Miscellaneous industries: Automobile Industry: Trucks, buses, cars, motorcycles, scooters, three-wheelers and multi-utility vehicles are manufactured in India at various centres. The industry is located around Gurgaon, Mumbai, Pune, Chennai, Kolkata, Lucknow, Indore, Hyderabad, Jamshedpur, Delhi and Bengaluru.

Emerging Trends in Automobile Industry: After liberalisation, new and contemporary models increased the demand for vehicles in the market, which led to the healthy growth of the industry including passenger cars, two and three wheelers. The sector had experienced a quantum jump in less than 15 years.

Foreign Direct Investment (FDI) brought in new technology and aligned the industry with global developments.

Automobile industry is an example of heavy industry. Similarly, cable manufacturing facilities at HCL, Rupnarainpur (West Bengal) and gas turbine rotor a assembly bed at BHEL, Hyderabad are its examples.

Information Technology (IT) and Electronics Industry: The electronics industry covers a wide range product from transistor sets to televisions, telephones, cell phones, telephone exchanges, radars, computers and other equipment required by the telecommunication and computer industry. Bengaluru has emerged as the electronic capital of India. Other important centres for electronic goods are Mumbai, Delhi, Hyderabad, Pune, Chennai, Kolkata, Lucknow and Coimbatore.

Software Technology Parks of India: By 2010-11, Software Technology Parks of India (STPI) have come up across 46 locations at different centres of India. It is an autonomous society set-up in 1991 with an objective of promoting software exports from the country. 18 software technology parks provide single window service and high data communication facility for software exports.

Employment Generation by IT Industry: major impact of this industry has been in employment generation, with over 30% of the employees being women. This industry has been a major foreign exchange earner in the last two or three years because of its fast growing Business Processes Outsourcing (BPO) sector. The continuing growth in the hardware and software is the key to success of IT industry in India.

Industrial pollution and environmental degradation

Although industries have contributed significantly to India's economic growth and development. The major polluting industries are thermal power plants which cause thermal pollution. Their waste products pollute the air by the presence of a high proportion of sulphur dioxide and carbon monoxide. These waste products also contain air-borne particulate matter. Basically industries are responsible for four types of pollution i.e. air, water, land and noise.

Air Pollution: is caused by the presence of high proportion of undesirable gases such as sulphur dioxide and carbon monoxide in the air. It adversely affects human health, animals, plants, buildings and the atmosphere. Toxic gas leaks can be very hazardous with long-term effects e.g. Bhopal Gas Tragedy. Smoke is also major cause of air pollution. It is emitted by chemical and paper factories, rick kilns, refineries and smelting plants. Air-borne particulate materials contain both solid and liquid particles like dust, sprays mist and smoke.

Water Pollution: it is caused when organic and inorganic untreated industrial wastes are discharged into rivers. Paper, chemical, textile and dyeing, petroleum refineries, and electroplating industries are the main industries causing water pollution. Fly ash, phospo-gypsum and iron and steel slags are the major solid wastes in the reel industry. Major water pollutants are dyes, detergents, acids,

salts and heavy metals like lead and mercury pesticides, fertilisers, synthetic chemicals with carbon, plastics and rubber, etc.

Relation of Soil and Water Pollution

Soil and water pollution are closely related. Dumping of wastes in the soil, especially glass, harmful chemicals, industrial effluents, packaging, salts and garbage renders the soil useless. Rain water goes into the soil, carrying the pollutants into the ground and the groundwater also gets contaminated.

ThermaL PoLLution

In water, thermal pollution occurs when hot water from factories and thermal plants is drained into rivers and ponds before cooling. Wastes from nuclear power plants, nuclear and weapon production facilities cause cancer, birth defects and miscarriages.

Noise PoLLution

This type of pollution results in irritation, stress, anger, hearing impairment, increased heart rate and blood pressure among other physiological effects. Basically unwanted sound is an irritant and a source of stress. Noise from industrial and construction activities, machinery, factory equipment, saws, generators and pneumatic and electrical tools also contribute to noise pollution.

ControL of EnvironmentaL Degradation

“Xlhen one litre of waste water combines with fresh water, it pollutes water eight times. So, it is very essential to reduce fresh water pollution.

Suggestions for reducing pollution of freshwater sources are

• Minimising water usage by reusing and recycling waste water in two or more successive stages.

• Rainwater harvesting to meet water requirements.

• Treating hot water and industrial wastes before releasing them in rivers and ponds.

This can be done in three phases

(i) Primary treatment by mechanical means (i.e. V screening, grinding, flocculation and sedimentation.)

(ii) Secondary treatment by biological processes.

(iii) Tertiary treatment by chemical, physical and biological processes.

Note Sewage treatment plant under Yamuna Action Plan is located at Faridabad.

Particulate Matter A small discrete mass of solid or liquid matter that remains individually dispersed in gas or liquid emissions and is usually

:onsidered to be an atmospheric pollutant. VV -

Smelting Metal extraction process in which an ore usually mixed with purifying and/or heat generating substances such as limestone and :oke, is heated to a high temperature in an enclosed furnace. V

Screening It is a method to trap solid (large objects) from the waste water. It can be done manually or mechanically.

Flocculation Some particles of waste water have ability to stick with each other When one particle scks with other is called floc The process

ouraging the formation of floc is called flocculation. V V V

Some general points to minimise environmental pollution are

Overdrawing of groundwater reserves by industries needs

to be regulated legally.

• Generators and other machinery should be fitted with silencers to reduce their sound. Almost all machinery can be redesigned to increase energy efficiency and reduce noise.
• Particulate matter in the air can be reduced by fitting smoke stacks to factories with electrostatic precipitators,
fabric filters, scrubbers and inertial separators.
• Smoke can be reduced by using oil or gas as fuel instead of coal in factories.
Noise absorbing material may be used apart from personal use of earplugs and earphones.
NTPC Shows the Way of Sustainable Development
The challenge of sustainable development requires integration of economic development with environmental concerns. National Thermal Power Corporation (NTPC) is a major public sector power generation company. It is certified for the EMS (Environment Management System) ISO 14001.
It employs a proactive approach for preserving the natural environment and resources like water, oil, gas and fuels in places where it is setting up power plants in a sustainable way.
NTPC fulfils its approach through the measures given below Optimum utilisation of equipment adopting latest techniques and upgrading existing equipment.
• Minimising waste generation by maximising ash utilisati a Starting green belts and afforestation for nurturing ecological balance.

a Reducing environmental pollution through ash pond management, ash water recycling system and liquid wasp management.
a Ecological monitoring, reviews and online database management for all its power stations.
Electrostatic Precipitator An air pollution control device for removing fine solid particles from emitted smoke by passing the smoke first through an electrically charged screen that gives a charge to the particles, then between two charged plates where the particles are attractE one surface.
Fabric Fitter An air pollution control device that removes particulates out of air or gas released from commercial processes or combustior using woven or felted fabric .as a filter medium. These filters are also called baghouses.
Scrubber An air-stream pollution control device which uses liquid spray to wash out particulate matter as well as absorbing or chemically neutralising gaseous pollutants.
Inertial Separator A device that uses centrifugal force to separate waste particles.