

Natural Resources**Classification of Resources:**

- Resources are classified on various bases.
- Based on the continual availability, Resources are classified in to renewable and non-renewable resource
- The resources which can always be used again and again are known as renewable Resources.
- It means these resources have Natural regeneration and are inexhaustible.
- Air, water, solar energy etc are examples of Renewable resources.
- Non-renewable resources are available in finite quantities and cannot be obtained once if they are utilized.
- If these Resources are used in large scale, they will get exhausted soon and as such these resources are called as exhaustible resources.
- Coal, oil and Minerals are examples of this type.

Mineral Resources:

- A homogeneous, naturally occurring substance which has a definite chemical composition is called a mineral.
- They can be identified by their Physical properties and chemical components.
- Minerals exist in different types based on their Formation.
- Almost everything we use, from a tiny particle to a huge building or a big ship All, is made up of minerals.
- Minerals are one of the most valuable resources of the earth.
- All the stages of human development or progress have been named after them.
- **For example**, Stone age, copper age, bronze age and Iron Age.
- They are exhaustible or non-renewable.
- Besides, they are distributed very unevenly.
- They are generally found in the form of ores.
- The ore contains several impurities.

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- Minerals Are separated from the ores involving a number of distinct processes.
- A country's economic development is Depending on the minerals.
- There are several types of minerals, but according to their Characteristics and commercial use they are classified as shown in above chart.

Mode of Occurrence of Minerals:

- Minerals are generally found in 'Ores'.
- It is actually an accumulation of any mineral mixed with other elements.
- Minerals generally occur in many forms. They are:

Veins and lodes:

- Minerals generally occur in the cracks, Crevices, faults and joints of the igneous and metamorphic rocks.
- Minerals in smaller occurrence are called a 'Vein' and a larger occurrence is called a 'lode, for example, Copper and Gold are found in lodes and veins.

Beds or Layers:

- Minerals that are formed as a result of deposition, Accumulation and concentration generally occur in horizontal layers. E.g., coal, Potash, etc.

Residual mass of weathered particles:

- When the decomposed rocks are washed away by water, the soluble particles are removed, leaving a mass containing ores.
- Such occurrences are called residual mass. E.g., Bauxite

Alluvial deposits:

- These are the deposits found in the sands of Valley floor and at the foot hills.
- These deposits consist of the minerals such as Gold, Silver and Platinum.

The world distribution of minerals:

Metallic Minerals:

- The minerals which contain metal in them are called as metallic minerals.

Iron – Ore:

- It is the basic mineral and the backbone of Industrial development of the world.

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- Iron Ore is the most widely distributed element of the earth's crust and it rarely occurs in a Free State.
- It is found as the composition of many Rocks and minerals.
- Iron-ore makes up 4.6% of the earth crusts.
- Iron is found in the form of Iron – ore. They are classified into 4 categories.
- **Magnetite:** It is red in colour and has 72% of pure Iron
- **Hematite:** It is black in colour and has 70% of pure Iron
- **Limonite:** Its colour varies from dark Brown to yellow and has 50% of pure iron.

Siderite:

- It is brown in colour and contains only 30% of pure iron is present the iron content of these ores is highly variable.
- If the iron content is less than 30% in an ore, it is considered to be uneconomical.
- Iron is mixed with fixed proportions of Manganese, Nickel, Chromium or Vanadium to make Different varieties of steel.
- Iron ore is the most widely distributed Elements of the earth crust, rarely occurs in a free state.
- It enters into the composition of many Rocks and minerals especially from igneous and metamorphic rocks.
- The total recoverable Reserves of iron ore in India are haematite and magnetite.
- **Jharkhand is the leading producer of Iron ore with 25% the country's production.**
- **Singhbhum, Hazaribagh, Dhanbad and Ranchi Districts are its major producers. Odisha with 21% production ranks second.**
- **Sundargarh, Mayurbhanj, Sambalpur and Keonjhar districts are its major producers.**
- **The magnetite Production of Chhattisgarh is 18% (Raniganj) And Bilaspur are its leading districts) and the Karnataka is 20%**

(Chikmangalur, Chitradurga, Shimoga and Dharwad districts are its major Producers).

