Section-3

MANUFACTURING INDUSTRIES

In the present era manufacturing industries are the indicators of development and prosperity of any country. Production of goods which are useful in life from raw materials is called manufacturing industries such as cloth from cotton, sugar from sugarcane, iron and steel from iron ore, aluminium from bauxite etc. are few examples of the commodities that are manufactured. The history of manufacturing industries is very old in our country. Here it developed in the form of cottage industries and took a large shape in mid of the nineteenth century. Today numerous large manufacturing industries have been established in the whole country; important among them are iron steel industries, textile industries, sugar industries, information and technology industries.

The industrial development on modern lines started in India with the establishment of cotton textile industry at Mumbai in 1854. The first Jute factory was established near Kolkata at a place called Rishra in 1855 but planned development of industries in India started from 1951 after independence.

The establishment of any industry is influenced by several factors. These factors can be divided in two categories physical and human. Raw material, power resources, availability of water and suitable climate are physical factors where as labor, market, transport, capital, banking facility and government policies are human factors.

Classification of Industries: - The industries can be classified on different basis.

1. On the asis of Labour

(i) Large scale Industries: - when in industries, large number of laborers and huge capital is being utilised and production is on large scale then they

are called large scale industries. Cotton textile industries and Jute industry comes in this category.

(ii) Medium scale Industries: In this category of industry neither large number of labor nor large scale production is involved. Industries such as Cycle, Radio and Television can be kept in this category.

(iii) Small scale Industries: Small rural industry and cottage industries are small scale Industries which is confined to family members. In this family members combine together and produce products using simple methods. Ornament manufacturing and handicraft industries are its good examples.

2. On the basis of raw materials:

(i) Heavy Industries: In these industries heavy raw materials are used and so the manufactured products are also heavy. Iron and Steel industry is a very good example for this.

(ii) Light Industries: In this category of industry lighter raw materials are used and as a result lighter products are produced. Electronic equipments and Sewing machine industry are its best examples.

3. On the basis of ownership:

(i) Public Sector Industry: In this category heavy and grass root level industries are included. These industries are run by government itself. Iron and Steel Industries of Durgapur, Bhilai and Raurkela are examples of public sector industries.

Do You Know?
BHEL Bharat Heavy Electric Limited and
SAIL - Steel Authority of India are public sector industries.

(ii) Joint or Cooperative Industry: When contribution of two or more persons or cooperative societies are there then it is called joint or cooperative industry. Oil India Limited (OIL), Sugar industry in Maharashtra, Amul (Gujarat) is its best examples.

4. On the basis of source of raw materials:

(i) Agro based industries: Cotton textiles, Jute, Silk, Woolen and edible oil industries are based on raw materials which are received from agriculture.

Cotton Textile Industry:

India is maintaining its monopoly over the manufacture of cotton textile since ancient times but the first cotton mill on modern lines was established at Fort Gloster near Kolkata in 1818. However, it was closed after some time and first successful mill in real sense was established by Kabas ji Nanabhai Dabur at Mumbai in 1854. After this development of modern textile industries began in India.

Cotton textile industry is the largest industry of India. It is the second largest employment providing sector after agriculture in which more than 20 percent of the total industrial work force is found. Presently, it has 14% share in total industrial production and has 4.0 percent share in gross domestic product and earns 17 percent of the total income from abroad (2006-07). There are about 1600 cotton and synthetic textile mills in the country, out of which 80 percent are in private sector and rest are in public and cooperative sector. Presently, 93 percent cotton textiles are produced in decentralised areas of the country in other words textiles are manufactured in other centers apart from mills. In the early years, the cotton textiles industry was established in Maharashtra and Gujarat. Availability of cotton, market, transport and humid climate, contributed immensely in the establishment of cotton mills in these states but today most of the mills of the country are centralised in Gujarat, West Bengal, Uttar Pradesh and Tamil Nadu. Sholapur, Pune, Wardha, Nagpur, Aurangabad and Jalgaon are important cotton textile industry centers in Maharshtra. In Gujarat, Ahmadabad, Vadodara, Surat, Rajkot and Porbandar are important cotton textile industry centres.

Howrah, Murshidabad, Hoogly and Shrirampur are important cotton textile centres of West Bengal. In Uttar Pradesh, Kanpur, Muradabad, Agra and Modi Nagar are important centres. Gwalior, Ujjain, Indore and Dewas are important cotton textile industry centres of Madhya Pradesh. Coimbatore, Chennai and Madurai are important centres of Tamil Nadu. Extended market, transport, bank and facility of electricity has played an important role in the decentralisation of cotton textile industries. Because of the available market of cotton textile and in spite of being not a weight loosing industry, this industry experienced nationwide decentralisation.

Do You Know?

Mumbai is called the Cotton polis because in Mumbai metro region alone one fourth of the total cotton textile of India is produced.

