

Lesson-11

Manufacturing Industries

Introduction-

Industry is the process of transforming chemical and physical properties and increasing the value of materials obtained from agriculture and mining in multiple forms usable for human beings, e.g making of cotton textile from cotton. Industry is the backbone of modern economy which provides large scale employment; on the other hand production develops trade and economic factors which provides speed to modern economy.

There have been evidences of cotton textile, earthen pots and bronze statues from the excavations in Indus valley Civilization and the rust resistant iron pillar near Qutubminar which show industrial development in ancient India. It was known as 'golden bird' in ancient times to due highly developed cottage and small scale industries of metal, textile, gold ornaments and ship building. But the Britishers destroyed these small and cottage industries through their oppressive policies.

The industrial development of any country, especially the development of manufacturing industries, is the basis to evaluate its economy. Today the developed countries of the world like U.S.A., Russia and other European countries, Japan etc. are also important industrial countries. The manufacturing industries play important roll in the use of resources found any region and such resources are transformed and value added in these industries. The regions where there is lack of manufacturing industries are exporting in their row material at cheaper rates. Whereas the advanced countries in terms of industrialisation get good income through the value addition of such row materials.

Beginning of Modern Industries in India-

Modern Industries in India were started with establishment of cotton textile Industry in Fort Glostar (near Kolkata) in 1818 but the real beginning was with establishment of cotton textile industries at Mumbai in 1854. In the year 1855 Jute industry was established at Richra near Kolkata. Only these industries were developed with slow pace in India till first world war.

In India there are great possibilities of industrial development due to availability of sufficient natural minerals, agriculture product and human labour. After the independence of India, continuous efforts have been made to developed various industries in India. After independence, in the five years plans, India tries to convert its agro based economy into industrial based economy.

On the similar lines, after independence first industrial policy was introduced in 1948 in which emphasis was given on reducing regional imbalances with development of new employment generating, agriculture and export based industries. Focus was laid on manufacturing of high quality products with low cost by improving supply of capital, raw material and technology at government level. Planning Commission paved the path of industrial development in different Five Year Plans through development of iron and steel, cotton textile, cement, paper and sugar industry.

Iron and Steel Industry in India-

This industry is the pillar of industrial development not only in India but in the entire world. It is called the mother of other industries. First iron and steel industry in India was established at Porto-Nova in the year 1830. After its failure, first successful beginning was observed

Table 11.1 : Iron and Steel Unit in India

Sr. No.	Name of the Unit	Place	Region of availability of Iron Ore	Region of availability of Coal	Region of availability of Manganese	Region of availability of Water	Markets	Production capacity
1	TISCO	Jamshedpur	From Noamundi and Gurumahisani mine	From Jharia and Bokaro	Joda mines of Kyonjhar	Swama Rekha and Kharkai river	Kolkata, Mumbai and neighbouring regions	40 lakh tonnes
2	IISCO	Kulti, Hirapur, Burnpur	From Singhbhum, Mayurbhanj, Kolhan and Kyonjhar mines	Raniganj, Jharia and Ramnagar	Orissa and Jharkhand	Damodar river and its tributaries	Kolkata and neighbouring regions	16 lakh tones per head
3	VISCO	Bhadravati	Kemmanagindi mines	Local coal from wood	On local level	Bhadravati river	Bangalore and neighbouring regions	2 lakh tonnes
4	Raurkela Iron Factory	Raurkela	From Sundergarh and Kyonjhar mines	From Jharia and Talcher mines	From Basapani and Bolani mines	From Brahmani river	Nearby Industrial Area	1 lakh tonnes
5	Bhilai Steel Factory	Bhilai	From Dalli Rajhara mines	From Korba and Kargali mines	From Bhandara and Balaghat mines	On local level	Nearby Industrial Area	35 lakh tonnes
6	Durgapur Steel Factory	Durgapur	From Noamundi and Gua mines	From Jharia and Raniganj	From Jamda mines of Kyonjhar	From Damodar and Bokaro river	Kolkata, Mumbai and neighbouring regions	15 lakh tonnes
7	Bokaro Steel Factory	Bokaro	From Kiribuni mines of Kyonjhar	From Jharia	From Kyonjhar mines	From Damodar and Bokaro river	Kolkata, Mumbai and neighbouring regions	25 lakh tonnes
8	Visakhapatnam Steel Factory	Visakhapatnam	From Beladila mines	Damodar Valley	Orissa and Chhattisgarh	From Coastal river	Nearby Industrial Area	3 lakh tonnes

