
Study Material

Short Notes

Class X

Subject: Geography

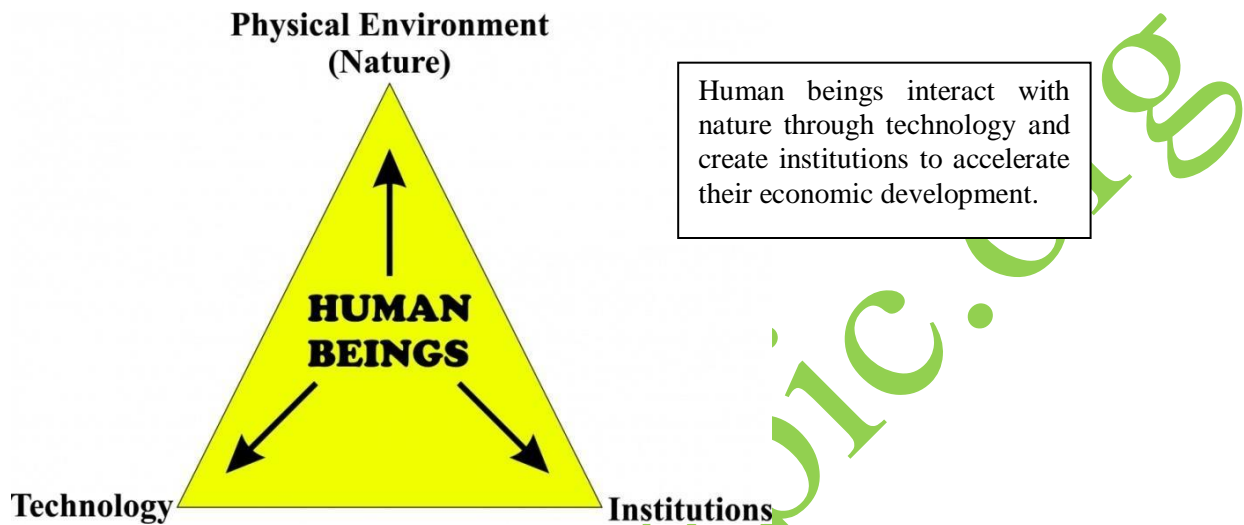
Chapter : 1- Resource & Development

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Objectives and Goals:

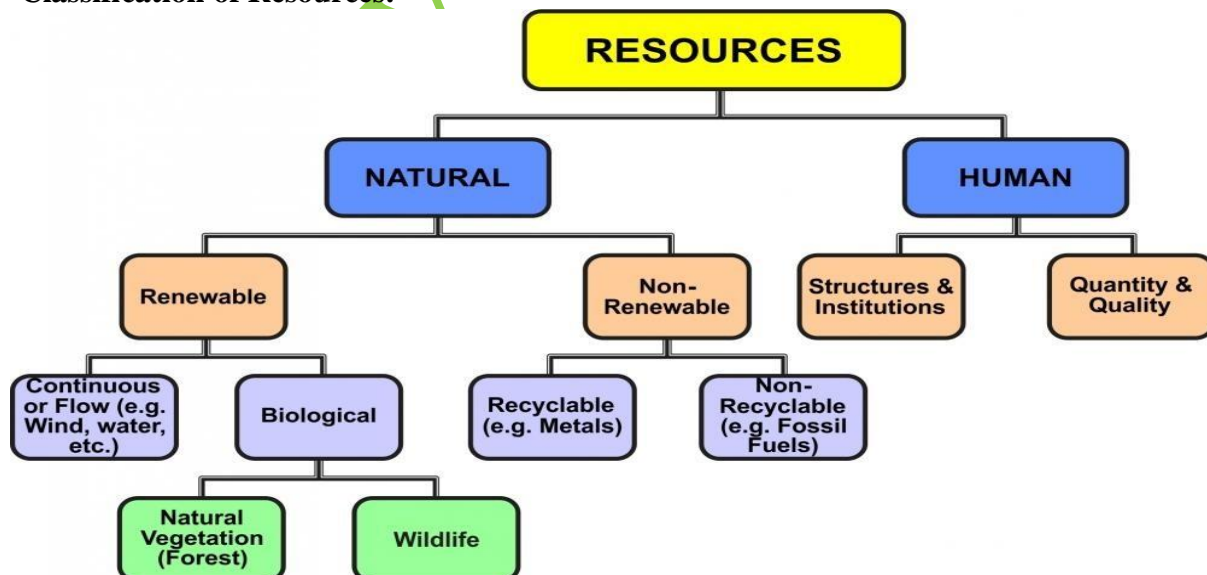
1. Define Resources.
2. Interdependent relationship between Nature, Technology and Institution.
3. Classification of Resources.
4. Resources classified on the basis of Origin – Biotic & Abiotic.
5. Resources classified on the basis of Exhaustibility – Renewable & Non-Renewable.
6. Resources classified on the basis of Ownership – Individual, Community, National & International.
7. Resources classified on the basis of Status of Development – Potential, Developed, Stock & Reserve.
8. Development of Resources.
9. Sustainable Development.
10. Rio de Janeiro Earth Summit, 1992 and Agenda 21.
11. Resource Planning in India.
12. Conservation of Resources.
13. Land Resource, Land Utilization and Land use pattern in India.
14. Land Degradation and Conservation Measures.
15. Soil as a Resource.
16. Classification of Soil (i.e. Alluvial Soil, Black Soil, Red & Yellow Soil, Laterite Soil, Arid Soil, Forest Soil).
17. Soil Erosion and Soil Conservation.