- Andhra Pradesh and Tamil Nadu Produce about 5% each.
- Kurnool, Guntur, Cuddapah and Anantapur districts in Andhra Pradesh and Salem, Namakkal, Tiruvannamalai, Tiruchirappalli, Coimbatore, Madurai and Tirunelveli districts in Tamil Nadu are notable for the production of iron ore.

Manganese:

- Manganese is a silvery grey element.
- It is very hard and brittle in nature.
- It is always available in combination with iron, laterite and other minerals.
- It is an important mineral used for making iron and steel and serves as basic raw material for alloying.
- It is the most important mineral for making iron and Steel.
- Nearly 10 kg manganese is required for manufacturing one ton of steel.
- It is also used in the manufacturing of bleaching powder, Insecticides, paints and batteries.
- Manganese deposits occur mainly as Metamorphosed bedded sedimentary deposits.
- **The largest deposits of manganese is found in Odisha followed by Karnataka, Madhya Pradesh, Maharashtra, Goa, Andhra Pradesh, Jharkhand, Rajasthan, Gujarat, Telangana and West Bengal together constitute about 2% of The India's manganese resource.**
- India is the Fifth largest producer of manganese in the World.

Copper:

- Copper is the first metal that prehistoric Man has started using for many purposes.
- Being Flexible, it can be made into utensils of any shape.
- Brass and Bronze are obtained when the copper Alloys with zinc and tin respectively.

- Copper has been commonly used for making cooking Utensils and other objects of common utility.
- **In Modern days, it is extensively used in vast variety of electrical machinery, wires and cables largest reserves of copper ore is in the State of Rajasthan followed by Jharkhand and Madhya Pradesh.**
- **The states of Andhra Pradesh, Gujarat, Haryana, Karnataka, Maharashtra, Meghalaya, Nagaland, Odisha, Sikkim, Tamil Nadu, Telangana, Uttarakhand and West Bengal account for 7.9% of the total Copper reserves of India.**

Bauxite:

- Bauxite is an important ore from which Aluminium is extracted.
- It is found in the rock consisting mainly of hydrated aluminium Oxides.
- Bauxite is widely distributed as surface Deposits in the areas of laterite soil.
- Being light in weight and tough, aluminium is used in the manufacture of aircraft s and automobile Engines.
- Bauxite is also used in the manufacture of cement and chemicals.
- **The main bauxite deposits occur in Odisha, Gujarat (Junagadh, Amreli and Bhavnagar Districts), Jharkhand (Ranchi and Gumila Districts), Maharashtra (Sindhu durg and Ratnagiri), Chhattisgarh (Ballarpur and Durg Districts), and Tamil Nadu.**

Non-Metallic Minerals:

- These minerals do not contain metal in them.
- Mica, limestone, gypsum, nitrate, potash, Dolomite, coal, petroleum etc are the non-Metallic minerals.

Mica:

- In ancient time, Mica was used in ayurvedic Medicine.
- Mica became very popular with the Development of electrical industry.
- Abhrak is a good quality mica.
- It is translucent, easily Splitable into thin sheets, flat, colourless, elastic and incompressible.

- Mica is used in making of insulating properties, as it withstands high Voltage and has low power loss factor.
- Since it is a non-conductor of electricity, it is exclusively used in electrical goods.
- It is also used in making of lubricants, medicines, paints and varnishes.
- **The major deposits of mica are found in Andhra Pradesh, Rajasthan, Odisha and Jharkhand.**

Lime Stone:

- Limestone is associated with rocks Composed of either calcium carbonate or the Double carbonate of calcium and magnesium or mixture of both.
- Limestone also contains small quantities of silica, alumina, iron oxides, Phosphorous and sulphur.
- Limestone is used in the industries of Chemicals for soda ash, caustic soda, bleaching Powder, paper, cement, iron and steel, glass and Fertilizers.
- **The major producing areas: Karnataka, Andhra Pradesh, Telangana, Rajasthan, Madhya Pradesh, Tamil Nadu, Meghalaya, Gujarat and Chhattisgarh**