in 20th century when in the year 1907 a plant, Tata Iron and Steel Company (TISCO), was established at Sankchi (Jamshedpur) by Jamshedji Tata. Later, Iron and Steel industries were established in the year 1919 in Barnpur (IISCO) and Mysor and in the year 1923 in Bhadravati (Karnataka). Both Kulti and Hirapur plants were merged into Indian Iron and Steel Company later on. In this way the beginning of Iron and Steel industry took place in India in 20th century.

After independence this industry was developed under various Five Year Plans. In second five year plan industries were established in Durgapur (West Bengal) with British aid, in Raurkela (Orissa) with German aid, in Bhilai (Chhattisgarh) with Russian aid. In the beginning, their capacity was 10 lakh tons which was later increased to 16 lakh tons. In third Five Year Plan a plant at Bokaro (Jharkhand) was established which

is the largest plant in Asia. In 1973 Steel Authority of India (SAIL) was established for quality improvement and rapid development of this industry. It performs the administrative work of all the industries under public sector. Three more industrial units placed at Vishakhapatnam (Andhra Pradesh), Salem (Tamil Nadu) and Vijaynagar (Karnataka) were included under its administrative supervision.

This industry is based on raw material and cheap transportation. That is why it is established near the mines for obtaining raw material like coal, iron ore manganese and cheap transportation.

In 2015 India became the third largest country in wrought iron production in the world. India is the largest producer of direct reduced Iron (DRI) or sponge iron. India is also the third largest consumer of produced steel in the world after

China and America. Steel sector contributes about 2% of India's of Gross Domestic Production and about 6 lakh people are employed in this sector



Map 11.1 : Iron & Steel Industries in India

Cotton Textile Industry-

It is an ancient industry of India. There is a mention of cotton textile in the Indus valley civilization. This industry creates highest employment opportunities. That is why it is first from expansion point of view, production and employment. India is the second largest country after China in production of cotton textile.

First modern textile industry in India was established in Fort Glaster of Kolkata in 1818 but this effort failed. First Indian textile mill was established in Mumbai by Kawasji Dabur in 1854. It started production in 1856. By 1861 twelve mills had been established. By 1947 there were 417 mills in India in which 3 lakh workers were employed. At present the number of these mills is more than 1200 in which about 40 lakh people have got direct employment. This industry contributes 40% in gross domestic production. The centralization of

this industry is in cotton producing regions, places of cheap transportation, labour and moist climate. So it developed in following states.

1. Maharashtra:-

Maharashtra is at the first place in cotton textile production. There are 112 mills in this state and only Mumbai has 54 mills. It is known as the Capital of Cotton Textile. Apart from this, there are mills in Sholapur, Akola, Amrawati, Wardha, Satara, Kolhapur, Sangli, Jalgaon and Nagpur. In these mills, poplin, muslin, saris, dhotis, bedsheets, suiting and shirting cloth are prepared. This industry has developed due to presence of black soil and moist climate and Mumbai port. 39% of cotton textile is produced here.

