick Units
- Promotion of specific sectors

For modernization program one can avail of 5% subsidy on the applicable interest over the loan period.

Source: Industries Commissionerate – Government of Gujarat
1.4.4 Chemical Industry :

Gujarat 2017
Chemical industry in Gujarat has the potential to reach ~USD 70 billion by 2017
Contribution of Specialty and Fine Chemicals will be doubled by 2017

Development Agenda:

- Development of this sector will lead to value addition

- Development of linkages with user sectors and increasing product portfolio – meet the needs of other sector (Textiles and Auto industry are key industrial users that need the development of specialty and fine chemicals for their growth)

- Identify competitive advantages existing within the State – Gujarat is one of the largest producers of castor and guar seeds in India. Potential of application of these crops in specialty and fine chemicals is immense
**Chemical sector**

**Gujarat: Proposed Interventions**

- **New chemical zones for Specialty and Fine Chemicals**
  - 3 speciality chemical zones to be developed in Jambusar, Padra and Dahej

- **Infrastructure management**
  - Facilitate provisioning of modern infrastructure

- **Efficiency – energy and water**
  - Centralized waste evaluation and management institution.
  - Shift philosophy from end of pipe line to self treatment eliminating reliance on CETPs
  - Industry-academia-government collaboration – to set standards and for enforcement

- **Promoting R & D and Centre of Excellence**
  - Centre of Excellence for Specialty and Fine Chemicals will be set up in Ankaleshwar and Dahej

- **Ensuring Safety, Health and Environment**
  - Encouraging practices that ensures health, safety and environment
  - 28 Common Effluent Treatment Plant (CEPT) are operational and six are proposed for the same
Chemical sector

Gujarat: Leading Players and Investment Opportunities

- High Performance Chemicals
- Textiles Chemicals
- Pigments and Coating Products
- Bio Refineries
- Engineering Polymers
- Feedstock Linkages
- PP Filament Yarn
- Acrylic Fibres

Industries Commissionerate

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1.5 Gems & Jewellery Industry
1.5.1 Gems & Jewellery Industry: Global Scenario
Given the geographic dispersion of the value chain, Gold & Jewellery Industry is extremely global in nature.

- **Global jewellery sales** is likely to grow at a **CAGR of 4.6 per cent** from USD 185 billion in 2010 to **USD 230 billion in 2015**.
- Accelerating economic growth in Asian countries like China and India will enhance the market potential for jewellery.
- Gold jewellery will ride on demand from traditional markets like India, Turkey, and China to touch USD 94 billion by 2015.
- Global jewellery fabrication output will grow at a CAGR of 5.1 percent to reach USD 95 billion by 2015.

**Projected global jewellery sales (USD billion)**

- 2005: 146
- 2010: 185
- 2015E: 230
- 2020E: 344

**Share of key markets in global jewellery sales, by value, 2015**

- US: 25.6%
- China: 13.4%
- ROW: 28.4%
- Middle East: 12.3%
- Turkey: 3.2%
- Japan: 3.7%
- Italy: 2.7%
- UK: 2.1%

Source: KPMG analysis, GJEPC, McKinsey Report
1.5.2 Gems & Jewellery Industry: India Scenario
The domestic gems & jewellery market is estimated to be USD 40 billion and is predicted to grow at a rate of ~13 percent per annum by 2015 to reach USD 45-50 billion mark.

- The sector contributes around 6 – 7 percent to the country’s GDP
- It provides employment to nearly 2.5 million people with the potential to generate employment of 0.7 to 1.5 million over the next five years
- It is one of the fastest growing sectors and the size of the industry is expected to double in the next five years
- There are more than 3,00,000 Gems & Jewellery players across the country, with majority being small players
- Globally, India is considered as one of the major hubs for diamonds and jewellery manufacturing and is an important source of supply to the world
- India is the largest consumer of gold, accounting for nearly 29 percent of the total world gold consumption
- Gold jewellery forms around 80 per cent of the Indian jewellery market

Source: FICCI, GJEPC, Technopak Analysts, ONICRA, Millennium Post
Gems & Jewellery is the second highest earner of FOREX in India and accounted for ~15 percent of the India’s total merchandise exports in FY 13

• The gems and jewellery industry significantly contributes to the growth of the Indian economy
  • The total exports of Gems and Jewellery for FY 13 was around USD 39.03 billion, including that of cut and polished diamonds at USD 17.41 billion, gold at USD 18.28 billion and colored gemstones at USD 0.65 billion
• In 2012-13, jewellery exports outperformed textiles and apparel exports by 25 per cent
• Gems and Jewellery industry is highly dependent on imports of raw materials, of which rough diamonds account for almost 50 percent of the imports
• There is immense dependence on import of gold due to its little/ limited production in the country. This has made the industry extremely vulnerable to any regulations that constrain gold supply
• India is also one of the largest importer and consumer of silver in the world

