Manufacturing Industries

Introduction

• Production of goods in large quantities after processing from raw materials to more valuable products is called manufacturing.

• Manufacturing industries fall in the secondary sector.

→ The economic strength of a country is measured by the development of manufacturing industries.

Importance of Manufacturing

• Manufacturing sector is considered as the backbone of development in general and economic development because:

→ It help in modernising agriculture, which forms the backbone of our economy. Also, reduce the heavy dependence of people on agricultural income by providing them jobs in secondary and tertiary sectors.

→ It helps in eradication of unemployment and poverty from the country.

→ Export of manufactured goods brings foreign exchange.

→ It helps in transforming raw materials into a wide variety of furnished goods of higher value.

Agriculture and Industry

• Agriculture and industry are dependent on each other.

→ Industries gives a major boost to agriculture by raising its productivity by providing their tools and products such as fertilisers etc.

→ Industry depends on agriculture for raw materials and sell their products such as irrigation pumps, fertilisers, insecticides, pesticides, plastic and PVC pipes, machines and tools, etc. to the farmers.

Contribution of Industry to National Economy

• The contribution of Industry in the GDP is very low in India as compared to East Asian economies.

• The National Manufacturing Competitiveness Council (NMCC) has been set up by the government to take appropriate policy measures to improve the productivity of manufacturing sector.

Industrial Location

• Industrial locations are influenced by the availability of raw material, labour, capital, power and market.

• After an industrial activity starts, urbanisation follows.

• Cities provide markets and also provide services such as banking, insurance, transport, labour, consultants and financial advice, etc. to the industry.

• Many industries tend to come together to make use of the advantages offered by the urban centres known as agglomeration economies.

Classification of Industry

• On the basis of source of raw materials used:

→ Agro based

→ Mineral based

• **According to their main role:**

→ Basic or key industries which supply their products or raw materials to manufacture other goods e.g. iron and steel and copper smelting.

→ Consumer industries that produce goods for direct use by consumers – sugar, toothpaste.

• **On the basis of capital investment:**

→ Small scale industry: Such industry which requires the maximum investment up to rupees one crore. It employs a small number of labourers.

→ Large scale indutsry: If investment is more than one crore on any industry then it is known as a large scale industry.

• **On the basis of ownership:**

→ Public sector: Industries which are owned and operated by government agencies – BHEL, SAIL etc.

→ Private sector: Industries owned and operated by individuals or a group of individuals –TISCO, Bajaj Auto Ltd., Dabur Industries.

→ Joint sector: Industries which are jointly run by the state and individuals or a group of individuals. Oil India Ltd. (OIL) is jointly owned by public and private sector.

→ Cooperative sector: Industries are owned and operated by the producers or suppliers of raw materials, workers or both.

• **Based on the bulk and weight of raw material and finished goods:**

→ Heavy industries such as iron and steel

→ Light industries that use light raw materials and produce light goods such as electrical industries.

Agro Based Industries

• Cotton, jute, silk, woollen textiles, sugar and edible oil, etc. industries are based on agricultural raw materials.

Textile Industry

• It contributes 4 percent towards GDP.

• It is the only industry in the country, which is self-reliant and complete in the value chain i.e., from raw material to the highest value added products.

• It is the second-largest employment generating sector in India after agriculture (directly employing 35 million persons.)

Cotton Textiles

• India producing cotton textiles since ancient times with hand spinning and handloom weaving techniques.

• After the 18th century, power looms came into use and traditional industries suffered a setback.

• The first successful textile mill was established in Mumbai in 1854.

→ In the early years, the cotton textile industry was concentrated in the cotton growing belt of Maharashtra and Gujarat.

This was due to Availability of raw cotton, market, transport including accessible port facilities, labour, moist climate, etc.

→ Spinning continues to be centralised in Maharashtra, Gujarat and Tamil Nadu however weaving is highly decentralised to provide scope for incorporating traditional skills and designs of weaving in cotton, silk, zari, embroidery, etc.

→ India has world class production in spinning, but weaving supplies low quality of fabric as it cannot use much of the high quality yarn produced in the country.

→ India exports yarn to Japan.

→ The country also export cotton goods to U.S.A., U.K., Russia, France, East European countries, Nepal, Singapore, Sri Lanka, and African countries.

→ India has the second largest installed capacity of spindles (tool used in spinning) in the world, after China.