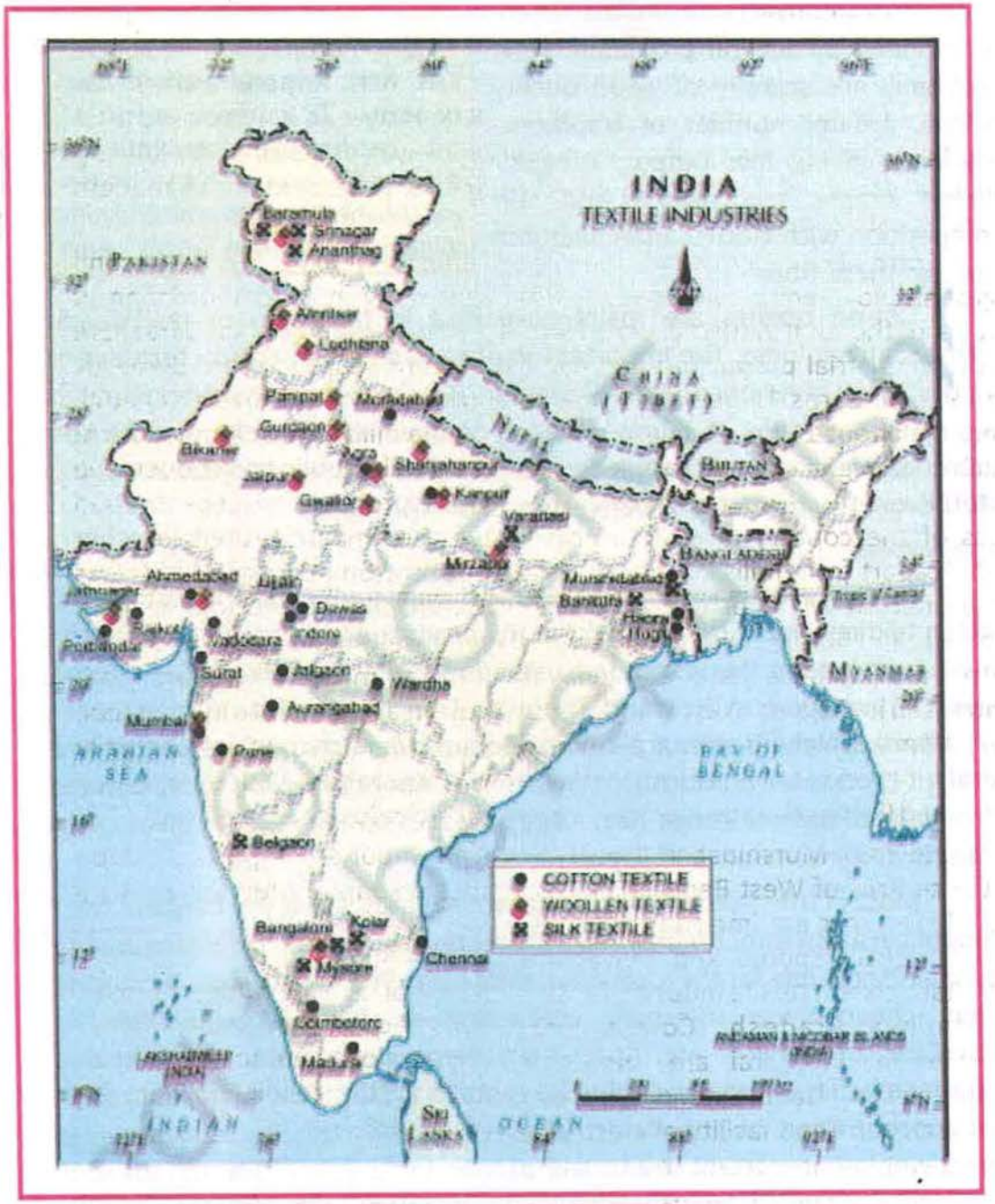

Fig 3.1 India: Textile Industry

Today cotton textile industries are surrounded by several problems. Main problems are scarcity of good quality cotton, greater number of traditional machines giving low output, irregular power supply, low output and stiff competition with clothes manufactured from synthetic fibre.

Know it also!

The first Apparel Park in the country - To increase export of the readymade garments an apparel park has been established in Ettivaramplayam village of Tirupur in Tamil Nadu.

Cotton textiles are mainly exported in the form of readymade garments from India. The important importers of Indian cotton textiles are United States of America, United Kingdom, Russia, France, countries situated in the eastern side of Europe, Nepal, Singapore, Sri Lanka and African countries. India exports cotton textiles to Japan also. In the year 2006 -07, 36.10 crore square meter of cloth was produced in India.

Jute Textiles:

Jute industries are the second most important textile industry after cotton textiles. India is placed first in the production of raw jute and goods made from jute in the world. India stands second after Bangladesh in the export of Jute goods in the world. There are 77 factories of Jute in India (2006-07) among which 69 mills are in West Bengal. More than 80 percent of the total Jute goods are produced in West Bengal. Andhra Pradesh manufactures 10 percent of the Jute goods. Rest Jute goods are manufactured in Bihar, Uttar Pradesh, Odisha, Assam and Tripura.

Most of the mills in West Bengal are situated along the banks of river Hooghly, in a 98 kilometer long and 3 kilometer narrow belt. Following are the factors responsible for the location of mills here. Proximity of jute producing areas, cheap water transport, availability of abundant water for the processing of raw jute etc. Apart from these cheap labour, banking and insurance facilities and port facility for export has played an important role in the concentration of jute industry here. Presently this industry provides direct employment to about 2.61 lakh people. In the year (2006 -07) the total production of raw jute was 90 lakh bales (Each bale equal to 180 kilograms).

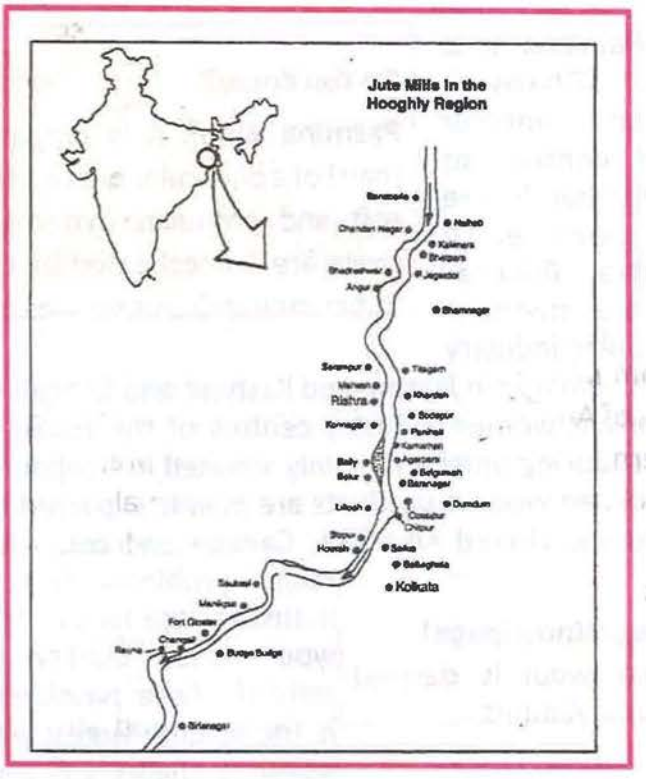

Fig-3.2: Concentration of jute industry in Hooghly region

Good amount of foreign exchange is being earned by India by jute export before and after independence also. Presently, jute industry, is facing several challenges such as high production cost, goods made from synthetic fibres in the international market. Countries such as Bangladesh, Brazil, Philippines, Egypt and Thailand are putting up stiff competition. The Indian Jute products are mainly imported by United States of America, Canada, Russia, Arab Republics, United Kingdom and Australia.

Woolen Industry:

It is one of the oldest textile industries of the country. The woolen industries are mainly concentrated in Punjab, Maharashtra, Uttar Pradesh,

Gujarat, Haryana and Rajasthan. Dhariwal, Ludhiana and Amritsar are major centres of Punjab. Mumbai is the largest centre in Maharashtra. Bikaner and Jaipur are important centre of woolen industry in Rajasthan. Srinagar in Jammu and Kashmir and Bangaluru in Karnataka are other important woolen industry centres of the country. The readymade garments producing units are mainly situated in Punjab, Haryana and Tamil Nadu. The Indian woolen products are mainly exported to United States of America, Russia, United Kingdom, Canada and countries of Europe. The major problems faced by the woolen industries are lack of local market of raw wool and low quality of its products. In spite of these problems, presently, India is the seventh largest wool producer of the world. It shares 1.8 percent of the total wool production of the world. 55, 00 million kilograms of wool was produced in India in 2005-06.

Do You Know?

Pasmina Wool: It is prepared from the fur (hair) of a particular breed of goat which is very soft and produces extreme warmth. These goats are domesticated by the Gurjars in the upper mountainous regions of Kashmir.

Increase your Knowledge!

The Angora wool is derived from the fur of Rabbits.

