

INDUSTRIES IN INDIA

Evolution of Industries

Before the rise of modern industries, **India was known all over the world for its cottage and household industries**. Indian muslin, silk goods, and artistic pottery were in great demand the world over. The arrival of English resulted in the decay of traditional handicrafts.

The East India Company developed a policy of export of raw material from India to Britain and the import of finished products to India from Europe. It was because of this policy that no industry could be developed in India before 1854. In the later part of the 19th century the growth and development of industries in India was stunted and slow.

- **The industrial development in India started after 1854 when some cotton and jute mills were established by the British in Mumbai and Calcutta (Kolkata) respectively.**

Modern industrial phase

- Traced back to the establishment of the first **iron and steel charcoal plant** at Port-Navro (Tamil Nadu). This mill was closed down in 1886.
- The first **cotton textile factory** was established at Mumbai in 1854
- **Jute mill** at Rishra near Calcutta (Kolkata) in 1855
- The **cotton textile industry** expanded during 1870s when there was civil war in America. The number of cotton mills grew to 275 before the First World War. The progress in jute industry was, however, not satisfactory. The beginning of iron and steel industry was even more delayed.
- The **first iron and steel mill** was established by **Bengal Iron Works Ltd. at Kulti** in 1874. It resulted in a failure and was shut down in 1881.
- The real development of iron and steel industry started in 1908 when a steel plant was established at **Jamshedpur**.
- The **first successful paper mill** started at **Ballygunj Circular Road in Kolkata** in 1870. Two more paper mills in Kolkata and one in Lucknow started in 1905.
- It was in 1870, when the **woollen textile mills** were established in Bangalore (Karnataka), Dhariwal (Punjab), and Kanpur (Uttar Pradesh).
- After the **First World War**, the Indian industries got a good boost as India became the main supplier of cotton and woollen textiles and liquors.
- The period during the **Second World War** was a time of crisis as India got involved in war. After the Second World War, the production fell down due to decreasing demand for industrial products, lack of capital, political unrest, transport bottlenecks, and labour strikes.
- The **partition of the country** in 1947 gave a severe blow to jute and cotton textiles as the raw material producing areas of jute and good quality cotton went to Pakistan.
- The condition of cotton textiles, cement, paper, iron and steel industries, and consumer goods was worst due to the **non-availability of raw material**.
- After Independence, the Government of India realised the importance of an appropriate industrial policy, which led to the **Industrial Policy Resolution, 1948**. According to this

policy, the **concept of mixed economy** was introduced in which the state and the private enterprise were allowed to co-exist and co-prosper in the fields demarcated for them. **This resolution divided the industries between public and private sectors.**

INDUSTRIAL DEVELOPMENT DURING THE FIVE-YEAR PLANS

First Five-Year Plan (1951-56)

- The main thrust on agricultural development.
- Emphasis was on increasing capacity of the then existing industries rather than the establishment of new industries.
- Cotton, woollen and jute textiles, cement, paper, newsprint, power-looms, medicine, etc showed some progress.

Second Five-Year Plan (1956-61)

- Great emphasis was laid on the establishment of heavy industries.
- The second industrial policy was announced in 1956.
- The main thrust of industrial development was on iron and steel, heavy engineering, lignite projects, and fertiliser industries.
- Moreover, there was emphasis on the **expansion of existing steel plants**, like Jamshedpur, Kulti-Burnpur, and Bhadravati.
- **Three new iron and steel plants** were located at Bhilai, Durgapur, and Raurkela.
- Many of the targets, however, could not be achieved because of the war with China in 1962 and the failure of monsoon over greater parts of the country.

Third Five-Year Plan (1961-66)

- There was **emphasis on the expansion** of basic industries like iron and steel, fossil-fuel, power, and machine building.
- Machine building, locomotive and railway coach making, ship-building, air-craft manufacturing, chemicals, drugs, and fertiliser industries also made steady progress.

Fourth Five-Year Plan (1969-74)

- The period between 1966 and 1969 was the period of annual plans. The industrial period could not make much progress during the annual plans period.
- During the fourth Five-Year Plan there was **much emphasis on the agro-based industries** such as sugar, cotton, jute, vanaspati, metal-based, and chemical industries.
- progress was made in alloys, aluminium, automobile-tyres, electronic goods, machine tools, tractors, and special steel.

Fifth Five-Year Plan (1974-79)

- The main stress in this plan was on **rapid growth of steel plants, export-oriented articles, and goods of mass consumption.**
- The Steel Authority of India (**SAIL**) was constituted.

- Moreover, drug, oil, chemical fertilisers, and heavy engineering made steady progress.

Sixth Five-Year Plan (1980-85)

- The main emphasis on **producing goods to exploit the domestic and international markets.**
- aluminium, automobiles, electric equipments, thermostatics were given the priority.

Seventh Five-Year Plan (1985-90)

- The main thrust was on **'high tech' and electronic industries.**
- Industrial dispersal, self-employment, exploitation of local resources, and proper training were the preference areas of the plan.

Eighth Five-Year Plan (1992-97)

- The policy of liberalisation was adopted for the investment of foreign multi-nationals. Emphasis was given on the removal of regional imbalances and encouraging the growth of employment in small and tiny sectors.

Ninth Five-Year Plan (1997-2002)

- The main emphasis during this plan was on cement, coal, crude oil, consumer goods, electricity, infrastructures, refinery, and quality steel products

Tenth Five-Year Plan (2002-07)

- the modernisation, technology upgrading, reducing transaction costs, and increased export; increase global competitiveness, balanced regional development.

Eleventh Five Year Plan (2007-12)

- priority to: agriculture, irrigation, and water resources, education, health, infrastructure, and employment, along with programmes for SCs/STs, other backward classes, minorities, women and children.
- Govern-ment has realised that in recent years although economic growth has accelerated but it has failed to be 'inclusive'
- Eleventh plan stresses that benefits of development should reach all sections of population. This plan emphasizes on social justice.

INDUSTRIAL POLICY OF INDIAN GOVERNMENT

The **first industrial policy** was announced by the government of India on April 6, 1948. In this policy both the public and private sectors were involved towards industrial development. industries were classified into **four broad categories**:

1. **Exclusive State Monopoly**: arms and ammunition; production and control of atomic energy, railways

2. **State Monopoly for New Units:** This category included coal, iron and steel, aircraft manufacturing, ship-building, manufacturing of telephone, telegraph and wireless apparatus (excluding radio receiving sets), and mineral oil. New undertakings in this category could, henceforth, be undertaken only by the state.
3. **State Regulation:** included industries of such basic importance like machine tools, chemicals, fertilisers, etc. which the central government would feel necessary to plan and regulate.
4. **Unregulated Private Enterprise:** The industries in this category were left open to the private sector, individual as well as co-operative.

Industrial Policy, 1991

- to unshackle the country's industrial economy from the cobwebs of unnecessary bureaucratic control,
- to integrate the Indian economy with the world economy
- to remove restrictions on direct foreign investment
- to free the domestic entrepreneur from the restriction of MRTP (Monopolies and Restrictive Practices Act).
- shedding the load of public enterprises which have shown a very low rate of return or incurred losses over the years.

COTTON TEXTILE INDUSTRY

- **Textile industry includes cotton, jute, wool, silks, and synthetic fibre textiles.** India is one of the leading producers of textile goods.
- It is one of the largest and most important sector in the economy in terms of output, foreign exchange earnings, and employment in India.
- Its contribution:
 - 20 per cent of the industrial production
 - 10 per cent of the excise collection
 - 18 per cent of employment in the industrial sector
 - 20 per cent of the country's total export earnings
 - 4 per cent of the GDP
- India is the third largest producer of silk, fifth largest producer of synthetic fibres, and has the largest loomage and spindles in the world.
- India enjoyed monopoly in the production of textile goods from 1500 BC to 1500 AD. Indian cotton and silk textiles were in great demand all over the world.
- It was the arrival of the British in India and the Industrial Revolution in Britain in 1779 which led to the downfall of the Indian manufacturing.
- The British encouraged the export of raw material from India to Britain and import of manufactured goods from Britain to India.

COTTON

- The first textile mill was established in 1854 in Mumbai by C.N. Dewar.

- The fast growth of cotton textile occurred in 1870
- The demand for cloth during the Second World War led to further progress of the textile industry.
- The industry suffered a setback in 1947 as good quality cotton growing area went to Pakistan.
- **India had to import cotton from the African countries.**
- Cotton being a pure raw material provides a chance to establish textile mill **either in the areas of raw material or in the market.**
- **In India**, most of the textile mills are in the cotton growing areas or in the neighbouring cities and towns.
- **The location of cotton textile industry is also affected by:** (i) raw material, (ii) proximity to market, (iii) moist weather, (iv) capital, (v) skilled and cheap labor, (vi) transport, (vii) sea-port, (viii) export facility and the domestic and international markets.

State-wise Production of Cotton Cloth in India(In sq metres)

- Maharashtra (400,550) > Gujarat (355,745) > TN(65,850) > Punjab > MP > UP > Rajasthan > Pondicherry > Karnataka > Kerala

Production of Cotton Goods State-wise

Maharashtra

- The state of Maharashtra is the largest producer of cotton goods.

The locational factors in the state of Maharashtra are:

- Availability of raw material
- **Climate:** The city of Mumbai where most of cotton mills are located has a **mild climate with enough moisture in the air; so the thread does not break frequently.**
- Mumbai is close to Egypt, Sudan, and east African countries from where the long **staple cotton is imported** for the production of good quality of cloth.
- Cheap skilled labor is available in the state.
- Cheap electricity is available
- Large market of cotton products, both in India and abroad.
- Seaport of Mumbai is well connected by rails and highways.
- There is no dearth of money investment in this industry. presence of entrepreneurs who are always willing to invest in this industry.
- **Early Start:** The state of Maharashtra and the city of Mumbai got the advantage of an early start in cotton textile industry.
- The city of **Mumbai with 63 cotton mills** is the largest producer of cotton in the country. Due to the high concentration of cotton mills Mumbai is called the '**Cottonopolis of India**'.
- In Maharashtra, Sholapur is the second largest producer of cotton goods.
- Pune, Nagpur, Jalgaon, Akola, Sangli are the other important cotton goods producing centres.

Gujarat

- Gujarat has 118 mills producing about **35 per cent** of the total cotton goods of the country.
- The city of **Ahmedabad is the second largest** cotton producing centre after Mumbai in the country.
- It specialises in the production of fine qualities of dhotis and saris and a large variety of bleached, coloured, or printed fabrics.
- Bhavnagar, Bharuch, Kalol, Kadi, Kelot, Khambhat, Nanded, Porbander, Rajkot, Surat, Vadodra are the other important cotton producing centres of Gujarat.

Tamil Nadu

- **Tamil Nadu has the largest number of cotton mills in the country.**
- It is the third largest producer of cotton textile in the country.
- Tamil Nadu's mills are however, smaller in size.
- This state produces about **45 per cent of the total yarn of the country.**
- Chennai, Madurai, Salem, Tirunelveli, and Tuticorin

Uttar Pradesh

- Kanpur is the most important cotton textile centre of Uttar Pradesh.
- In addition to this Agra, Aligarh, Bareilly, Lucknow, Modinagar, Modipuram, Moradabad, Saharanpur, and Varanasi

West Bengal

- Kolkata is the most important cotton textile producing centre of West Bengal.
- Haora, Hugli, Murshidabad, Panihar, Sirampur, and Shiampur.