Source: GJEPC, Technopak Analysts, DGCI&S (Kolkata)
## Gems & Jewellery sector
### India Scenario: Growth and Demand Drivers

With per capita consumption almost 1/10th that of any matured market India presents a very large potential market

<table>
<thead>
<tr>
<th>Demand Driver</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing purchasing and spending power</td>
<td>With the growing economy, spending power of the people is also rising with a CAGR of 17% since last 3 years, leading to growth of jewellery demand in India</td>
</tr>
<tr>
<td>Investment led demand</td>
<td>There is a substantial investment demand, in both jewellery bar and coin form, due to the great attractiveness of gold as an investment option</td>
</tr>
<tr>
<td>Entry of New players in retail sector</td>
<td>It is anticipated that large investments of about USD 1 billion in the coming years would be made by large retailers/brands which would catalyze the growth of the industry, set higher standards and create value across the value chain.</td>
</tr>
<tr>
<td>Traditional Domestic Demand</td>
<td>Tradition of buying jewellery during important festivals like Diwali and Dhanteras and during weddings</td>
</tr>
<tr>
<td>Foreign Demand</td>
<td>The sector is the second largest foreign exchange earner in the Indian economy; contributing ~15 percent to the total export earnings of the country</td>
</tr>
</tbody>
</table>

Source: FICCI, Onicra, Millennium Post
1.5.3 Gems & Jewellery Industry: Gujarat Scenario
Gujarat has the highest share (nearly 85 percent) in the total national Jewellery production and accounts for 72 percent of the world’s share of processed diamonds. Surat has 65% share in India’s diamond trade.

- Gujarat accounts for about **80 percent of diamonds processed** and **95 percent of diamonds export** from India
- Almost 8 out of 10 diamonds in the world are processed in Gujarat
- 90 percent of the total diamonds in Gujarat are processed by about **10,000 diamond units** located in and around **Surat**
- Gujarat is also internationally renowned for the production of unique hand-made **silver ornaments** (85 percent of total silver Jewellery production of India)
- A gold jewellery manufacturing cluster in Ahmedabad has a productivity of around 50 gm of production /day, highest in the country
- Diamond processing and trading unit are spread across the State in cities such as **Surat, Ahmedabad, Palanpur, Bhavnagar, Valsad and Navsari**

Some of the leading players in Gujarat

Gujarat's Gems & Jewellery sector is expected to grow at a rate of 15 percent

Source: Industries Commissionerate - Government of Gujarat, IBEF
Gems & Jewellery sector
**Gujarat Scenario: Value Chain Analysis**

**Gujarat has widespread presence across the whole of value chain**

- Mining
- Gemstone Processing
- Jewellery Manufacturing
- Jewellery Retailing
- Diamond, Gemstone, Gold, Platinum
- Cutting & Polishing
- Design & Fabrication
- Studded Jewellery

**Expanded Diamond Value Chain**

- Mining
- Sourcing
- Rough Trade
- Processing

**Gujarat’s Presence in the Gems & Jewellery Value Chain**

<table>
<thead>
<tr>
<th></th>
<th>Mining</th>
<th>Processing</th>
<th>Fabrication</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diamond</td>
<td></td>
<td></td>
<td>Established</td>
<td></td>
</tr>
<tr>
<td>Gold</td>
<td></td>
<td></td>
<td></td>
<td>Established</td>
</tr>
<tr>
<td>Platinum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silver &amp; Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Established Presence
- Emerging Centre/Market
- Not Applicable in Gujarat

Source: Industries Commissionerate - Government of Gujarat
The growth of this industry is primarily attributed to the increase in the demand driven by expansion of the middle class and support from the government in increasing the competitiveness.

- Gujarat has identified Gems & Jewellery sector as one of the thrust areas for development.
- One of the important factors contributing to the growth has been the development of SEZ’s by the state.
- A single-product, SEZ specially dedicated to gems and Jewellery with available infrastructure, Gujarat Hera Bourse (GHB), is located very near Surat city.
- There is also a multi product SEZ, Surat SEZ (SurSEZ), which also aids the growth of gems and jewellery sector.

Source: Industries Commissionerate - Government of Gujarat
Gems & Jewellery Clusters in Gujarat

<table>
<thead>
<tr>
<th>Region</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surat</td>
<td>Diamond Processing, Jewellery</td>
</tr>
<tr>
<td>Palanpur</td>
<td>Diamond Processing</td>
</tr>
<tr>
<td>Ahmedabad</td>
<td>Diamond Processing, Gold &amp; Silver Jewellery</td>
</tr>
<tr>
<td>Bhavnagar</td>
<td>Diamond Processing</td>
</tr>
<tr>
<td>Navsari</td>
<td>Diamond Processing</td>
</tr>
<tr>
<td>Rajkot</td>
<td>Gold &amp; Silver Jewellery</td>
</tr>
<tr>
<td>Kambhat</td>
<td>Gemstone (Agate)</td>
</tr>
<tr>
<td>Valsad</td>
<td>Jewellery</td>
</tr>
</tbody>
</table>