→ India have a large share in the world trade of cotton yarn, about one-fourth of the total trade.

However, our trade in garments is only 4 percent of the world's total.

Problems that Cotton textiles industry facing nowadays:

→ Irregular supply of electricity

→ Old and outdated machinery

→ Low output of labour

→ Tough competition with the synthetic fibre industry

Jute Textiles

→ India is the largest producer of raw jute and jute goods.

→ Most of the jute mills in India are located in West Bengal, mainly along the banks of the Hugli river.

The first jute mill was set up near Kolkata in 1859 at Rishra.

→ Factors responsible for their location in the Hugli basin are:

Presence of the jute producing areas

Inexpensive water transport

Supported by a good network of railways, roadways and waterways to facilitate movement of raw material to the mills

Abundant water for processing raw jute

Cheap labour from West Bengal and adjoining states of Bihar, Orissa and Uttar Pradesh.

Kolkata as a large urban centre provides banking, insurance and port facilities for export of jute goods.

→ **Challenges faced by the jute industry:**

The stiff competition in the international market from synthetic substitutes and from other competitors like Bangladesh, Brazil, Philippines, Egypt and Thailand.

National Jute Policy 2005

→ National Jute Policy was formulated in 2005 with the objective of increasing productivity, improving quality, ensuring good prices to the jute farmers and enhancing the yield per hectare.

Sugar Industry

→ India is the second largest producer of sugar in the world and first largest producer of gur and khandsari.

→ In 2010-11 there were over 662 sugar mills in the country spread over Uttar Pradesh, Bihar, Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh and Gujarat along with Punjab, Haryana and Madhya Pradesh.

Sixty percent mills are in Uttar Pradesh and Bihar.

→ In recent years, mills are shifting to the southern and western states, especially in Maharashtra because

The cane produced here has a higher sucrose content.

The cooler climate also ensures a longer crushing season.

The cooperatives are more successful in these states.

Mineral based Industries

• Industries that use minerals and metals as raw materials are called mineral based industries.

Iron and Steel Industry

→ The iron and steel Industry is the basic industry as it provides all types of machinery to run all the other industries.

→ Steel is needed to manufacture a variety of engineering goods, construction material, defence, medical, telephonic, scientific equipment and a variety of consumer goods.

Production and consumption of steel is often regarded as the index of a country's development.

→ India ranked 4th among the world unrefined steel producers and largest producer of sponge iron.

→ China is the largest producer of steel and also the world's largest consumer of steel.

→ In 2004, India was the largest exporter of steel

Why Iron and steel is a heavy industry?

→ Because all the raw materials, as well as finished goods, are heavy and bulky entailing heavy transportation costs.

→ Chotanagpur plateau region has the maximum concentration of iron and steel industries.

→ India not able to perform to its full potential in production of iron and steel because:

High costs and limited availability of coking coal

Lower productivity of labour

Irregular supply of energy

Poor infrastructure

→ Liberalisation and Foreign Direct Investment (FDI) have given a boost to the industry with the efforts of private entrepreneurs.

Aluminium Smelting

→ Second most important metallurgical industry in India.

→ The raw material used in the smelters is called Bauxite.

It is a very bulky, dark reddish coloured rock.

→ It is light, resistant to corrosion, a good conductor of heat, mallable and becomes strong when it is mixed with other metals.

Used to manufacture aircraft, utensils and wires.

→ It has gained popularity as a substitute for steel, copper, zinc and lead in a number of industries.

→ are located in Odisha, West Bengal, Kerala, Uttar

Pradesh, Chhattisgarh, Maharashtra and Tamil Nadu.

Chemical Industries

→ The Chemical industry in India is fast growing and diversifying.

→ It contributes approximately 3 percent of the GDP.

→ It is the third largest industry in Asia and twelfth largest in the world in term of its size.

→ It comprises both large and small scale manufacturing units.

→ Organic and inorganic sectors of Chemical industry are rapidly growing.

Organic chemicals include petrochemicals (used for manufacturing of synthetic fibers, synthetic rubber, plastics, dye-stuffs, drugs and pharmaceuticals).

Inorganic chemicals include sulphuric acid (used to manufacture fertilisers, synthetic fibres, plastics, adhesives, paints, dye-stuffs), nitric acid, alkalies, soda ash (used to make glass, soaps and detergents, paper) and caustic soda.

