

Unit -1 The Earth

Internal Structure of the Earth

Introduction: Earth is the planet where human being exists. Earth is also known as Blue Planet. It consists of both Land and Water. The air surrounds the earth. It is habited by living organism plants and animals.

Internal Structure of the Earth: The following are the main interiors of the Earth.

a. Crust: The upper part of the earth is called the Crust. Human lives on the crust. This layer goes upto a depth of 30 to 100 kms. The crust mostly consists of various kinds of rocks. Crust is the solid layer of the Earth.

b. Mantle: The layer which exists below the crust is called Mantle. This layer goes up to the depth of 100 – 2,900 kms. Mantle is divided into two broad layers. This layer has a chemicals called silicates.

i. Upper mantle

ii. Lower mantle

c. Core: The layer which exists below the mantle is called Core. This layer goes upto the depth of 2900 to 6376 km. It consists heavy substances like Iron and Nickel. Core is divided into two broad layers.

i. Quarter Core: The layer is also known as liquid layer. The depth goes up to 2900 to 5100 kms. Nickel and Iron are the main substances available in this layer.

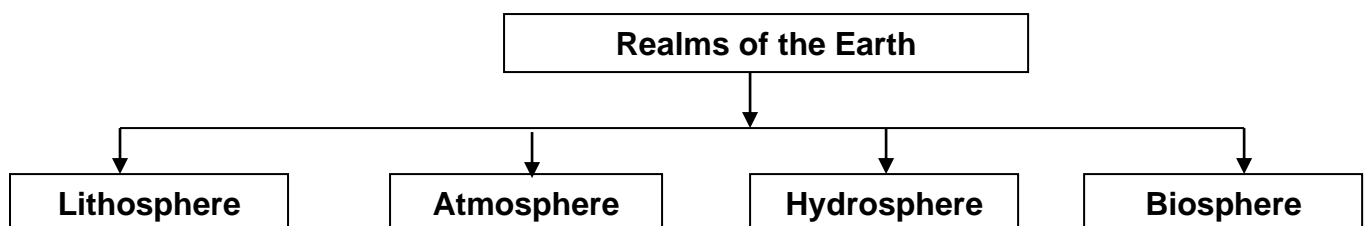
ii. Inner core: This layer is also known as Solid layer. The depth goes up to 5100 to 6376 kms. Gold is the main substance of this layer.

Realms of the Earth

1. Introduction:

- Earth is a surface.
- Earth consists land and water.
- Earth was surrounded by air and water.
- Earth is inhabited by living organisms, plants and animals.
- All these elements created the realms of the earth.

Realms of the Earth: The Realms of the earth broadly classified into four types.



1. Lithosphere:

- The Greek word “litho” means stone and “sphere” means sphere or ball.
- The Solid part of the earth is called Lithosphere.
- It is made up of rocks and minerals.
- It covered with the thick layer of soil.

2. Hydrosphere:

- Hydrosphere derived from the greek word hudor.
- Hudor means water.
- Hydrosphere means the study of soil.
- Hydrosphere comprises rivers, lakes and oceans etc.

3. Atmosphere:

- Atmosphere derived from the greek word atmos.
- Atmos means vapour or air.
- Atmosphere means the study of air.
- Atmosphere comprises oxygen, carbon dioxide and nitrogen etc

4. Biosphere:

- Biosphere derived from the Greek word bios.
- Bios mean life.
- Biosphere means the study of living organisms.
- Biosphere comprises plants, animals and human beings.

Environmental Pollution

Environmental Pollution

1. The most important ecological problem of modern times is pollution
2. Pollution means a change in the quality of air, water and land.
It disturbs the health of man and others life on earth.
3. Pollution is an unfavorable change of environment caused by human activities.
4. It causes maximum harm to human existence.
5. Pollution causes harm on the surface of earth.
6. Pollution causes ecological crisis.
7. Pollution is maximum in all well developed countries in the world.
8. Advancement of science and technology and human population are directly and indirectly responsible for environmental pollution.

GLOBAL WARMING

1. The damage of earth due to increase in temperature is called global warming.
2. Global warming leads to the imbalance of our ecosystem.
3. The main reason of global warming is the increase of greenhouse gases in the atmosphere.
4. According to UN climate talk's china is the largest consumer of Co₂ in the world.
5. Global warming shifts the Greenland into polluted land.
6. Due to global warming the ice regions are melting and following into the oceans.

7. The following are the main greenhouse gases formed in our environment.

- Carbon dioxide
- Methane
- Chlorofluorocarbon

LATITUDE

Q. What is Latitude?

1. Latitude is the horizontal circle that goes around the Earth.
2. Latitude indicates from 0 degrees at the Equator to 90 degrees.
3. It specifies the North-South position at a point on Earth's Surface.
4. The word Latitude derives from Latin word 'Latitudo' which means Width.
5. Latitude must be designated with Direction-N for North (or) S for South.
6. Latitude is used together with Longitude to specify the surface of the Earth.
7. The Latitude used for specific applications are called Auxiliary Latitudes. These are six Auxiliary Latitudes. They are
 - Geocentric Latitude
 - Parametric Latitude
 - Rectifying Latitude
 - Authalic Latitude
 - Conformal Latitude
 - Isometric Latitude.