Gypsum:

- Gypsum is a hydrated sulphate of calcium which occurs as white, opaque or transparent Minerals in beds of sedimentary rocks such as Limestone, sandstone and shale.
- Gypsum is used in the manufacture of cement, fertilizers, wall Board, plaster of Paris and in soil conditioning.
- **Rajasthan, Tamil Nadu, Gujarat, Himachal Pradesh, Karnataka, Uttarakhand, Andhra Pradesh and Madhya Pradesh are the major Producers.**

Energy Resources:

- The resources from which the electricity Generated are called energy resources.
- Electricity is an important component of our Life.
- No day-to-day activity takes without the use of this Energy.

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- It is also the key factor for all economic activities and industrial development.
- Energy resources can be classified into renewable and non-renewable.
- Coal, petroleum, natural gas and nuclear Minerals are the sources of non-renewable Energy.
- Water, sun light, wind, bio gas, tides etc., are the sources of renewable energy.

Non-Renewable Energy Resources:

Coal:

- Coal is a fossil fuel.
- It is a flammable, black or brown sedimentary rock and is mainly composed of carbon.
- The dense forest Plants were converted into coal due to intense pressure and heat inside the earth by the process of carbonization.
- Most of the coal resources of the world were formed during the carboniferous period (280 to 350 million years ago).
- The quality of the coal is determined by its carbon content.
- The Following types of coal have been identified on the basis of their physical properties.
- Since it is a valuable one, it is called as “Black Gold”

Based on carbon content, it is classified in to the following types.

- Peat is the first stage of transformation of wood into coal and it has only 30% to 35% of carbon.
- Lignite or Brown coal is the inferior quality and contains 35%-45% carbon
- Bituminous or coking coal is the second best variety of coal and contains 70%-90% of carbon.
- It is the most widely spread and most widely used variety of coal.
- It is the most popular coal in commercial use.
- Anthracite is the best quality coal, which contains more than 95% of carbon.

- It is very hard but emits very less smoke and leaves very less ash. However, its deposits are limited.
- Coal is an important source of energy in India with its varied and innumerable uses.
- It can be converted into gas, oil, electricity and Thermal power.
- Besides, it forms a basic raw Material for the production of chemicals, dyes, Fertilizers, paints, synthetic and explosives.
- Indian coal is mostly associated with Gondwana series of rocks and is primarily found in Peninsular India.
- The states of Jharkhand, Odisha, West Bengal and Madhya Pradesh alone account for nearly 90% of coal reserves of the Country.
- About 2% of India's coal is of tertiary type and is found mostly in Assam and Jammu & Kashmir.
- **Jharkhand is the largest coal producing state in the country followed by Odisha, Chhattisgarh, west Bengal, Madhya Pradesh, Andhra Pradesh and Maharashtra.**
- Indian lignite (brown coal) deposits occur in the southern and western parts of Peninsular India particularly in Tamil Nadu, Puducherry and Kerala.
- The Ministry of coal has overall Responsibility of determining policies and Strategies in respect of exploration and Development of coal resource in India.
- Coal India Limited (CIL), NLC India Limited (NLCIL) and Singareni Collieries Company limited (SCCL) Are its public sector under takings.

Petroleum (or) Crude oil:

- The word petroleum has been derived from two Latin words petro (meaning – Rock) and oleum (meaning oil).
- Thus, petroleum is oil obtained from rocks of the earth.
- Therefore, it is also called mineral oil.
- Petroleum is an inflammable liquid that is composed of Hydrocarbons which constitute 90-95% of Petroleum and the remaining is chiefly organic

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Compounds containing oxygen, nitrogen, Sulphur and traces of organo metallic compounds.

- Petroleum is used as a source of power and fuel for automobiles, aeroplanes, ships and Locomotives.
- Lubricants, kerosene, Vaseline, tar, Soap, Terylene and wax are its by products.
- Oil in India is obtained from both from on-shore and off-shore areas.