In India, cotton goods are produced in the following three types of sectors: (i) Mills, (ii) Power-looms, and (iii) Handlooms.

Problems of the Cotton Textile Industry

1. Shortage of Raw Material

- There is a shortage of raw material especially of good quality cotton.
- leads to low production and sickness of the mill.
- Consequently, long staple cotton is imported from Egypt, Sudan, Kenya, Peru, Tanzania, Uganda, and USA.
- There is a need of **Silver Fibre Revolution** in the country.

2. Obsolete Machinery

- Most of the Indian textile mills are working with obsolete machinery. According to one estimate 70 per cent of the spindles are more than 30 years of age.
- The outdated machinery cannot compete with the machinery of countries

3. Erratic Power Supply Power supply to most of the factories is inadequate and erratic

4. Strikes and Lockouts.,

5. Competition in Foreign Market

- The Indian cotton goods are facing a stiff competition in foreign markets, especially from China, Egypt, Japan, South Korea, and Taiwan.

6. Heavy Excise Duties

- The high rate of duty on imported cotton has increased the cost of production

7. Competition with Synthetic Fibres which are more durable and attractive.

8. Sick Mills

- In India more than 130 mills are sick.
- The slow pace of modernisation, outdated machinery, and old technology are some of the long-term problems which need to be addressed.

Jute Textile in India

- India is the largest producer of jute goods in the world, contributing about **35 per cent of the total output of the world.**
- It is a labour intensive industry which directly and indirectly provides job to more than **3 lakh people.**
- The industry is, however, facing a **tough competition from synthetics** and its export market is shrinking.
- first jute factory in India was at **Rishra**, about 20 km north of Calcutta in 1854.
- The industry made **tremendous progress in the later part of the 19th century.**
- Subsequently, the industry was **boosted by the two world wars.**
- The industry suffered a serious **setback in 1947** due to the partition of the subcontinent.
- After partition about **80 per cent of the jute growing areas went to East Pakistan** (Bangladesh), while nearly **90 per cent jute mills remained in India.**
- **In 1959, the international demand of jute products decreased** substantially as a result of which 112 jute factories were closed down. At present there are **only 60 jute producing mills** in India. Most of these mills are along the Hugli river, especially to the north of Kolkata.
- **The jute mills are integrated units consisting of both spinning and weaving units.**
- **The main products of jute industry are** gunny bags, canvas, pack-sheets, cotton-jute, paper-lined Hessians, Hessian cloth, carpets, carpet-backings, rugs, cordage, and twines.
- **Jute industry is mainly a raw material based industry.**
- Most of the jute mills are in the jute producing areas of the country.
- **West Bengal alone accounts for 85 per cent of the total jute production of the country.**

The high concentration of Jute mills in West Bengal is because of the following factors:

1. **Availability of raw material:** Jute cultivation needs highly productive, **well-drained soils** and **hot and humid climate**. These conditions are ideally available in many tracts of West Bengal and Lower Assam.
 2. Cheap and **skilled labour** is available in West Bengal
 3. Cheap **water transport** through the Hugh river.
 4. **Availability of coal** from the Raniganj coal-mines.
 5. Export facility through the **port of Kolkata**.
- jute mills are also located in Eluru, Guntur, Ongole and Vishakhapatnam (Andhra Pradesh); Darbhanga, Gaya, Katihar and Samastipur (Bihar); Kanpur (Uttar Pradesh); and Raigarh (Chhattisgarh).
 - Jute industry in India is essentially **export-oriented**.
 - India stands **second after Bangladesh in the export** of jute and jute products.
 - Jute goods are exported to USA (30 per cent), Russia (25 per cent), UAE ((10 per cent), and UK, and Germany (2 per cent each).

Problems of the Jute Textile Industry

I. Shortage of Raw Material

- Is not self-sufficient in the supply of raw material.
- To meet the growing need of the industry, raw material is imported from Bangladesh, Brazil, and Philippines.
- There is a need of **Golden Fibre Revolution** in the country.

2. Obsolete Machinery

- Most of the machinery in jute mills is more than 25 years old.

3. International Competition

- From **Bangladesh, Brazil, Japan, Philippines**, and South Korea.

4. High Prices.

5. Decrease in the Demand of Jute Products

6. Strikes and Lock-outs..

7. Competition from Substitutes

- Jute industry is facing a tough competition from synthetic bags.

Woolen Textile in India

- Woolen textile is one of the oldest industries of India. **During the ancient and medieval periods woolen clothes were manufactured at the cottage industry level.**
 - The modern woolen textile industry started with the establishment of **Lai at Kanpur** in 1876.
 - It was followed by the setting up of **`Dhariwal' at Punjab** in 1881.
 - Subsequently woolen mills were established in **Mumbai (1882) and Bangalore** (1886).
 - The industry made tremendous progress after Independence.
 - The main concentration of woolen industry is found in Punjab, Maharashtra, and UP.
 - Other states which are producing woolen goods are Gujarat, Jammu and Kashmir, Karnataka, and West Bengal .
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- In Punjab mainly in Amritsar, Dhariwal, Kharar and Ludhiana.
 - In Maharashtra, Mumbai.
 - In Uttar Pradesh at Kanpur, Agra, Mirzapur, Modinagar, Shahjahanpur, and Varanasi.
 - In Gujarat, Ahmedabad, Jamnagar, Kalol, and Vadodra
 - In Haryana, Bahadurgarh, Faridabad, Gurgaon, and Panipat
 - In Rajasthan, Alwar, Beawar, Bikaner, Bhilwara, Jaipur, Jodhpur, Sikar and Nagaur
 - Bangalore, Kolkata, Haora, Srinagar, Kullu (Himachal Pradesh), Salem and Chennai are the other woollen textile centres.
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- India is not self-sufficient in quality wool production. Hence imported from Australia.
 - **The important items of export** are blankets, caps, carpets, cardigans etc.
 - These goods are exported to USA, UK, Australia, Belgium, Canada, Denmark, France, Germany, the Netherlands, Russia, South West Asian, and African countries.

Problems of the Woollen Textile Industry

- (i) quantity and quality of wool
- (ii) machinery
- (iii) Competition
- (iv) Competition with synthetic fibres
- (v) Shortage of power
- (vi) Low quality of goods
- (vii) Lack of market
- (viii) Strikes

Silk Textile in India

- India's position in silk production is number two in the world after China, contributing 18% of the total silk production of the world.
- India has the **monopoly in the production of muga silk, produced in Assam and Bihar.**
- Silk textile was essentially a household industry in the early stage of its development.
- The Mughals were very much fond of silk clothes.

- The cotton goods used to be **exported to the countries of south-west Asia and Europe.**
- The first silk mill was, however, located at Haora by the East India Company in 1832.
- The industry made tremendous progress after Independence.

Distribution

The states of Andhra Pradesh, Assam, Bihar, Jammu and Kashmir, Karnataka, Tamil Nadu, Uttar Pradesh, and West Bengal are the leading producers of silk textile goods.

Karnataka

- largest producer of silk textile
- Bangalore, Belgaum, Gokak, Kolar, Mandya, Mysore, and Tumkur are the main producing centres. Channapatna and Mysore are the main centres of silk textile
- Silk yarn from these centres is exported to Arani, Kancheepuram, Surat, and Varanasi.
- **West Bengal:** Basawa, Bishenpur, Chak-Islampur, Kolkata, and MadhuGhat (Maldah District).
- **Andhra Pradesh:** Anantapur, Chittoor, Karimnagar, Vishakhapatnam, and Warangal.
- In Bihar, Bhagalpur; in Jharkhand, Hazaribagh and Ranchi;
- **Assam:** Barpeta, Goalpara, Kamrup, Nalbari, and Naogaon.
- **Tamil Nadu:** Coimbatore, Dharmapuri, Kancheepuram, Nilgiri, Salem, and Tirunelveli;
- **Madhya Pradesh:** Balghat, Bastar, Bilaspur, Raigarh, and Surguja
- **Jammu and Kashmir:** Anantnag, Baramulla, Doda, Jammu, Riasi, Srinagar
- Silk and silk products are exported to USA, UK, Kuwait, Russia, Oman, Saudi Arabia, Singapore, and UAE.

Iron and Steel Industry In India

- The history of iron and steel industry in India is nearly 4000 years old.
- The famous iron pillar near Qutab Minar is dating back to 350 AD.
- The first attempt to produce iron and steel on modern lines was made in 1830 at Porto Nova, near Chennai (Tamil Nadu). But it was not successful as the smelting used to be done with the help of charcoal.
- Pig-iron was produced in 1874 for the first time by the Bengal Iron Works.
- The real progress in the iron and steel industry was made in 1907 when J.N. Tata established the smelting factory at **Sakchi (the former name of Jamshedpur).**
- Subsequently, the Indian Iron and Steel Company Ltd. (IISCO) was set up at Hirapur in 1918, and the Visveswaraya Iron and Steel Limited (VISL) at Bhadravati in 1923.
- It was in the **Second Five-Year Plan 1956-61**, when tremendous progress was made by the iron and steel industry. It was during this plan, when integrated iron and steel plants were established at **Bhilai, Durgapur, and Raurkela.**
- The **Bokaro Iron and Steel Plant** was established with the help of Russian government in 1964.
- The Steel Authority of India (SAIL), was set up in 1973.

- In **the Fifth Five-Year Plan**, it was resolved to set up four new iron and steel plants at **Paradwip, Salem, Vijaynagar and Vishakhapatnam**.
- At present India is the **5th largest producer of crude steel** in the world.

Locational Factors

- The raw material used in the iron and steel industry are iron ore, manganese, flux, limestone, fuel (coking coal), and fire-clay.
- It consumes heavy quantity of coal and iron-ore. Both these **minerals are weight-losing**. Consequently, it is **located either at the site of coal mines or near the iron-ore deposits**.
- All these raw materials including water, bauxite, dolomite, etc. and coal are found in the Chotanagpur Plateau. The state of Bihar, Chhattisgarh, Jharkhand, Karnataka, Madhya Pradesh, Orissa, Tamil Nadu, and West Bengal are rich in the raw material required for the smelting of iron-ore.

There are twelve important iron and steel plants in India. Except TISCO, all the big integrated plants are in public sector. The steel plants under public sector are supervised by the Steel Authority of India Limited (SAIL).

The Tata Iron and Steel Company (Jamshedpur)

- TISCO Plant is located at the confluence of Subernrekha and Kharkai rivers in the Singhbhum District of Jharkhand.
- It was established in 1907
- The Jamshedpur Steel Plant has an ideal location at which the transportation cost is the least.
- **Supply of iron-ore from:** Badam-Pahar (Mayurbhanj), Noamundi (Singhbhum);
- **coking coal from:** Jharia and Bokaro
- **mn** from Keonjhar
- **limestone and fire-clay** from Sundargarh District (Jharkhand),
- **fresh water** from the Subernrekha and Kharkai rivers.
- Being situated in the tribal belt, cheap **labour** is also available and the finished products can be exported through the port of Kolkata.
- TISCO produces pig iron, high grade steel, acid steel for making railway wheels, axles, bars, bolts, corrugated-sheets, nails etc.
- Special alloy steel produced by the plant is used for making bullet-proof armour plates and for armour-piercing bullets.