Silk Industry:

India is known for its silk products all over the world since ancient times. Four types of silk such as Mulberry, Tasar, Ere, and Moonga are produced in the country. There are about 90 silk mills in India. Apart from these, there are several small and medium units which are engaged in the production of silk cloth. India produces about 8.5 lakh kilograms of silk yarn. More than 90 percent of silk is produced in the states of Karnataka, Tamil Nadu, West Bengal and Jammu and Kashmir. Bangaluru, Kolar, Mysore and Belgaum are major silk producing centers in Karnataka. Murshidabad and Bankura in West Bengal, Anantnag, Baramula and Srinagar in and in Jammu and Kashmir are major silk producing centers.

There is great demand for Indian Silk in Europe and Asian countries. The major importers of Silk cloth are United States of America, United Kingdom, Russia, Saudi Arab, Kuwait and Singapore. The Indian Silk industry faces stiff challenge from China, Thailand and Italy.

Synthetic textiles:

In Synthetic textiles industry, synthetic yarn is used. These clothes occupy an important place in textile industry. They are strong and durable. It is easy to re-dye and weave these clothes. It has revolutionised the textile industries. The manmade fibres are derived from the pulp, coal and petroleum through a chemical process. To add greater quality to it, they are generally mixed with natural fibres such as cotton, silk and wool. These industries are more developed in the states such as Kerala, Tamil Nadu, Karnataka, Maharashtra, Gujarat, Rajasthan and Madhya Pradesh. The important synthetic textile industry centres are Mumbai, Ahamdabad, Surat, Delhi, Amritsar, Gwalior and Kolkata.

Do You Know?

The synthetic yarn is the by-product of petro chemicals such as Nylon, Polyester, Rayon, Acrylic and Polymer.

Sugar Industry:

India is the largest producer of sugarcane in the world. Including the production of Gur and Khandsari it occupies first place in the production of sugar as well. Presently, this industry provides direct employment to over 4 lakh persons and indirect employment to large number of farmers. Because its raw material is seasonal, so sugar industry is a seasonal industry.

The industry started developing on modern lines from 1903 when a sugar industry was established at Marhaura in Saran district of Bihar. We know that sugar industry depends on sugarcane. The sugarcane begins to lose weight immediately after cutting and they perish very quickly as well. Keeping these specialties of sugarcane in mind, the sugar industries are established in sugarcane producing areas. In 2008 there were 615 working sugar mills in the country, among which more than 134 mills were situated in Maharashtra alone. Apart from this, sugar mills are spread over Uttar Pradesh, Bihar, Karnataka, Tamil Nadu, Andhra Pradesh, Gujarat, Punjab, Haryana and Madhya Pradesh. In last few years, the number of these industries has increased in southern and western states, particularly in Maharashtra. This is because the sugarcane produced here has higher sucrose content. The cooler climate found here is also beneficial and apart from this, the cooperative societies are more successful in these states.

The sugar industry is facing several challenges. For example, this industry is seasonal in nature, use of old and traditional methods, inability of transport causes delay in reaching sugarcane to the factories and non utilisation of maximum Baggasses, farmers not getting cost of sugarcane on time, scarcity of electricity are other such serious problems.

Do You Know?

Consumer: Consumer is that industry that produces for the direct consumption of the consumer and they are called consumer industry. In this industry mainly goods of house hold consumption are produced such as paper, tooth paste, fan, cement industry are is perfect examples.

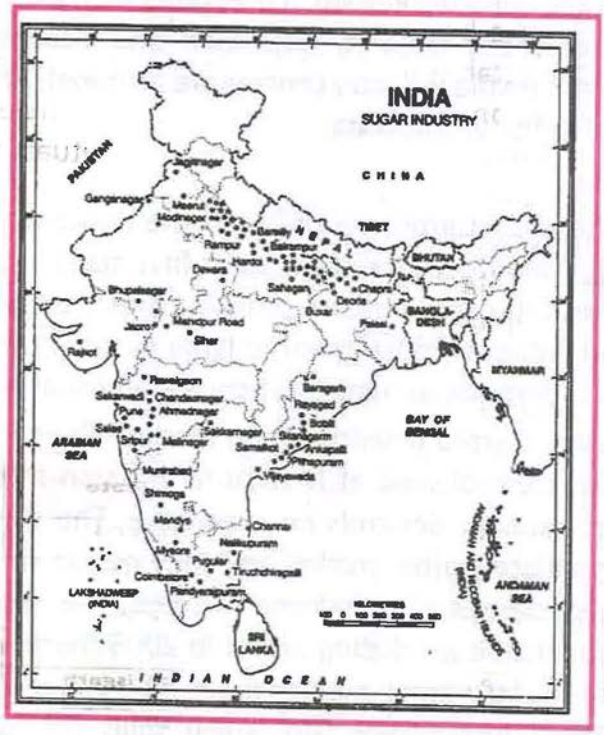

Fig. 3.3 Important Districts of Sugar Industries of India

(ii) Mineral -based Industries: The industries that rely upon minerals for its raw materials are called mineral based industries. Iron and Steel, Cement and Chemical industries are good examples of mineral based industries.

Iron and Steel Industry:

Iron and Steel industry is the basic industry because other heavy, light and medium industries depend upon it for their machinery manufactured by them. It is also called the creator of other industries. The art of making iron was known to Indians, thousands of years before Christ. The iron pillar standing near Qutub Minar in Delhi is a perfect example of quality of iron manufactured in the country. The famous swords of Damascus were manufactured from the iron produced in India. The first Iron and Steel industry was established at Porto Novo in Tamil Nadu but due to the lack of favorable factors responsible for the location of Iron and Steel industry, it was closed.

In true sense, the beginning of Iron and Steel industry, on modern lines, started with the establishment of its unit at Kulti in 1864 in West Bengal and large scale production of steel started in 1907 with the establishment of Tata Iron and Steel Company at Sakchi (Jamshedpur Situated in Jharkhand). After this, factories were established at Burnpur in West Bengal and at Bhadravati also in Karnataka before independence. After independence many plants of Iron and Steel were established with foreign collaboration. At present, there are 10 integrated Iron and Steel plants and about 200 mini steel plants in India.

Major Iron - Steel Industry of India

Sl. No.	Company	Foreign Collaboration	State	Place
1	Tata Iron and Steel (TISCO)		Jharkhand	Jamshedpur
2	Indian Iron and Steel (IISCO)		West Bengal	Burnpur
3	Vishvesvaraya Iron and Steel (VISL)		Karnataka	Bhadravati
4	Bhilai Iron and Steel Plant	Russia	Chhattisgarh	Bhilai
5	Raurkela Steel Plant	Germany	Odisha	Raurkela
6	Durgapur Steel Plant	Britain	West Bengal	Durgapur
7	Bokaro Steel Plant	Russia	Jharkhand	Bokaro
8	Salem Steel Plant		Tamil Nadu	Salem
9	Visakhapatnam Steel Plant		Andhra Pradesh	Visakhapatnam
10	Vijay Nagar Steel Plant		Karnataka	Vijay Nagar

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Fig-3.4 Iron and Steel Plants

Iron and Steel industry is a heavy industry because it utilises raw materials which is bulky and occupies larger space. Important among them are iron ore, coking coal, limestone, manganese ore. This is the reason why the iron and steel industries are highly localised in relation to raw material producing areas. The production made by them is bulky and so a well developed network of transport system is very essential for their distribution. Visakhapatnam is the only plant which has a coastal location whereas other integrated iron and steel plants of the country are located in mineral rich north-east and southern part of the Indian Peninsula. India produced 76.9 lakh tonnes of steel in 2007-08 and is placed fifth among the raw steel producers of the world. It is the largest producer of sponge scrape iron. The management of all public sector iron and steel plants of India is under Steel Authority of India (SAIL), whereas TISCO is managed by Tata Steel.