Surat is the largest diamond processing cluster in the world and is called “A Silky City Sparkling with Diamonds”

Source: Industries Commissionerate - Government of Gujarat
### Gujarat Scenario: Assaying & Hallmarking Centers in Gujarat

<table>
<thead>
<tr>
<th>Center Name</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gujarat Gold Centre</td>
<td>Ahmedabad</td>
</tr>
<tr>
<td>Kesar Hallmarking Centre</td>
<td>Ahmedabad</td>
</tr>
<tr>
<td>MMTC Ltd.</td>
<td>Ahmedabad</td>
</tr>
<tr>
<td>Parkar Gold</td>
<td>Ahmedabad</td>
</tr>
<tr>
<td>Shradha Assaying &amp; Hallmarking Centre</td>
<td>Ahmedabad</td>
</tr>
<tr>
<td>Gujarat Gold Centre</td>
<td>Vadodara</td>
</tr>
<tr>
<td>National Center for Hallmarking</td>
<td>Surat</td>
</tr>
<tr>
<td>VG Gold Assaying &amp; Hallmarking Centre</td>
<td>Rajkot</td>
</tr>
</tbody>
</table>

#### Assaying & Hallmarking centres in Gujarat

Rajkot is internationally known for its unique hand made gold and silver ornaments which constitute 85% of the total jewellery production in India.”

Source: Industries Commissionerate - Government of Gujarat
Entrepreneurship merged with skilled craftsmanship is the key enabling factor for Gems & Jewellery sector in Gujarat

Major institutions offering courses specific to Gems & Jewellery

| Indian Diamond Institute (IDI), Surat | National Institute of Fashion Technology (NIFT), Gandhinagar | National Institute of Design (NID), Ahmedabad |

Graduate and Diploma Level programmes offered by Indian Diamond Institute include:

- Diamond Sorting and Grading
- Gemology
- Jewellery Designing, Manufacturing and Appraising
- Jewellery Business Management
- Gem Diamond Identification and Grading

Labour cost per carat in USD
Gems & Jewellery is an important sector in Gujarat due to its immense contribution to the state’s economy and employment of a sizeable population.

Policy Support for fostering growth in Gems & Jewellery Sector

- Additional interest subsidy at 3% to a maximum of INR 1.5 million for a term not higher than 5 years
- Assistance for setting up Hallmark Certification centers for Jewellery and testing centers for Gems
- Support for setting up of Training Institute for the development of Gems & Jewellery sector
- Scheme for supporting safety measures and protection from occupational hazards
- Assistance of viability gap funding of 20% of the total project cost to private developer intending to develop Jewellery park on PPP basis

- The objectives of the schemes are:
  - To promote new centers for Gems & Jewellery activities in the State
  - Focus on studded jewellery to expand processing base for higher value
  - Establish a strong presence of Gujarat Gems & Jewellery industry in International market
The government has implemented such an FDI policy which allows 100% FDI and 74% in exploration and mining of diamonds and precious stones and 100% for gold and silver and minerals' exploration, mining, metallurgy and processing.

- 100% FDI through automatic route
- Exemption for rough coloured precious gems from custom duty
- Duty free import of consumables for metals other than gold and platinum up to 2% on Freight on board
- Duty free import entitlement for rejected jewellery up to 2% of FOB value of exports
- Import of gold of 18 carat and above under the replenishment scheme
- No import duty on polished diamonds
- The limit value of jewellery parcels for exports through foreign post office raised from $50k to $75k
- Establishing ‘Diamond Bourses’ to make India and international diamond trading hub

Source: Industries Commissionerate - Government of Gujarat
1.5.4 Gems & Jewellery Industry: Investment Opportunities
Gems and Jewellery is one of the fastest growing Industries in the country. Following are some of the identified projects to venture:

<table>
<thead>
<tr>
<th>Jewellery Fabrication &amp; Retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Diamond studded jewellery</td>
</tr>
<tr>
<td>• Gold jewellery</td>
</tr>
<tr>
<td>• Silver jewellery</td>
</tr>
<tr>
<td>• Platinum jewellery</td>
</tr>
<tr>
<td>• Rings</td>
</tr>
<tr>
<td>• Studded Gold &amp; Silver jewellery chains and ornaments</td>
</tr>
<tr>
<td>• Hand made Gold and Silver ornaments</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Infrastructure Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Jewellery Parks</td>
</tr>
<tr>
<td>• Modern Jewellery units</td>
</tr>
<tr>
<td>• Educational institutes focusing on Gems &amp; Jewellery sector</td>
</tr>
<tr>
<td>• Establishing Hallmark Center</td>
</tr>
<tr>
<td>• Gemology institute with testing facility</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tools &amp; Machinery</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Diamond blade</td>
</tr>
<tr>
<td>• Diamond cutting &amp; tools</td>
</tr>
<tr>
<td>• Diamond tools &amp; wheels</td>
</tr>
<tr>
<td>• Gem cutting &amp; processing unit</td>
</tr>
<tr>
<td>• Technology Upgradation</td>
</tr>
</tbody>
</table>
Industries Commissionerate

