

SES'S L.S.RAHEJA COLLEGE OF ARTS AND COMMERCE

Course: Environmental Studies

Unit: 2 SEMESTER II

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Agriculture and Industrial Development

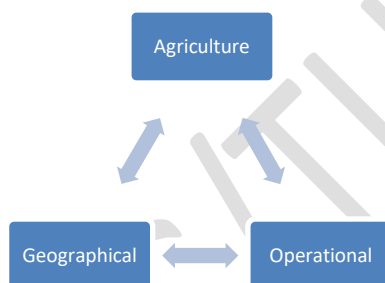
Agriculture is amalgamation of art, science and industry of managing the growth of plants and other living animals for mankind. Evolved some 10,000 years ago, it includes cultivable soil, harvesting crops, breeding and raising livestock, forestry etc.

There are 5 Major types of Agriculture in the World as follows:

1. Simple Subsistence Farming
2. Intensive Subsistence Farming
3. Extensive Mechanized Grain Farming
4. Mixed Farming
5. Plantation Agriculture

Today our food comes entirely from agriculture, fishing and animal husbandry through traditional or modern agricultural practices.

2 Factors Affecting Agriculture are as follows.



3 Geographical Factors

1. Climate and Rainfall
2. Topography and Relief
3. Soil

6 Operational Factors

1. Land Holding Size
2. Cost of Labour
3. Technology
4. Irrigation Facility
5. Govt. Policies and
6. International Agreements

When people don't get enough food to eat, the conditions of **hunger, and malnutrition** arise.

There are 10 causes of Hunger.

1. Poverty, 2. Rising food prices, 3. Conflicts of land rights and ownership, 4. Diversion of land use to non-agricultural uses, 5. Inefficient agricultural practices, 6. Wars, 7. Natural Disasters, 8. Poor Crop yield, 9. Rising cost of fuels and Transport, 10. Changing Trade Policies.

Definitions of Food Security: 1) Food Security as ensuring that All the people to all time have both physical and economic access to basic food they need. (FAO, 1983)

2) "When all the people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life." (The World Food Summit of 1996).

4 Dimensions of Food Security :

A: Food Availability, relates to supply of food through production, distribution and exchange.

B: Access to food: Economic and physical access

C: Food Utilization: Depends on the purchasing capacity

D: Stability : Depends on production, supply, trade and climatic shocks

3 ENVIRONMENTAL PROBLEMS ASSOCIATED WITH INDUSTRIES



LOCAL: Pollution : Air, Water, Land and Sound OR Noise

Regional Level Environmental problems: ACID RAIN

Global Level Environmental Problem: Ozone (O₃) layer depletion and GLOBAL WARMING

Local pollution is mainly caused through industries. There are 5 primary pollutants that together contribute about 90 % of Global air pollution. They include Carbon oxides, Nitrogen oxides, Sulphur Dioxides, Volatile organic compounds, and suspended particulate matter.

Geographical factors also play a major role in determining the transportation, concentration and reactions of air pollutants. These factors include wind direction, wind speed, amount of sunlight, precipitation, temperature, and stability of atmosphere.

Effects of Air pollution : is found on Humans, animals and vegetation also.

The gaseous pollutants cause dizziness, eye irritation, headache, breathlessness, chest pain, and lung cancer. SPM means suspended particulate matter causes asthma, bronchitis and tuberculosis. Large concentration of radioactive pollutants causes cancer. In winter months their effects are severe in older people, infants and people with heart diseases.

Animals feeding on plants coated with arsenic, lead, fluoride develop bone lesions.

Fluoride interferes with photosynthesis and respiration in plants. Plant leaves dry out as a result of tissue collapse due to absorption of Sulphur Dioxide.

Thick layers of smog (mixture of fog, dust, smoke and SO₂ gas) are found in big industrial cities in winter mornings when visibility is nearly zero is a cause of many road accidents.

The breaking of Ozone layer takes place which allows the entry of harmful Ultra violet rays which is a cause of most of the skin cancers in USA .