Burnpur, Indian Iron and Steel Company (IISCO)

- The Indian Iron and Steel Company, founded in 1918, and the Steel Corporation of Bengal, founded in 1927, were merged under the former name in 1952.
- It has three separate plants at Burnpur (about 5 km south-west of Asansol), Hirpur (about 6 km south of Asansol) and Kulti (about 16 km west of Asansol).

- The management of these steel plants was taken over by the government in 1972.
- These steel plants obtain iron ore from their mines at Goa.
- The coal is obtained from Ramnagar mines of Jharia, which is only about 3 km from Kulti. Manganese is obtained from Bihar, Jharkhand, Madhya Pradesh, and Orissa; fire-clay from Singhbhum.
- Moreover, cheap hydro-electricity is available from the Damodar Valley Corporation (DVC) and water from the Damodar river.
- Cheap labour is available from within the tribal belt of the region and Bihar, while the seaport of Kolkata helps in the export of the finished product.

The Bhadravati Iron and Steel Plant (VISL)

- The Visveswaraya Iron and Steel Limited at Bhadravati was established in 1823.
- It obtains iron ore from Kudermukh, Baba Budan Hills (Chikmagalur District of Karnataka).
- Manganese, limestone, dolomite, and fire-clay are also available within a distance of 50 km,
- electricity from the Jog and Shrivati Power Projects.
- This plant is one of the major producers of alloy and special steel in the country.

Bhilai Iron and Steel Plant

- established with the technical co-operation of Russian Government in the Durg District of Chhattisgarh in 1959.
- It obtains its iron ore from the Dhalli-Rajhara mines
- coal from Korba, Bokaro and Jharia
- manganese from Balaghat and Bhandara,
- lime-stone from Nandani mines
- water from Tandula Canal and Reservoir,
- electricity from the Korba Thermal Power Station.
- As it is located in the tribal belt of Chhattisgarh, cheap labour is locally available.
- The finished products are exported through the port of Vishakhapatnam.
- Bhilai steel plant specialises in the production of pig-iron, crude-steel, and plates for ship-building industry.

5. Raurkela Iron and Steel Plant (Hindustan Steel Limited)

The Raurkela Steel Plant is located in the Sundargarh District of Orissa along the Kolkata-Nagpur railway line. It was built with the technical co-operation from the German firm, Krupps and Demang in 1959. The plant obtains its iron-ore from Mayurbhanj; coal from Bokaro, Jharia, Talcher, and Korba; manganese from Sundargarh; water from the Sankha and Koel rivers (tributaries of Brahmani); and hydro-power from the Hirakud Dam. Cheap labour is available from the Jharkhand and densely populated Bihar state. It specialises in the production of flat products. The main products of this steel plant are cold-rolled-sheets, hot-rolled-sheets, galvanised sheets and electrical steel plates. The plant also re-leases large quantity of nitrogen as by-product of fertilisers and various chemicals like anthracite-oil, benzole, crude-anthracite, crude-phenol, naphtha, naphthalene, and wash-oil.

6. Durgapur Iron and Steel Plant (HSL)

The Durgapur Iron and Steel Plant was established with the help of British companies in 1956; production started in 1962. The city of Durgapur is located along the Damodar River. It obtains iron-ore from Singhbhum (Jharkhand), and Kendujhar (Orissa), coal from Raniganj, manganese from Balaghat (M.P.), and water from the Damodar river. It produces ingot steel.

Bokaro, Bharat Steel Limited (BSL)

The Bokaro Steel Plant was located with the help of the Soviet collaboration in 1964. It obtains its iron ore from Keonjhar District; coal from Bokaro, Jharia, and Kargali coal mines; lime from Daltonganj in Palamu District; dolomite from Bilaspur District; and water from the Tenu Dam across the Damodar river. Bokaro is essentially a flat product plant, and the hot and cold rolling mills are its main production units. Its sludge and slag are being used in making fertilisers at Sindri.

8. Salem Steel Plant

This steel plant was commissioned in 1982. It obtains iron-ore from the neighbouring areas, manganese, dolomite and limestone are also available within a distance of 60 km. Cheap power and labour and enormous market are the added advantage. It produces iron and steel of special grade.

9. Vijayanagar Steel Plant

This steel plant is located near Hosepet in the Bellary District of Karnataka. It obtains iron-ore from Hosepet; coal from Kanhan valley (Chhattisgarh) and Singareni (Andhra Pradesh); limestone and dolomite are also available within a distance of 150 km; water from the Tungbhadra Reservoir (about 35 km); and cheap hydel-power from the Tungbhadra Project. In this plant steel is produced with the Corex process which makes use of non-coking coal.

10. Vishakhapatnam Steel Plant

The foundation of this steel plant was laid in 1971 and the actual production was commissioned in 1992. This steel plant was established by the Rashtriya Ispat Nigam Limited (National Steel Corporation Ltd.). This is the only steel plant of India which has a coastal location. It obtains iron-ore from Bailadila (Chhattisgarh); coal from Bokaro, Raniganj, and Jharia; limestone and dolo-mite from Bastar (Chhattisgarh), Madhya Pradesh, and Orissa. It specialises in the production of steel and the quality of its steel can be compared to global standards.

11. Daitari Steel Plant

A steel plant has been located at Daitari near Paradwip in Orissa. Initially it was to be established in collaboration with the British and South Korean companies. Its responsibility has, however, been given to the Tata Group. It has a capacity of 2.6 million tonnes.

12. Dolvi Steel Plant

A new steel plant is being set up by the Ispat Industries Limited at Dolvi in the Ratnagiri District of Maharashtra. This steel plant is equipped with the latest technology in steel manufacturing. It requires less space, less energy, high labour productivity, and less cost of production. The plant is capable of producing strips as thin as 1.00 mm. Its annual capacity is 3 million tonnes.

13. Tata Steel, Kalinganagar

This steel plant has been undertaken by the Tata Steel Company. The first phase of the project was completed in 2005.

14. Pasco Steel, Paradwip

The Pohang Steel Company of South Korea has agreed with the Orissa Government to establish an iron and steel plant at Paradwip. The project is likely to be commissioned in 2016. It is one of the biggest foreign direct investment (FDI) in India. When complete, it will require over 600 million tonnes of iron-ore for the production of iron and steel.

15. Mini-Steel Plants

In addition to these, there are more than 225 mini-steel plants with a capacity of 10,000 tonnes to 5 lakh tonnes. The main factors responsible for the growth and establishment of mini-steel plants are:

- (i) Heavy demand for iron and steel
- (ii) Lower cost of production
- (iii) Controlled price of the steel
- (iv) Easy availability of scrap at lower prices from home and abroad
- (v) Lower capital investment
- (vi) Shorter gestation period

Problems of Iron and Steel Industry in India

1. Heavy Investment:

The establishment of iron and steel industry requires huge amount of capital. Moreover, the plant has a long gestation period.

2. Obsolete Technology:

The iron and steel plants established during the Second Five-Year Plan are not working to the full capacity as the machinery is outdated.

3. Inefficient Public Sector:

Most of the iron and steel plants in public sector are incurring heavy losses mainly due to poor management and under-utilisation of capacity.

4. Controlled Prices:

The government has fixed price for iron and steel which leaves very little margin of profit for the manufacturers.

5. Sickness of Mini-Steel Plants:

Due to the inadequate supply of power and sharp increase in the raw materials, many of the small iron and steel plants are either experiencing sickness or are being closed down.

6. Inadequate Supply of Coking Coal:

- India's coking coal deposits are confined largely to the Raniganj and Jharia coal mines.
- These coal mines have become fairly deep and the cost of product of coal has gone up. Consequently, the input cost of energy is going up, affecting the output and margin of profit adversely.

7. Competition in the International Market:

with the steel of Australia, Brazil, France, Germany, Japan, Canada, Sweden, UK, and USA

Aluminium Industry in India

- Aluminium is the **second most important** metallurgical industry of the country.
- Its elasticity and good conductivity of electricity and heat, and capacity to be moulded into any desired shape has made it a universally accepted metal.
- used in the generation and distribution of electricity, manufacturing of aeroplanes, railway coaches, defence and nuclear accessories, utensils etc.
- It is a cheaper substitute of steel, copper, zinc, lead, etc. in a large number of industries.

Locational Factors:

- Availability of **bauxite (raw material) and hydro-electricity** are the basic requirements for the establishment of aluminium industry.
- The production of **1 tonne of aluminium requires approximately 6 tonnes of bauxite.**
- About **30 to 40 per cent of the production cost of aluminium is accounted for electricity alone.**
- Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, and Tamil Nadu are the major producers of bauxite in India.

The distribution and production of bauxite:

1. Orissa:

- **first in the production** of bauxite, producing more than 50 per cent of the total bauxite.
- The Kalahandi-Koraput belt is the main bauxite deposit region.
- also obtained from the districts of Bolangir, Sambalpur and Sundargarh.

2. Gujarat:

- About 16 per cent of the total bauxite production
- Gulf of Kachchh and the Gulf of Khambat (Arabian Sea) through the districts of Bhavnagar, Junagarh, and Amreli. It is mined in Kheda and Sabarkantha.

3. Jharkhand-Bihar:

- Dumka, Gumla, Lohardaga, Munger, Palamu, and Ranchi districts. The **Lohardaga mines are for high grade bauxite deposits.**

4. Maharashtra:

- About 10 per cent of the total bauxite production comes from Maharashtra. Kolhapur, Pune, Ratnagiri, Satara, and Thane are its main producing centres.

5. Chhattisgarh:

- Maikal Range, Amarkantak Plateau, Bilaspur, Raigarh, and Surguja. Its share in the total production is about 6 per cent.

6. Tamil Nadu: The Madurai, Nilgiri and Salem

7. Madhya Pradesh: Balaghat, Jabalpur, Katni, Mandla, and Shahdol.

- Nearly 80 per cent of the total bauxite produced is used for the production of aluminium.
- Italy and UK are the largest importers of Indian bauxite accounting for 60 per cent and 25 per cent of the total export respectively. The remaining is exported to Germany, Belgium, and Japan.

Development:

- The aluminium industry was started in India **during the Second World War at Alupuram** (Alwaye) by the Aluminium Company in 1938.
- **Aluminium Corporation of India** in 1942 at Jaykaynagar (West Bengal).
- At the time of Independence, there were only two plants in the country
- During the **Second Five-Year Plan** two new aluminium plants were established at **Hirakud (INDAL) and Renukoot (HINDALCO)**.
- Another plant was in the **Third Five-Year Plan at Mettur (MALCO) in 1967**.
- Later on the **Bharat Aluminium Plant** was established at Korba.
- At present, there are seven major aluminium producing plants in the country.

The Indian Aluminium Company Ltd. (INDAL), Hirakud

- This company started production in 1938 as a private company and was converted into a public company in 1944.
- It is an integrated plant having three units at Alupuram (Alwaye in Kerala), Hirakud (Orissa), and Belgaum (Karnataka).
- The plant gets **bauxite from the Bagru Hills near Lohardaga, coal from Damodar valley, and hydro-electricity from Hirakud**.

The Aluminium Corporation of India, Jaykaynagar (near Asansol)

- started in 1942.
- bauxite from Ranchi (Jharkhand) and Unchera (M.P.).
- It has its own coal-mine, a thermal power plant

The Hindustan Aluminium Corporation Ltd. (HINDALCO), Renukoot 1958

- bauxite from Lohardaga

- power from the Rihand Dam

4. The Madras Aluminium Company Ltd. (MALCO), Mettur

- Mettur near Salem in 1965.
- It obtains bauxite from the Shevaroy Hills
- electricity from the Mettur Hydel Project.