Most of the Iron and Steel plants are established in the Chottanagpur plateau of India because reserves of important minerals like iron ore, coal, manganese, limestone, dolomite are found here. Presently policy of liberalisation, privatisation and globalisation and efforts of the entrepreneurs have given impetus to the development of this industry. With the collaboration of the multinational companies new centers are being established at Raipur in Chhattisgarh and Gopalpur in Odisha.

Do You Know?
Jamshedpur is called the Birmingham of India.

Aluminium Industry:

It is the second most important metallurgical industry of India. It is flexible, light, rust resistant, and good conductor of heat and electricity. Its ore is Bauxite. It is used in the manufacture of aircraft, utensils and wire. Presently, it has gained popularity because in many industries it is being used as substitute of steel, copper and zinc. To produce one tonne of aluminium, about 6 tonnes of Bauxite and 18,600 Kilowatts of electricity is required.

In the total cost of the aluminium about 30 to 40 percent is the cost of electricity. Therefore, it becomes clear that for the establishment of the aluminium industry, availability of Bauxite and cheap electricity are very important factors.

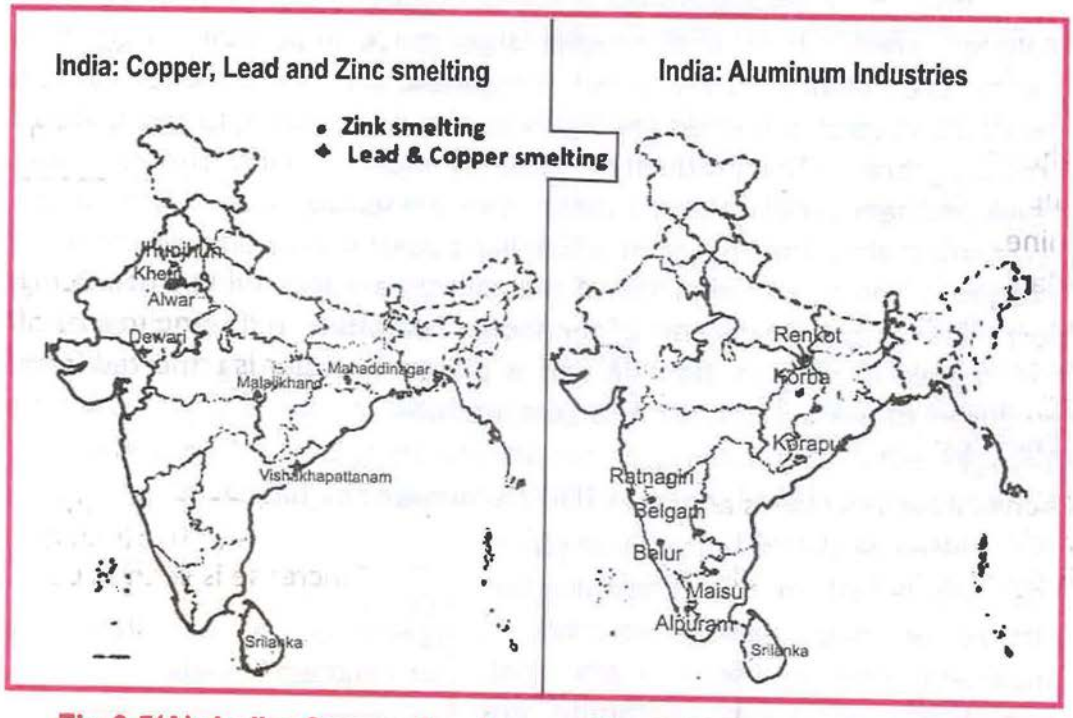

Fig-3.5(A): India: Copper, Lead and Zinc smelting

Fig- 3.5 (B): India : Aluminum

There are 8 aluminium plants in the country which is situated in Odisha (NALCO and BALCO), West Bengal, Kerala, Uttar Pradesh, Chhattisgarh, Maharashtra and Tamil Nadu. The total production of aluminium of all plants put together in 2007-08 was 6.2 lakh tonnes.

Copper Smelting (Please Check) Industry:

The first copper smelting plant was established at Ghatshila in Jharkhand by Copper Corporation of India. In 1972, the Copper Corporation of India was amalgamated with the Hindustan Copper Limited which is the only copper producing organisation in India. It has two centres, one is at Maubhandar near Ghatshila in East-Singhbhum district of Jharkhand and

Do You Know?
The oldest copper mine of India is situated at Khetri in Rajasthan.

> **Know it also:**
>
> The alloy like Brass, Bronze, German Silver, Roldgold, Ashtdhatu etc. are made from copper.

the second is at Khetri in Jhunjhunu district of Rajasthan. The copper smelting plants have been established near the copper mines situated in these districts. The Khetri copper smelting plant also gets supply of copper ore from Mlanjkhand mines situated in Balaghat districts of Madhya Pradesh. Based on imported copper ore, a new copper plant is being established at Tuticorin of Tamil Nadu. India produces 43 thousand tonnes of copper blisters (Partially refined). Rest 50 percent copper is imported from Zambia, Chilly, United States of America and Canada.

Chemical Industry:

Chemical industry plays an important role in the economic development of the country. It is placed 12th in the world and third in Asia in size. This industry is developing very rapidly in the country. This rapid increase is seen in both