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1.6 Pharmaceutical Sector
1.6.1 Pharmaceutical Sector:

Global Scenario
The world pharmaceutical market was worth approximately USD 1094 billion in 2013

- Riding on the wave of advances of science and technology, the research based pharma industry is entering an exciting new era in medicines development.
- Global market of generic medicines was worth approximately USD 274 billion in 2013
- 17 high growth emerging markets including China, India, Brazil, Russia and Mexico will contribute 28 per cent of total spending by 2015, up from 12 per cent in 2005
- Major pharmaceutical companies include Pfizer, Novartis, Sanofi, Merck and Co., Roche, GlexoSmithKline, Abbot, AstraZeneca, Amgen and Eli Lilly & Co.

**R & D in Pharmaceutical**

On an average out of 10,000 substances synthesized in laboratories, only one or two will successfully pass all phases of development and enter the market as medicine.

When a new active substance is synthesized in laboratory, it takes average 12-13 years for it to clear all stages to become a marketable product.

For a research and development of a single medicine and unveil to the market, approximately USD 1.5 billion is spent.

Source: The Pharmaceutical Industry in Figures by EFPIA; IMS MIDAS, 2013
1.6.2 Pharmaceutical Sector:

India Scenario
India is among the top five pharmaceutical emerging markets with healthcare market expected to reach approximately USD 31.59 billion by 2020

- Domestic market for the Financial year 2013-14 was approximately USD 13.18 billion
- Domestic market of generic drugs for the financial year 2013-14 stood at USD 11.0 billion
- India stands 3rd in the world in terms of volume of production.
- India’s share in World Generic Market is 4% (excluding India’s domestic market).

Indian Pharma Industry Enablers

- Competent Workforce
- Information & Technology
- Cost Effective Chemical Synthesis
- Globalization
- Legal & Financial Framework
- Consolidation

Source: FDCA
Indian pharmaceutical industry covers very wide spectrum of products ranging from simple healthcare pills to intricate products like vaccines, r-DNA products and hi-tech cardiac stents etc.

Pharma sector in India is highly fragmented with over 20,000 registered units; which meets 70% of domestic demand

India houses around 8000 manufacturing units, producing approximately 1500 APIs (Active Pharmaceutical Ingredients)

India is likely to offer a USD 8 billion market for MNCs across the world

India’s exports stood at USD 15.04 billion in 2013-14, which is approximately 4% of the global share. Over 55% exports of India are to highly regulated markets

Pharma products are exported to over 200 countries with largest destination being US followed by UK
1.6.3 Pharmaceutical Sector:

Gujarat Scenario
Gujarat – The Pharmaceutical Hub

109 years of excellence

70% of India’s cardiac stents manufactured is from Gujarat

58% India’s orthopedic implants manufactured is from Gujarat

50% of India’s intraocular lenses manufactured is from Gujarat

80% of world’s Isoniazid (used for treatment of tuberculosis) is produced in Gujarat

~40% of India’s machinery for pharma sector manufactured is from Gujarat

40% of CRAMS Companies

3324 manufacturing licenses; Home to ~40% of CRO in the country

33% of India’s pharma sector turnover; 28% of India’s pharma export

Produces 35% of India’s Diagonistic Re-agent

Gujarat, an established manufacturing base for bulk drugs and formulations, is poised to capture global opportunities to become a Global Pharmaceuticals Hub.
• Turnover of Gujarat Pharmaceutical industry was worth USD 7.8 billion in 2013-14; while exports was worth around USD 2.83 billion
• 7% of total industrial production in India is from Gujarat
• Provides employment to around 75,000 people
The State manufactures and exports different dosage forms including generic drugs, intricate vaccines, r-DNA products, cytotoxic drugs, external preparations, sex hormone drugs, small and large volume parenteral, APIs, hi-tech cardiac stents, bio-pharma products etc.

Gujarat is the first state in the country to issue license through I.T. application. 10 states have adopted this model.

L. M. Pharmacy College, India’s first pharmacy college, was established in Gujarat in 1947. B. V. Patel PERD Center, NIPER, MS University are other major pharmacy colleges in the state.

Total sales units in Gujarat are 30,335*; out of which 48% units are retailers and 42% are wholesalers and rest 10% serve in both categories.