5. The Bharat Aluminium Company Ltd. (BALCO), Korba

- Bilaspur District, Chhattisgarh in 1965.
- It obtains bauxite from the Amarkantak (Shahdol District of Madhya Pradesh)
- electricity from the Korba Thermal Power Plant.

6. The National Aluminium Company Ltd. (NALCO), Koraput

- largest aluminium plant of the country. The Company was incorporated in 1981.
- It obtains bauxite from the bauxite mines at Panchpatmali (District Koraput).
- It obtains hydro-electricity from the **Angul Power Plant**
- port facilities from the Vishakhapatnam for export of alumina and import of caustic soda.

Trade and Problems of Aluminium Industry in India

Trade

- India is **almost self-sufficient in the matter of aluminium.**
- Except some **high quality aluminium which it imports** from the foreign countries. The demand for good quality of aluminium is on the increase and consequently, India is importing aluminium and its products from the developed countries.

Problems

- The major problem of the aluminium industry is international competition.
- Australia, Canada, France, Germany, Japan, UK, and USA.
- Non-availability of power at a cheaper rate, strikes, and labour unrests are the other problems this industry is facing.

Special Economic Zones of India

- to enhance foreign investment
- promote exports from the country
- to provide liberal facilities to the foreign and domestic investors
- The Government of India had in April 2000 announced the introduction of Special Economic Zones policy in the country, **deemed to be foreign territory for the purpose of trade operations, duties, and tariffs.**
- India passed Special Economic Zone Act in 2005.
- setting up of SEZs in the public, private, joint sector or by state governments.

- It was also envisaged that some of the existing Export Processing Zones would be converted into Special Economic Zones. Accordingly, the government has converted Export Processing Zones located at Kandla Surat Cochin Santa Cruz Falta (West Bengal), Chennai, Ilandaikulam, Nanguneri and Tirunelveli etc.
- The category 'SEZ' covers Free Trade Zones (FTZ), Export Processing Zone (EPZ), Free Zones (FZ), Industrial Estates (IE), Free Ports, Urban Enterprise Zones, and others.

Defining Features:

- Special tax incentives
- duty free movement of goods and services
- world class infrastructure
- construction intensive nature
- export orientation
- differentiated economic management like relaxation in certain basic restrictions applicable to the rest of the economy
- free inflow of foreign capital

The process of planning through SEZs is, however, under question, as the state in which the SEZs have been approved are facing intense protests, from the farming community, accusing the government of forcibly snatching fertile land from them, at heavily discounted prices as against the prevailing prices in the commercial real estate industry. Also some reputed companies like Bajaj and others have commented against this policy and have suggested using barren and wasteland for setting up SEZs.

- Attempts to set up a Special Economic Zone in Nandigram (West Bengal) have led to protests by the villagers in the area (2008). A Parliamentary Committee to study and give recommendations on SEZs has said that no further SEZs be notified unless the existing law is amended to incorporate the changes related to the land acquisitions.
- first priority should be acquisition of waste and barren land and if necessary single crop agricultural land.
- If perforce, a portion of double cropped agricultural land has to be acquired same should not exceed 10 per cent of the total land required for the SEZ.

Prospects

If the right price is paid for acquiring land through open bidding, land of any size may be available. Otherwise, the current phenomenon of mushrooming SEZs in and around major cities will only add to the pressure on the already weak urban infrastructure and will result in migration of people to cities when the objective should be to bring about a reversal of this trend.

SEZ AMENDMENTS 2013:

- 1. Minimum land area requirement for setting up of SEZ in various categories has been reduced by half.** This is also aimed at permitting optimum utilization of land by the existing SEZs. The amendments permit the setting up of Multi-product SEZ with minimum land area

requirements of 500 Ha. instead of 1000 Ha. Similarly, a sector specific SEZ can be set-up with a minimum land area requirements of 50 Ha, instead of 100 Ha.

2. In order to encourage agro-based industries in SEZs, a new sector -'agro-based food processing' sector has been introduced. A sector specific SEZ in this sector would require a minimum land area requirement of 10 Ha.
3. The minimum land requirement criteria of 10 Ha. for setting up of IT/ITES SEZs as envisaged in SEZ Rules, 2006 has been dispensed with. There will be no minimum land area requirement for IT/ITES SEZs but they will have to conform with a minimum built up area requirement.
4. **Broad-banding:** Sectoral broad-banding provisions have been introduced for categories of sectors **to encompass similar/related areas** with each broad-banded sector treated as a single sector for the purposes of minimum land area criteria. The principle of broad-banding would be applied taking into account the fact that no additional environmental externalities be required for the additional units which would come up on account of such broad-banding. Some illustrative examples of such broad banded category comprising a sector would include:
 - >- Textile, apparel, hosiery, fashion garments, wool and carpet
 - >- Leather, leather handicrafts, leather garments and sports goods
 - >- Auto components/parts, light engineering
 - >- Biotechnology, Pharmaceuticals and chemicals
 - >- IT, ITES, Electronic components and hardware manufacturing, non-conventional energy, BPO KPO and R&D
 - Board of Approval (BoA) will have the discretion to allow additional categories to be broad-banded into a sector based on compatibility of area requirement etc.
5. **Graded Scale for Minimum Land Criteria:** In order to allow greater flexibility it has further been decided to introduce a Graded Scale for Minimum Land Criteria. Thus for each contiguous fifty hectare parcel of land in a existing SEZ or which is added to a notified SEZ, an additional sector would be allowed. This would permit flexibility to the Developer to allot land to the Units thereby encouraging optimal utilization of the SEZ land.

INDUSTRIAL REGIONS OF INDIA

- Delineation of industrial region has been attempted by a number of geographers. The parameters used by them, however, differ from each other.
- It was Trewartha and Burner (1944) who divided India into industrial regions.
- P.P. Karan and W.M. Jenkrins (1959) demarcated the industrial regions of India.
- also delineated by Spencer and Thomas, R.L. Singh (1971), B.N. Sinha (1972), M.R. Chaudhry (1976), and the Centre for Monitoring Indian Economy (1971, 1982)

These scholars adopted one or more than one of the following indicators for the demarcation of industrial regions of India:

1. Number of registered factories in a region.
2. Number of industrial workers.

3. Population engaged in the secondary activities.
4. Percentage of industrial workers to the total workers.
5. Gross industrial output.
6. Production in terms of money. In the demarcation of industrial regions, most of the experts divided India into six major and six minor industrial regions.

The Major Industrial Regions in India:

1. The Mumbai-Pune Industrial Region:

- This is the most important industrial region of the country. The region developed after the arrival of British in India who developed the Mumbai Seaport.
- After the opening of Suez Canal in 1869 the sea-route between India and Europe was reduced substantially.
- The development of this industrial region is closely connected with the history of development of cotton textile industry in India. a vast hinterland producing cotton became the main factors in the development of this industrial region.
- The other industries of the region are engineering goods, chemical industries, food-processing industries, leather goods, pharmaceutical, and film industries. In Mumbai, the bulk of the production is light textured fine and super fine cotton cloths
- Pune is the second most important industrial centre of region. Its industries are producing metallurgical, chemical, engineering, and automobile goods.
- In addition to Mumbai and Pune, the industrial centres of this region are: Andheri, Ghatkopar, Kalyan, Kolhapur, Kurla, Nashik, Sholapur, Thane, Trombay, Ulhasnagar, and Vikroli.
- This industrial region has almost reached the saturation level. Some of the important problems of this industrial region facing are:
 - (i) Inadequate supply of power
 - (ii) Obsolete and outdated machinery
 - (iii) High cost of land and high rent of commercial space
 - (iv) Labour unrest
 - (v) Increasing regionalism
 - (vi) High rate of crime
 - (vii) Increasing environmental pollution

2. The Kolkata-Hugli Industrial Region:

- The Kolkata-Hugli industrial region is located along the banks of the Hugh River.
- The availability of agro-raw material (jute, indigo, and tea), nearness of coal mines (Raniganj and Jharia), abundance of water, cheap labour, and facilities of export are the main factors which helped in the fast growth of this industrial region.
- Moreover, Kolkata was the capital of British India from 1773 to 1911. Being the capital, Kolkata attracted many of the industrialists to locate their industries in this region.
- This belt specialises in the production of jute, silk, cotton textiles, engineering, electrical goods, automobiles, chemicals, pharmaceutical, transport equipments, leather-footwear, iron

and steel and food processing, light machine, locomotives, iron and steel, and spare goods for different types of machines.

- The main industrial cities and towns of this region are Bhatpara, Kankinara, Bhadreswar, Krishnanagar, Serampore, Titagarh, Rishra, Kolkata, Haora, Budge Budge
- The main problems of this industrial region are:
 1. Paucity of space and traffic jam
 2. insanitation and lack of infrastructural amenities
 3. silting of Kolkata port
 4. Obsolete machinery
 5. Naxalites movement and political unrest
 6. Strikes and lockouts
 7. Shortage of power supply

3. The Ahmedabad-Vadodra Industrial Region

- This is the third largest industrial region of the country.
- The main cause for the development of this industrial region is the availability of cotton, cheap land, cheap skilled and unskilled labour, port facilities, and nearness of petroleum (Koli), thermal (Dhuvaran), Hydel (Ukai Project), and nuclear power station (Kakrapar).
- Scarcity of water and shortage of good quality of cotton are some of the important problems of the region.
- For the last few years, communal tension has adversely affected the investment in industries in this region.

4. The Madurai-Coimbatore-Bangalore Industrial Region

- made great progress after independence.
- This region is mainly the cotton producing area of the country.
- The good climate, disciplined skilled and unskilled labour, regular supply of power (from the Mettur, Sivasamudram etc), and the nearness of Chennai, Kochi, Mangalore, and Tuticorin seaports have contributed in the fast development of this industrial region.
- This industrial region is well known for cotton and silk textiles, leather goods, oil mills, coffee processing industries, chemicals, paper, rubber goods, cement, sugar, and food processing industries.
- Bangalore has emerged as the industrial centre of the region

5. The Chotanagpur Industrial Region

- Jharkhand, Orissa, southern Bihar, and western parts of West Bengal.
- Having a large concentration of iron and steel industry, it is often called as the 'Ruhr of India'.
- This region is rich in the fossil fuel, and metallic and non-metallic minerals.
- Power is available from the Damodar Valley Corporation.
- There is enormous supply of cheap labour

- The main iron and steel producing centres of the region are Asansol, Bokaro, Burnpur, Durgapur, Kulti, Jamshedpur, and Raurkela.
- The main problems of the region are shortage of power supply, and political unrest like those caused by Naxalites. The labour unrest has deterred many of the investors in this region.

6. The Agra-Delhi-Kalka-Saharanpur Industrial Region

- Being in and around the national capital and in the vicinity of the Indira Gandhi International Airport it has a more peaceful industrial environment, largely free from the labour unrest and Naxalite movement.
- It is located in the most productive part of the country providing enough raw material for the agro-based industries.
- The nearness of market and availability of hydro-power from Bhakra Nangal and thermal power from Badarpur, Faridabad, Harduaganj, and Indraprastha (Delhi) have helped largely in the development of this industrial region.
- The main industries of this region are engineering, electronics, chemical, glass, textile, sugar, and food-processing and agricultural machinery.
- High price of land, traffic jam, and high rate of crimes are the main problems of this region.