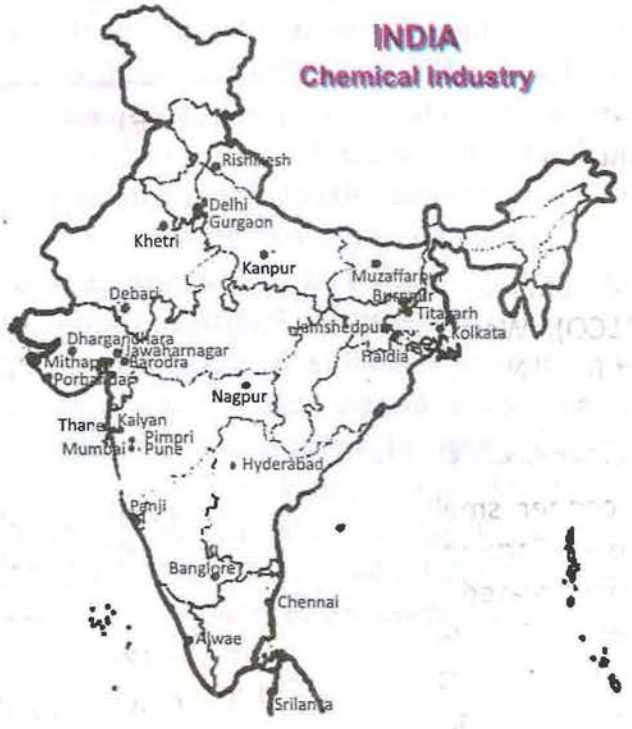

Fig- 3.6 India: Chemical Industry

non-carbonic and carbonic types of industries. The Indian non - carbonic chemicals Include Sulphuric acid (it is used in the manufacture of fertilizer, synthetic fibres, plastic, gum, color, dye etc.) Nitric acid, Charit materials, Soda ash (Used in the manufacture of glass, paper, soap and washing powder) and Caustic Soda. In the heavy carbonic chemical industries, petroleum is important. It is used in the manufacture of synthetic fibres, synthetic rubber, plastic goods, colour and medicines. The non-carbonic chemical industries are spread in different parts of the country whereas carbonic chemical industries are situated near oil refineries and petroleum plants. The production of insecticides has contributed immensely in the development of agriculture by controlling harmful insects and weeds. India is a leading medicine producer among the developing nations. It produces 14 percent of the total industrial produce and contributes 14 percent in export also. It shares 3 percent in the gross domestic product.

Fertiliser Industry:

India is an agriculturally important country and to maintain the fertility of the soil utilisation of fertiliser is essential. India is the third largest producer of nitrogenous fertilisers in the world. The first fertiliser plant of India was established at Ranipet (Tamil Nadu) in 1906 but actual development of this industry began in 1951 with the establishment of Sindri plant by Fertiliser Corporation of India. Due to Green Revolution the demand for fertilisers has increased which has opened way for the establishment of fertiliser plants in different parts of India. More than 50 percent of the total fertiliser production is by Gujarat, Tamil Nadu, Uttar Pradesh, Punjab and Kerala. Other important fertiliser producing states are Andhra Pradesh, Odisha, Rajasthan, Bihar, Maharashtra, Assam, West Bengal, Goa, Delhi, Madhya Pradesh and Karnataka. The establishment of fertiliser plants in different parts of the country has been possible due to easily available natural gas. In 2006-07 about 150 lakh tonnes of Nitrogeneous, 50 lakh tonnes of phosphates and 20 lakh tonnes of potash fertilisers was produced by India. To manufacture potash fertiliser, potassium is imported by India.

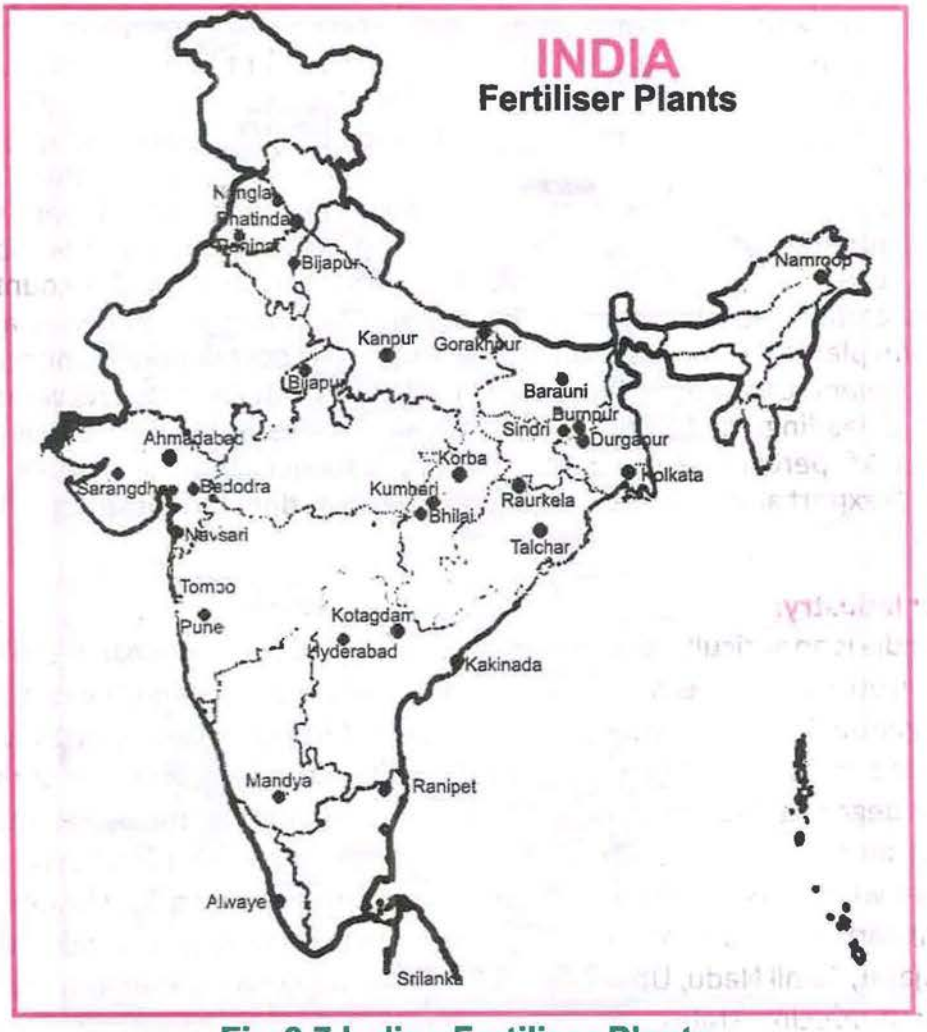

Fig-3.7 India : Fertiliser Plants

Cement Industry:

It plays an important role in the construction of houses and structural field of the country. India is the second largest cement producing country of the world. Different varieties of cement are produced in India such as simple Portland cement, Portland pojolana, Portland blast funace, slag cement, oil well and white cement etc. Raw materials such as limestone, coal, silica, aluminium and gypsum are required for cement industry. That is why this industry is established near the source of raw materials.

Fig-7 : Cement Industry

The first cement plant was set up in Chennai in 1904. This industry mainly expanded after independence. Presently there are 159 large and more than 332 mini cement plants in the country (2008). Their total production capacity is 1683 lakh tones per year (2007-08). Because of the better quality of Indian cement, it is in great demand in the south and eastern Asian countries. Presently more than 20 crore tonnes of cement is produced in India every year.

(ii) Manufactured Goods Based- Structural and Equipment Industry

(i) Transportation Equipment Industry:

(i) Railway:

There is a network of railways in India and so there is great demand of wagon and coaches of goods and passenger trains and railway engines. Therefore, there is large scale development of railway engine, passenger coaches and goods train wagon industries. Today we also export heavy railway wagons on large scale. Broad gauge electric engines are manufactured in locomotive works of Chitranjan in West Bengal. Diesel operated rail engine manufacturing factory is at Varanasi. Passenger coaches are manufactured at Pairambur, Bengaluru, Kapurthala and Kolkata. The goods train wagons are manufactured in private sector and rail factories. Bharat Wagon and Engineering Company Limited manufactures wagons for railways at Mokama in Patna district of Bihar. Railway work shop is located at Jamalpur in Munger district which is the oldest railway workshop of Asia. Railway wheel manufacturing factory at Chapra in Saran district and passenger train coach manufacturing factory at Harnaut in Nalanda district are under construction.

