

Mineral Based Industry

Mineral means a naturally occurring inorganic substance found in the earth crust having its specific characteristic properties. Ex- iron ore, etc.



Iron and Steel Industry:

Iron and steel is a basic industry and forms the backbone of industrial development in any country. It provides raw material for making industrial machinery, electrical machinery, defence equipment, railway tracks, railway engines. The quantity of steel produced and its per capita consumption reflects the level of industrialisation and economic development of a country.



The setting up of the Tata Iron and Steel Company (TISCO) at Sakchi (now in Jamshedpur) by Jamshedji Tata in 1907.

Raw Materials: The main raw materials used in iron and steel industry are iron ore, coal, manganese, limestone, silica, chromate, feldspar, scrap iron, flux and fuel. Manganese is used for hardening of steel.

Steel Making: Iron ore is always found with some impurities like sulphur, silica, phosphorus, lime, etc. So the impurities have to be removed to get pure iron ore that is used for making steel. The following process is used for converting iron ore into steel:



1. Ore Reduction
2. Steel Making Furnaces
3. Rolling Mills

Large Integrated Iron and Steel Plants: An integrated steel plant is the one in which all the processes from providing raw materials, basic fuels, water supply, etc., to the conversion to steel, rolling, etc., are all done at one place.

Major Iron and Steel Plants: Steel Authority of India (SAIL) is the largest steel making company in the Public Sector.

1. Tata Iron and Steel Company:

Tata Iron and Steel Company (TISCO) is one of the largest manufacturing plants in Asia.

a) Availability of Raw

Materials: Iron Ore from Gurumahisani, Manganese from Joda, limestone, dolomite and fire-clay from Sundargarh and coal from Jharia.



b) Water Supply: The two rivers Kharkai and Subarnarekha never run dry throughout the year, supply a continuous stream of water for cooling purposes.

c) Labour Force: The labour force for the plant is recruited from the densely populated valley of Ganga.

Products: It produces high grade carbon steel used in structural fittings and tin plates.

2. BHILAI IRON AND STEEL PLANT

Bhilai Steel Plant was established at Bhilai in 1953 in collaboration with the (then) USSR Government.

1. **Location:** It is located in **Durg district of Chhattisgarh.**
2. **Availability of Raw Materials:** The plant gets its raw material from the following sources: iron ore are supplied from Dalli Rajhara mines. Limestone is drawn from Nandini. Manganese is obtained from the neighbouring district of Balaghat.
3. **Power Supply:** Coal is obtained from Bokaro, Kargati, and Jharia fields in Jharkhand and Korba in Chhattisgarh. The main source of power is the thermal station at Korba.
4. **Water Supply:** The plant gets water from a system of reservoirs at Tendula.
5. **Transport Facility:** The Bhilai Steel Plant lies on the Mumbai-Nagpur-Kolkata rail line which links the plant to the major markets.
6. **Labour Force:** The labour for the plant is recruited from the nearby states of Bihar, Jharkhand and Madhya Pradesh.

3. Rourkela Steel Plant:

The Rourkela Steel Plant was built with technical cooperation from the German firm.

Krupps and Demag in 1959.

a) **Location:** The plant is located in the Sundargarh district.

b) **Raw Materials:** Manganese is obtained from Baramad.

c) **Power Supply:** Coal is obtained from Jharia, Talcher and Korba fields and electricity from Hirakund Project.

d) Water is obtained from the Mandira dam across the Sankha river and also from Mahanadi.



e) Transport Facilities: Rourkela is situated on the Kolkata-Nagpur rail line. This provides easy access to raw material producing areas and also to the markets.

4. VISAKHAPATNAM STEEL PLANT

- 1. Location:** It is the first shore-based steel plant in India located at the port city of Visakhapatnam in Andhra Pradesh.
- 2. Raw Materials:** The plant obtains iron ore from Bailadila in Chhattisgarh. It gets limestone, dolomite and manganese from the mines of Andhra Pradesh and Odisha.
- 3. Power Supply:** It is well connected with the coalfields of the Damodar Valley.

Mini Steel Plants: These plants generally use ferrous scrap, pig iron or sponge iron as their raw material. They work through electric furnaces and have a capacity from 10,000 tonnes to about 5 lakh tonnes per year.

Problems of Iron and Steel Industry:

- a) Capital Intensive**
- b) Obsolete Technology**
- c) Limited Availability of Coking Coal**
- d) Sick Industries**
- e) Control of Prices**

Electronics:

1. The Indian Telephone Industries (ITI):

It was the first government undertaking to be set up after Independence near Bengaluru in 1950. It produces equipment to meet the



needs of the post and telegraph departments, railways, defence.