Minor Industrial Regions

(i) Kanpur-Lucknow Industrial Region:

Cotton, woollen and jute textiles, leather goods, fertilisers, chemical, drugs, pharmaceuticals, electric goods, and light machinery.

(ii) Assam Valley Industrial Region:

This region has the industries of petro-chemical, jute and silk textiles, tea-processing industry, paper, plywood, match, and food processing industries. Important industrial centres are: Bongaigaon, Dibrugarh, Digboi, Guwahati, Noonmati, and Tinsukia (Fig. 11.19).

Darjeeling-Siliguri Industrial Region: Tea-processing industry and tourism.

(iv) North Bihar and Eastern Uttar Pradesh Industrial Region:

Sugar, cement, glass, jute, fertilisers, locomotive, paper, and food processing are the main industries. The main industrial centres are Allahabad, Gorakhpur, Patna and Varanasi.

(v) Indore-Ujjain Industrial Region:

Main industries are cotton textile, chemicals, drugs, electronic and engineering goods, and food processing.

(vi) Amritsar-Jalandhar-Ludhiana Industrial Region:

Sports goods, cotton and woollen, textiles, hosiery, food-processing, and tourism are the main industries of this region.

(vii) Nagpur-Wardha Industrial Region: Textiles, engineering, chemicals, and food processing

are the main industries of this region.

(viii) Godavari-Krishna Delta: Main industries are iron and steel, ship-building, fertiliser, rice-milling, cotton textile, sugar, fish processing, engineering, and chemicals. Main industrial centres are Guntur, Machilipatnam, Rajamundry, and Vishakhapatnam.

(ix) Dharwar-Belgaum Industrial Region: Cotton textile, chemicals, spices packing, and food processing are the main industries.

(x) Kerala Coast Industrial Region:

Main industries of this region are coconut-oil extraction, rice-milling, fish packing, paper, coir-matting, ship-building (Kochi), petroleum refining (Kochi), and chemical and electronic goods.

INDUSTRIAL PROBLEMS OF INDIA

1. Inadequacy of Industrial Structure.

2. Low Demand of Industrial Products.

3. Regional Concentration of Industries.

4. Industrial Sickness: In the private sector after the policy of liberalisation, the small and medium as well as some of the large industries are becoming sick. The reasons for industrial sickness may be poor management, obsolete technology, and international competition.

5. Loss in Public Sector: Most of the public undertakings are running at loss. The reasons may be poor efficiency of the management and workers, strained labour and management relations, and obsolete technology.

6. Lack of Infrastructure:

7. Irrational Location of Industries: Some of the industries in the private sector have been located without considering the transportation cost. Many a times the political expediency have been the basis of selection of site of industries. This not only makes the product expensive, but also promotes sub-nationalism/regionalism. The location of Barauni Refinery far away from the source of crude oil (Digboi-Assam) is one of such examples.

8. Shortage of Industrial Raw Material:

9. Shortage of Capital:

10. Low Quality of the Products:

11. Lack of Institutional Organisation:

12. Change in the Industrial Policy:

INDUSTRIAL HOUSES IN INDIA

- Some industrial houses in India have played a pivotal role in the industrialisation of the country which was an agrarian economy primarily till mid 20th century. Many of the industrial houses have existed since the pre-independence days, yet there are some which have come up in the post-independent India and have played praiseworthy roles in the direction of industrial development in the country.

The Tata

Being one amongst the oldest industrial houses in India this industrial house has iron and steel as well as automobile (heavy) as its traditional areas of interest. But in the coming times it has diversified in a great many areas/sectors such as pharmaceuticals, cement, publishing, power, finance, hotel, insurance, software, refrigeration, air-conditioning, telecommunication etc. Its Tata Consultancy Services, a software development and export company, is the largest software services companies in the country. Its recent foray into the four-wheel segment has been able to make a historic news around the world with the launching of the \$ 2500 car—the Nano.

The Birla

The Birlas, though they have gone for divisions, are among the oldest industrial houses in India like the Tatas. Their traditional areas of activities have been textile, paper, paraffin, cement, aluminium, and automobiles. In the last few decades, they have diversified in other areas too such as machine tools, pharmaceuticals, telecommunications, consumer durables and non-durables, etc.

The Goenka

One among the oldest industrial houses of the country, this has business interests in the areas such as power generation and distribution, textile, pharmaceuticals, machine tools, entertainment, etc

The Bajaj

Among the oldest business families of India, they are known around the world for their commendable product the Bajaj Scooter, which is competent enough to fight out the international competition in the segment. Of late, they diversified into the areas of bikes also. Their areas of activity expands to electric and home appliances, entertainment, etc. Recently, they announced their intentions of entering the automobile sector with one of the cheapest cars in the world (after the Tata's Nano).

The Escorts

One among the oldest industrial houses, this organisation has been popular in the country for its contributions in three areas specially—manufacturing the most popular and lone motor-bike brand 'Rajdoot', a heart-oriented hospital, and the 'Eicher' brand of tractor.

The UB Group

This group is amongst the oldest and the leading industrial houses of India with its traditional interest in the alcoholic drinks sector. Of late, it has also started diversifying in the areas such as airlines, infrastructure, hospitality, and real estate segments

The Godrej

Amongst the top, oldest, and reputed industrial houses of the country, this organisation has contributed in the areas of detergents, refrigeration, almirahs, furniture, air-conditioning, and lock industries providing highest of the standards.

The Reliance

Though the group is now divided between two brothers, the industrial house is considered a rags-to-riches story, and represents the rise of a new entrepreneurial class in the country. It has paraffin and synthetic yarn as its traditional interests; today it has diversified in more than a dozen traditional and new industrial areas such as power, petroleum, textile, garments, hospitality, telecommunication, pharmaceuticals, software, banking, insurance, etc.

The Wipro The Infosys The Biocon The Bharati

The Ranbaxy

This is among the leading drug and pharmaceutical industries of India, having a reputation of international standards. The industrial house has been an inspiration for a great number of new drug-makers in the country.

Industrial Complexes in India

We see thousands of such industrial complexes in India, which have been developed in all the major and minor industrial regions. There are vibrating iron and steel based industrial complexes in the vicinity of iron and steel plants in the country. Similarly, petro-complexes, pharma complexes, hosiery complexes, garment complexes, electronics complexes, etc. with their strengths and strongholds in the specific industries are dispersed around the country, and developed around the important vibrant and dynamic major industries functioning as growth poles and growth centres.

The Export Processing Zones (EPZs), Export Oriented Units (EOUs) of past, and the Special Economic Zones (SEZs) of present are among the best examples of the industrial complexes in India. The Technology Parks, Hardware Parks, Software Parks, Biotechnology Parks, etc. are all the examples of the industrial complexes in India. Till the process of planning remains relevant, the industrial complexes are going to be relevant in India. To the extent private sector industries are concerned, the idea is not different.

Conceived as the catalysts of growth and development, the industrial complexes in India faced the following problems hampering their expected functioning in general:

1. Difficulties in selecting a suitable industry around which the industrial complexes could be grown.
2. Frequent sicknesses of industries
3. Infrastructural facilities in general and power in particular
4. Underdeveloped and lopsided market of the country
5. Proper support of external sector has also been one major problem.
6. Lack of skill and entrepreneurial acumen together with the problem in the availability of adequate and timely finance.
7. Also, the labour laws have not been conducive

8. Last but not the least, the industrial complexes also suffered because the selection and location of the growth poles and growth centres in India has not been smooth.

Indian Pharmaceutical Industry

- India is now among the top five pharmaceutical emerging markets globally and is a front runner in a wide range of specialties involving complex drugs' manufacture, development, and technology.
- The Indian pharmaceutical industry is a highly knowledge based industry which is growing steadily and plays a major role in the Indian economy.
- As a highly organised sector, the number of pharmaceutical companies is increasing their operations in India.
- The industry is expected to touch US\$ 36 billion by 2016.
- The Department of Pharmaceuticals has prepared a '**Pharma Vision 2020**' document for making India one of the leading destinations **for end-to-end drug discovery and innovation**. The department provides requisite support by way of world class infrastructure, scientific manpower for pharma research and development (R&D), venture fund for research etc.

Sector Structure/ Market Size

- *The domestic pharma market has reported total sales of \$ 1 billion in the month of May 2013, registering a **growth of 6.8 per cent, as per IMS Health**.*
- ***The major factors responsible are** increasing sales of generic medicines, continued growth in chronic therapies and a greater penetration in rural markets.*
- The pharmaceuticals sector has attracted foreign direct investments (FDI) worth US\$ 11,300 million during April 2000 to April 2013, according to (DIPP).

Growth

- *The Indian pharmaceutical industry would continue to experience strong growth as **structural growth drivers continue to remain impervious**.*
- *Expected growth of 10-12 percent in 2013-14, according to a study by ICRA*
- *It is also expected that **in-organic investments will gain momentum** in the medium-term as companies plan to create stronger presence in emerging markets and build expertise in select therapy areas.*
- Among the top 10 companies, **Cipla, Sun, Alkem and Sanofi** were the fastest growing corporations for the month of May 2013.

Exports

- Pharmaceutical exports from the country during 2012-13 stood at US\$14.6 billion, up from US\$13.2 billion the previous year.
- The Ministry of Commerce has **targeted Indian pharma sector exports at US\$ 25 billion by 2016**.
- The Government has also planned a '**Pharma India' brand promotion action plan**

spanning over a three-year period to give an impetus to generic exports.

- In order to boost the export capability, **Exim Bank, has decided to expand the scope of its finance to pharmaceutical companies** for maximum **repayment period of 10 years** with a **moratorium of up to 36 months**.
- “Of the export markets, Indian pharma will focus on the US market which presents significant opportunities for the next two years for generics, due to patent cliffs and recent changes in healthcare policies

Generics

*Generics will continue to dominate the market while **patent-protected products are likely to constitute 10 per cent of the pie till 2015**, according to McKinsey report*

Global demand for generic drugs from Indian companies is booming as developed nations battle rising healthcare costs. As a result, generics companies are increasingly focusing on expanding presence in relatively under-penetrated markets (i.e. **France, Spain & Italy**), branded generic markets of **East Europe** and niche areas like complex generics, OTCs etc.

The government started to encourage the growth of drug manufacturing by Indian companies in the early 1960s, and with the Patents Act in 1970. This patent act removed composition patents from food and drugs, and though it kept process patents, these were shortened to a period of five to seven years. However, economic liberalisation in 90s enabled the industry to become what it is today.

The lack of patent protection made the Indian market undesirable to the multinational companies that had dominated the market. Indian companies carved a niche in both the Indian and world markets with their expertise in reverse-engineering new processes for manufacturing drugs at low costs. Although some of the larger companies have taken baby steps towards drug innovation, the industry as a whole has been following this business model until the present.

PHARMACEUTICAL INDUSTRIES IN INDIA

The drugs and pharmaceutical industry has made a phenomenal progress in India during the last four decades. There are five Central Public Sector Undertakings and five joint Sector Undertakings in the pharmaceutical Industry Sector under the administrative control of the Department of Chemicals and Petrochemicals. Besides, there are two wholly-owned subsidiaries.