Manufacturing Units in Gujarat*

- Allopathic: 2299
- Ayurvedic: 378
- Cosmetics: 639
- Homeopathic: 8

Source: FDCA; IBEF
* Data as of 1st July, 2014
Ahmedabad cluster
Manufacturing Base:
✓ Formulations
✓ APIs
✓ Biologicals
✓ Contract manufacturing

Bharuch and Ankleshwar cluster
Manufacturing Base:
✓ APIs
✓ Formulations
✓ Vaccines

Vadodara cluster
Manufacturing Base:
✓ Formulations
✓ Biogenerics

Vapi/ Valsad cluster
Manufacturing Base:
✓ Formulations
✓ APIs
✓ Device and Diagnostics
### Characteristic of Pharma clusters in Gujarat

<table>
<thead>
<tr>
<th>Location</th>
<th>Existing Products</th>
<th>Export Potential</th>
<th>Market-based/Resource-based/Infrastructure-based</th>
<th>Potential future products</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ahmedabad</strong></td>
<td>• API</td>
<td>High</td>
<td>Market and Infrastructure</td>
<td>• Biological Manufacturing</td>
</tr>
<tr>
<td></td>
<td>• Finished Dosages</td>
<td></td>
<td></td>
<td>• Medical Devices</td>
</tr>
<tr>
<td></td>
<td>• Biological Products</td>
<td></td>
<td></td>
<td>• CRO</td>
</tr>
<tr>
<td></td>
<td>• Contract Publishing</td>
<td></td>
<td></td>
<td>• CRAMS</td>
</tr>
<tr>
<td></td>
<td>• Contract Manufacturing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vadodara</strong></td>
<td>• Finished Dosages</td>
<td>High</td>
<td>Market and Infrastructure</td>
<td>• API</td>
</tr>
<tr>
<td></td>
<td>• Bio-generics</td>
<td></td>
<td></td>
<td>• CRAMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Biological Manufacturing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bharuch &amp; Ankleshwar</strong></td>
<td>• APIs</td>
<td>High</td>
<td>Resource</td>
<td>• APIs for global companies</td>
</tr>
<tr>
<td></td>
<td>• Formulations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Vaccines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vapi &amp; Valsad</strong></td>
<td>• APIs</td>
<td>High</td>
<td>Resource</td>
<td>• Intermediate &amp; Finished Dosages</td>
</tr>
<tr>
<td></td>
<td>• Formulations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Device and Diagnostics</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: KPMG Analysis
Pharmaceutical Sector
Special Economic Zones (“SEZ”) and Special Investment Regions (“SIR”)

Zydus Infrastructure Pvt. Ltd.
Location: Ahmedabad
Area: 49 hectare
Likely activities: Pharmaceuticals

CPL Infrastructure Pvt. Ltd.
Location: Ahmedabad
Area: 122 hectare
Likely activities: Biologicals, APIs & Pharmaceuticals

HBS Pharmaceuticals SEZ
Location: Bharuch
Area: 125 hectare
Likely activities: R&D, Bulk drugs, Intermediates & Contract manufacturing

Dishman Infrastructure Ltd.
Location: Ahmedabad
Area: 106 hectare
Likely Activities: Bulk drugs

Dahej SEZ
Location: Dahej
Area: 1125 hectares
Pharma related activities: APIs, Intermediates, bulk drugs and various pharmaceutical formulations

Industrial Parks:
Gujarat Pharma Techno Park
Location: Ahmedabad
Area: 17.07 hectare
Likely activities: Pharmaceutical

Source: GIDC, GIIDB
Pharmaceutical Sector
Gujarat: Major Companies (1/3)

**Key business areas** - Finished formulations, APIs

**Key therapeutic areas** - CVS, CNS, diabetology, gastroenterology, oncology, pain management, anti allergic

**Key research areas** - generics, process development and complex generics

Has 23 manufacturing plants across the world and reported revenues of USD 2 billion during 2012-13.

Sun Pharmaceutical Advanced Research Centre (SPARC) is situated in Vadodara (Baroda). Manufacturing plants in Gujarat are located at Halol, Ankleshwar and Vadodara.

**Key business areas** – Finished formulations, APIs, fine chemicals, animal health and cosmeceuticals

**Key therapeutic areas** - CVS, CNS, women health, respiratory, pain management, anti infective, oncology, nephrology, neuroscience and dermatology

**Key research areas** – New molecular entities, novel drug delivery system, identification & validation of therapeutic targets, therapeutic proteins and vaccines by r-DNA technology

Leader in Cardiology, Gynecology, Gastro Intestinal and Respiratory therapy segments

Formulations business in India posted sales of USD 387.2 million in 2012-13

Launched more than 30 new products in the key markets of Asia Pacific, Africa and Middle East during 2012-13

**Key business areas** - Cardiovascular, central nervous system, gastro-intestinal, diabetology, anti infective and pain management

**Key research areas** - Discovery research, generic drug development, new drug delivery system and value added generics

Research Plant is located in Bhat Village in Gandhinagar with investment of USD 40 million

Source: IBEF; FDCA
Pharmaceutical Sector
Gujarat: Major Companies (2/3)