Petroleum reserves of the world:

- The west Asia or Middle East has the largest Petroleum reserves, which is about 60% of the World's oil reserve.
- The total estimated world's Oil reserves in 2008 were 1,243 (109 bbl).
- **Saudi Arabia, Canada, Iran, Iraq and Kuwait have large reserves of petroleum.**

Western coast offshore oil fields:

- Mumbai high oil fields (largest 65%) Brahmaputra valley (Dibrugarh and Sibsagar Districts of upper Assam.)
- Gujarat coast (2nd largest) Digboi oil fields (oldest fields in country)
- Bassein oil field, south of Mumbai high Nahoratiya oil fields (south west of digboi)
- Aliabet oil field, south of Bhavanagar Moran-Hugrijan oil field (Southwest of Nahoratiya)
- Ankleshwar Rudrasagar-Lawa oil fields (sibsagar districts of Assam)
- Cambay-Luni Region Surma valley (Badarpur, Masimpur, Patharia)
- Ahmedabad-Kalol Region

Eastern coast offshore Fields:

- Brahmaputra valley (Dibrugarh and Sibsagar Districts of upper Assam.)
- Offshore of Andaman and Nicobar, Gulf of Mannar, Baleshwar coast, Punjab, Haryana and Uttar Pradesh.

Natural Gas:

- Natural gas usually accompanies the petroleum accumulations.

- It is naturally occurring hydro carbon gas mixture consisting primarily of methane, but commonly includes varying amounts of other higher alkanes and sometimes a small percentage of carbon Dioxide, nitrogen and hydrogen sulphides.
- It is formed when layers of decomposed plants and animals are exposed to intense heat and pressure over thousands of years.
- It is used as a source of energy for heating, cooking and electricity Generation.
- It is also used as fuel for vehicles and as a chemical feedstock in the manufacture of plastics and other commercially important Organic chemicals.
- India has a very large proportion of tertiary Rock and alluvial deposits particularly in the extra peninsular India.
- These sedimentary Rocks, which were once under the shallow seas, Hold the possibility of harbouring oil and gas Deposits.
- The highest concentration of natural Gas is found in the Mumbai high and basseim oil Fields.
- Gujarat, Assam, Neypaltur, Mangmadam in Thanjavur district in Tamil Nadu, Tripura, Rajasthan, Arunachal Pradesh, Punjab, West Bengal are the other areas where natural gas Reserves have been discovered.

Conventional Energy Sources:

- Thermal power Thermal power is generated using fossil Fuels like coal, diesel, petroleum and Natural gas.
- National Thermal Power Corporation [NTPC] was established in 1975.
- At present NTPC has 13 coal based super thermal power Projects and 7 gas / liquid fuel based combined cycle projects in the states of Assam, Bihar, Jharkhand, Chhattisgarh, Mizoram and West Bengal.
- Neyveli, Mettur, Thoothukudi and Ennore (Chennai) are the important thermal Power stations in Tamil Nadu.

Nuclear power:

- The energy released during nuclear Fission or fusion is used to generate Electricity.
- Nuclear energy is generated mainly from the minerals of Uranium and Thorium.
- The first nuclear power station was setup at Tarapur near Mumbai in 1969.
- Later atomic Reactors were installed at Rawatbhata (335 MW), near Kota in Rajasthan (100 MW), Kalpakkam (440 MW) and Kudankulam (2,000 MW) in Tamil Nadu and Narora (235 MW) in Uttar Pradesh, Kaiga in (235 MW) in Karnataka and Kakrapara (235 MW) in Gujarat.

INDUSTRIES IN INDIA

- Industry is a process by which the raw Materials are changed into finished products.
- Many raw materials are not fit for human Consumption.
- Therefore, there is a need for Conversion.
- This transformation of commodities from one form to another form is the essence of Manufacturing industry or the secondary group of economic activities.
- Arrival of Science and Technology helped the man to fabricate raw Materials into finished products.
- The economic Strength of a country is always measured by the development of manufacturing industries.
- Therefore, any country in the world is basically Depends on the effective growth of industries for its economic development.

Economic Activity:

- Any action that involves in the production, Distribution, consumption or services is an Economic activity.

Basics of Economic Activities:

The following are the major and Fundamental economic activities.