2. Gujarat:-

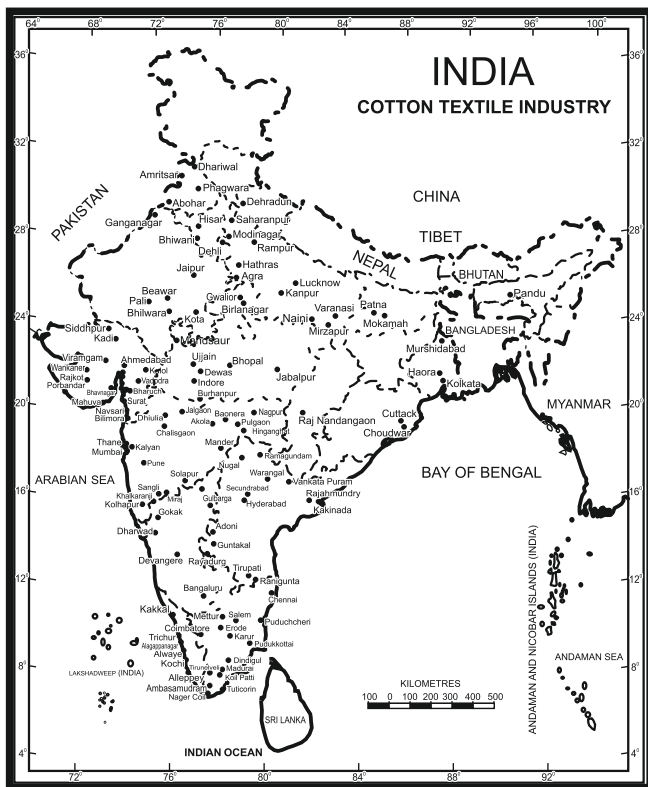
It is the second largest state in the production of cotton textile. There are 135 mills in this state in which 67 are in Ahmedabad. It is known as Boston of East. There are also mills in Surat, Badodara, Bahavnagar, Porbandar, Rajkot and Bharuch. This industry has developed much due to the availability of cotton growing regions, cheap labour, capital and Kandla port. 35% of cotton textile is produced here.

3. Tamil Nadu-

Tamil Nadu is the largest textile producing state in Southern India. There are 205 mills in this state and most of them are in Coimbatore where there are also thread mills along with cotton textile mills. There are also mills in Chennai, Perambur, Tiruchiappali and Ramanathpuram. This industry developed here due to moist climate from sea and Chennai port. 6% of cotton textile of the country is produced here.

4. Madhya Pradesh-

There are 36 mills in this state and most of them are established in Indore, Gwalior, Ujjain, Dewas, Jabalpur and Ratlam. There has been much development of this industry as it is well connected with transportation routes and availability of cheap labour due to more population. 5% of cotton textile is produced here.



Map 11.2 : Cotton Textile Industries in India

5. West Bengal-

There are 24 mills in this state and most of them are centralized in the Hooghly river regions in Kolkata, Hooghly, Howrah and 24 Parganas. Due to cotton supply from other states, there has been much development of this industry and also due to Kolkata port, well connected with transport routes and availability of cheap labour and high population.

6. Rajasthan-

Cotton textile industry in Rajasthan is in its initial stage. Due to cheap electricity from Chambal and Bhakhra Nangal project and cotton production in Hadoti plateau and irrigated plains of Ghaggar, cotton mills have been established in Bhilwara, Udaipur, Kota, Ganganagar and Pali. Cold storage is used to retain moisture. 4% of total cotton production is done here. Only suiting and shirting cloth is prepared in Rajasthan.

7. Other States-

Textile mills in Kanpur, Murdabad,

Hathras, and Varanasi produce cotton textile from imported cotton. There are cotton mills at Amritsar, Ludhiyana and Phagwara in Punjab, in Bellary, in Mysore and Bangalore in Karnataka due to availability of cotton from Telangana region. There are also cotton textile mills in Hyderabad, Varangal, Guntur in Andhra Pradesh, Kerala and Bihar.

Cotton textile industry in India has made 12 fold progress after independence. 351 crore sq. metre cloth was prepared in 1947. It is now 6500 crore sq. metre. Due to increased local demand, most of the production is consumed in the country. Remaining part is exported to European, African and Gulf countries. Apart from this Indian textile Industry suffers from the problems of inferior quality of raw material, old machines and competition from the products and production made from artificial fiber.

Cement Industry-

It is a basic industry. Cement was invented by Josphe at Portland in England in 1824. That is why the cement used nowadays is called Portland cement. First cement plant in modern form was established at Chennai in Tamil Nadu in 1904 in which cement was made from sea-shells but the experiment proved a failure. First Indian cement plant was established at Porbandar in Gujarat in 1912-13 by Indian Cement Company. In the year 1915 cement factories were established at Katni (M.P.) and in 1916 at Lakheri in Rajasthan by Killick Nixon Company. It is second industry in this country from production and employment point of view. India is at second place in the world in production after China. The centralization of this industry has been due to availability of raw material and cheap transportation, because one ton cement needs 1.6 ton of limestone, 0.38 ton gypsum and 3.8 tons coal and these are heavy materials. It has developed in following states.