Longitude

The word longitude was derived from Latin word "longitude" which means length.

1. Longitudes are Semi-circles connecting pole to pole
2. Every longitude cuts across every latitude.
3. The latitude that passes through Greenwich England is called 0 degrees meridian.
4. 0 degrees meridian is also called Prime meridian (or) Greenwich Meridian..
5. The lines of Longitude are after referred as Meridians.
6. Longitude is used together with latitude to specify the surface of the earth.
7. The length of a degree at longitude depends on the radius of a circle of latitude.
8. The measurement of Longitude is important for the navigation.

Hydrological Cycle

1. The circulation of water in a different forms is called hydrological cycle.
2. Water is a cyclic renewable resource.
3. It undergoes from oceans to land and again from land to oceans.
4. The life of an earth depends on the hydrological cycle.
5. Hydrological is the continuous process.
6. The use of plastic materials will create the hydrological imbalance in the environment.
7. Hydrological cycle can be known as the "soul of the ecosystem".
8. It regularly protects and prevents the water.

Unit 2 Agriculture

Q. Explain the Importance of Agricultural Sector in Indian Economy?

Introduction:- India is an Agricultural country. Agriculture is primary occupation of the people living in the India. It is the main source of national income, employment, foreign trade, food etc. It helps in the development of industry and infrastructure. Agriculture influences our economy directly as well as indirectly. It plays an important role in Indian economy.

1. Importance of Agriculture in Indian Economy:-

1. **Share of Agriculture in National Income:-** Agriculture is the main source of our national income. In 1950 – 1951, Agriculture contributed nearly 56.5% of our national income. But in recent years the share of agriculture in our national income has been decreasing due to the development of other sectors. Even today it contributes nearly 13.9% of our national income. In developed countries like America it contributes only 2% of national income and in U.K. only 1.5% of national income.
2. **Employment providing Sector:-** Agriculture sector is the largest employment providing sector in India. It provides employment to a large number of people directly as well as indirectly. In recent years, the percentage of workers engaged in agriculture has been declining due to the development of non agricultural sectors.
3. **Importance of International Trade:** Agriculture is the main source of our exports. India is exporting the agricultural products like coffee, tea, sugar, cotton, spices etc. Vegetables, fruits etc. to different countries. By exporting agricultural products, India is earning foreign exchange.
4. **Effective Social Safety Net:-** Though agriculture presently contributes less than 15% in our GDP, it continues to employ more than half of the work force. If crops, animal husbandry, silk and horticulture are developed, then the standard of living in rural areas will increase. Thus, agriculture acts as an effective social safety net.
5. **Food Supplier of the expanding population:** - According to FAO “India is a hunger affected country”. The hunger index shows that our country stands in the 55th place in the world. Agriculture supplies food to the entire population of our country. Hence, agricultural development is necessary for the achievement of food security in our country.
6. **Role of Agriculture in Industrialization:-** Agriculture creates demand for industrial products. Whenever the income from agriculture increases, it creates additional demand for industrial goods. It also creates demand for the industrial products like agricultural machinery, fertilizers, pesticides etc. The increase in demand for industrial goods leads to industrial development.
7. **Market for Industrial Products:** In India the major population lives in rural areas, The purchasing power of these people is too low to purchase industrial products. If agricultural productivity increases, the income of the rural sector also increases. As a result the demand for industrial products increases.
8. **OTHER FACTORS:-** Besides the above factors, the following factors also reveal (indicates) the importance of agriculture in our country. They are:-
 - a) Agricultural products create demand for transport facilities. So it helps in the

development of transport sector.

- b) Agriculture also helps in the development of banking facilities in rural areas. Branch expansion of the banks takes place in rural areas due to increase in agricultural production.
- c) Migration of people from rural to urban areas can be controlled through the development of agriculture.
- d) Farm tourism can be developed in rural areas.
- e) Agriculture helps in the development of infrastructure in rural areas.

Conclusion:- Thus, Agriculture plays an important role in Indian economy. Hence, Indian economy is described as an Agricultural economy.

Q. Explain the Problems of Agricultural Sector in Indian Economy?

Introduction: - India is an agricultural country. Agriculture is primary occupation of the people living in the India. It is the main source of national income, employment, foreign trade, food etc. It helps in the development of industry and infrastructure. Agriculture influences our economy directly as well as indirectly.