(ii) Automobile Industry:

Road transportation is more extensive than railways. Presently motor vehicles such as Truck, Bus, Car, Motorcycle, Scooter etc. are being manufactured in large numbers. India is the largest manufacturer of three wheelers in the world. Tractor and cycles are also manufactured in large number. Motor cycles are manufactured at Lucknow, Satara, Panki (Kanpur), Akurdi near Ahmadabad and at Pimpri. Maruti Udhyog Limited is situated near Delhi at Gurgaon in Haryana. Tata Engineering and Locomotive Company Limited (TELCO) is an important manufacturer of medium and heavy commercial vehicles in India. Mahindra and Mahindra manufactures Scorpio and Bolero at Nasik. Tata Nano Car Company manufactures low cost cars in Gujarat. Apart from this, these industries have also developed in Chennai, Pune, Indore, Hyderabad and Bengaluru.

(iii) Ship Building Industry:

Ship building is a large industry in the present era. Large capital is required for this industry. Presently, there are five important ship building centres in the country-Vishakhapatnam, Kolkata, Kochi, Mumbai and Majhgaon (All in Public sector). Large ships are manufactured at Kochi and Vishakhapatnam. In this ships of 1,00,000 tonne (D.W.T.) and 50,000 tonne (D.W.T.) are built (Weight of vacant ship is called D.W.T.). Majhgaon Doc yard has been built to manufacture ships for Indian Navy. Near Kolkata Dodger boats, goods boats, pulling boats, coastal boats, diesel engines used by ships are manufactured.

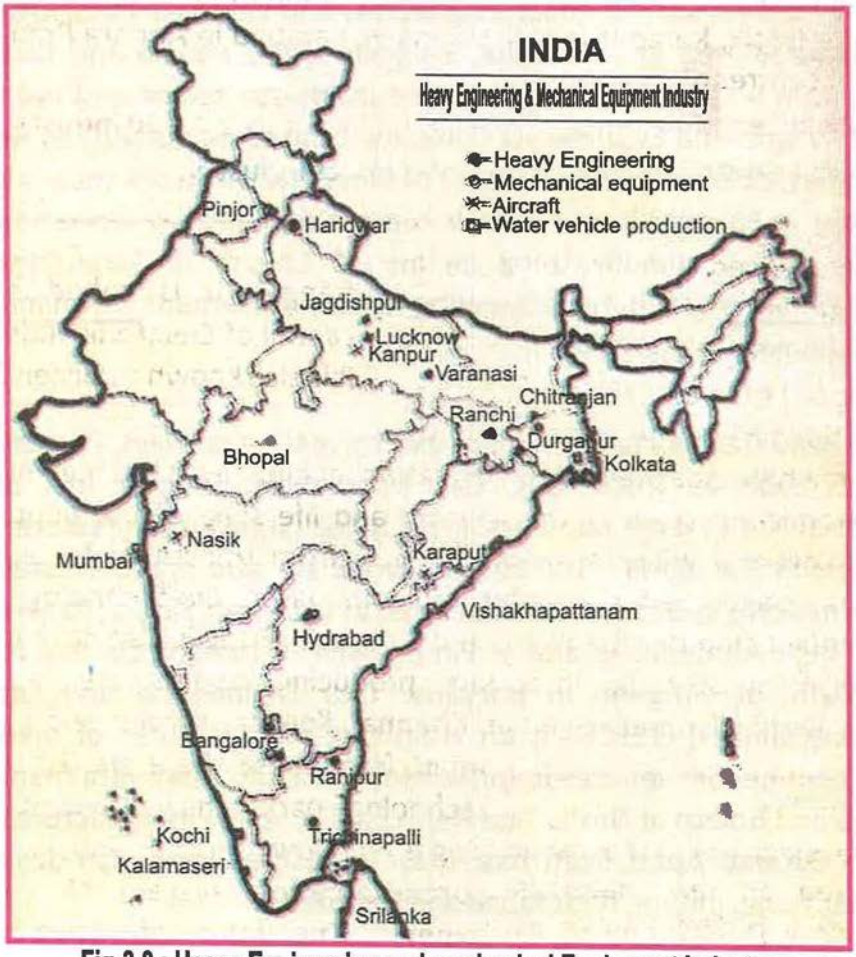

Fig-3.8 : Heavy Engineering and mechanical Equipment Industry

(iv) Aircraft Industry:

It is a recent industry and completely in control of the government. The first factory, Hindustan Aircraft Limited, of this industry was established at Bengaluru (1940). This factory was tied to Aeronautics India Limited in 1964 with a new name Hindustan Aeronautics India Limited at Bengaluru which is popularly known as HAL. India now manufactures different type of small and large aircrafts. The Indian aircrafts are utilised by Indian Airlines and Indian Air Force. Indian aircrafts are used by Indian Airlines in domestic circuit, Air India for foreign circuits and for defense purposes. At present we are manufacturing Krishak, Pushpak, Jet MIG, Supersonic Jet, Interceptors, Attack Helicopters, MIG and Ecto 746 type of aircrafts. Bengaluru, Kanpur, Ojhar near Nasik, Koraput in Odisha and Hyderabad in Andhra Pradesh are important centres of this industry.

(v) Foot Loose or Technology and Labour Proficiency based Industries

(i) Information Technology and Electronics Industry:

Do You Know?
Bengaluru is called as the capital of Electronic Industries. It is also known as Silicon City.

This industry is also known as knowledge based industry because for production in this industry specialised recent knowledge, classified technology and continuous research and investigation is required. It is this industry which is mainly associated with information technology. It has revolutionised the economic structure of the country and life style of the people. This industry covers a wide range of products from transistors to television, telephone, pager, radar, cellular, telecom, laser, bio-technology, space equipments, computer hardware and software etc. It is also called as high technology industry. Its important producing centers are Bengaluru, Mumbai, Delhi, Hyderabad, Pune, Chennai, Kolkata, Kanpur and Lucknow.

Do You Know?
Because electronic industry is not based on raw materials therefore it is also known as **'Foot Loose'** industry.

Apart from these there are 20 software technology parks which provide facility of single window service and high data communication system to software experts. The main objective of this industry is to create jobs. Of the total work

force involved in this industry 30 percent are females. This industry has been an important source of foreign currency earning for the last two or three years. The main cause for this is Business Process outsourcing (BPO). The economy associated with this is also known as knowledge economy.

