



## GEOGRAPHY

### CHAPTER – 6 MANUFACTURING INDUSTRIES

#### I. Importance of Manufacturing :

A. Manufacturing sector is considered the backbone of development in general and economic development because-

- Manufacturing industries help in modernizing agriculture.
- They reduce the heavy dependence of people on agricultural income by providing them jobs in secondary and tertiary sectors.
- Helps in eradication of unemployment and poverty.
- Helps in bringing down regional disparities by establishing industries in tribal and backward areas.
- Exports of manufactured goods expand trade and commerce and bring much-needed foreign exchange.
- India should convert its raw materials into a wide variety of furnished goods in order to prosper.

B. Agriculture and Industry go hand-in-hand. For example, in agro-industries, agriculture helps industries by providing raw materials and industries provide products such as irrigation pumps, fertilizers, pesticides, etc.

C. We can compete with international markets, if our manufactured products are at par in quality with international products.

#### II. Contribution of Industry to National Economy:

The desired growth rate for industry is 12 percent in the coming decade. The National Manufacturing Competitiveness Council (NMCC) has been set up with this objective. Government Policy interventions and renewed efforts by the industry for productivity will help manufacturing achieve its desired growth rate.

#### III. Industrial Location:

Industries are not found everywhere. They are located at certain places only where they get favourable conditions to thrive. Industrial Location is governed mainly by the following factors:

- Raw Materials
- Source of Energy
- Source of Water
- Availability of Capital and Finance
- Demand in Market
- Skilled Labourers and Workers
- Banking and Insurance
- Transport and Communication

Many industries come together at urban centres to make use of the advantages. These are known as "**agglomeration economies**".

#### **IV. Types or Classification of Manufacturing Industries:**

##### **A] On the basis of Raw Materials:**

1. Agro Based: Those industries where raw materials come from agriculture, e.g. Cotton, Woolen, Jute, Silk Textiles, Sugar, Tea, Edible Oil
2. Mineral Based: Those industries where minerals are used as raw materials, e.g. Iron & Steel, Cement, Aluminum, Machine Tools etc.

##### **B] On the basis of their Main Role:**

1. Basic Industries: Those industries which provide raw material to other industries are called basic industries. These industries help the development of other industries, e.g. Iron and Steel, Copper and Aluminum Smelting
2. Consumer Industries: Those industries which produce goods for consumers are called consumer industries. Finished goods of these industries are directly sold in the market for consumers, e.g. Sugar, Toothpaste, Soap, Bread, Paper etc.

##### **C] On the basis of Capital Investment:**

1. Small Scale Industries: Those industries where investment of capital is less than Rupees one crore are called as small scale industries, e.g. Mat, Furniture, Toys, Bread, Tools etc.
2. Large Scale Industries: Those industries where investment of capital is more than Rupees one crore are called as large scale industries, e.g. Iron & Steel, Petrochemicals, Cotton Textiles etc.

##### **D] On the basis of Ownership:**

1. Public Sector: These industries are owned, operated and maintained by Govt. e.g. BHEL, SAIL, IISCO
2. Private Sector: These industries are owned, operated and maintained by individual or group of individuals, e.g. TISCO, Bajaj Auto Ltd., etc.
3. Joint Sector: These industries are jointly run by Govt. and group of individuals. It is mixture of public and private sector, e.g. Oil India Ltd. [OIL].
4. Cooperative Sector: These industries are owned, operated and maintained by supplier of raw materials and workers of the industries, e.g. Sugar industries in Maharashtra, Coir industries in Kerala.

##### **E] On the basis of Finished Goods [Output]:**

1. Heavy Industries: Those industries which use heavy and bulky raw materials and produce heavy goods in large quantity are called heavy industries, e.g. Iron and Steel, Copper Smelting.
2. Light Industries: Those industries which use light and small raw materials and produce light goods are called light industries, e.g. Electrical, Toys, Tools, Utensils etc.