Problems of Agriculture in Indian Economy:-

1. **Pressure of Population on Agriculture is High:** - The pressure of population in India is high due to increasing of population. The average size of land holding has been declining which results in low productivity. As excess population is depending on agriculture, disguised unemployment will also arise.
2. **Discouraging social environment:** - The social environment such as illiteracy, superstitions, traditional necessities etc is also responsible for the low productivity. Peasants are wasting their time for non-economic purposes. These conditions in the rural areas will adversely affect the productivity.
3. **Absence of infrastructural facilities:** The facilities which we utilize to make successive production and distribution are known as infrastructural facilities. Infrastructural facilities like transport, storage, credit, power supply, market etc are inadequate in the rural areas. as a result the productivity has been declining continuously.
4. **Uneconomic land holdings:-** The average size of land holdings in India is very low. In 2010-11, 85 percent of total land holding are less than 2 hectares. In small size holding, it is not possible to use the latest techniques. Hence the productivity is low.
5. **Lack of Institutional credit & Marketing facilities:-** The farmers are unable to invest sufficient funds in agriculture due to inadequate credit & marketing facilities. As a result the productivity becomes low.
6. **Outmoded Agricultural Techniques:-** T.w. Schultz a famous economist opined that the peasants in India are still using traditional or outmoded techniques. Indian farmers are still using wooden ploughs, bullock carts etc. they are scarce with latest technology. hence the productivity in agriculture is low
7. **Scarcity of Agricultural inputs:** the supply of modern agricultural inputs like fertilizers, pesticides, hybrid seeds etc are inadequate to meet the requirements of our country. Hence the productivity becomes low.
8. **Environmental causes:-** the important environmental factors that affect agricultural productivity are:
 9. Global warming.
 - ✓ Soil degradation.

- ✓ Intensive cultivation of HYV seeds.
- ✓ Shifting cultivation.
- ✓ Lack of environmental planning.

Conclusion:- Though agriculture is the back bone of Indian economy, due to above causes it problems has been increasing continuously.

Soil – Classification / Types / Kinds

Explain the Soil – Classification

Introduction:

- a. Soil is the part of earth.
- b. Soil generally considered to the upper layer of the earth.
- c. It is useful for the production of food grains, plants and trees etc.
- d. It is also consist of rock, metals and minerals etc.
- e. The first scientific soil classification was made by voeleker and leather.

Classification:

1. Alluvial soil:

- a. Alluvial soil lies on ganga-brahmaputra plains.
- b. It covers 43.4% of total area.
- c. Narmada and tapti are the main rivers for alluvial soils.
- d. Alluvial soils are popular for agricultural sector.

2. Red soils:

- a. Red soils lies on peninsula from tamilnadu to bundelkand.
- b. It covers 18.5% of total area.
- c. Red soils are the second largest soil of india.
- d. The states on these soils are tamilnadu, andhrapradesh, maharashtra, rajasthan, etc.

3. Black soil:

- a. Black soils lies from parts of gujarat to rajmahal hills.
- b. Black soils are also known as regular soils.
- c. It covers 15% of total area.
- d. Black soils are the third largest soil of india.
- e. Black soils are mature soil.

4. Desert soil:

- a. Desert soils lies on rajasthan.
- b. It covers 4.42% of total area.
- c. Desert soils are also known as dry soils.
- d. Desert soils may be cool or hot.
- e. But they are always dry.

5. Laterite soils:

- a. Laterite soils were developed by f.buchanan in 1905.
- b. Laterite was derived from latin word "later" which means brick.
- c. These soils are rich with iron and aluminum.
- d. Laterite soils lies from easter odhissa to western west Bengal.

6. Mountain soils:

- a. Mountain soils covers 5.5%of total area.
- b. These soils are found in the valleys of Himalayas.
- c. Their color in dark brown.
- d. These soils can be divided into
 - i. Loamy podzols.
 - ii. High altitude soils.

7. Red and black soils:

- a. Red and black soils are found in the parts of Bundelkhand.
- b. These soils are relatively less productive.
- c. It performs well under irrigation conditions.
- d. These soils are rich with maize, bujra, millets and oilseeds etc.

8. Grey and Brown soils:

- a. Grey and brown soils were found in Rajasthan and Gujarat.
- b. These soils vary red to black and brown in colour.

9. Submontane Solis:

- a. Submontane soils are found in the tarsi region of Jammu and Kashmir.
- b. These soils are highly fertile for the growth of the forests.

Soil Erosion

- A)** The removal of productivity in the soil is called soil erosion.
- B)** Soil erosion leads to the ecological imbalances.
- C)** Soil erosion decreases the fertility of soil.
- D)** Water and wind are the two main factors of soil erosion.
- E)** The main reasons for soil erosion are
- Deforestation
 - Overgrazing and
 - Improper cultivation
- F)** Rajasthan is in the first place for having a maximum percentage of soil erosion.
- G)** Soil erosion adversely effects the upper layer of the earth.
- H)** Soil erosion frequently increases the droughts and floods.