Key business areas – Formulations, APIs, hospital products
Key therapeutic areas - CVS, gastro intestinal, analgesic, anti-infective, antidiabetic, vitamins, haemostatic, immunomodulators
Key research areas - New drug discovery, new drug delivery, plant tissue culture, genetic engineering, biosynthesis, phytochemistry
Cadila Pharmaceutical has strategic collaboration with Europe based pharma companies including Pergamum AB and Bactiguard from Sweden

Key business areas – Finished formulations, APIs, contract research
Key therapeutic areas - CNS, CVS, diabetology, oncology, gastroenterology, r-DNA, urology and pain management
Key research areas - NDDS for formulations, API capabilities for Anti cancer agents, oral formulations, NDDS and drug delivery mechanisms
As of 31st of March 2013, Intas has grown to be a ~ USD 650 million organization with a revenue growth over 30% CAGR over the last 5 years and a profit growth of ~50% CAGR over the same period
Intas has developed 10 manufacturing facilities globally

Key business areas - APIs, intermediates, fine chemicals, quaternary compounds
Specialised services - Contract manufacturing and contract research
Key research areas - Research for contract manufactured products, pilot studies of new molecules, process optimisation and improvement, research for in-house applications (APIs, intermediates, fine chemicals)
Provides a range of solutions at locations in Europe and China besides India

Source: IBEF; FDCA
Pharmaceutical Sector
Gujarat: Major Companies (3/3)

**Alembic**
- **Key business areas** – Finished formulations, APIs, Chemicals, herbal nutraceuticals and veterinary
- **Key therapeutic areas** - CVS, gynecological, gastrointestinal, NSAIDS, antibacterial, antihistamine, hypoglycemic, vitamins, antiulcerant
- **Key research areas** - Chemistry and synthesis, formulations development, contract/Collaborated Research
- Vadodara based plant has the largest fermentation capacity in India
- The company has a state of the art Research Centre at Vadodara.

**Glenmark**
- **Key business areas** – APIs, Branded generic medicines
- **Key therapeutic areas** - Dermatology, hormones, controlled substances, oncology and modified release products
- **Key research areas** - Process research development, formulations development, analytical research and clinical research
- The Ankleshwar API manufacturing facility, which is approved by the US-FDA, MHRA, KFDA and WHO, caters to the regulated markets of US, Europe and Japan

**Claris**
- **Key business areas** – APIs, Generic drugs, injectables (LVP, SVP)
- **Key therapeutic areas**- Anesthesia, critical care, renal care, enteral nutrition and oncology
- **Key research areas** - Product development, formulation studies, method development and validation and stability studies
- Having presence across 100 countries, the company manufactures and markets products across multiple markets

**Teva**
- **Key business areas** – Generic drugs and OTC (Over-the-Counter Drugs), APIs
- **Key therapeutic areas**- CNS, respiratory, oncology, pain women's health therapeutic areas, biologics
- **Key research areas** - High-barrier generics, NTEs (New Therapeutic Entities), CNS (Central Nervous System)
- The Teva Sanand OTC facility represents a critical component of PGT Healthcare (headquarters in Geneva), Teva’s international partnership and joint venture with Procter & Gamble.

Source: FDCA
Pharmaceutical Sector
Gujarat: Educational Infrastructure

Education / research institutes

Research and development

Manufacturing

Marketing and exports

Contract research organizations

- L M College of Pharmacy, Ahmedabad
- Institute of Pharmacy - Nirma University, Ahmedabad
- National Institute for Pharmaceutical Education and Research (NIPER) - Ahmedabad
- Faculty of Pharmacy, MS University, Vadodara

- Zydus Cadila Healthcare Ltd.
- Claris Life sciences Ltd.
- Cadila Pharmaceuticals Ltd.
- Intas Pharmaceutical Ltd.
- Sun Pharma
- Lambda Therapeutics
- Quintiles Research (India) Private Limited
- Kendle INC Research
- Thermofisher Biopharma Services (i) Pvt. Ltd.
- Synchron Research Services Private Limited
- B A Research India Limited
- Torrent Pharmaceuticals Ltd.
- Dishman Pharmaceuticals
- Abbott Laboratories
- Wyeth
- Jubilant Organosys

Provisional Intake Capacity of Pharmacy Colleges in Gujarat (2013-14)

<table>
<thead>
<tr>
<th>Govt./GIA or Self Financed</th>
<th>No. of Colleges</th>
<th>Intake Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Govt./GIA</td>
<td>4</td>
<td>235</td>
</tr>
<tr>
<td>Self Financed</td>
<td>78</td>
<td>4890</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>5125</td>
</tr>
</tbody>
</table>

Source: The Admission Committee for Professional Courses
Pharmaceutical Sector
Gujarat: Government Policies and Initiatives (1/2)

**Gujarat Industrial Policy 2009**

- Scheme for assistance to Mega / Innovative projects
- Venture Capital Assistance
- Support to R&D institutes
- Financial Assistance for improving industrial infrastructure
- Interest Subsidy to MSMEs
- Assistance for skill enhancement and up-gradation programs