1. Indian Drugs and Pharmaceuticals Limited (IDPL)

- Incorporated in 1961. 3 plants one each at Rishikesh , Hyderabad and Gurgaon.
- IDPL has two subsidiaries, namely IDPL and Bihar Drugs and Organic Chemicals Limited
- In addition, IDPL has two joint sector undertakings, promoted in collaboration with the respective State Governments. These are Rajasthan Drugs and Pharmaceutical Limited (RDPL), Jaipur and Orissa Drugs and Chemicals Ltd. (ODCL), Bhubaneshwar

2. Hindustan Antibiotics Limited (HAL), Pimpri (Pune)

- It was incorporated in 1954.
- This was the first public sector company in drugs and pharmaceuticals. Plant at Pimpri.

- There are three joint sector units promoted by HAL in collaboration with the respective State Governments. These are Karnataka Antibiotics and Pharmaceuticals, Maharashtra Antibiotics and Pharmaceuticals Ltd. (MAPL) and Manipur State Drugs and Pharmaceuticals Ltd.

3. The Bengal Chemicals and Pharmaceuticals Limited (BCPL)

- It was incorporated in 1981.
- Company has 4 manufacturing units located at Maniktala, Panihati, Mumbai and Kanpur.
- largest producer of antsnake venom in India.

Most of the drugs and pharmaceutical units in India are located in Delhi, Gujarat, Maharashtra, Madhya Pradesh, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh, and West Bengal. The Surgical Instruments Plant at Chennai produces different types of surgical instruments.

SPECIAL ARTICLE ON “PATENT EVERGREENING”

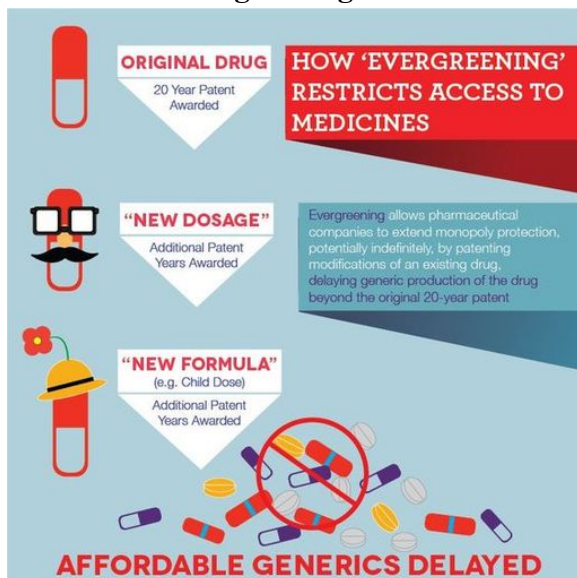
What is Evergreening?

Evergreening is the practice whereby pharmaceutical firms extend the patent life of a drug by obtaining **additional 20-year patents for minor reformulations** or other iterations of the drug, **without necessarily increasing the therapeutic efficacy** for patients.

Benefits of Evergreening to patent holders

allows pharmaceutical companies to obtain or extend monopoly protection for old drugs.

Process of “Evergreening”



What is GLIVEC?

- It is brand name of IMATINIB
Novartis holds the patent right to produce Imatinib
It is used to treat many cancers including chronic myeloid leukaemia

Who is Novartis?

Swiss multinational pharmaceutical company based in Basel, Switzerland, ranking number two in sales among the world-wide industry in 2010. Novartis is the third largest beneficiary of registered patents in India, **behind Roche and Sanofi.**

What section 3[d] of Patents act says?

Section 3(d), as **introduced in April 2005** into the Indian patent law, represents a unique requirement to be fulfilled for patentability of certain types of pharmaceutical inventions.

According to Section 3(d), in order for a new form of a known substance to be patentable, it must show an enhanced efficacy with respect to the known efficacy of the substance concerned.

What is TRIPS?

The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) is an international agreement administered by the World Trade Organization (WTO) that sets down minimum standards for many forms of intellectual property (IP) regulation as applied to nationals of other WTO Members

What TRIPS article says about Patent?

TRIPS Article 27.1 requires that “patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application.”

Madras High court judgement on patent evergreening issue

in 2007 held that the appropriate route to challenge non-compliance with TRIPS is the WTO Dispute Settlement Body and not the Indian courts.

Why the Glivec case has emerged?

Novartis is the producer of “Imatinib” and got patent rights for 20 years. Now 20 years time period is over. Then Novartis produced a new crystalline salt form of **Imatinib mesylate**. It claimed that it is a new product and applied for patent right for another 20 years.

But patents office rejected Novartis’s claim & then it moved to Intellectual Appellate tribunal board & it also rejected & then moved to supreme court à it also rejected its claim.

Why patent office rejected Novartis’s claim?

Indian patent office ruled that the new salt form did not deserve a new patent, since it did not meet the provision of “increased efficacy” required under Sec. 3(d).

Controversial issue of “efficacy”

Novartis argued that the salt form would have higher levels of availability in the body of the patient, but the Madras High Court clarified that “efficacy” means “therapeutic efficacy in healing a disease”

Who is IPAB?

IPAB stands for Intellectual Appellate Tribunal Board. It works under the ministry of commerce and industry. IPAB also rejected the Novartis’s claim. The IPAB had upheld the contention of the Indian Patent Office that the drug, Glivec, is simply a new form of imatinib and hence not patentable as per Section 3 (d) of Indian Patent Act.

Supreme court judgement

It is important to note that the Supreme Court did indeed clarify that Section 3(d) does not bar patent protection for all **incremental inventions of chemical and pharmaceutical substances**, provided they pass the test of the expanded scope of Section 3(d).

Importance of Supreme court judgement:

In India, about 2,00,000 people suffer from leukaemia and about 30,000 are added every year. After this judgement, the prices of the drug will remain low, all these people would benefit.

What needs to be done?

On one hand we have a large number of companies who have invested billions in research, in developing new molecules, in new drug discoveries. On the other hand, there is a social obligation to provide affordable drugs and healthcare. We have to strike the right balance

What is compulsory license?

A compulsory license, also known as **statutory license** or **mandatory collective management**, provides that the owner of a patent or copyright licenses the use of their rights against payment either set by law or determined through some form of arbitration.

- In essence, under a compulsory license, an individual or company seeking to use another's intellectual property can do so without seeking the rights holder's consent, and pays the rights holder a set fee for the license.

In 2012, India granted its first compulsory license ever. The license was granted to generic drug manufacturer **Natco Pharma Ltd** for **Sorafenib tosylate**, a cancer drug patented by Bayer.

Fertilizer Industry of India

- Indian Agriculture is one of the most important sectors in the economy of the country for Gross Domestic Product of the country and employment. The monsoon also has a very significant impact on the Indian agriculture. shortage of irrigation system. The amount of rain determines the nature of the crops and also the production.
- Indian farmers don't get a sufficient supply of chemical fertilizer for agriculture. The main objective of the fertilizer industry is to ensure the supply of primary and secondary nutrients in the required quantities.

Keeping in view the surplus availability of urea at global level, it is suggested that the Government should enter into negotiations or encourage Indian fertilizer companies for tying up for long term supplies of urea from the countries which have surplus urea capacities after commissioning of the urea projects, which are at present under construction.

- The Indian Fertilizer Industry is one of the allied sectors of the agricultural sphere.
- India has emerged as the **third largest producer of nitrogenous fertilizers**.

- The adoption of back to back Five Year plans has paved the way for self-sufficiency in the production of food grains. In fact production has gone up to an extent that there is scope for the export of food grains. This surplus has been facilitated by the use of chemical fertilizers.
- The **Fertilizer Association of India (FAI)** has set up a model which is based on several factors that include fertilizer prices, high yielding areas, irrigated areas, fertilizer nutrient prices and previous years' fertilizer consumption.
- Today, India stands as the **third largest fertilizer consumer and producer of the world**.
- It has been observed that the subsidies on Indian fertilizer have been rising at a constant rate. This is due to the rise in the cost of production and the inability of the government to raise the maximum retail price of the fertilizers.

Contribution of Fertilizer industry in the Indian Economy:

1. **Agricultural development**
2. **Capital Investment:** Fertilizer industry today has more than Rs. 5700 Cr investment and has become one of the important industries of the economy.
3. **Corporate Development:** In the last 30-40 years this industry has become a structured industry. It has made many joint ventures, multinationals and co-operatives which is one of the unique characteristic of this industry development in the nation.
4. **Regional development:** Gujarat, Maharashtra, Punjab, Uttar Pradesh, Andhra, Assam, Bengal, Rajasthan, Bihar are the states who have many plants of fertilizers. These states' economy has a high impact of fertilizer units.
5. **Employments**

Sickness in the fertilizer industry:

- Fertilizer Industry in India has mainly five sick units. They are badly in need of Coal /Gas/LPG. If these units get raw material they will contribute to the agricultural sector of the nation. These sick units include HFC, FCI, MFL, FACT and PPCL. It is envisaged that revival of these closed urea units in Eastern India will add an additional urea capacity of 50 LMT per annum.
- **The reasons for the sickness of FACT** are mainly outdated technology of the plant, high energy consumption norms, large manpower and high fixed costs of the new ammonia plant (900 MTPD).
- **The reasons for losses of MFL** are due to the fact that the ammonia plant is not operating at full capacity due to non-matching capacity of urea plants and the NPK plant is operating at low capacity due to high cost and inadequate availability of phosphoric acid.

Infrastructural requirements of the fertilizer sector:

- **Ports:** Most ports face severe capacity constraints in handling high volumes on a sustained basis. Accepting the Mundra port, no other port is currently able to handle with Panamax vessels.

- **Road transportation:** The development and maintenance of road transport will have to be substantially increased by way of widening and proper meeting of road to withstand increasing load
- **Railway:** Railway facilities and port-rail connectivity need to be strengthened significantly
- **Waterways:** There is a need to provide a thrust to the development of inland waterways and coastal shipping for movement of fertilizers.
- **Storage:** In view of the competing demands for a number of agro-products, it will be desirable to strengthen the warehousing infrastructure

Challenges of Fertilizer units working in India:

1. **Efficiency:** The demands of fertilizers have increased and are increasing day by day. To meet the requirement the units have to increase its productivity through researches, reducing wastages and by handling the material carefully.
2. **Investment:** industry is required to invest more capital. The co-operative sector has its own limitations for the investment but other units can generate funds through the open market.
3. **Capacity:** The demand of the fertilizer industry is increasing and to meet the demand of the market, the industry is required to expand its capacity.
4. **Subsidy:** According to the agreement with the WTO, Indian industry is required to reduce the subsidy given on the price of fertilizers. Due to this the prices of the fertilizers will go up and it may not be within the reach of the poor farmers.
5. **Productivity:** It is found that the agricultural productivity of Indian land is inferior to the developed countries. Even the size of the farm in India is small so the use of the fertilizer is not found proper by the Indian farms.
6. **Liquidity:** The fertilizer industry in India is depended on the Government subsidy. This results in the insufficient financial liquidity for the units.
7. **Competition.**

Future prospects of the Industry:

- India's food grain requirement to feed the estimated population of 1400 million by 2025 will be 300 million tonnes. There will be a corresponding increase in requirement of other crops such as cotton, sugarcane, fruits and vegetables. The country will require about 45 million tonnes of nutrients (30 million tonnes of food grains and 15 million tonnes of nutrients for other crops) from various sources of plant nutrients, i.e. fertilizers, organic manures and bio fertilizers.
- The yields of the majority of the crops are relatively low and there is great potential for increasing them through the increased use of inputs such as fertilizers.
- The handling of increasing quantities of fertilizers will put pressure on storage, handling facilities and transport. Fertilizer promotion will have to include activities that promote not only increased rates of use but also better balances between the nutrients and higher efficiency, availability of credit, an essential factor in ensuring the availability of fertilizers to farmers.
- India will continue to be a major importer of raw materials, intermediates as well as finished products.