Soil Salinity

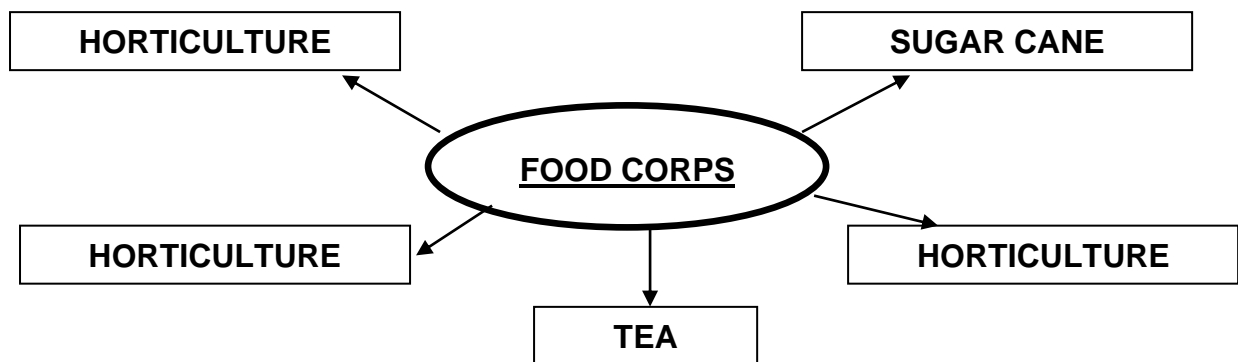
1. Soil salinity mean the soil with more salt.
2. Saline soils are also known as usara soils.
3. Over us of pesticides and fertilizers leads to the soil salinity.
4. These soils are infertile in nature and decreases the fertility power of soil.
5. Saline soils are mostly found in the western part of Gujarat.
6. The main reasons for soil salinity are:
 - A.** Dry climate.
 - B.** Poor drainage.
 - C.** Domestic wastages and
 - d.** Industrial wastages

Green Revolution

- ❖ The Government of India has launched many institutional and non-institutional reforms for the development of agriculture sector which is the backbone of Indian economy.
- ❖ Among the non-institutional reforms now strategy of agriculture is the prior one. Hence, the government of India has announced the New Agricultural Strategy in 1965 to ensure rapid agricultural progress.
- ❖ The new strategy of agriculture which resulted in revolutionary progress in the farm sector during the period 1960-70 is termed as 'Green Revolution'.
- ❖ William S. Gand is the first economist who used the term green revolution.
- ❖ Revolutionary reforms meant for enhancing the agricultural productivity by installing the high yielding variety seeds along with other modern inputs to make the farmers more enthusiastic by transforming traditional agriculture to industry.

Food Corps

Introduction: the crops which are directly related to the production of food grains are called food grains. Food crops are the backbone of our Indian Agriculture. It covered three fourth cultivated area of our country. Foods crops provide the basic and essential food to the man.



1. Sugar Cane:

- Sugar cane is the basic food crop of cultivation.
- It grows well in hot climate.
- The temperate in between 21°C to 27°C need to cultivate.
- Irrigation is needed in the regions of low rainfall.
- The major sugar producers in our country are Uttar Pradesh, Maharashtra, Tamilnadu and Andhra Pradesh.

2. Oil Seeds:

- India is the largest producer of oilseeds in the world.
- It covers 12% of our total cropped area.
- Oil seeds are also used as raw materials for the production of soap and cosmetics.
- Andhra Pradesh is the largest producer of oil seeds in our country.

3. **Tea:**

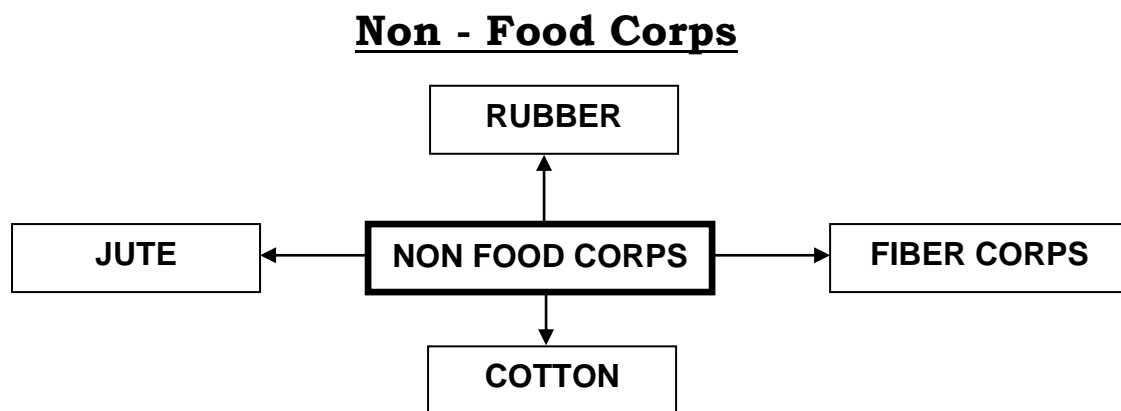
- The production of tea is first introduced by Britishers' in our country.
- Tea cultivation increases plantation in the agriculture.
- Tea is a labour intensive industry.
- It requires abundant and skilled laborers for cultivation.
- Assam is the largest producer of tea in our country.