1. Rajasthan-

Rajasthan is an important state in case of cement production in India. First cement industry in Rajasthan was established at Lakheri in 1916. It

has centralised in single belt of Nimbhaera, Chittorgarh, Kota, Bundi and Swaimadhopur. There are also cement factories in Udaipur, Nagaur, Pali and Sirohi. 16 large, 5 medium and 130 small factories are operating in the state. Six large scale units of cement are in Chittorgarh district. That is why it is known as cement city of the state. 70% Portland cement and 16% of total cement is produced in Rajasthan. 90% portland cement and 10% white cement is produced in Rajasthan. White cement plants in the state are at Goton (Nagaur) and at Khariya Khangar (Jodhpur). There are factories of J.K. cement, Mangalam cement, Binani cement and J.K. Laxmi cement in Rajasthan.

2. Madhya Pradesh and Chhatisgarh-

Both the states are leading producers of cement. Both the states contribute 22% of total production in the country. Raw material is obtained from Kaimur hills. There are 17 large factories in Katni, Satna Durg, Mandhar, Banmore, Neemuch, Ratlam, Dewas, Nagda, Akaltra, Jamul Tilda and Mehar.

3. Gujarat:-

There are 16 large cement units in this state. 9.4% cement production of the country is done here. There are cement plants in Ahemdabad, Bhavnagar, Porbandar, Rajkot, Okha, Verawal, Jamnagar and Dwarka. Development of cement Industry in this region is due to availability of sea-shells, cheap labour, capital and Kandla port.

4. Tamil Nadu-

This state also leads in cement production respectively. Raw material is available from plateau parts of Tamil Nadu. There are large cement factories in Tirunelveli, Dalmiapuram, Thalaiyuthu, Shankardurg, Rajmalayam, Mondakrachi and Atiyalar.

5. Other States-

Uttar Pradesh and Jharkhand are also important in terms of production of cement and produce 4.8% and 4.4% of total cement production of the country respectively. There are cement factories in Churk, Chopan, Chunar, Dala in Uttar

Pradesh and in Pantal, Sindri in Jharkhand. There are cement factories in Karnataka at Bhadravati, Bagalkot, Bangalore, Gulbarga and Bijapur due to availability of raw material from Western Ghats and Karnataka plateau. Cement factories in Andhra Pradesh and Telangana developed due to the availability of raw material from Royal seama regions. So cement factories have been established in Hyderabad, Varangal, Adilabad, Vijaywada, Krishna and Nalkonda and also in Kerala and Bihar states.

There were only 23 cement plants in India at the time of Independence and out of which 5 went to Pakistan whose production capacity was 21.15 lakh tons. At present there are 124 large and 300 small scale units in the country from where 2250 ton cement is being produced. Most of the cement is consumed in the country due to high local demand in the country. Remaining cement is exported to East Asian and African countries.



Map 11.3 : Cement Industries in India

Paper Industry-

It is an ancient cottage industry of India. In

this industry pulp is made from waste of agriculture and trees and paper is made from it. 70% paper in India is made from sugarcane remains. Paper industry was established in Shrirampur (West Bengal). After this paper mills were established in Hooghly and Madras between 1810 and 1867 but this effort remained unsuccessful. The first paper mill in India was established in Lucknow in 1879 by the name of Indian Paper Mill. Titagarh paper mill was established in 1881. there were 17 paper mills in India at the time of Independence whose production capacity was 19000 tons. At present there are 800 small and large paper mills which produce 128 lakh ton of paper. 65% of this production is used as paper for newspapers and the rest is used for other purposes. The centralization of this industry is influenced by the availability of raw material and cheap transportation. The paper mills in different states are as follows:-



Map 11.4 : Paper Industries in India

1. Titagarh, Raniganj, Triveni and Kolkatta in West Bengal.
2. Mumbai, Puna, Chandrapur, Khapoli, Pimpri, and Kampti in Maharashtra.