Interdependent relationship between Nature, Technology and Institution.



Resource: Everything available in our environment which can be used to satisfy our needs, provided, it is technologically accessible, economically feasible and culturally acceptable can be termed as "Resource".

Classification of Resources:



1. On the basis of Origin of Resources: (a) Biotic (b) Abiotic

(a) **Biotic Resource:** All living things are known as Biotic Resources. These resources are obtained from the Biosphere and they have life, such as – Human Beings, Flora, Fauna, fisheries, etc.

(b) **Abiotic Resource:** All non-living things are known as Abiotic Resources, such as Wind, Water, Air, Rocks, Metals, etc.

2. On the basis of Exhaustibility of Resources: (a) Renewable (b) Non-Renewable

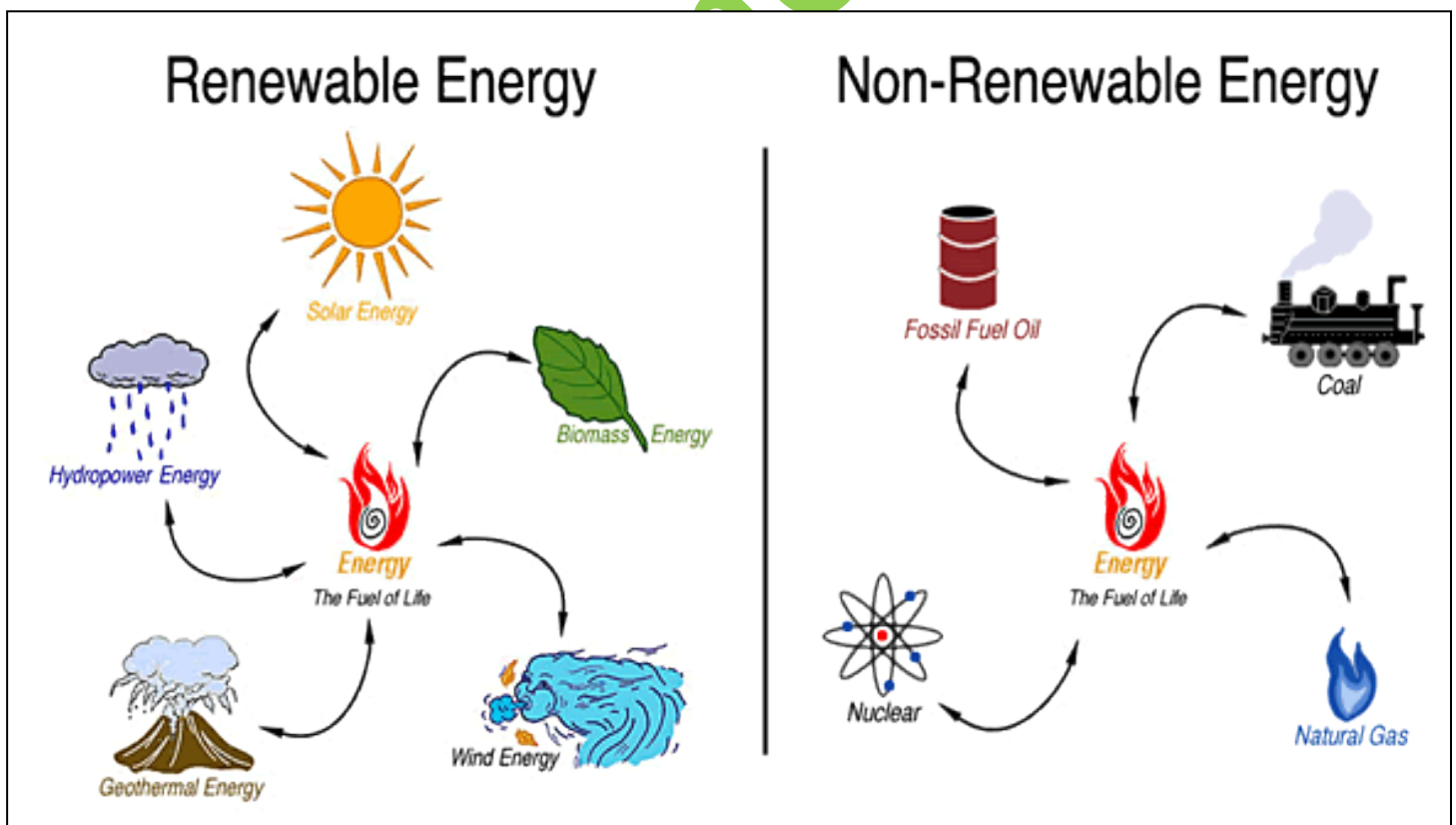
(a) **Renewable Resource:** Resources which can be renewed or reproduced by physical, chemical or mechanical process are known as Renewable or Replenishable Resource. E.g. Solar & Wind energy, Water, etc.

Renewable resources are further classified into continuous or flow.

Many resources are replenishable which means these resources are recycled within the environment by natural process and their quantities remain constant. E.g. Oxygen Cycle and Water Cycle take place rapidly, whereas e.g. like Rock Cycle is very slow.

(b) **Non-Renewable Resource:** Fossil Fuels like, coal, petroleum, natural gas are the best examples of non-renewable resource. These resources are limited in supply and it takes millions of years in their formation.

Metals like Gold, Silver, Copper and Iron are recyclable.



3. On the basis of Ownership of Resources: (a) Individual (b) Community (c) National (d) International

(a) **Individual Resource:** Resources which are owned by an individual. E.g. plot, car, house, etc.

(b) **Community Resource:** Resources which belongs to a community of people. E.g. parks, community halls, picnic spots, etc.

(c) **National Resource:** Resources which belongs to a nation. These resources are found within the political boundaries and territorial waters (i.e ocean water upto 12 nautical miles (22.2 kms) from the coast of a country. E.g. rivers, forests, minerals, etc.

The country has legal powers to acquire private property to facilitate public.

(d) **International Resource:** Resources which are found beyond the territorial boundaries of a country. These resources are managed by the international institutes. No single country can use these resources without the permission of the international authorities. E.g. Minerals, fisheries, etc.

4. On the basis of Distribution of Resources: (a) Ubiquitous (b) Localised

(a) **Ubiquitous Resource:** Resources which are found everywhere are called ubiquitous resource. E.g. air, land, water, etc.