- The fertilizer product pattern is unlikely to change in the near future, and urea and DAP will continue to dominate fertilizer production.
- Attention will need to be focused on ensuring the availability of good-quality micro nutrient fertilizers.

Conclusion:

- Quantitative restrictions on fertilizer imports have been removed since April 1, 2001.
- The implications of present policy environment for fertilizer sector in India is not promising.
- There are possibilities that domestic production and consumption of fertilizers may decline.
- At present there is wide demand-supply gap in urea.
- **A switch over in feed stock from naphtha to LNG for urea is envisaged** depending on its availability and price.
- For phosphate/potash also, joint ventures abroad are likely to be developed as there is no potential reserve within the country.

ICRA REPORT

1. Decline in consumption of fertilisers, especially P&K fertilisers, in H1 FY2013 due to high prices and monsoon delay:
 - The sales of fertilisers witnessed a y-o-y decline of ~15% in H1 FY2013. While urea volumes continued to remain relatively steady, a steep decline was witnessed in the sales volumes of fertilisers such as diammonium phosphate (DAP), single super phosphate (SSP) and NPK complexes with demand being affected by higher prices on account of lower subsidy for these nutrients, increased cost of raw materials globally and rupee depreciation.
2. New Urea Investment Policy links urea realisations to gas prices; should lead to creation of incremental capacities of 8-10 MMTPA over the next five years:
 - The recently announced New Urea Investment Policy benchmarks realisation of urea for new projects to import parity prices which are, in turn, linked to gas prices. The pricing structure leads to an implicit pass-through of gas prices while providing reasonable returns to the investors. The new policy is in line with the demand of the industry to do away with the ceiling of US\$ 14/mmbtu in the earlier proposed policy.
3. Lower subsidy budgeting leads to higher working capital borrowings for the industry:
 - GoI's subsidy obligations continue to remain high in FY13. The subsidy allocation for FY13 has been insufficient given the stable import volumes as well as high global prices
4. Small but positive step towards direct subsidy transfer to farmers: challenges on implementation front:
 - direct cash transfer of fertiliser subsidy to the farmer so as to plug in leakages in the transfer of subsidy. As per the decision, fertiliser manufacturers are reimbursed subsidy on urea based on certification by the State governments on **mobile-Fertiliser Monitoring System (m-FMS)**. The modification in the procedure for the release of the fertiliser subsidy is not

expected to have any major impact on revenues and profitability of the fertiliser players or the fiscal position of the GoI

5. Gas availability issues expected to continue in the near-to-medium term; may improve in the long term with expected improvement in availability.
6. Globally high prices of key inputs and rupee depreciation impacts earnings of non-urea players:

PAPER INDUSTRY IN INDIA

- Paper industry is one of the core industries.
- The paper industry in India is more than a century old. At present there are over 850 paper mills manufacturing a wide variety of items required by the consumers.
- These paper mills are manufacturing **industrial grades, cultural grades and other specialty papers**.
- paper industry has a vital role to play in socioeconomic development of the country. It has great social and cultural significance.
- The per capita consumption of paper is considered as a bench mark of a country's modernization.
- Paper making in India as a cottage industry was started during the Medieval Period, but the first paper mill was set up in 1832 at Serampore (West Bengal). It, however, resulted in a failure.
- Subsequently paper mills were situated at Ballyganj (Kolkata in 1870), Lucknow (1879), Titagarh (1881), Pune (1887), and Raniganj (1891).
- The paper industry was **delicensed and decontrolled** in 1997.
- **Foreign Direct Investment upto 100 per cent was permitted on automatic route.**
- The Indian paper industry employs three lakh persons directly and ten lakh persons indirectly.
- The paper and newsprint industry is **highly fragmented** with the installed capacity ranging from 10 tonnes to 800 tonnes per day.

Indian paper industry can broadly be classified into three segments:

1. Large integrated mills using bamboo and wood.
2. Medium mills using agri-residue and recycled fibre.
3. Small mills using waste paper/recycled fibres.

While the number of wood based mills are around 14 and balance 836 mills are based on non-conventional raw materials

Paper industry is essentially a raw material based industry.

- raw material for the paper is soft wood, bamboo, grasses, bagasse, rags, and waste paper.
- In India bamboo alone constitutes about 70 per cent of the raw material for paper.
- Besides cellulosic raw material obtained from wood, paper industry needs chemicals like caustic soda, chlorine, soda-ash, sodium-sulphate, sulphuric acid, lime, and water.

- Bamboo is obtained from the states of Andhra Pradesh, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, North East India, Orissa, Tamil Nadu, Uttar Pradesh, Uttarakhand, and West Bengal.

Distribution of Paper Industry

Andhra Pradesh

- It is the leading producer of paper contributing about 18 per cent of the total production.
- The paper mills of Bhadrachalam, Khammam, Kurnool, Rajahmundry etc.

Maharashtra

- 14 per cent of the total production.
- Chinchwad (Pune), Goregaon, Jalgaon, Kalyan, Kamptee, Khandala, Khopoli, Paravarnagar, Sangli, and Vikhroli. Sangli and Ballarpur are famous for newsprint.

West Bengal

- Contributing about 11 per cent of the total production,
- Alambazaar, Dum Dum, Ganganagar, Howrah, Kolkata, Naihati, Raniganj, Titagarh
Availability of raw material from the north-east, availability of coal and water, and cheap labour have helped in the location of paper industry in West Bengal.

Orissa

- With over 8 per cent of the total paper production of the country
- Brajranagar, Chowdwar, and Rayagada are most important.
- Abundance of raw material and availability of coal are the main advantages which helped in the location of this industry in these areas.

Karnataka: 7 per cent, Bangalore, Bhadravati, Belagula, Dandeli, Mandya, Nanjanguda, and Ramanagaram.

Gujarat: 7 per cent, Kalol, Utran, Vapi etc.

Madhya Pradesh: Shandol, Bhopal, Indore, Ratlam, and Vidisha. Bamboo, salai-wood, eucalyptus, and sabai grass are the main raw materials used in the paper manufacturing.

Tamil Nadu: Chennai, Salem and Udumalpet. The main raw material is bamboo.

Uttar Pradesh: 5 per cent Lal-kuan, Lucknow, Meerut, Modinagar, and Saharanpur. The raw materials used by these factories are bamboo, sabai grass, conifer wood, eucalyptus, wheat barn-rags, and scrap paper.

Bihar: Barauni, Dumka, Patna etc

- India is not self sufficient in the paper requirement.

- India is importing huge quantity of paper from Belgium, Canada, France, Germany, Japan, New Zealand, Norway, Romania, Russia, Sweden, UK, and USA.
- India also exports some quantity of printing paper to the South-East Asian and South-West Asian countries.

Problems of Paper Industry

- (i) Shortage of raw material
- (ii) Inadequate supply of chemicals
- (iii) Heavy investment
- (iv) Strikes and lockouts
- (v) Tough competition with the foreign paper producers
- (vi) Obsolete machinery
- vii) Quality and environmental concern

Paper industry continues to grow in India

- Rise in **literacy levels**, growth of **print media** and higher **government spending** on the education sector, changing **urban lifestyles** and **economic growth** will have a positive impact on paper industry in India which is likely to continue **growing at 6-8 per cent**, says rating agency ICRA although there maybe aberrant years given the cyclical nature of the industry.
- In addition, the preparation for **general elections** will provide further fillip to paper demand in FY14, ICRA said.
- The **low per capita consumption** of paper provide huge potential for growth in paper demand, it said.
- The agency expects 0.35 million tonne of capacities to be added during FY14 and 0.3 million tonne in FY15, compared to the **current capacity of 13 million tonne**.
- However, the favourable **demand-supply dynamics** may not immediately translate into higher profits for paper companies, it added.
- The Govt. of India has relaxed the rules and regulations and also delicensed the paper industry to encourage investment into this sector
- joint venture are allowed and some of the joint ventures have also started in India.
- The paper industry in India is looking for state-of-art technologies to reduce its production cost and to upgrade the technology to meet the international standards.
- The Indian Paper Industry is among the top 12 Global players today
- Paper Industry in India is moving up with a strong demand push and is in expansion mode to meet the projected demand of 20 Million tonnes by 2020.
- Thus paper industry in India is on the growth trajectory and is expected to touch 8.5% GDP in the coming years. Therefore, the growth of Industry will out span the present growth rate of 6.5%.
- Many mills in India are in modernization and expansion spree. Many old Mills are under revival or new green field projects are under consideration.

CHANGING SCENARIO OF INDIAN PAPER INDUSTRY

- New technologies and modern management will have vital part in this process.
- Many overseas players are entering India by acquiring or by setting up new plants in Indian soil with an aim to make India as a paper manufacturing hub which will bring huge investments to Indian Pulp and Paper Industry.
- Many Indian Paper Mills are eyeing now to new mills to setup or joint ventures with existing players abroad to widen their business horizon.

CHEMICAL INDUSTRIES:

- Basic Chemicals also known as commodity chemicals, including organic and inorganic chemicals, bulk petrochemicals, other chemical intermediates, plastic resins, synthetic rubber, man-made fibers, dyes and pigments, printing inks;
- Specialty chemicals, also known as performance chemicals, are low-volume but high-value compounds. These chemicals are derived from basic chemicals and are sold on the basis of their function. For example, paint, adhesives, electronic chemicals, water management chemicals, oilfield chemicals, flavors and fragrances, rubber processing additives, paper additives, industrial cleaners and fine chemicals. Sealants, coatings, catalysts also come under this category;
- Agricultural chemicals especially crop protection chemicals such as pesticides
- The study excludes drugs and pharmaceuticals, and fertilizers, as they are large in size to have a separate industry status and are appropriately positioned for exclusive studies, individually.

GLOBAL SCENARIO:

- Global chemical production is growing and the growth is contributed by the chemical industry of developing countries.
- Growth in demand for chemicals in developing countries is high leading to substantial cross-border investment in the chemical sector.
- USA is the single largest country with a share of 22% in world chemical sales followed by Japan.
- The joint framework agreement for **tariff harmonization in the Uruguay Round (Chemical Tariff Harmonisation Agreement)**, has led to a substantial reduction in tariffs in the signatory countries. However, in many countries reduction in tariff has been substituted by increase in nontariff barriers. Dumping of chemicals and anti-dumping actions by countries have become part of the game plan of many firms / countries.
- Globalisation of chemical industry has led to national markets being supplied from an increasing number of locations, while individual companies have increased the geographic scope of their operations.
- Chemical companies in the world are now merging their business processes, including their supply chain, to reduce risks and to create sustainable competitive advantage.
- The global chemical industry is continuously working towards reduction of environmental impact

CHEMICAL INDUSTRY IN INDIA

- Chemical industry is one of the oldest industries in India.
- It is estimated that the size of Indian chemical industry is around **US\$ 30 billion**.
- Volume of production: **third largest producer in Asia** (next to China and Japan), and **twelfth largest in the world**.
- The industry, comprising both small scale and large units (including MNCs) produces several thousands of products and bi-products.
- A significant share (around one-third) of production by chemical industry is consumed by itself.
- 13% share in the manufacturing output
- 5% in total exports of the country.
- 20% of national revenue by way of various taxes and levies.
- **Gujarat is the major contributor** to the basic chemical as well as petrochemical production with **OVER 50% SHARE IN BOTH**.
- Other **states producing basic chemicals** include Maharashtra (9%), Tamil Nadu and Uttar Pradesh (6% each).
- Other major **states producing petrochemicals** include Maharashtra (18%), West Bengal (12%), Uttar Pradesh (4%), and Tamil Nadu (3%).
- India's export of basic chemicals amounted to over US\$ 7 billion in 2005-06. India exported US\$ 4.85 billion worth of organic chemicals, US\$ 775 million worth of inorganic chemicals, US\$ 847 million worth of tanning and colouring materials, and US\$ 649 million worth of pesticides, in the year 2005-06. In addition, India exported petrochemicals valued nearly US\$ 4 billion.
- India is also an importer of basic chemicals. The composition of India's chemical imports includes organic chemicals (63%), inorganic chemicals (28%), dyes (6%) and pesticides (3%). China, USA and Saudi Arabia are the leading source countries for India's chemical imports. In addition, India imported petrochemicals valued over US\$ 2 billion.
- The Indian chemical industry has been receiving significant investment intentions, including foreign direct investment (FDI). Since August 1991, and till November 2006, chemical industry has received a share of 11.3% in total investment proposals. FDI, which is very essential for modern manufacturing of chemicals, has also been flowing into the chemical sector significantly.