3. Lucknow, Meerut, Saharanpur, Mujafarnagar, Pantragar and Basti in Uttar Pradesh.
4. Bhopal, Rewa, Hosangabad and Kamalai in Madhya Pradesh
5. Bhadrawati, Banglore, Ramnagar and Krishanrajsagar in Karnataka
6. Surat, Vapi, Badodara and Rajkot in Gujarat.

There is a paper mill to supply paper for news paper industry at Nepanagar in Madhya Pradesh and a government sector unit at Hosangabad to supply paper for printing currency. Due to high local demand, most of the paper is consumed in the country and it has also to be imported from other countries.

Industrialization in Rajasthan-

Rajasthan is a backward state in industries as compared to other states. It contributes merely 6% of total industrial production of the country and contributes 30% in gross domestic production of the state. Most of the industries in the state are based on minerals and agriculture which are centralized in Alwar, Dausa, Jodhpur, Bhilwara, Rajsamand, Kota, Baran, Ajmer and Pali district, Rajasthan is at leading position in gem ornaments, marble, cement, lead, zinc, salt, handicraft and oil seed industry.

Major Industries of Rajasthan:-

1. Lead-Zinc industry

There are large deposits of lead and zinc in Arawali mountain ranges in the state so the industrial units of lead and zinc have been established in Jawar, Debari (Udaipur), Chanderia (Chittor), Rajpura Dariba and Rampura Dariba. These industries have been established near mines. Rest of raw material is brought from Banera, Chouth ka Barwara and Gudha Kishoridas. 95% of total production of the country is from Rajasthan.

2. Cement Industry-

Rajasthan stands leading in cement production. Cement industry in Rajasthan was

started in 1916 in Lakheri. This Industry has centralized in single belt in Nimbahera, Chittorgarh, Kota, Bundi and Swaimadhopur. Apart from this there are also units of cement plants at Alwar, Nagaur, Pali and Sirohi. There are 18 large, 5 medium and 130 small units in the state. There are six large scale cement factories in Chittorgarh so it is called the 'Cement City' of the state. 16% of total cement production of the country is taken from Rajasthan. 90% portland cement and 10% white cement is produced in the state.

3. Handicraft Industry-

Gem crafting and ornament making is done in Jaipur, Pratapgarh, Nathdwara and statue artistic goods are made in Jaipur, Jodhpur and Udaipur, lac items and bangle making work is done in Jaipur and Jodhpur, dyeing and printing and bandhej work is done in Pali, Barmer and Sanganer and leather items are made in Jodhpur, Jaipur, Ajmer and Barmer.

4. Marble Industry-

High quality marble is available in Rajasthan so units of marble cutting, polishing and grinding have been established in Makrana, Sirohi, Rajnagar, Chittor, Udaipur and Kishangarh.

5. Salt and Chemical Industry-

Salt making in Rajasthan is being done from salt water since ancient times. Largest salt water lake of the country Sambhar lake produces largest amount of salt. Apart from this there is sodium sulphate industry in Didwana and magnesium sulphate industry in Pachpadra.

6. Wool Industry-

In India, highest number of sheep and wool giving animals are reared in Rajasthan. Due to availability of raw material at local level, woollen rugs and carpets are made in Bikaner, Jodhpur, Barmer and Pali.

7. Cotton Textile Industry-

Textile industry in Rajasthan is in its initial stage in Rajasthan. Due to availability of cheap

electricity from Chambal and Bakhara Nangal project and cotton cultivation in irrigated plains of Ghaggar, textile mills have been established in Bhilwara, Udaipur, Kota, Ganganagar and Pali. Machines are used to retain artificial moisture. 4% production of cotton textile is done here. Mainly suiting and shirting cloth is produced here.

8. Oilseed Industry-

Rajasthan is at the first place in the country in oilseed production. Oil mills of groundnut, mustard, soyabean, alsi and castor oil extraction units are established in Alwar, Jaipur, Dausa, Kota and Bundi.

9. Other Industries-

Sugar mills are established in Bundi, Chittor and Bhilwara, Gawargum mill at Churu, Jodhpur and Barmer, Paper industry is present in Ghosunda, Kota, Bhilwara, Udaipur, and Banswara.

