

10th Standard

Social Science-Geography

Manufacturing Industries

Manufacturing.

Production of goods in large quantities after processing from raw materials to more valuable products is called manufacturing. Manufacturing belongs to secondary sector in which the primary materials are processed and converted into finished goods.

Importance of manufacturing industries for India:

1. It helps in modernizing agriculture, reduces heavy dependence on agricultural income by providing jobs in non-agricultural sectors.
2. Industries help in creating jobs and generating more income.
3. Export of manufactured goods expands trade and brings in foreign exchange.
4. Industrial development brings prosperity to the country.

Agriculture and industry in India are interdependent on each other:

Agro-industries in India have boosted agriculture by raising its productivity. Industries depend on agriculture for their raw materials, e.g. cotton textile industry. Industries provide many agricultural inputs like irrigation pumps, fertilizers, insecticides, PVC pipes, machines and tools, etc. to the farmers.

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Development of different modes of transport by industrial sector has not only helped farmers to obtain agricultural inputs but has also helped them trade their products.

Factors which affect the location of an industry

- Raw material. Cheap and abundant availability of raw material.
- Labour. Availability of cheap labor is necessary for low cost of production low.
- Power. Cheap and continuous supply of power is extremely necessary.
- Capital. It is necessary for developing infrastructure, for the entire manufacturing process and for meeting manufacturing expenditure.
- Banking and insurance facilities, favorable government policies.

Five basis on which industries are classified.

- On the basis of source of raw materials used — Agro-based and mineral-based.
- According to their main role — Basic and Consumer industries.
- On the basis of capital investment — Small-scale and large-scale industries.
- On the basis of ownership — Public Sector, Private Sector, Cooperative Sector, Joint Sector.
- Based on the bulk and weight of raw material and finished goods — Heavy industries, Light

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If the investment is more than one crore rupees in any industry, it is considered as a large scale industry. For example, Iron and Steel industry, Cement industry.

If the investment is less than one crore rupees, it is considered as a small scale industry.

Agro-based industries:

They obtain their raw materials from agricultural products. Example: Textiles—cotton, jute, silk and woolen. Rubber, Sugar, Coffee, Tea and Edible Oil, etc.

Mineral-based industries:

They obtain their raw materials from minerals. Example: Iron and steel, cement, machine tools, petro-chemicals, etc.

Four types of industries based on ownership are:

1. **Public Sector industries:** Owned and operated by government agencies, e.g., BHEL, SAIL, etc.
2. **Private Sector industries** are owned and operated by an individual or a group of individuals, e.g., TTSCO, Bajaj Auto Ltd., Dabur Industries.
3. **Joint Sector industries** are jointly run by the Public (government) and Private Sector (individuals), e.g., Oil India Ltd.
4. **Cooperative Sector industries** are owned and operated by the producers or suppliers of raw materials, workers, or both.

5. They pool in the resources and share the profits or losses proportionately, e.g., sugar industry in Maharashtra and coir industry in Kerala.

The Textile industry occupies a unique position in the Indian Economy because

It contributes significantly to industrial production (14%). It employs largest number of people after agriculture, i.e., 35 million persons directly. Its share in the foreign exchange earnings is significant at about 24.6%. It contributes 4% towards GDP and is the only industry in the country which is self-reliant and complete in the value chain.

Factors for concentration/location of cotton textile industry in Maharashtra and-Gujarat:

- Availability of raw cotton was abundant and cheap.
- Moist climate in these coastal States also helped in the development of cotton textile industry because humid conditions are required for weaving the cloth, else the yam breaks.
- Well developed transportation system and accessible port facilities in Maharashtra and Gujarat.
- Proximity to the market as cotton clothes are ideal to wear in these warm and humid States.

Problems faced by the cotton textile industry:

Power supply is erratic in our country. Machinery needs to be upgraded, especially in weaving and processing sectors. Low output of labor.

We still need to import cotton in spite of the fact that the production of cotton in the country has increased. Stiff competition from the synthetic fiber industry.

Factors responsible for the concentration of jute industry on the banks of Hoogly:

1. Proximity of the jute producing areas to the Hoogly Basin.
2. Inexpensive water transport provided by the Hoogly river.
3. It is well connected by a good network of railways, waterways and roadways.
4. Abundant water for processing raw jute.
5. Availability of cheap labor from West Bengal, Bihar, Odisha and Uttar Pradesh.
6. Kolkata as a port and large urban centre, provides banking, insurance and port facilities.