(b) **Localised Resource:** Resources which are found only in certain places are localised resources, like coal, petrol, iron, etc.

5. On the basis of Stage of Development of Resources: (a) Actual or Developed Resource (b) Potential Resource
(c) Reserves (d) Stock

(a) **Actual or Developed Resource:** Resources whose existence has been proved and whose quality, quantity and location has been determined for utilization with the available technology.

(b) **Potential Resource:** Resources which are found in a region but have not been utilized, might be because of the lack of technology. They can be used in future. E.g. Solar and Wind are potential resource. Rajasthan and Gujarat have great potential for the development of these two resources.

(c) **Reserves:** Resources which can be put into use with the help of the existing technology but

their use has not been started. They can be used in future. E.g. more rivers can be used for generating electricity.

(d) **Stocks:** Reserves which have the potential to satisfy the human needs but we don't have the technology to access it.

Development of Resources:

Resources are the free gifts of nature and are very important for human beings. Some of the problems faced are:

- Depletion of resources for satisfying the greed of few individuals.
- Accumulation of resources in only few hands leaves others unsatisfied.
- Unsystematic use of resources is creating many problems around the world, such as global warming, ecological crisis, disturbance in ozone layer, etc.

Sustainable Development:

Development which should take place without damaging the environment and compromising with the needs of the future generations is called sustainable development.

Rio de Janeiro Earth Summit, 1992:

- In June 1992, more than 100 heads of states met in Rio de Janeiro in Brazil, for the first International Earth Summit.
- The Summit was organized for addressing urgent problems of environmental protection and socio-economic development.
- The assembled leaders signed the Declaration on Global Climatic Change and Biological Diversity.
- The Rio Convention endorsed the global Forest Principles and adopted Agenda 21 for achieving Sustainable Development in the 21st century.

Agenda 21:

- It aims at achieving global sustainable development.
- It is an agenda to combat environmental damage, poverty, disease through global co-operation on common interests, mutual needs and shared responsibilities.
- One major objective of the Agenda 21 is that every local government should draw its own local Agenda 21.

Resource Planning:

- Resource planning is the judicious use of resources.

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- In India, resources are unevenly distributed and thus resource planning becomes very essential.
 - In India, many states are rich in mineral and deficient in other resources, such as Jharkhand is rich in minerals, but there is problem of drinking water and other facilities, Arunachal Pradesh has plenty of water but lack of other development because of lack of resources.
 - These types of discriminations can be reduced or completely eradicated with proper planning of judicious use of resources.

Resource Planning in India:

- In order to get the maximum output, a good resources planning is must keeping in mind the technology, skills and institutions.
- Since independence "Five Year Plans" have played a vital role in planning and development of the resources.

Following are the main points of Resource planning.

- (a) Identification of resources across the country.
- (b) Proper planning structure with appropriate technology, skill and institutions.
- (c) Matching the resource development plans with overall development plans.

Conservation of Resources:

- Irrational consumption and over-utilization of resources have lead to socio-economic and environmental problems.
- Judicious use and conservation of resources is must. Gandhiji told "There is enough for everybody's need and not for any body's greed." He thought that exploitative nature of modern technology is the root cause for depletion at global level. He believed in the production by masses and not in the mass production.

Land Resources:

- Land is one of the most important natural resources.
- Land supports our life system with the basic necessities of life (i.e. food, cloth and shelter). Thus, proper planning is must for the proper utilization of land as a resource.
- Land is not even everywhere, India comprises of many types of land forms (i.e mountains, plateau, plains and islands).

Plain: About 43% of land area in India is in the form of plains. Plains provide facilities for agriculture, building of industries and houses, etc.

Mountains: About 30% of land area in India is in the form of mountain. Mountain supports the perennial flow of rivers, which carry fertile soils, facilitate irrigation and provide drinking water.

Plateau: About 27% of land in India is in the form of plateau which provides many types of minerals, fossil fuels and forest.