Fertiliser Industry

→ Mainly centred around the production of nitrogenous fertilisers (mainly urea), phosphatic fertilisers and ammonium phosphate (DAP) and complex fertilisers which have a combination of nitrogen (N), phosphate (P), and potash (K).

→ India is the third largest producer of nitrogenous fertilisers.

→ The fertiliser industry in India:

57 fertiliser units for nitrogenous and complex nitrogenous fertilisers.

29 for urea

9 for producing ammonium sulphate

68 other small units produce single superphosphate.

→ Main states having this industry are: Gujarat, Tamil Nadu, U.P., Punjab and Kerala.

Other significant producers are Andhra Pradesh, Odisha, Rajasthan, Bihar, Maharashtra, Assam, West Bengal, Goa, Delhi, Madhya Pradesh and Karnataka.

Cement Industry

→ Cement is used for construction activity such as building houses, factories, bridges, roads, airports, dams and for other commercial establishments.

→ This industry requires bulky and heavy raw materials like limestone, silica, alumina and gypsum.

→ The industry has strategically located plants in Gujarat.

→ The first cement plant was set up in Chennai in 1904.

→ Decontrol of price and distribution since 1989 and other policy reforms led the cement industry to make rapid strides in capacity, process, technology and production.

→ This industry is doing well in terms of production as well as export.

Automobile Industry

→ This industry provides vehicles for quick transport of good services and passengers.

→ The industry had experienced rapid growth in last 15 years.

→ Foreign Direct Investment brought in new technology and aligned the industry with global developments.

→ The Automobile industry in India:

15 manufacturers of passenger cars and multi-utility vehicles

9 of commercial vehicles

14 of the two and three-wheelers.

Information Technology and Electronics Industry

→ The electronics industry covers a wide range of products from transistor sets to television,

telephones, cellular telecom, pagers, telephone exchange, radars, computers and many other equipments required by the telecommunication industry.

→ Bangalore is considered as the electronic capital of India.

Other important centres for electronic goods are Mumbai, Delhi, Hyderabad, Pune, Chennai, Kolkata, Lucknow and Coimbatore.

→ The major IT industry concentration is at Bangalore, Noida, Mumbai, Chennai, Hyderabad and Pune.

→ The IT industry has employed a mass number of people.

→ This industry has been a major foreign exchange earner in the last two or three years because of its fast growing Business Processes Outsourcing (BPO) sector.

Industrial Pollution and Environmental Degradation

• The growth of industries contribute significantly to India's economic growth and development but also causes serious problem, the increase in pollution of land, water, air, noise and resulting degradation of the environment.

• Industries are responsible for four types of pollution:

(a) Air (b) Water (c) Land (d) Noise

• Air pollution: It is caused by the presence of high proportion of undesirable gases, such as sulphur dioxide and carbon monoxide.

Smoke is emitted by chemical and paper factories, brick kilns, refineries and smelting plants, and burning of fossil fuels in big and small factories that ignore pollution norms.

It adversely affects human health, animals, plants, buildings and the atmosphere as a whole.

→ Water Pollution: It is caused by organic and inorganic industrial wastes and affluents discharged into rivers.

Fly ash, phospo- gypsum and iron and steel slags are the major solid wastes in India.

→ Thermal pollution: It occurs when hot water from factories and thermal plants is drained into rivers and ponds before cooling.

→ Noise pollution: Industrial and construction activities, machinery, factory equipment, generators, saws and pneumatic and electric drills also make a lot of noise.

It causes hearing impairment, increased heart rate and blood pressure among other physiological effects.

Control of Environmental Degradation

• **Some suggestion to reduce the industrial pollution of fresh water are:**

→ Minimising use water for processing by reusing and recycling it in two or more successive stages

→ Harvesting of rainwater to meet water requirements

→ Treating hot water and effluents before releasing them in rivers and ponds.

• **Measures to control air pollution:**

→ Particulate matter in the air can be reduced by fitting smoke stacks to factories with electrostatic

precipitators, fabric filters, scrubbers and inertial separators.

→ Smoke can be reduced by using oil or gas instead of coal in factories.

• **Measures to control noise pollution:**

→ Machinery and equipment can be used and generators should be fitted with silencers.

→ Noise absorbing material may be used apart from personal use of earplugs and earphones.