- Primary Economic Activities

(e.g., Raw cotton production)

- Secondary Economic Activities
(e.g., Spinning mill)
- Tertiary Economic Activities
(e.g., Trade, Transport)
- Quaternary Activities (e.g., Banking sector)
- Quinary Activities (e.g., Judicial sector)

Primary Economic Activity:

- These are the Economic activities which have been originated in the very beginning.
- It includes the activities Such as, forestry, grazing, hunting, food gathering, Fishing, agriculture, mining, and quarrying.

Secondary Economic Activity:

- Secondary Activities are those that change raw materials into usable products through processing and manufacturing.
- Bakeries that make flour into Bread and factories that change metals and Plastics into vehicles are examples of secondary Activities.

Tertiary Economic Activity:

- Tertiary Economic activities are those that provide Essential services and support the industries to Function.
- Often it is called service industries; this level includes the transportation, finance, Utilities, education, retail, housing, medical and other services.
- We are educated by school. Since, school is doing service, it comes under Tertiary activity

Quaternary Economic Activity:

- Quaternary Activities are associated with the creation and Transfer of information, including research and Training.
- Often called information industries, this level has been dramatic growth as a result of advancements in technology and electronic Display and transmission of information.
- E.g., we watch television.

- The programs are telecasted from television stations.
- It is an example of Quaternary activity.

Quinary Economic Activity:

- Quinary Economic activities refer to the high level decision Making processes by executives in industries, Business, education, and government.
- This Sector includes top executives or officials in the Fields of science and technology, universities, Health care etc.
- In our house, our parent Purchase household articles and make decisions by themselves in some situations.
- Similarly, the Council of ministers take decisions to introduce various people welfare schemes in the state. These two are examples of quinary activities.

Factors responsible for Location of Industries:

- Industrial locations are complex in Nature.
- They are influenced by the availability of many factors.
- Some of them are: Raw Materials, Land, Water, Labour, Capital, Power, Transport, and Market.
- The locational factors of industries are grouped into Geographical factors and non-Geographical factors.

Geographical Factors:

Raw Material:

- Bulky goods and weight losing materials cannot be transported for long Distances.
- Therefore, industries like iron and Steel and sugar industries are located near the Place of availability of iron ore and sugar cane respectively.
- Steel Plant in Salem is located Near Kanjamalai, where iron ore is available.
- Similarly, Sugar industries are located near the Sugarcane growing areas.

Power:

- Power is base and essential to run the Entire industry.
- Power is mostly generated from the conventional sources like coal, mineral oil, and water.

- So, any one of these sources must Be located near the industries to fulfil its power Requirement.

Labour:

- Availability of cheap and skilled Labour is another important requirement for Labour intensive industries (e.g., Tea industry).

Transport:

- It is needed for transporting raw Materials to the industries and also for sending the finished products to the market.
- Availability of easy transportation always influences the Location of an industry.
- So, the junction points of waterways, roadways and railways become Active centres of industrial activity.

Storage and Warehousing:

- The finished Goods should reach the market at the end of the process of manufacturing.
- Hence, such finished products should be stored at suitable Storage or warehouse till the goods are taken to the market.

Topography:

- The site that is selected for the establishment of an industry must be flat.
- So, it can be well served by different modes of Transport.

Climate:

- Climate of the area selected for an Industry is also one of the important factors of location of industries.
- Extreme climate Condition is not suitable for the successful Industrial growth.
- Moreover, there are certain Industries which require a specific climate.
- **Example:** Cool- humid climate is ideal for cotton Textile industry.
- As Coimbatore and Tiruppur Have such type of climate, many cotton textile Industries are located in this zone.

Water Resources:

- Availability of water is another important factor that influences the industrial location.
- Many industries are established near rivers, canals, and lakes for this reason.
- Iron and steel industries, textile Industries and chemical industries require plenty of water, for their proper functioning.

Non-Geographical Factors:

- **Capital:** Capital or huge investment is needed for the establishment of industries without which no industry can be established.

Availability of Loans:

- In most cases, it is not possible to start an industry with enough capital in hand.
- So, the investors seek loan to start the industries.
- Thus, the organizational set up which Provides loan and insurance are required.