#### **V. Agro-Based Industries:**

##### **Cotton Textile Industry:**

- It is an agro-based and the oldest industry in India.

- First cotton mill was established in 1854 in Mumbai.
- At present, it the largest industry in our country. There are about 1600 cotton textile mills in our country. Cotton textile mills are mainly concentrated in Maharashtra and Gujarat due to favourable conditions. Important centres are Mumbai, Pune, Ahmedabad, Surat, Rajkot etc. Other centres are Agra, Kanpur, Hugli, Chennai, Madurai etc.
- Cotton textile is produced by three methods in India: a) Handloom, b) Power-looms and c) Mills
- Cotton textile industry involves ginning, spinning, weaving, dyeing, designing, tailoring and packaging to produce readymade garments.
- India exports yarn and readymade garments to USA, Japan, UK, France, Nepal, Sri Lanka etc.
- Cotton textile industries are facing many problems such as: a) scarcity of good quality cotton, b) main cotton growing area went to Pakistan, c) old machinery, d) erratic power supply, e) low productivity of labour, f) tough competition from synthetic fibers.

### **Jute Textiles and its problems:**

- India is the largest producer of raw jute and jute goods. There are about 70 jute mills in our country.
- First jute mill was setup in Rishra [Kolkata] in 1859.
- Most of the jute mills are located along Hugli River in West Bengal due to favourable conditions. Jute is used in making rope, bags, carpets etc. Bihar, UP, Assam and Tripura also have jute mills.
- Jute industries are facing problems like: a) main jute producing area went to Bangladesh, b) high production cost, c) declining demand of jute in international market, d) tough competition from synthetic fiber industry.

### **Jute industries are located mainly along Hooghly River because:**

There are 69 jute mills located in a 2 km broad belt along Hooghly River.

This area provides many favourable conditions required for this industry.

- a) Raw jute is available for West Bengal. West Bengal is the largest producer of jute.
- b) Coal for energy is brought from nearby Raniganj Coalfields.
- c) Hooghly River provides water for washing and cleaning jute.
- d) Warm and humid climate is very favourable for cultivation of jute.
- e) Kolkata is a metro city which provides capital and market.
- f) Hooghly River also provides cheap water transport.

### **Sugar industry:**

Earlier UP and Bihar were the main producers of sugarcane. Therefore, most of the sugar mills were located in these two states only. But now, sugar mills are shifting towards Maharashtra and Karnataka because:

- a) Per hectare production of sugarcane is higher in southern India. Black soil is quite suitable for cultivation of sugarcane.
- b) Sucrose content in the sugarcane is higher in Maharashtra and Karnataka. It means more sugar can be produced for less sugarcane.
- c) Mills and machines are new in southern states. New and modern machines increase the productivity.
- d) Crushing season for sugarcane is longer in southern states.
- e) Cooperative sugar mills are running successfully in southern states.



## **VI Mineral Based Industries:**

### **Iron & Steel Industry and its problems:**

- This industry is called as basic industry because it provides raw material to many other industries such as machine tools, transport equipment, construction material etc.
- It is also called as heavy industry because raw materials [iron ore, coal, limestone] are bulky in nature.
- Iron ore mixed with limestone is smelted in the blast furnace using coking coal to produce pig iron. The ratio of iron ore, limestone and coking coal used in 4:2:1. Pig iron is mixed with manganese, chromium and nickel which make it more stronger steel.
- Most of the steel plants are located in Chotanagpur region due to its favourable conditions.
- Important integrated steel plants are Jamshedpur, Durgapur, Bokaro, Bhilai, Burnpur etc.
- India produces about 33 million tons of steel every year even though per capita consumption of steel is very low i.e. 32 kg. It is low because India has low economic and industrial development.
- Today steel industries in India are facing many problems: a) High cost of production, b) Limited availability of coking coal, c) Low productivity of labour, d) Irregular supply of energy, e) Raw materials are found in a certain pockets of India only, f) Poor infrastructure like transport and communication etc.