Land Utilization:

Land Resources are used for following purposes:

1. Forests
2. Land not available for cultivation:
 - (a) Barren and waste land.
 - (b) Lands used for buildings, roads, factories, etc. (i.e. for non-agriculture purpose).
3. Other Uncultivated Land (excluding fallow land):
 - (a) Permanent pastures and grazing land.
 - (b) Land under miscellaneous tree crops groves (not included in net sown area).
 - (c) Culturable waste land (left uncultivated for more than 5 agricultural years).
4. Fallow Lands:
 - (a) Current fallow-(left without cultivation for one or less than one agricultural year).
 - (b) Other than current fallow-(left uncultivated for the past 1 to 5 agricultural years).
5. Net Sown Area: Area which is sown at least once in a year is called net sown area.
6. Gross Cropped Area: Area sown more than once in an agricultural year plus net sown area is known as gross cropped area.

Land Use Pattern in India:

- Pattern of use of land depends upon physical and human factors both.
- Climate, topography, type of soil, etc. are considered as physical factors.
- While population, technology, skill, population density, tradition, capability, etc. are considered as human factors.
- India has total 3.28 million square kilometer land used data. But only 93% of land of total geographical area is available. This is because land used data has not been collected for the north eastern states except Assam and the land occupied by Pakistan and China has not been surveyed because of many unavoidable reasons.
- The land under permanent pasture is decreasing; this will create the problem for grazing.
- The total net sown area (NSA) is not more than 54% including land other than fallow land.
- Land other than fallow land is either of poor quality or too costly to cultivate, these lands are cultivated only once or twice in two or three consecutive years.
- The pattern of net sown area varies widely from state to state. Where net sown area is 80% in state like Punjab, it is only 10% in the state of Arunachal Pradesh, Mizoram, Manipur and Andaman and Nicobar Island. Such difference is creating lot of discrimination.

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- According to National Forest Policy (1952), the forest should be 33% of total geographical area, which is essential to maintain ecological balance. But the forest area in India is far less than desired measures. This is because of illegal deforestation and development which cannot be overlooked, such as construction of roads and building, etc.
 - On the other hand, a large population which is dwelling at the edge of forest depends upon the forest and its produce, resulting in the reduction of forest area.
 - Moreover, continuous use of land over a long period without taking measures to conserve and manage, degrade them. This has led to serious problem to environment.

Land Degradation & Conservation

- Land is limited but the demand is increasing everyday.
- The change in land use pattern shows the changes in the society.
- Land Degradation: It is the decline in the productive capacity of land for some time or permanently.
- Most of our basic needs (i.e. food, clothing & shelter) is obtained from land.
- But in past few decades the quality of land is degrading fiercely because of human activity.
- Presently, about 130 million hectare of land is reported under degraded land in India.
- Approximately, 28% of land belongs to forest degraded area.
- 56% is water eroded land area.
- Rest degraded land is because of over deposition of salinity and alkalinity.
- Overgrazing, mining, deforestation, division of lands in small area because of family disputes, etc. are some of the major causes of degradation of land.
- In the states of Jharkhand, Chhattisgarh, Orissa and Madhya Pradesh along with mining, deforestation in these states has degraded the land very fast.
- In the states of Gujarat, Rajasthan, Madhya Pradesh, Maharashtra overgrazing is the major cause of land degradation.
- In the states of Uttar Pradesh, Punjab, Haryana, over irrigation causes water shortage and increase in salinity and alkalinity due to water logging.
- In Bihar, Assam, Arunachal Pradesh, land is degraded because of flood.
- The degradation of land creates many problems, such as flood, decrease in yield, etc. which leads to decrease in GDP and country has to face economic problems.