Industrial Pollution:-

Manufacturing industries help in development of economic system, on the other hand, they give rise to such conduction which helps in destruction of human civilization and nature. The regions which experienced industrialization in the country also experienced urbanization rapidly such as Delhi, Mumbai, Kolkata, Ahmedabad, Nagpur and Surat. The level of water, air pollution in these cities is extremely high. According to Central Ground Water Board Ganga and its tributary Yamuna have been extremely polluted due to industrial waste of leather, paper, manure, chemical and drug industries. In the same way the Gomati river near Lucknow has become extremely poisonous due to the waste of paper and sugar industries. Dead fishes are often seen there. On the basis of a study, 30% of Urban population in the country is suffering from diseases related to breathing. There are poisonous and harmful elements in the air like carbon, lead, sulphur, which react with nitrogen and oxygen and leaves harmful effect on soil, water and human body.

Industrial waste reaches the oceanic parts

of the country through air and water and influences the local biological system which affects the food chain and destroys sea animals and vegetation. Disposal of waste from oceanic ships, accidents of oil tankers in the sea, leakage of oil from the sea, refining near sea shores and nuclear bomb experiments etc. are polluting oceanic water.

One out of eight birds in India is on the verge of extinction. Due to industrialization and increasing means of transportation, wildlife has been deprived of their natural habitat. In the same

way due to acid rain, air pollution, dirty water, poisonous elements in the soil have destroyed its fertility. Water resources of perennial rivers like Gangotri and Yamunotri are going to dry due to rising temperature. If this industrialization continues, the day is not far when mankind will be suffering from various diseases and would face calamities such as famines, droughts and floods and nothing would remain for consumption for future generations. So it is necessary for us to adopt the path of sensible and moderate utilization of industrial development.



Fig. 11.1 : Impacts of Industrialisation on environment

Important Points

1. Industry is a process of value addition by transforming chemical and physical properties of substances obtained from agriculture and mining activities in multiple forms usable for human beings.
2. Iron and steel industry is the basic pillar and mother of other industries in India.
3. Iron and steel plants were established in Durgapur (West Bengal) with British aid in Raurkela (Orissa) with German aid and at Bhilai (Chattisgarh) with Russian aid during Five Year Plans.
4. Iron and steel plant established at Bokaro is the largest plant in Asia.
5. First modern cotton textile mill was established in Fort Gloster 1818 in Kolkata but the effort remained unsuccessful. First cotton textile mill was established in 1854 in Mumbai by Kawasji, Dabar.
6. Maharashtra stands first in cotton textile production. Out of 112 mills in the state 54

are in Mumbai which is known as the capital city of textile.

7. Cement was invented in 1824 at Portland in England by Joseph. That is why the cement used today is called Portland cement.
8. Machines are used to retain artificial moisture in cotton textile manufacturing in Rajasthan.
9. In India, there is a paper mill at Nepanagar in Madhya Pradesh which makes paper for printing newspapers and there is a government press for printing currency in Honshangabad.
10. White cement factory in the state is situated in Goton (Nagore).
11. Rajasthan stands leading in gems and ornaments, marble, cement, lead-zinc, salt, handicraft, and oil seed industry in the country.

EXERCISE

Very Short Answer Type Questions-

1. Which is the ancient evidence of iron and steel industry in India?
2. When and where was the first cotton textile mill established in India?
3. What do you mean by manufacturing industries?
4. Where was the first iron and steel industry established in India?
5. In which districts of Rajasthan are cotton textile mills established?
6. Where is the note-Printing press in India?
7. In which states of India are lead and zinc plants established?
8. Which city is known as the 'Boston of the East'?
9. Where are magnesium and sodium sulphate industries situated in India?

Short Answer Type Questions-

1. Describe the development of cotton textile industry in India.
2. Describe the development of iron and steel industry in India.
3. Describe the development of cement industry in India.
4. Describe the distribution of paper industry in India.
5. Describe the development of cement industry in Rajasthan.
6. Describe the industrial development in Rajasthan.

Essay Type Questions-

1. Describe the production and distribution of iron and steel industry in India.
2. Describe the distribution of cotton textile industry in India.
3. Describe the condition of industrial pollution in India.
4. Describe the major industries of Rajasthan.