4. **Coffee:**

- India produces 4% of the worlds coffee production.
- Baba budan hills are the first region to have coffee cultivation.
- Indian coffee is named for the better quality.
- Karnataka is the largest producer of coffee in our country.

5. **Horticulture Crop:**

- Horticulture means production of fruits and vegetable.
- India is one of the leading producers of fruits and vegetables in the world.
- India occupied first place in the export of mangoes.
- Jammu and Kashmir, Andhra Pradesh, Kerala and Maharashtra are the largest producers of fruits and vegetables in our country.



1. **Rubber:**

- Rubber is an important raw material to our industry.
- It grows well in the hot climate.
- It requires 25°c of temperature.
- Kerala is the largest producer of rubber in our country.

2. **Fibre Crops:**

- Fibre crop consists of cotton, jute, hemp and natural silk.
- Cotton, jute and hemp are grown in the soil.
- Silk will get through silkworms.
- The production of silk is known as sericulture.

3. **Cotton:**

- India is the third largest producer of cotton in the world.
- Cotton is the primary raw material to the textile industry.
- It grows well in the hot climate.
- Maharashtra is the largest producer of cotton in India.

4. **Jute:**

- Jute is also known as the golden fibre.
- Jute grows well in fertile soil.
- It grows well in the hot climate.
- West Bengal is the largest producer of jute in India.

Unit 3 Forestry

Forest – Features and Advantages

Meaning: Forest means the area which is surrounded by wild life. Forest consists wild animal, snakes, insect, wild trees, mountains, rivers and rocks. Forests are the main source of raw materials to the Industries. It is also the shelter providing source to the tribal people.

India is the land of forest. India occupied second place in the availability forest after china. It was noticed that 32% of Indian areas were covered with forest. Uttarakhand, Chhattisgarh, Kerala, Tamilnadu, Karnataka etc are the major forest covered states.

Features:

- a. It covers the maximum area with wild life.
- b. It supplies raw materials to the Industries.
- c. Forests are the main source of Ayurvedic sectors.
- d. Forest are the nature Oriented area. Here nature does everything and man has little part.
- e. There is a huge potentially of Bio-diversity in the forest areas.
- f. Forests allied activities are farming, Cattle breeding, nurseries etc.,

1. Advantages:

- 1. Supplies Raw materials:** Forest is the main source for the supply of raw materials to the Industries. It is also helpful for the Ayurvedic Production. Therefore forests have been termed as “Green Gold”
- 2. Increase Rainfall:** Forest is available with many trees and plants. Trees are directly linked with growth of Rainfall which is the main source of agriculture. It also contributes healthy elements like Fresh air, pure water and Green environment.
- 3. Evergreen Forest:** Regions with high rainfall and warm climate are called Evergreen Forest. Kerala and Andaman’s are the two best examples of Evergreen forest in India. In these areas tree itself shapes. Evergreen forests are the main source of our environment.
- 4. Biodiversity:** Biodiversity means the variability among living Organism. It means when different plants and species collectively in the environmental existence then it is called biodiversity. Forest is the best platform for the biodiversity.

5. Tourism: Forest develop tourism also, It promotes natural tourism in India. Forest areas contribute the largest revenue in the natural tourism. Hills, Rivers, green area etc attracts the travels.

Conclusion: Forest can be treated as the soul of Environment. So it should be protected.

Need for Protection of Forestry

- a. Forests are the main source of Oxygen to human beings. It makes us to breathe healthy for a long life.
- b. Forest provides shelter to the tribal people. It was noticed that nearly 300 million people in the world are living under the shelter of forests.
- c. Forest promotes environmental existence.
- d. Forest controls pollution caused by the man.
- e. Soil degradation can be solved through forestry.
- f. Forest areas are the main source of farming.
- g. As India is the land of Agriculture, so the existence of forest will increase the agricultural sector.
- h. The study of forest help us to find the solution for the problems like Global Warming, Acid Rains and Floods etc.,
- i. The availability of the forest includes Social – Economic impact on Human beings.
- j. Forest deals with nature and man. It alerts man to take care of nature.

Forest Conservation ACT - 1980

Introduction: The forest conservation Act was passes in 1980. The main objective of this Act is to protect the forest areas. This Act is applicable to whole India. Except Jammu and Kashmir. The forest Conservation Act was came into existence on 25th of October 1980. The theme of this Act is ***“Save Trees and Stay Long”***

Features:

- a. This act restricts state Government on the field of deforestation.
- b. Section2 of this act explains that state Government shall not make any amendments on forest area without the prior approval of central and local self Government.
- c. This Act Appointed the advisory body for the afforestation
- d. As per section- 2 of the Act, all non-forest activities in a forest without any prior permission should be punishable.
- e. The amendment of 1988 involved many tribal communication and agencies under the jurisdiction of the forest departments.
- f. In forest areas the pollutant that causes pollution should not be used.
- g. It takes all the necessary measures for the protection of forest areas.
- h. The legislations were strongly enacted for the protection of forest against pollution.
- i. This act coordinates with state governments and local self governments for the successive implementation.
- j. All the polluted industries need to construct far away from the forest areas.