Land Degradation & Conservation

Common causes of land degradation are:

1. Deforestation
2. Overgrazing

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3. Urbanization
 4. Industrialization
 5. Dumping of Chemical Wastes
 6. Excessive use of Fertilizers
 7. Bad Farming Techniques

Some of the measures to control land degradation are:

1. Constructing retention walls in the mountain areas to stop landslides.
2. Land Reclamation (i.e. Proper management of waste lands)
3. Regulated use of chemical fertilizers and pesticides
4. Afforestation
5. Check on Overgrazing
6. Control of Mining Activities
7. By proper irrigation.
8. By proper harvesting.
9. Discharge of industrial waste and effluents only after proper treatment.
10. By preventing the deforestation.

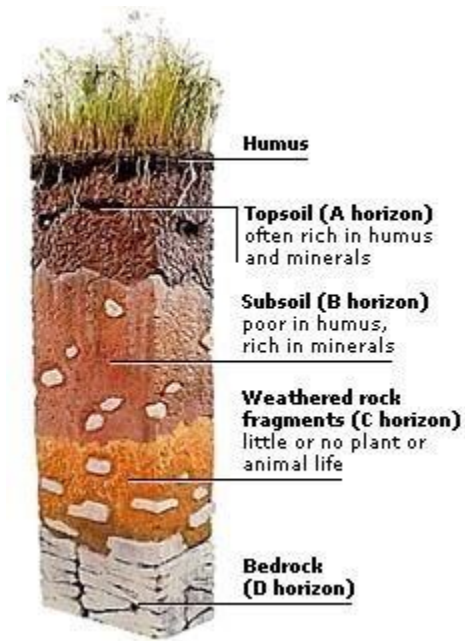
SOIL

- The uppermost or topmost layer of the earth's crust is known as soil. It is the loose material consisting of organic and inorganic substances.
(Humus is a dark coloured stable form of organic matter that remains after most of plant or animals residues have decomposed).
- Most of the food items like wheat, rice, pulses, fruits, vegetables, etc. are obtained from plants that grow on soil. Soil provides food, cloth and shelter, etc.

Factors of Soil Formation:

1. Relief: Altitude and slope determines the accumulation of soil.
2. Parent Rock: It determines, colour, texture, chemical properties, mineral contents, etc.
3. Climate: Rainfall and temperature influence rate of humus and weathering.
4. Time: It determines thickness of soil profile.
5. Organisms: Microorganisms & vegetation affect the rate of humus formation.

Soil Profile:



Soil profile refers to the different layers of the soil. There are four different layers:

1. Top soil
2. Sub Soil
3. Weathered Rock
4. Bed Rock or Parent Rock

1. Top Soil:

- It is the uppermost layer.
- Rich in humus and minerals.
- Consists of Sand, Silt & Clay.

2. Sub Soil:

- It lies below the top soil and supports moisture.
- Consists of weathered rock, Silt & Clay and some nutrients.

3. Weathered Rock

4. Bed Rock:

- Consists of solid layer of unweathered Rock.

Classification of Soil:

Soils are classified on the basis of colour, texture, fertility, mineral content, etc. Broadly, soil is classified into six types: -

1. Alluvial Soil
2. Black Soil
3. Red & Yellow Soil
4. Laterite Soil
5. Arid Soil
6. Forest Soil

1. Alluvial Soil:

- It is the most important and most fertile type of soil found in India covering about 40 per cent of the total land area.
- Soil is formed by the deposition of sediments brought down by the rivers.
- The alluvial soil is found mostly in the Northern Plains and Coastal Plains of India (Particularly deltas of Mahanadi, Godavari, Krishna and Kaveri).
- The fine particles of sand, silt and clay are called alluvium. The alluvial soil can be divided into old alluvium, also called Bangar, and new alluvium, called Khadar.
- Alluvial soil has adequate proportion of potash, phosphoric acid and lime which is ideal for the growth of sugarcane, paddy, wheat, etc.
- Regions of Alluvial soil are intensively cultivated and are densely populated.