Government Policies/Regulations:

- Government policies are another important Factor that influences industrial location.
- The Government sets certain restriction in the Allocation of land for industries in order to reduce regional disparities, to control excessive Pollution and to avoid the excessive clustering of industries in big cities.
- So, the policies also affect the industrial locations.

Classification of Industries:

- Industries are classified on various bases in the following ways.

On the basis of Raw Materials:**Agro Based Industries:**

- These industries use Plant and animal based products as their raw Materials.
- **Example:** Food Processing, Vegetable Oil, Cotton Textile, Dairy Products, etc.

Mineral Based Industries:

- These are the industries that use mineral ores as their Raw materials.

- Iron made from iron ore is the Product of mineral based industry.
- Cement, Machine Tools, etc.
- Are the other examples of Mineral based industries?

Marine Based Industries:

- These industries use products from the sea and oceans as raw Materials.
- **Example;** Processed Sea Food, Fish Oil manufacturing units etc.

Forest Based Industries:

- These industries use Forest products as their raw materials.
- **Example:** Pulp & Paper, Furniture and Some Pharmaceuticals industries, etc.

On the basis of Size and Capital:

Large Scale Industries:

- The capital required for the establishment of an industry is more than one crore the industry is called as large scale Industry.
- Iron & steel, Oil refineries, Cement and Textile industries are the best examples for large scale industries.

Small Scale Industries:

- The capital required for the establishment of an industry is less than one crore;
- The industry is called as small scale Industry.
- Silk weaving and household industries belong to this category.
- A part from the above cited industries, Cottage or household industries are also a type of small scale industry where the products are manufactured by hand, by the artisans with the Help of family members.
- These industries are also classified and grouped as miscellaneous Categories.
- **Example:** Basket weaving, Pot Making, handicrafts etc.

On the basis of Ownership:

Private Sector Industries:

- These types of industries are owned and operated by Individuals or a group of individuals.
- **Example:** Bajaj Auto, Reliance, etc

Public Sector Industries:

- These types of Industries are owned and operated by the Government.
- Hindustan Aeronautics Limited (HAL), Bharat Heavy Electricals Ltd (BHEL), Steel Authority of India Ltd (SAIL) are the Examples of Public sector industries.

Joint Sector Industries:

- These types of Industries are owned and operated jointly by The Government and Individuals or a Group of Individuals.
- **Example:** Indian Oil Sky Tanking Ltd, Indian Synthetic Rubber Ltd, Mahanagar Gas Ltd, Maruti Udyog etc.,

Co-operative Sector Industries:

- Industries Of this kind are owned and operated by the Producers or suppliers of raw materials or Workers or both.
- Anand Milk Union Limited (AMUL) is the best example of the Co-operative Sector.

Agro based industries:

- These industries draw their raw materials from agricultural sector.
- The following part discusses the agro based industries in India.

Cotton Textile Industry:

- Textile is a broad term which includes Cotton, jute, wool, silk and synthetic fibre Textiles.
- This sector in India is the second largest in the world.
- Traditional sectors like hand loom, Handicrafts and small power-loom units are the biggest source of employment for millions of People in rural and semi urban areas.
- Currently, India is the third largest producer of cotton and has the largest loom arc and ring Spindles in the world.
- At present, Cotton textile industry is the largest organized modern industry of India.
- The higher concentration of textile mills in and around Mumbai makes it as “Manchester of India”.

- Presence of black cotton soil in 179 India – Resources and Industries Maharashtra, humid climate, presence of Mumbai port, availability of hydro power, good Market and well developed transport facility Favour the cotton textile industries in Mumbai.
- The major cotton textile industries are concentrated in the states of Maharashtra, Gujarat, West Bengal, Uttar Pradesh and Tamil Nadu.
- Coimbatore is the most important centre in Tamil Nadu with 200 mills out of its 435 and called as “Manchester of South India”.
- Erode, Tirupur, Karur, Chennai, Thirunelveli, Madurai, Thoothukudi, Salem and Virudhunagar are the other major cotton textiles centres in the state.