Conclusion: the above are the main features and measures taken by the government for the protection of forest.

Compensatory Afforestation Fund (CAF) Bill, 2015

- The Forest Conservation Act (FCA), 1980 governs diversion or use of forest land for non-forest purposes such as industrial or infrastructure projects.
- A company diverting forest land must provide alternative land for taking up compensatory afforestation.
- The company should pay for planting new trees in the alternative land provided to the state.
- The loss of forest ecosystem must also be compensated by paying for Net Present Value (NPV) of forest.
- The CAF Bill, 2015 was introduced by the government in Lok Sabha on May 8, 2015 to regulate collected funds. The bill is presently under examination by a standing committee.

Deforestation

- a. Deforestation means the decreasing of forest area.
- b. In the last 50 years worlds had lost 3 billion hectors of forest area.
- c. Increasing of commercial need through forest damaging its area.
- d. The construction of dams and projects were the another threat to forest.
- e. In recent times the tribal population has been decreasing continuously.
- f. The severe deforestation results in the global warming.
- g. The rainfall pattern is also disturbed by the felling of forests.
- h. The damage of forest areas increases floods and droughts.
- i. It also effects the growth of medicines.
- j. So, the deforestation is not desirable to any country.

Desertification

- A. The increase of desert areas is called desertification.
- B. There is direct relationship between deforestation and desertification.
- C. It deforestation rises, desertification also rises.
- D. Desertification makes world agricultural land were converted into deserts.
- E. Lack of irrigation is also important for desertification
- F. According to UNEP – United Nations Environmental Programme, nearly 600 million people are effected by desertification.
- G. Conservation of forest and protection of environment are the two important measures to control desertification.

Unit 4 Minerals and Mining

Mineral and Use of Minerals

Mineral Meaning: A mineral is a natural substances of organic (or) inorganic origin. It provided definite chemical and physical properties. It involves a great deal of technological knowledge.

Minerals and mining: Minerals are clearly related with mining. Mining is the process where we extract the minerals from the soil. This type of industries are called Extractive industry. Here the raw material were extracted from the air, water and soil.

Effects of Mining:

1. Mining operation often pollute the atmosphere and water.
2. Mining activity can cause a destruction of land.
3. The severe use of mining will damage the farm land.
4. Blasting of rocks create noise pollution to the local residents.
5. Extraction requires huge amount of energy which leads to acid rain and global warming.

Use of Minerals:

1. It develops Industrial plants and Machinery.
2. It generates Non-renewable energy like coal, lignite, uranium etc.,
3. Minerals are helpful for the production of defense equipments like weapons, arms etc.,
4. Minerals are providing fertilizer and pesticide to the agricultural sector.
5. Minerals are useful for the productions of costly metals like Gold, Silver, Platinum, etc.,

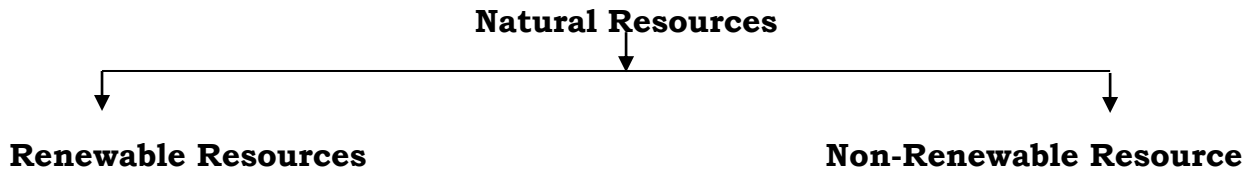
Some Major Mineral in India:

1. Coal and lignite are popular in west Bengal, Madhya Pradesh and Andhra Pradesh.
2. Uranium is popular in Jharkhand, Andhra Pradesh and Meghalaya.
3. Aluminum is popular in Maharashtra and Goa.
4. Iron is popular Karnataka, Orissa and Madhya Pradesh.
5. Copper is popular in Rajasthan, Uttarakhand and Bihar.

Conclusion: In order to Control pollution Government of India introduced Eco-friendly extraction of Minerals.

Renewable and Non-renewable resources of Energy

Natural Resources: The Resources which are available from nature is called Natural Resources. Natural Resources are important for the Agriculture and Industrial development. It plays a vital for the country's Economic Development. The following are the types of natural resources.



1. Renewable Energy Resources:

- a. The natural resources which can be used permanently are called Renewable resources.
- b. These resources cannot be decreased.
- c. They are not exhaustible.
- d. They have the capacity to regenerate themselves, within a short period.
- e. Their stock is not fixed.
- f. Renewable resources are also known as Non-conventional Resources (or) inexhaustible energy resource.

1. Wind Energy:

- The wind power is used to generate electricity.
- In India many sites are suitable for the wind generators.
- Gujarat, Andhra Pradesh, Kerala and Maharashtra are famous for wind energy.