**Government Initiatives**

- Presence of Pharmaceutical Export Promotion Council (Pharmexcil)
- Promotion of generic drugs by giving them preference in Government purchases
- Establishment of National Institute for Pharmaceutical Education and Research (NIPER) for Human resource development
- The State has allowed setting up of Special Economic Zones in the sector which will boost pharmaceutical investments
- Incentives to encourage R&D in the sector in terms of various tax benefits
- Establishment of Gujarat Genomics Initiative, Genetic Diagnostic centers and Gene Banks
- I.T. application for issuance of manufacturing license, sales license and product license implemented by FDCA
- For quick disposal of various documents like CoPP, NCC and FSC, FDCA has started the process of I.T. application
- Establishment of Center of Excellence for Clinical Research and various sectors of biotechnology
- Establishment of Gujarat Genomics Initiative, Genetic Diagnostic centers and Gene Banks
- Presence of Pharmaceutical Export Promotion Council (Pharmexcil)

Source: Gujarat Industrial Policy 2009
Graded interest subsidy for five years at 7% for MSMEs and 2% for large industries having an actual investment up to INR 100 crore (USD 16.67 million)

New Industrial Park will be provided incentive of 50% of total expenditure up to INR 20 crore (USD 33.33 million) for core infrastructure development within the Industrial Park

Assistance up to 80% of the total expenditure up to INR 10 crore (USD 16.67 million) for the cost of core facilities needed

Assistance of 70% of the total expenditure including recurring expenditure of 3 years up to INR 20 crore (USD 33.33 million) for national level CoE
Globalization model for Gujarat’s Pharmaceuticals Industry

- Emerging Global Opportunities (CRO, Medical Tourism and R&D)
- Global Skill Sets and Talent Pool
- Entrepreneurial and Global Mindset
- Enabling Regulations (Strong IPR Regime and Logistical Infrastructure)
- Well Established Allied Industries and Ecosystem
- Resource Driven Competitive Advantage in Pharma Production

Source: KPMG Studies
Pharmaceutical Sector
Gujarat: Emerging Areas

- Enhanced level of investment in R&D by local industry to provide research-driven and high value services
- A large pool of patients and hospitals conducting clinical research at economical cost
- Strong base of Pharma Retailing in the state with over 18,000 retail stores present

The State Government of Gujarat has identified Biotechnology as most potential tool for development and has formed a dedicated department for R&D in the sector, Gujarat State BioTechnology Mission

- WHO GMP complaint and internationally accredited manufacturing facilities to augment demand for contract manufacturing

Medical device companies in Gujarat are competent enough to take care of all critical aspects like biocompatibility, toxicological & stability testing, validation process as well as design and development.

Sound base of diagnostic kits manufacturing; state contributes ~35% of the national production

Among the leading states in the production of vaccines and therapeutic devices

Contract Research and Clinical research

Contract manufacturing

Diagnostic Kits and Devices

Vaccines

Biotechnology products

Medical devices

Pharma retailing

Pharma machinery

- Strong base of pharma machinery production in the state
- ~40% of India's pharmaceutical machinery is produced in Gujarat
Pharmaceutical Sector
Gujarat: Investment Opportunities

- Contract manufacturing organisation (CMO)
- Manufacturing of new dosage forms like patches
- Manufacturing of recombinant DNA based products
- Manufacturing of intermediates and fine chemicals
  - Manufacturing of medical devices
- Manufacturing of ayurvedic preparations
- Manufacturing of active pharmaceutical ingredient
- Manufacturing of allopathic products
- Manufacturing of cosmetic products
- Manufacturing of biopharmaceuticals
- Manufacturing of oncology products

- In **Research and Development**, opportunities for investment lies in Contract research organisation (CRO), Clinical research, Genetic engineering and Setting of R&D centres & CoEs
- There are opportunities for investment in **Retail Stores** and **Pharmacy Chain** too.
XLN is a software for transparent and speedy disposal of various Licensing applications and reducing the time lag between the Collection of Samples to declaration of Results to dissemination of information to stake holders.

Gujarat model replicated in 10 states and declared as rapid roll out for all states by DeiTY, GoI.