Jute Textiles:

- Jute is a low-priced fibre used mainly for making package materials like gunny bags.
- Today jute is blended with cotton and wool to produce textiles.
- This is the second important Textile industry in India after cotton textiles.
- Jute is the golden fibre which meets all the standards of goods packing with its natural, renewable, Bio degradable and eco-friendly products.
- The first jute mill in India was established at Rishra near, Kolkata in 1854 by the English man George Auckland.
- India tops in the production of raw jute and jute goods and second in the export of jute goods next to Bangladesh.
- Jute production includes gunny bags, canvas, Pack sheets, jute web, carpets, cordage, hessians and twines.
- Now jute is also being used in plastic Furniture and insulation bleached fibres to blend with wool.
- It is also mixed with cotton to make.
- Carpet and blankets.
- The major jute producing areas are in West Bengal and concentrated Along the Hooghly River within the radius of six Kilometre of Kolkata.

- Titagarh, Jagatdat, Budge-Budge, Haora and Bhadrashwar are the chief Centres of jute industry.
- Andhra Pradesh, Bihar, Uttar Pradesh, Assam, Chhattisgarh and Odisha are the other jute goods producing areas.
- National jute board is headquartered at Kolkata

Silk Industry:

- India has been well known for the Production of silk since the ancient times.
- India is the second largest producer of raw silk next Only to China.
- Karnataka is the largest producer of Silk. Other major producers of silk are West Bengal, Jammu Kashmir, Bihar, Jharkhand, Chhattisgarh, Uttar Pradesh, Punjab, Assam and Tamil nadu states.

Sugar Industry:

- Sugar can be produced from sugar cane, Sugar-beets or any other crop which have sugar Content.
- In India, sugar cane is the main source of sugar.
- At present this is the second largest agro Based industry of India after cotton textiles.
- India is the world's second largest producer of sugar Cane after Brazil.
- Sugar industry is decentralized and located near the sugarcane growing areas as they are weight loosing and bulky to transport.
- Uttar Pradesh is the largest producer of Sugar, producing about 50% of the country's total.
- Other major producers are Maharashtra, Uttar Pradesh, Karnataka, Andhra Pradesh, Tamil Nadu, Bihar, Punjab, Gujarat, Haryana and Madhya Pradesh states.
- These states account for more than 90% of the sugar mills and sugar Production.

Forest based industries:

- Forest provides us with different types of Material which are used as raw material for certain industries like paper, lac, sports goods, Plywood etc.

Paper industry:

- Paper Industry produces numerous types of papers that comes in various use such as sheet Paper, paper boxes, tissues, paper bags, stationery, Envelopes and printed-paper products such as Books, periodicals, and newspapers.
- In India the Soft wood is the principal raw material used for making paper especially newsprint and high class printing papers.
- Paper is the pre-requisite for education and literacy and its use is an index of advancement in these two fields as well as the overall well being of the society.
- The first successful effort was made in 1867 with the setting up of the Royal Bengal Paper mills at Ballyganj near Kolkata.
- The Raw Material for paper industry includes wood Pulp, bamboo, salai and sabai grasses, waste Paper and bagasse.
- West Bengal is the largest Producer of paper in the country followed by Madhya Pradesh, Odisha and Tamil Nadu.
- The first paper mill of India was started in 1812 at Serampore in West Bengal.

Mineral based industries:

- Mineral based industries use both metallic & non-metallic minerals as raw Materials.
- The major mineral based industry of country is the iron steel industry

Iron and steel industries:

- Iron and steel industry is called a Basic metallurgical industry as its finished Product is used as raw material by host of other industries.
- Several industries like Engineering, heavy machines and machine Tools, automobile, locomotives and railway Equipment industries use iron and steel as their primary raw material.
- Due to this, the steel producing capacity of a country is generally taken as an indicator of its level of Industrial development.

- The modernization of the industry was Started in 1907 with the establishment of Tata Iron and Steel Company at Sakchi, now called Jamshedpur.
- Iron and steel industry of India is Mainly concentrated in the states of Jharkhand, West Bengal and Odisha.
- Proximity to the coal Fields of Jharia, Raniganj, Bokaro and Karanpura and the iron ore mines of Mayurbhanj, Keonjar and Brona are responsible for this.
- This area also has sufficient deposits of limestone, dolomite, Manganese and silicon which are required for the industry.