2. Hydro power:

- Hydro power is based on water motion.
- Nearly 25% of world's electricity comes from hydro power.
- Himachal Pradesh, Uttar Pradesh and Arunachal Pradesh are famous for hydro power.

3. Solar Energy:

- The energy derived from sun is called solar energy.
- Solar energy is used for generating power.
- Solar energy are inexpensive and unlimited.

4. Others:

- **Biomass Energy.**
- **Biogas.**
- **Geo-Thermal Energy.**

2. Non – Renewable energy Resource:

- a. The natural resources which will exhaust by use are called Non-renewable resource.
- b. These resources will decrease.
- c. These resources are limited in nature.
- d. They are exhaustible.

- e. They cannot be regenerated.
- f. These resources will not be available for the future use.
- g. Non-renewable resources are also known as conventional resource (or) Exhaustible energy.

The following are some of the examples of non-renewable resource energy.

- 1. Coal**
- 2. LPG (liquid petrol and gas)**
- 3. Natural Gas**
- 4. CNG (compressed natural gas)**
- 5. SNG (synthetic natural gas)**
- 6. Nuclear Energy**

Singareni Coal Mines

- ✓ Singareni Coal Company was established in 1886.
- ✓ In 1948 it was Nationalized.
- ✓ The four main districts of this coal mines are Khammam, Karimnagar, Adilabad and Warangal.
- ✓ At present Singareni Collieries Company Limited (SCCL) are collectively owned by Central and State Government of Telangana.
- ✓ According to 2016 census 70,000 of workers were employed in this coal industry.
- ✓ In Singareni coal areas we can find the thick layers of mines.
- ✓ In the recent times the latest technology were updated in this company.
- ✓ Singareni coal mines can be treated as the mining hub of South-East..

Mangampeta Barites

- ★ Mangampeta is in YSR Kadapa District
- ★ It has one of the largest reserves of barytes mineral in the World
- ★ The barites reserves were discovered in 1960 and it has been mined since 1967
- ★ Here the mines are open pit type
- ★ Barites available in the upper layers are of lower grade while those mined from a depth are of higher grade
- ★ Quality is determined by the grain size of the stone
- ★ Upper layer barites are in grey colour while at lower levels it is white or cream white.
- ★ The barytes mines are the pride of APMDC as it earns huge profits from these mines.

Acid Rain

Acid rain means rainfall with a pH of less than 5.6. About 80% of oxides a of sulphur come from burning of fossil fuels. Sulphur trioxide on reaction with water produces sulphuric acid (H_2SO_4). This is the principal cause of acid rain.

Acid rain is essentially an outcome of aggressive industrialization in the developed countries. It is caused by both nature and human activities.

There are three main compounds that lead to the formation of acid rain.

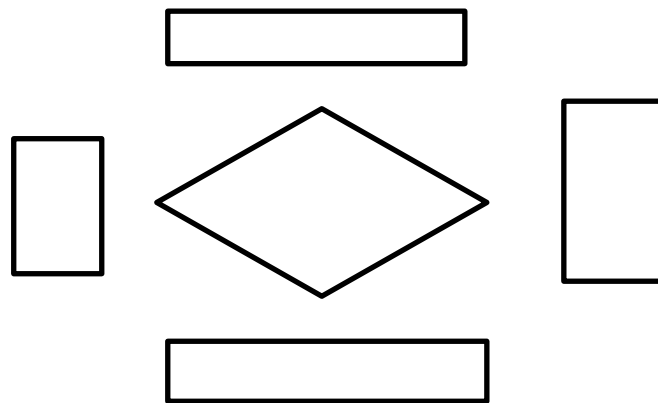
1. Oxides and other sulphur compounds
2. Chlorine and hydrochloric acid
3. Nitrogen compounds

Unit 5 Water Resources – Rivers

Water Resources

Importance:

- Water is an essential element of earth.
- Water is the basic survival element of all living creatures.
- Water is available only in the earth.
- So earth is called blue planet.
- Nearly 80% of earth's surface is covered by water.
- The coverage of water is in the form of oceans, lakes, rivers etc.
- Water is to be treated as free good.
- Water has a great use value.
- Water is essential for irrigation.
- Water is to be termed as the “heart of agriculture”.



1. Oceans:

- The oceans contain large part of the water.
- Nearly 97% of the water covered by oceans.
- The oceans contains 3 to 3.5 % of dissolved salts.
- The oceans are very deep with availability of sea animals.

2. Lakes and Rivers:

- The second largest store of water in the earth is rivers and lakes.
- The availability of water in the rivers depends on rainfall.
- Rivers are the main source of irrigation, drinking water etc.
- Rivers and lakes are helpful for the construction of dams and canals.

3. Glacier :

- A glacier is a moving mass of ice.
- Glacier occurs in very cold regions.
- Nearly one tenth of earth surface covered glaciers.
- The largest glacier in the world is “Antarctica’s glacier.”