### **Aluminum Smelting:**

- It is the second most popular metallurgical industry in India
- The raw material used is a bulky dark reddish rock known as bauxite.
- It is light, corrosion resistant and a good conductor of heat and is malleable.
- It becomes stronger when mixed with other metals.
- It is used to manufacture aircraft, utensils and wires.
- Major sources are located in Orissa, West Bengal, Kerala, UP, Chattisgarh, Maharashtra and Tamil Nadu.

### **Chemical Industry:**

- Contributes approximately 3 percent of annual GDP.
- In terms of size, it is the third largest industry in Asia and the twelfth largest in the world.
- Organic and inorganic sectors of the industry are rapidly growing. Organic chemicals include petrochemicals. Inorganic chemicals include sulphuric acid, nitric acid, alkalis, soda ash, caustic soda, etc.

### **Fertiliser Industry:**

- India is the third largest producer of nitrogenous fertilizers.
- Fertiliser industry is centred around the production of nitrogenous fertilisers, phosphatic fertilisers and ammonium phosphate and complex fertilisers. Complex fertilisers have a combination of nitrogen (N), phosphate (P) and potash (K). Potash is entirely imported because India does not have any reserves of commercially viable potash or potassium compounds.

## **VII.Cement Industry:**

- Cement industry requires bulky raw materials like limestone, silica, alumina and gypsum.
- There are many cement plants in Gujarat because of proximity to ports.
- There are 128 large and 323 mini cement plants in India.
- Improvement in quality has found the Indian cement a readily available market in East Asia, Middle East, Africa and South Asia. This industry is doing well in terms of production as well as export.

### **VIII Automobile Industry:**

- After liberalisation, many automobile manufacturers set their base in India.
- At present, there are 15 manufacturers of cars and multi-utility vehicles, 9 of commercial vehicles, 14 of two and three-wheelers.

- Delhi, Gurgaon, Mumbai, Pune, Chennai, Kolkata, Lucknow, Indore, Hyderabad, Jamshedpur, Bangalore, Sanand, Pantnagar, etc. are the major centres of automobile industry. **IX Information Technology and Electronics Industry:**

- Bangalore is often termed as the electronic capital of India. Mumbai, Pune, Delhi, Hyderabad, Chennai, Kolkata, Lucknow and Coimbatore are the other important centres. There are 18 software technology parks in the country and they provide single window service and high data communication to software experts.
- This industry had generated a large number of employment. Upto 31 March 2005, over one million persons were employed in the IT industry. Because of fast growth of BPO (Business Process Outsourcing); this sector has been a major earner of foreign exchange.

### **X Industrial Pollution and Environmental Degradation:**

a) Air pollution is caused by the emission of CO<sub>2</sub>, Carbon Monoxide, Sulphur Dioxide etc. Chimneys of the industries produce heat leading to Global Warming and Green House Effect. The use of CFC in various industrial products depletes ozone layer which filters ultraviolet rays of the sun.

b) Dumping of organic and inorganic industrial waste into water bodies pollutes the water. Industries which produce paper, pulp, chemical, leather, acids, dyes, fertilizers etc generate lots of toxic waste which kills the aquatic life.

c) High intensity sound generated by running machines, sirens, drilling, fans etc leads to noise pollution. It causes irritation, hearing impairment, heart attack etc. among the nearby residents.

d) Mining activity to get raw material for industries also degrades the environment. Land degradation, deforestation, soil erosion, water logging etc. are the results of mining activities.

### **XI Measurement [Methods] for Controlling Environmental Pollution and Degradation:**

a) Industries should be located with careful planning and better design.

b) Quantity of smoke can be reduced by using oil instead of coal.

c) Non-conventional sources of energy should be used instead of fossil fuels.

d) Modern equipment should be used which controls, filters and separates harmful materials from the waste.

e) Waste water should be properly treated before discharging into rivers.

f) Land filling method should be adopted for dumping of waste.

g) Polluting industries should be located away from towns and cities.