2. The Electronics Corporation of India Ltd. (ECIL):

It is an indigenous unit. It was set up in Hyderabad in 1970. It has a well-equipped laboratory.



Electronics Corporation of India Limited

3. The Bharat Electronics Ltd. (BEL)

It was set up in the Public Sector in 1956 in Bengaluru to fulfil the needs of the electronics in defence services. It also caters to the needs of the All-India Radio and the Meteorological Department.



Space Technology: The Indian Space Research Organisation (ISRO) at Bengaluru. INSAT and APPLE are India's indigenously built Satellites. The Satellite launching Station at Srihari Kota and National Remote Sensing Agency at Hyderabad



Software Industry

The **software industry** has emerged as one of the fastest growing sectors in electronics in India. The Department of Electronics has adopted a proactive role to further enhance competitiveness of India

in Information Technology (IT) and has initiated a number of programmes for manpower development, quality upgradation and stimulation of software engineering and research.

India has achieved capability of designing and building supercomputers. Bengaluru and Hyderabad are leading centres of software industries.

Television and Audio

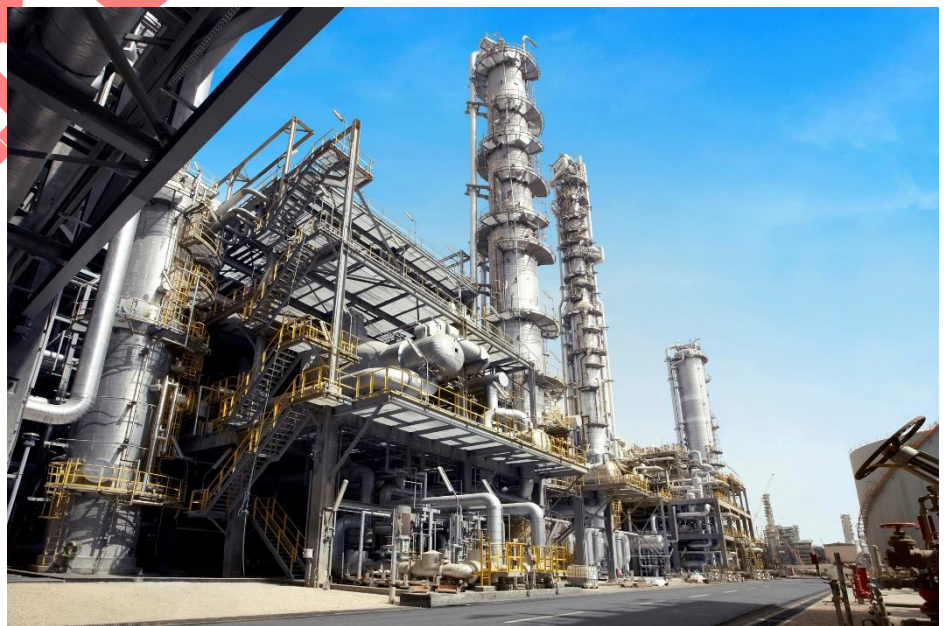
The television and audio industries bloomed in the 1990s as a result of the progress made by the electronics industry. The audio industry can be broadly classified as mono players, stereo players, midi systems, CD based systems and car audio systems. The main centres of production are Mumbai, Kolkata, Chennai and Pune.

Petrochemical Industry:

Petrochemicals are important organic chemicals, derived from petroleum products, LPG and coal.

In particular, this industry produces:

- (i) Fertilizers and insecticides.
- (ii) Resins, adhesives for industries.
- (iii) Plastic sheets, plastic foam, bowls and baskets, paints and furniture coverings for household items.
- (iv) Carbon black is used in printing inks, paints, carbon paper and gramophone records.



Advantages of Petrochemical Products:

Cost effective and economically stable.

Natural Material	Petrochemical Product
1. Leather footwear	Plastic, chappals, and synthetic footwear
2. Natural Rubber	Synthetic rubber
3. Jute fibre	Synthetic fibre
4. Steel pipes	PVC
5. Steel Utensils	Plasticware / containers
6. Cloth and Jute bags	Polythene bags

Production Units:

1. Herdillia Chemicals Ltd.- Chennai
2. National Organic Chemicals Industries Ltd. - Mumbai
3. Petrofils Cooperative Limited- Vadodara & Naldhari
4. The Reliance Industries - Hazira
5. The Indian Oil Corporation- Panipat