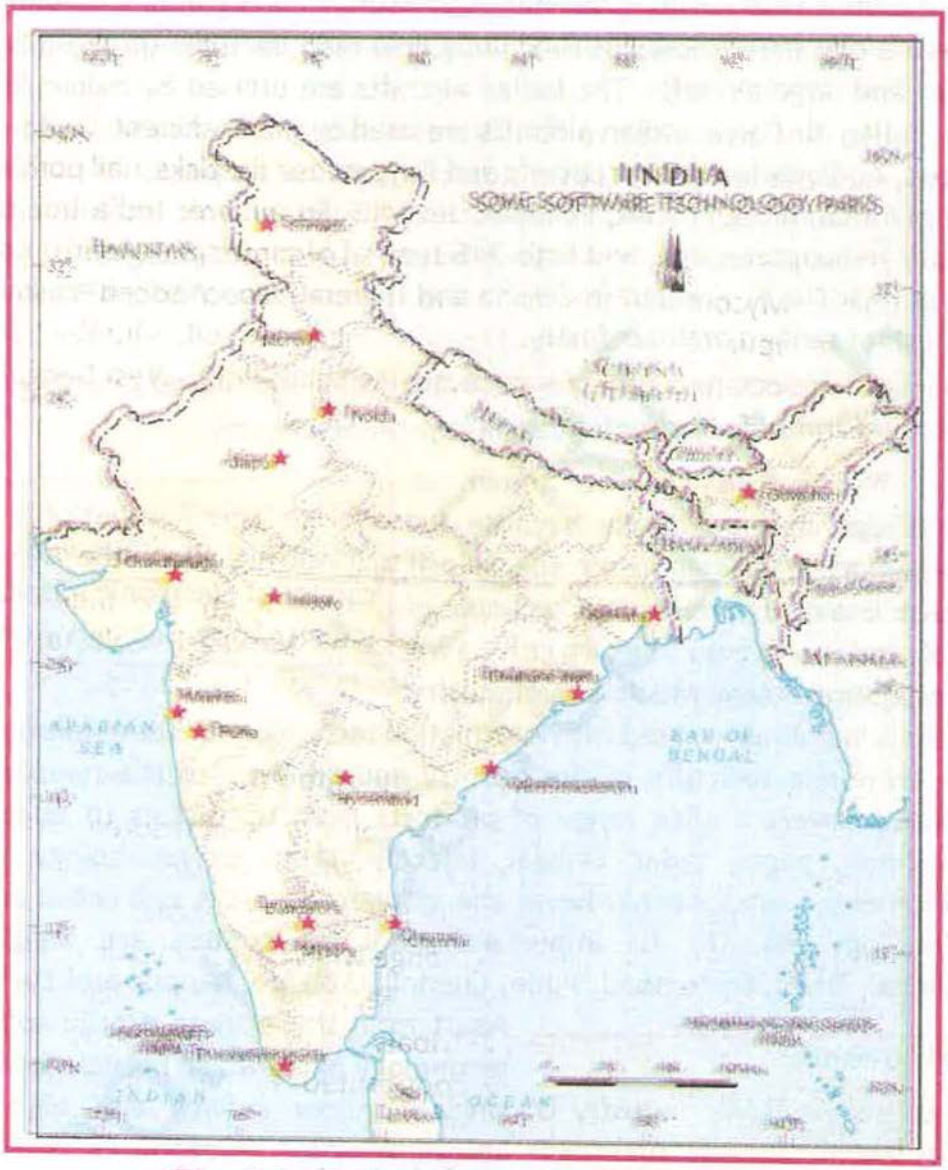

Fig- 3.9 : Software Technology Parks

(ii) Readymade Garments Industry:

This industry is spread all over India in the form of light industry but Lucknow, Ludhiana, Kolkata, Jaipur, Srinagar, Chandigarh, Surat, Shahadra, Mau etc. are its important large centres. Meerut, Muradabad, Agra, Mathura, Bulandshahar are famous for hosiery and readymade garments.

(iii) Cosmetics Industry:

India has been known for its cosmetics since ancient times. The industry includes the production of soap, oil, powder, lipsticks, nail polish and artificial jewelry etc. This industry is also spread all over India but some particular centres are famous for the production of some specialised product. For example, Mysore is famous for its Sandal wood based cosmetics industries, Jaunpur for perfume, Kanauj for fragrant oil, Mumbai, Pune, Kolkata are important centers for good quality soap. Delhi, West Bengal and Jaipur are famous for artificial Jewelry.

(iv) Toys Industry:

Toys manufacturing industry provides job to large number of people but there has been considerable decline in this industry due to the import of electronic toys from China and Japan. But even today this industry has developed in many cities of India. Shivkashi, Varanasi, Kolkata, Delhi, Chennai, Hyderabad, Madurai, Bhopal etc. are famous for this industry.

Contribution of Industries in the National Economy

The economic prosperity of any country is measured from the development of its manufacturing industries. These industries have reduced dependency over agriculture by providing jobs to the people. The export of manufactured goods earns foreign exchange which has helped in controlling the problem of poverty to great extent. Regional disparity has also been reduced by industrial development in tribal areas. For the past two decades, the manufacturing industries have contributed 17 percent in the gross domestic product.

In comparison to India, the contribution of manufacturing industries in East Asian nations in gross domestic product is 25 to 35 percent but in the

past one decade the Indian manufacturing industries have shown 7 percent growth rate which is expected to rise to 12 percent in the next decade. Since 2007-08 the manufacturing industries have grown the rate of 9 to 10 percent. The economists have speculated that due to the government policies and by fresh efforts to increase Industrial productions, the manufacturing industries may achieve its target in next one decade. To achieve this objective, National Manufacturing Competition Council has been established.

Effect of Globalisation on Indian Economy:

The meaning of Globalisation is to connect country's economy with the world's econonmy. In other words one country changing capital, technology and trade with other countries without any prohibiting is globalisation. The new economic policy of government of India is engaged in defining globalisation. Our objective is to make Indian economy compatible to other economies of the world.

Do You Know?

Liberalisation: In this, the industry and trade are made free from the unnecessary prohibition of Red Tapism and effort is made to make them more competitive.

In Globalisation there is freedom of import of all the commodities, reduction in custom duty, permission of open flow of foreign capital, relaxation of capital investment in service sector particularly in banking, insurance and shipping sectors and making rupee fully convertible. To achieve these targets, there is rapid globlisation of Indian economy. Economic reforms are being implemented through liberalisation and privatisation, as a result of which the achievements in some sectors are very encouraging. The foreign exchange reserve has increased considerably. It reached 200 billion dollars in 2007-08 but recently there has been some hindrances in the rate of export and agriculture. Despite worldwide economic recession the rate of gross domestic product of India was more in

What do you Understand by Privatisation?

Handing over of the ownership, control and management of most of the industries of the country to private sector reduces or ends government monopoly on its results, health and economy.

comparison tc other developing nations excluding China but its progress is not satisfactory in social fields. Creation of job opportunities has been less and poverty eradication programme has also been affected. In spite of having huge reserve of food grain, large population of India is victim of malnutrition. Lack of purchasing capacity is major cause for this.