FDCA – Laboratory Capabilities

- Food and Drug Laboratory (FDL) – Vadodara and Patan; Regional Food Laboratory - Rajkot and Bhuj can carry out testing of **Allopathic Drugs, Ayurvedic Drugs, Homoeopathic Drugs, Cosmetics, Food Articles**.
- These laboratories are equipped with state of the art testing facilities **AAS, Spark emission, spectrophotometers, HPLC with Auto Sampler, Gas/Liquid chromatography, Spectrophotometers, FTIR**
- FDCA is equipped with **Mobile Drug Testing Lab having** key sophisticated instruments like **Raman Spectrophotometer, Near Infrared, XRS (X-Ray Spectrometer)**. These Mobile Labs (India’s first Mobile Drug Testing Lab) have facility of detecting any spurious drugs on spot.
Pharmaceutical Sector
FDCA: Awards and Accolades

Award for Swarnim Swanthah Sukhaya Project – 2012 in Category “To make more competent and incorruptive system of public

C S I - IT Excellence Award 2012 (Health – Infra & Solutions)

National e-Governance Gold Award 2013, by Government of India

e-INDIA Gold Award in Health Sector, Hyderabad, 2013

Selected for National Rapid Roll-Out Programme in 2013 by DeiTY, Government of India
Health and Family Welfare Department
7th Floor, Block 7,
Sardar Patel Bhavan, Sachivalaya,
Gandhinagar, Gujarat, India - 382010
http://www.gujhealth.gov.in/
Phone: 079-23251401
E-mail: sechfwd@gujarat.gov.in

Food and Drugs Control Administration
Block No 8, Dr. Jivraj Mehta Bhavan, Gandhinagar, Gujarat, India – 382010
Phone: 079-23253417
E-mail: comfdca@gujarat.gov.in
1.7 Electronics & System Design
India is poised to be a USD 400 billion Electronics Hardware market by 2020.

Gap between current and expected domestic production presenting significant opportunities for investment.

Sources: India Electronics & Semiconductor Association
**ESDM Industry**  
**Policy, Interventions and Initiatives**

**Assistance provided by Central Government (1/2)**

### National Policy on Electronics

**Vision 2020:** “To create a globally competitive electronics design and manufacturing industry to meet the country’s needs and serve the international market”

<table>
<thead>
<tr>
<th>Scheme/Programme</th>
<th>Details</th>
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</table>
| **Electronics Manufacturing Cluster Scheme (EMC)** | - Subsidy up to USD 10 Mn per 100 acres  
- Target 200 clusters by 2020 |
| **Modified Special Incentive Scheme (M-SIPS)** | - Substantial Capex Subsidy of 20-25%  
- Central Taxes and Duties reimbursements |
| **Semiconductor FAB** | - Leading Players expressed interest  
- Two FABs approved |
| **Electronics Development Fund** | - USD 2 billion fund for Innovation, IP and R&D funding |
| **Human Resource Development and Skilling** | - 2500 PhDs in electronics by 2020  
- Electronics and Telecom Sector Skill Council  
- Skill Development for 1 million persons |

*Sources: National Policy on Electronics*
Modified Special Incentive Package Scheme (M-SIPS) Policy notified by Government of India

- 25% of capital expenditure if the ESDM unit is in non-SEZ and 20% of capital expenditure if the ESDM unit is within SEZ. This capex subsidy is available for investments made within 10 years from the date of approval of the project.
- Reimbursement of CVD/excise on capital equipment for non-SEZ units.
- Reimbursement of central taxes and duties (like custom duties, excise duties and service tax) for 10 years in select high-tech units like Fabs, Semiconductor Logic and Memory chips, LCD fabrication.

Preferential Market Access Policy

- Provides for preference to domestically manufactured electronics products in Government procurement.
- Applicable on following products: Desktop PCs, Dot Matrix Printers, Tablet PCs, Laptop PCs, Contact Smart Cards, Contactless Smart Cards, LED Products
- Minimum 30% of above applicable products to be procured from domestic manufacturers.
ESDM Industry
Policy, Interventions and Initiatives

Assistance provided by Government of Gujarat

- Assistance of up to 25% of the project cost to EMC SPVs in the Greenfield, subject to a ceiling of INR 20 crores (USD 1.6 million)
- Special Scheme to assist training institutions and trainees in the ESDM industry. Incentives to MSME ESDM units
- Design City to be setup in the state and Gujarat Electronic Mission to be Launched

To establish Gujarat as a globally-recognized hub for the ESDM industry, the state government is planning to declare “Electronics Policy 2014-2019”.

- New units and existing units as per the policy will be entitled for exemption of 100% VAT on products manufactured and sold in Gujarat for a period of five years
- Creation of Intellectual Property (IP) by contributing more funds to R&D for start-ups and development of Centers of Excellence (CoEs) in the ESDM sector
- Setting up of at least five Brownfield and three Greenfield Electronics Manufacturing Clusters
- A highly empowered ‘Single Window Clearance System’ towards the establishment of the Electronics manufacturing units in the State for granting approvals and clearances

Sources: Department of Science & Technology
ESDM Industry
Destination Gujarat

Investment Opportunities

- Strategic Electronics
- Telecom Products & Equipments
- Industrial Electronics
- Automotive Electronics
- Consumer Electronics
- Electronic Components

Presence of Key Enablers

- Skilled Talent Availability
- Conducive Policy Environment
- Skilled human resource and lower cost of manpower
- Robust Physical, Social and industrial infrastructure
Department of Science and Technology

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