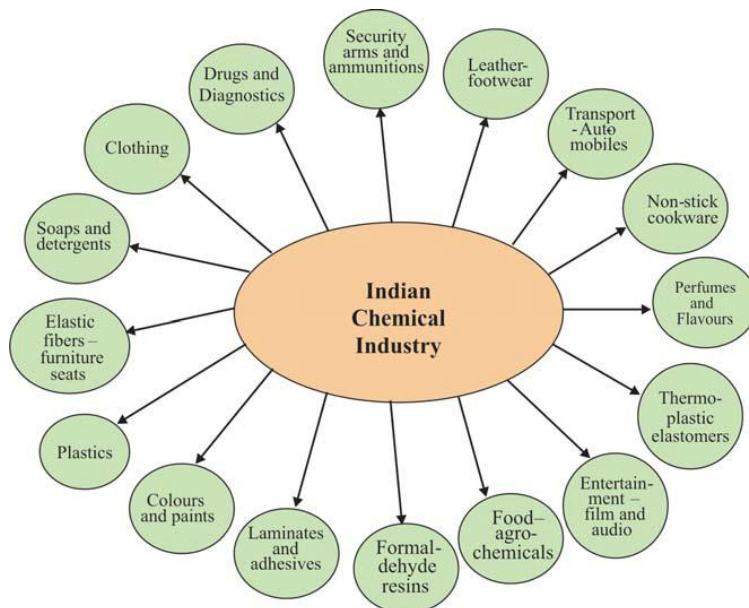
CHALLENGES

1. **High prices of basic feed stock:** Indian chemical industry either uses natural gas or crude oil as feedstock
2. **SSI reservation / Fragmented nature of industry:** more number of units in small-scale sectors spread in various parts of the country. The installed capacities in most of the small-scale units are smaller as compared to global scales.
3. Low R&D levels
4. Low Level of ICT interface

5. Low Level of Brand Development
6. Low Level of Common Infrastructure
7. Environmental Regulations
8. Dumping / Import Competition

STRATEGIES

1. Focus on Core Competence
2. Strengthening Technological Competence
3. Improving Basic Management Capabilities
4. Adhering to Environmental Norms
5. Focus on R&D
6. Collaboration



7. Consolidation
8. Increasing ICT interface
9. Industry - Academia Linkages
10. Marketing and Promotion
11. Setting up of Chemical Parks or Mega Chemical Estates
12. De-reservation of Select Chemical Production
13. Creation of Modernization Fund
14. Increasing Consumption Levels of Chemicals

COTTAGE INDUSTRIES

1. The production of finished goods by a worker, sometimes together with his family, at home is known as cottage industry. The products may be sold directly to the public by the worker, or to an entrepreneur who pays according to number of goods produced.
2. Cottage industry has a long history in India. It exists in almost all the states and regions of the country.

3. Cottage industry involves the **family labour** and with the **minimum investment** the family attempts to increase its income.

Bidi-making

- It is mainly produced in Bastar, Belgaum, Bhind, Hyderabad, Jabalpur, Kamptee, Kheda, Mangalore, Nagpur, Nasik, Pune, and Vadodra.
- **The main raw materials** used in the bidi are **tendu leaves** and **kachnal** found in the forests of Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, and Western and Eastern Ghats.
- **Inferior tobacco** from Andhra Pradesh, Bihar, Chhattisgarh, Madhya Pradesh and Uttar Pradesh
- India **exports** bidi to the Asian, African, and European countries.

Sports-goods

- Basket-ball, cricket, tennis, badminton, baseball, billiard, carrom, chess, dart etc. Many of these products are produced in the cottage industry.
- The **raw materials used in sports goods** are fine quality of wood, leather, cloth, rubber, and metal. These are locally available.
- Some of the finer quality of raw materials are, however, imported.
- Jalandhar, Ludhiana, Ahmedabad, Ambala, Chennai, Delhi, Jammu, Kolkata, Ludhiana, Meerut, Modinagar, Moradabad etc.

Basket-making

- This is generally confined to the hilly and mountainous areas of the country.
- The important raw materials used in the basket-making are bamboo, cane, and willow.

Lac Industry

- Lac is a natural resin secreted by an insect (**Cerria lacca**). **This insect thrives on babool, bargad, pipal, kusum, and palash.**
- The important products produced with the help of lac as a raw material are adhesives, electrical insulators, gramophones records, nail-polish, and printing ink.
- This cottage industry is concentrated in the districts of north east, Chhattisgarh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Uttar Pradesh, Uttarakhand and West Bengal.
- India is the third most important lac producing country in the world after Thailand and Malaysia.
- About 85 per cent of the total production of lac is exported to France, Germany, Italy, Japan, Russia, UAE, UK, and USA.

Cottage industries are part time or supplementary occupations. The equipments used to generate products are not the hi-tech ones but generally those which are used at homes. They provide employment to a large number of people. destruction of cottage industries is one of the main causes of poverty in our country. even in the highly industrialized country like Japan and Germany, a good proportion of their industries are run in a 'domestic' system. Cottage industries

can give the cultivator useful employment during spare time. Cottage industries have some **real and practical advantages** for woman labour.

Cottage Industries can successfully compete with machine made goods, if they are run on **modern lines**. Periodic **exhibitions** of the goods manufactured by Cottage Industries and development of **Co-operative system** are of great advantage for their progress. Endeavors should be directed towards the development of **technology** so that laborers can enjoy a decent lifestyle. Government should also provide **subsidies** for the growth of cottage industries especially in the preliminary stages.

Problems faced by cottage industries in India

Capital, labor, skills of the laborers and meets the requirements of the local market, raw materials or promoting their products, arranging for capital or access to insurance covers, etc. To his utter misfortune he is exploited by all. Hence, it is important to ensure that the benefit of value added services reaches the worker on time.

Cottage industries are the victims when it comes to attracting the attention of modern industry. This calls for preservation and promotion of cottage industries through formulation of public policies directed at improving the industry both in context of income of laborers and technological aspects.

Organizations working for the benefit of cottage industry in India

(KVIC), Central Silk Board, Coir Board, All India Handloom Board and All India Handicrafts Board, Forest Corporations and National Small Industries Corporation are also playing an active role in the meaningful expansion of cottage industries in India.

Tourism in India

1. Nature Tourism and Hill Stations
2. Hill Stations
3. Historic Monuments and Archaeological Sites
4. Cultural and Religious Tourism
5. Sea Beaches
6. Adventure Tourism

Problems of Indian Tourism Industry

- (i) infrastructure (transport, banking, and hotels)
- (ii) Complex visa formalities
- (iii) Multiplicity of taxes
- (iv) Problem of law and order in some of the regions
- (v) Safety and security of the tourists
- (vi) qualified tourist guides
- (vii) Absence of participation of the people

The World Tourism and Travel Council (WTTC) has suggested the following four-fold plan of action to achieve the potentials of tourism:

- (i) Make travel and tourism a strategic, economic, and employment priority.
- (ii) Move towards open and competitive markets.
- (iii) Pursue sustainable development
- (iv) Eliminate barriers to growth of tourism

People are now constantly logged in to social network sites. They search for new tourist destinations through the Internet and having tickers on social networking sites will help attract more viewers and generate interest in the state's tourist spots

The department is also thinking of tapping the GPS application which is used by a lot of people - mainly tourists from other states as well as foreigners - to know their location

ECO-TOURISM

- Eco-tourism, also known as ecological tourism, is a form of tourism that appeals to the ecological and socially-conscious individuals.
- It focuses on volunteering, personal growth, and learning new ways to live on the planet, involving travel to destinations where flora, fauna, and cultural heritage are primary attractions.
- Some visits are called eco-tourism simply because they take tourists to ecologically interesting areas, such as national parks. Most principles of genuinely sensitive tourism, developed internationally over the last years, are ignored.
- This includes carrying out assessments of the ecological impact of tourism and whether it actually benefits the local people or not. It is responsible tourism & includes programmes that minimise the negative aspects of tourism on environment and enhance cultural integrity.
- Therefore, in addition to evaluating environmental and cultural factors, an integral part of eco-tourism is in the promotion of recycling, energy efficiency, water conservation, and creation of economic opportunities for the local communities.

Ideally, eco-tourism should satisfy several criteria, such as:

- Conservation of biological diversity
- Conservation of cultural diversity through ecosystem protection.
- Promotion of sustainable use of biodiversity
- providing jobs to local populations.

Growth and Development of Eco-tourism

- Eco-tourism, responsible tourism, and sustainable development have become prevalent concepts since the late 1980s, and eco-tourism has experienced arguably the fastest growth of all sub sectors in the tourism industry.
- The popularity represents a **change in tourist perceptions**, increased **environmental awareness**, and a **desire to explore natural environments**.

- Such changes have become a statement affirming one's social identity, education, sophistication, and disposable income as they are about preserving the Amazon rainforest or the Caribbean coral reef for posterity.
- With its great potential for environmental protection, the United Nations celebrated the International Year of Eco-tourism in 2002.
- Ecotourism also minimizes wastage and environmental impact through sensitized tourists. It can be one of the medium to preserve local culture, flora and fauna and other natural resources.

Community Eco-Tourism Initiative

Jammu and Kashmir

In Ladakh, several villages have initiated home stay programmes for trekkers and other tourists, with funds going back into conservation and village development, the Hemis National Park, Zaskar region, and Tso Moriri Lake.

Nagaland

Khonoma village, close to Kohima, is the site of Green Village Project, set up by the Maharana Kumbha Common Interest Group (CIG), with nine villagers from families below the poverty line. The youth were trained in visitor management.

Kerala

In the Periyar Tiger Reserve, forest officials used the Eco development Project to establish a unique eco-tourism programme by local adivasis, employing several hardcore poachers.

West Bengal

In Bali village in Sundarbans, local people have started the Bali Nature and Wildlife Conservation Society with support of Help Tourism, association for Conservation and Tourism, and Worldwide Fund for Nature India. The society runs a 'Community Tourism Demonstration Model Camp' that employs 22 local people and benefits over fifty families and seven other villages.