Do You Know?

Multinational companies are those companies that control production and services in various countries from its headquarter situated in anyone country.

Globalistion is affecting indigenous industries, particularly the small and cottage industries are adversely affected. It is very clear that, there will be adverse affect of globalisation on our economy and industrial development.

Effect of Industrial Pollution:

The manufacturing industry has contributed significantly in the economic development of the country. But still the industries have increased pollution and have degraded the environment. The industries are responsible for four types of pollutions — air, water, land and noise.

(1) Air Pollution: The smoke and gases, emitted by industries have badly polluted the air. Carbon mono oxide (Co) is also called as the strangulating gas and excess of unwanted gases in the air such as Sulphur dioxide (So_2) causes air pollution. The Carbon mono oxide (Co) gas enters the body through breathing and reduces the oxygen carrying capacity of haemoglobin present in the blood which can even cause death. The So_2 causes health problem such as burning of eyes, Asthma, cough, lung diseases, headache and giddiness. Apart from these there are liquid and solid pollutants that pollute air. In dust, Spray, fog, smoke and mist both type of materials are mixed and they affect animals, trees, plants and the environment.

Do You Know?

A human being breathes 23000 times per day. Through breathing human beings utilises 35 gallons or 16 kilograms of oxygen mixed air per day.

(2) Water Pollution:

There are many sources of water pollution. The most significant among them is industrial affluent which is discharged in to the rivers. They are both organic and inorganic. Coal, dyes, detergents, insecticides, fertilisers, plastics materials and rubber etc. are water polluters. Paper pulp, chemicals, petroleum, oil refineries, leather industries and electroplating are major water polluting industries. The poisonous metallic affluent discharged from the industries pollutes land and soil, reduces oxygen content from the water that affects living organisms adversely. Diseases such as Cholera, diarrhea, typhoid and jaundice are caused by drinking polluted water.

Do You Know?

There are five major polluting industries:

(1) Leather industry
(2) Oil refineries
(3) Industries based on diesel-coal
(4) Metal industries
(5) Paper industries

(3) Noise Pollution:

Unwanted noise is also pollution. Generally it is created by industries and means of transport. The unbearable noise produced by mechanical saw mills, generators, faulty machines is a cause of causes discomfort. Excess noise causes deafness, increased heart rate, irritation, insomnia and other associated problems.

The Bhopal gas tragedy was an incident that occurred on 3rd December, 1984 at Bhopal (M.P.) when Methyl isocyanate (MK) gas leaked from the Union Carbide fertiliser and insecticide manufacturing factory killing 500 people.

Oily affluent discharged in to river Ganga from oil refinery situated at Barauni is causing water pollution.

(4) Thermal Pollution:

Hot water from industries and thermal plants is drained in to rivers and ponds without cooling and it causes thermal pollution of water which destroys planktons and aquatic vegetation.

Wastes from nuclear power plants and nuclear surgical production facilities causes skin diseases, cancer (Blood and Bone cancer) birth defects and miscarriages.

Do You Know?

Bata Shoe factory and distillery situated at Mokama drains 250000 gallons of toxic waste water every day in to river Ganga.

Measures to Control Pollution:

The pollution can be controlled through proper planning. By establishing industries in prescribed locations, maintaining the quality of equipments and by their proper operation, the pollution can be reduced. Choosing alternative fuel and their correct utilisation is the major source of controlling the air pollution. Smoke can be reduced by using oil instead of coal in industries. There are number of such equipments through which emission of pollutants in to the air can be reduced. Important among them are separator filters, fabric filters and scrubbers.

Water pollution can be checked by treating polluted water from industries before releasing them in to rivers. Treatment of industrial effluents can be done in three stages. Primary treatment by mechanical process, secondary treatment by biological process and tertiary treatment by biological, chemical and physical processes. In the primary treatment screening, grinding, flocculation and sedimentation is involved. In the secondary treatment biological process are involved and the tertiary treatment involves the recycling of waste water. For reducing soil and land pollution, three processes are involved.

(A) Collection of waste materials from different places.

(B) The disposal of waste materials by filling of land.

(C) Recycling of the waste materials and makeing them useful.

(D) In addition to refinement and minimisation of industrial effluents which affect qualities of soil, its proper management is essential for soil pollution.

QUESTIONS

OBJECTIVE TYPE QUESTIONS

1. Which of the following is not a factor of industrial location?
   (a) Market (b) Population
   (b) Capital (d) Energy

2. Which of the following is the first Iron and Steel industry established in India?
   (a) Indian Iron and Steel Company of India (IISCO)
   (b) Tata Iron and Steel Company (TISCO)
   (c) Bokaro Steel City
   (d) Vishvesvaraya Iron and Steel Industry

3. The first modern cotton textile industry was established in Mumbai, Why?
   (a) Mumbai is a Port.
   (b) Is situated near cotton producing region.
   (c) Capital is available in Mumbai.
   (d) All of the above.

4. Which of the following industries is not based agriculture?
   (a) Cotton textiles (b) Cement
   (b) Sugar (d) Jute textiles

5. Is the centre of Hooghly industrial region?
   (a) Kolkata- Risra (b) Kolkata- Konnagri
   (c) Kolkata- Modinipur (d) Kolkata- Howrah

6. Which of the following industries comes under public sector?
   (a) J.K. Cement Industry (b) Tata Iron and Steel Industry
   (c) Bokaro Iron and Steel Industry (d) Raymond Textile Industry

7. Which of the following is consumer industry?
   (a) Petro-Chemical (b) Iron-Steel
   (c) Sugar Industry (d) Chitranjan Locomotive

8. Which of the following is small scale industry?
   (a) Sugar Industry (b) Paper Industry
   (a) Toy Industry (d) Electrical equipment Industry

9. Bhopal Gas disaster was caused by which gas?
   (a) Carbon Dioxide (b) Carbon Monoxide
   (c) Methyl Iso cynate (d) Sulphur Dioxide

SHORT ANSWER TYPE QUESTIONS:

1. What do you understand by manufacturing?
2. Differentiate between public and private industry.
3. Mention three factors responsible for industrial location.
4. Differentiate between mineral based and agro based industries.
5. Classify industries with examples on the basis of ownership.

LONG ANSWER TYPE QUESTIONS:

1. What do you understand by liberalisation, privatisation and globalisation? Discuss the effect of globalisation on Indian economy?
2. Describe Information Technology industry in India.
3. Describe distribution of cotton textile industries in India.

PROJECT WORK:

Question: With the help of appropriate symbols locate and name the following on the outline map of India?

(i) A famous iron and steel centre established in private sector.

(ii) Software Technology Park of Madhya Pradesh.

(iii) Software Technology Park of Bihar.

(iv) Iron Steel plant of Chhattisgarh.

(v) Leading state of sugar industry.

(vi) Major centers of cotton textile industry Mumbai, Coimbatore, Ahmadabad and Kanpur.

With the help of your teacher prepare a table of 10 multinational companies working in India and in front of every name write the name of those industries in which they have made considerable invested.