Soot, dust, and fumes from air pollutants cause damage to painted surface, fabrics and buildings. Eg. Taj Mahal of Agra is being eroded because of SO₂ in the atmosphere.

Effects of Water Pollution: Many industries like Iron and Steel, Paper, Photo processing, chemical, metal, pesticide, fertilizer, textile, petrochemical, mining cause water pollution. It pollutes rivers, ponds, lakes, wells, seas, canals, seas and oceans. The toxic material enters food chain and cause health hazards and epidemics like Cholera, Jaundice, TB Typhoid, dysentery and diarrhoea. Heavy metals like mercury, lead and copper can cause nerve and brain damage if it is mixed with water. Release of hot water in seas weakens the oxygen carrying capacity which suffocates the fish. It also obstructs the process of photosynthesis affecting the growth of vegetation

EUTROPHICATION:

As industrial chemicals are poured into water bodies, weeds and algae spread on a vast scale. It uses up all oxygen that aquatic animals need. As a result, aquatic organisms die due to lack of adequate oxygen. This process is known as Eutrophication .

Bio-magnification:

Pollutants released from chemical factories accumulate in marine aquatic food chains. The toxins continue to move up the food chain from one trophic level to the next. This phenomena of concentrated toxic deposition at the higher trophic level is known as Bio-magnification

Effects of Global Warming:

1. Climate Change
2. Melting of Glaciers
3. Sea level Changes
4. Submergence of lowlands
5. Impact on Flora and Fauna
6. Impact on Agriculture
7. Impact on Human Health

5 Effects of OZONE LAYER DEPLETION:**A: Atmospheric cooling****B: Effects on Human health****C: Effects on Flora****D: Effects on Fauna****E: Effects on materials**

ACID RAIN: This term was first used by Robert Smith in 1872. Acid rain forms when chemical air pollutants react with the water droplets in the atmosphere.

Effects: 1. As the soil gets acidic, it disturbs the pH balance which leads to loss of productivity.

2. Causes death of tissues in plants. eg. Forest degradation in Northern Europe

3. Aquatic life gets affected - eg. Deaths of fish, amphibians in SWEDEN, Norway, Canada.

SUSTAINABLE INDUSTRIAL PRACTICES:

Keeping in view with the definition of sustainability, the INDUSTRIAL Sustainable practices help to meet our present needs without hampering the potential of the future generations to meet their own needs. It includes

Green Business: 1) Brown and Ratledge: "An establishment that produces green output."

2." A business that requires a balanced commitment to profitability, sustainability, and humanity.

Green Business Practices : 1. Eco labelling, 2) Green packaging, 3) Green Marketing, 4) Environmental Audit 5) Cost saving practices 6) Product stewardship 7) Public transport

CORPORATE SOCIAL RESPONSIBILITY (CSR)

It is a holistic and integrated core business strategy for addressing the social and environmental impacts of businesses.

It addresses the wellbeing of all stakeholders and not just company's shareholders.

Philanthropic activities are only the part of CSR.

4 Examples of CSR in India (Read them FOR YOUR REFERENCE)

Wipro, BALCO, Godrej and Reliance India LTD.,

Review QUESTIONS

1. Bring out the relationship between industries and ENVIRONMENTAL PROBLEMS with suitable examples.
2. Explain the concept of Acid Rain. What are its causes and effects?
3. What is CSR? Discuss the role of CSR in environmental protection with suitable examples.
4. What is air pollution? Discuss the sources, causes and effects of Air pollution.
5. Describe the concept of Global Warming. Explain its causes and effects?

Mark and label the following in the map of Mumbai. (The answers are in brackets)

1. A place of IT industries (Andheri)
2. A SITE of a CSR Project (Godrej- Vikroli)
3. An Ecotel Hotel (Orchid in Vile Parle)
4. An area of chemical factories (Chembur)
5. A place of TEXTILE industries (Parel)
6. The religious temple of Goddess Laxmi (Mahalaxmi)
7. A green area in North (SGMP – BORIVALI)
8. The biggest lake (Vihar)
9. Any creek (Malad , Marve)
10. Juhu Beach