Reasons for location of sugar mills close to the fields:

1. The raw material used, sugarcane is bulky and perishable.
2. It cannot be transported to long distances because its sucrose content dries up fast, so it should be processed within 24 hours of its harvest.

Sugar Industry is shifting towards southern and western States, because—Cane produced here has higher sucrose content, the favorable climatic conditions (cooler climate) ensure a longer growing and crushing season. The Cooperatives are more successful in these States.

Sugar industry being seasonal in nature, is ideal for the cooperative sector. Yield per hectare is higher in southern States.

Iron and steel industry:

It is a basic or key and heavy industry.

Iron and steel industries is concentrated in and around Chhotanagpur Plateau Region because

- Low cost of iron-ore which is mined here;
- High grade raw materials in close proximity;
- Availability of cheap labour;
- Vast growth potential in the home market;
- Efficient transport network for their distribution;
- Availability of power because this region has many thermal and hydel power plants;
- Liberalisation and FDI.

Aluminium: Characteristics

It is a light metal; resistant to corrosion; good conductor of heat; It is malleable and becomes strong when mixed with other metals.

Uses of aluminium:

- It is used for manufacturing aircraft's;
- It is used for making utensils and packing material;
- It is used for making wires;

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

Electronic industry:

It produces a wide range of products from transistor sets to televisions and computers for the masses. It has helped us set up telephone exchanges, telephones, cellular telecom, radios and many other equipment which have application in space technology, aviation, defense, meteorological departments, etc. It has generated employment for a large number of people. This industry has been a major foreign exchange earner because of its fast growing Business Process Outsourcing (BPO) Sector. India is one of the leading countries in software development. We have 18 software technology parks which provide high data communication facility to software experts.

Industrial pollution and its types:

- **Air pollution.** Smoke is emitted by chemical and paper factories, brick kilns, refineries and smelting plants, and burning of fossil fuels in factories that ignore pollution norms. Air-borne particulate materials contain both solid and liquid particles like dust, sprays, mist and smoke.
- **Water pollution.** Major water pollutants are dyes, detergents, acids and salts. Heavy metals like lead and mercury, pesticides and fertilizers and synthetic chemicals with carbon, plastics and rubber, etc. discharged in the water bodies without treatment pollute these water bodies.
- **Noise pollution.** The generators, compressors, machines, furnaces, looms, exhaust fans, etc. used by industries create a lot of noise. Noise can raise blood pressure and can have physiological effects as well.

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- **Land pollution.** Land and water pollution are closely related. Dumping of industrial wastes especially glass, harmful chemicals, industrial effluents, packing, salts and garbage into the soil.
- **Thermal pollution.** Wastes from nuclear power plants, nuclear and weapon production facilities cause cancer and birth defects.

Measures to control air pollution:

1. Particulate matter in the air can be reduced by fitting smoke stacks to factories with fabric filters, electrostatic precipitators etc.
2. Equipment's to control aerosol emissions can be used in industries, e.g., electrostatic precipitators, scrubbers and inertial separators.
3. Smoke can be reduced by using oil or gas instead of coal in factories.

Water pollution caused by industries can be controlled by:

1. Minimizing the use of water for processing by reusing and recycling.
2. Harvesting of rain-water to meet water requirements of industries and other domestic purposes.
3. Treating hot water and effluents before releasing them in rivers and ponds in the following ways: Primary treatment by mechanical means such as screening, grinding, flocculation and sedimentation. Secondary treatment by biological process. Tertiary treatment by biological, chemical and physical processes. This involves recycling of waste water.

Pro-active approach adopted by the National Thermal Power Corporation (NTPC) for preserving the natural environment and resources.

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1. Optimum utilization and up-gradation of equipment by adopting latest techniques.
2. Minimizing waste generation by maximizing ash utilization.
3. Providing green belts for nurturing ecological balance.
4. Reducing environmental pollution through ash pond management, ash water recycling system and liquid waste management.
5. Ecological monitoring, reviews and online data base management for all its power stations.

Steps to minimize the environmental degradation caused by industrial development:

1. Minimizing use of water for processing by reusing and recycling in two or more successive stages. Harvesting of rain water to meet domestic and industrial water requirements.
2. Treating hot water and effluents before releasing them in rivers and ponds.
3. Particulate matter in the air can be reduced by fitting smoke 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.
4. Machinery and equipments can be fitted with silencers to prevent noise pollution.