Automobile Industry:

- India is set to emerge not only as a Large domestic market for automobile Manufacturers, but also as a crucial link in the global automotive chain.
- It is one of the Most dynamic industrial groups in India.
- The first automobile industry of India was Started in 1947.
- The industry is the Premier Automobiles Ltd located at Kurla (Mumbai).
- It was followed by the Hindustan Motors Ltd at Uttarpara (Kolkata) in 1948.
- At present, India is the 7th largest producer of automobile Manufacturers which include two wheelers, Commercial vehicles, passenger car, jeep, Scooty, scooters, motor cycles, mopeds and Three wheelers.
- Major centres are at Mumbai, Chennai, Jamshedpur, Jabalpur, Kolkata, Pune, New Delhi, Kanpur, Bengaluru, Sadara, Lucknow and Mysuru.
- Tata Motors, Maruti Suzuki, Mahindra & Mahindra and Hindustan Motors are the largest passenger car manufacturers of Indian Companies in the country.
- Presence of foreign Car companies such as Mercedes Benz, Fiat, General Motors, Toyota and the recent entry of passenger car manufacturers BMW, Audi, Volkswagen and Volvo makes the Indian Automobile sector a special one.
- Tata Motors, Ashok Leyland, Eicher Motors, Mahindra & Mahindra and Ford Motors are the major Indian Companies which manufacture

commercial Vehicles. MAN, ITEC, Mercedes-Benz, Scania and Hyundai are the foreign companies engage in the manufacture of commercial vehicles.

- Two-wheeler manufacturing is dominated by Indian companies like Hero, Bajaj Auto and TVS.
- Chennai is nicknamed as the “Detroit of Asia” due to the presence of major Automobile manufacturing units and allied Industries around the city.

Electrical and Electronic Industries:

- Heavy electrical industries manufacture Equipment used for power generation, Transmission and utilization.
- Turbines for steam and hydro power plants, boilers for thermal Power plants, generators, transformers, switch Gears etc.
- Are the chief products of this industry.
- The most important company in the field of Heavy electrical is Bharat Heavy Electricals Ltd (BHEL).
- It has its plants at Hardwar, Bhopal, Hyderabad, Jammu, Bengaluru, Jhansi and Tiruchirappalli.
- This Industry covers a wide Range of products including television sets, Transistor sets, telephone exchanges, cellular Telegram, computers and varied equipment for Post and railway, defence and meteorological Department.
- Bengaluru is the largest producer of electronic goods in India, hence it is called as the “Electronic Capital of India”.
- The other Major producers of electronic goods centres are Hyderabad, Delhi, Mumbai, Chennai, Kolkata, Kanpur, Pune, Lucknow, Jaipur and Coimbatore.

Software Industry:

- India is home to some of the finest software Companies in the world.
- The software companies in India are reputed across the globe for their Efficient IT and business related solutions.
- The Indian Software Industry has brought about a tremendous success for the emerging economy.

- In India, software industry began in 1970 With the entry of Tata Consultancy Services (TCS).
- Along with this, L & T, Infotech, i-Flex, Accenture, Cognizant, galaxe Solutions India Pvt Ltd and ITC Infotech are the major software Industries in the country.
- At present, there are More than 500 software companies all over India.
- It exports software service to nearly 95 Countries in the world.
- The main centres of IT parks are located In Chennai, Coimbatore, Thiruvananthapuram, Bengaluru, Mysuru, Hyderabad, Visakhapatnam, Mumbai, Pune, Indore, Gandhi Nagar, Jaipur, Noida, Mohali and Srinagar.

Major challenges of Indian Industries:

- Industries in India face many problems. Some major problems are listed below.
 - Shortage and fluctuation in Power Supply.
 - Non- availability of large blocks of land.
 - Poor access to credit.
 - High rate of interest for borrowed loan.
 - Non- availability of cheap labourers.
 - Lack of technical and vocational training for employees.
 - Inappropriate living conditions nearby Industrial estates