4. Ground water:

- The water under the soil is called ground water.
- Ground water is few meters depth from the upper portion.
- The availability of ground water depends on the nature of soil

River system in India

Water Resource of India – Perennial Rivers and Peninsula rivers

Introduction: India is a land of rivers. It is blessed with hundreds of large and small rivers. The rivers are an important natural resource of our country. Rivers are the main source of drinking water, and irrigation facilities. The major projects were constructed on the banks of rivers. Some of them as follows.

- a. Bhakranangal Project - Sutlej River (Punjab)
- b. Hirakud Project – Mahanadi River (Orissa)
- c. Nagarjuna Project – Krishna River (Andhra Pradesh)
- d. Bias Project – Bias River (Himachal Pradesh)

Drainage System in India: The drainage pattern of India is influenced by the relief of land. On the basis of Origin, two broad drainage system of India are generally recognized.

- a. The Himalayan Rivers
- b. The peninsular Rivers.

a. The Himalayan Rivers: The Himalayan Rivers belong to the following three principal system. They are

- i. The Indus
- ii. The Ganga
- iii. The Brahmaputra

i. The Indus: The Indus rivers originates at manasarowar lake of Tibet. It enter Indian territory in Jammu and Kashmir. The main tributaries of the Indus in India are Jhelum, Chenab, Ravi, Bias, and Sutlej. It covers Jammu and Kashmir, Punjab and Himachal Pradesh States of India.

ii. The Ganga: The Ganga rivers originates at Garhwali Himalayas of Uttarakhand. This river acquires its name after its head –streams i.e., Alakananda and Bhagirathi unite out in Devaprayag. Ganga has the maximum number of Tributaries in our country. Some of them are Yamuna, Ghaghara, gandak and Kosi etc.,

iii. The Brahmaputra: The Brahmaputra river rises from the chemyungdung glacier of manasarowar. The Brahmaputra can be known as Tsangpo in Tibet. The joining point of Brahmaputra and Ganga is become the world larges delta. The tributaries of Brahmaputra river are Dibend, luhit, Manas and sherali etc.,

b. The peninsular Rivers:

- The main rivers of the peninsular plateau originate from the Western Ghats and join to the Bay of Bengal.
- The important rivers are Mahanadi, Godavari, Krishna, Kaveri, Narmada, Tapti , Betwa and ken etc
- All the rivers except Narmada and Tapti flow from west to east.

- The Chambal, Betwa, Ken and Son were originated in the northern part of Peninsular.
- The Godavari is the largest peninsular river system.
- The Narmada and Tapti join at the Gulf of Khambhat.

Peninsular Rivers

Introduction:

- Peninsular rivers are the oldest rivers of India.
- The major part of the western ghats is covered by peninsular rivers.
- Peninsular rivers flow from Bay of Bengal and join into the Arabian Sea.
- The Godavari is the largest peninsular river system.
- The following are some of the major peninsular rivers,

1. The Godavari :

- It is the largest peninsular river system of India.
- The Godavari is also called the Dakshin Ganga.
- It starts from the Nashik district of Maharashtra.

2. The Krishna :

- It is the second largest peninsular river system of India.
- It starts from Mahabaleshwar in Sahyadri.
- The total length of Krishna river is 1,401 km.

3. The Mahanadi :

- Mahanadi river starts from the Raipur district of Chhattisgarh.
- It is 851 km long and 1.42 lakh sq.km expanded.

4. The Kaveri :

- The Kaveri river starts from the Kogadu district of Karnataka.
- The total area covered by the Kaveri river is 85,155 sq. Km.

5. The Narmada:

- The Narmada river flows from west to east.
- It lies between Satpura and Vindhyan ranges.

6. The Tapti:

- The Tapti river also flows from west to east.
- It starts from the Betul district of Madhya Pradesh.
- The total area covered by the Tapti river is 65,145 sq.km.

7. The Luni:

- The Luni is the largest river of Rajasthan and west of Aravali.
- The entire river system is ephemeral (short).

Perennial Rivers

1. Introduction:

- The Himalayan Rivers are perennial rivers.
- It consist of Indus, Ganga and Brahmaputra.
- All these rivers originated from the same region with little distance.
- These rivers first flow parallel to the mountains and then bend towards to the south.
- The following are some of the important perennial rivers.

1. The indus system:

- The Indus originates in the northern slope of Kailas range in Tibet.
- The main tributaries of Indus are Jhelum, Chenab, Ravi, Beas and Sutlej.
- It covers Jammu & Kashmir, Punjab & Himachal Pradesh.

2. The Ganga system:

- The Ganga has twin glaciers.
- The first one is Gangothri and the second one is satopanth Glaciers.
- The Ganga river has a large number of tributaries.

3. The Brahmaputra:

- The Brahmaputra system raises from the chemayungdung glaciers of Kailas range.
- It flows eastwards through southern Tibet.
- The Brahmaputra is also known as Tsangpo in Tibet.