2. Black Soil:

- The black soil is also called the Regur Soil or the Black Cotton Soil. Cotton grows best in this soil.
- Black soil is formed from the weathering of the igneous rocks.
- The black soil is mostly found in the Deccan Trap, covering large areas of Maharashtra, Chhattisgarh, Gujarat and Madhya Pradesh. It is also found in some parts of Godavari and Krishna river valleys, covering parts of Karnataka, Andhra Pradesh and Tamil Nadu.
- Black soil has high concentration of fine particles and thus can hold moisture for long time.
- It contains calcium carbonate, potassium, magnesium and lime.
- This soil is poor in phosphoric contents.

3. Red & Yellow Soil:

- Red soil is derived from the weathering of the igneous and metamorphic rocks. It is found in the areas of low rainfall.
- The red colour is due to the high percentage of iron contents.

- Red & Yellow soils are found in the parts of Odisha, Chhattisgarh Ganga plain and Western Ghats. It is also found in the southern and eastern parts of the peninsular plateau.

4. Laterite Soil:

- Laterite has been derived from a Latin word called "Later" which means Brick.
- The laterite soil is widely spread areas with high temperature and rainfall. This causes leaching of the soil and microorganisms are killed during the process.
- This soil is mainly found in Kerala, Karnataka, Tamil Nadu, Madhya Pradesh and in hilly areas of Orissa and Assam.
- Due to intensive leaching, the laterite soil generally lacks fertility and is of low value for crop production. But when manured and timely irrigated, the soil is suitable for producing plantation crops like tea, coffee, rubber, coconut, etc.

Leaching is a process in which heavy rains wash away the fertile part of the soil.

5. Forest Soil:

- The Forest soil is generally found on the hill slopes covered with forests.
- This type of soil is found in the Himalayan region, the Western and Eastern Ghats and in some parts of the Peninsular India.
- Soil is loamy and silty in valley sides and coarse grained in the upper slopes.
- This soil is rich in humus, but poor in potash, phosphorus and lime.
- This soil is especially suitable for producing plantation crops, such as tea, coffee.

6. Arid Soil:

- The Arid soil is found mostly in the arid and semi-arid regions, receiving less than 50 cm of annual rainfall.
- Soil colour ranges from red to brown.
- Sandy in texture and saline in nature.
- Soil lacks in humus and moisture.
- The lower layer of the soil is occupied by Kankar because of increasing calcium content downwards.
- Such regions are mostly found in Rajasthan and the adjoining areas of Haryana and Punjab. The Rann of Kachchh in Gujarat is an extension of this region.
- The desert soil has sand (90 to 95 per cent) and clay (5 to 10 per cent).

SOIL EROSION AND SOIL CONSERVATION

- The denudation of the soil cover and subsequent washing down is described as soil erosion.

Or

- Removal of top soil is called soil erosion.
- The running water cuts through the clayey soil and makes deep channels known as Gullies.
- The land becomes unfit for cultivation and is known as Bad Land.

DEGRADATION OF SOIL

- Soil erosion is the degradation of soil by human activities.
- Following are the factors responsible for the soil erosion: -
 1. Deforestation
 2. Overgrazing
 3. Construction
 4. Overuse of Chemical Fertilizers
 5. Pesticides
 6. Natural Calamities (Flood, landslides, etc.)

CONSERVATION OF SOIL

- Soil conservation means protection, preservation and proper utilization of the soil.
- Some methods of soil conservation are: -
 1. **Mulching:** Bare ground between plants is covered with a layer of organic matter like straw. It helps to retain soil moisture.
 2. **Contour Ploughing:** Ploughing along contours can decrease the flow of water down the slopes.
 3. **Terrace Cultivation:** Steps can be cut out on the slopes making terraces.
 4. **Strip Cropping:** Strips of grass are grown between the crops. This breaks the force of wind.
 5. **Shelter Belts:** Rows of trees are planted to create shelter. Thus, the speed of wind is reduced.
 6. **Rock Dam:** Rocks are piled to slow the speed of wind.
 7. **Contour Barriers:** Stones, grass, soil are used to make barriers. Trenches are made in front of the barriers to collect water.
 8. **Afforestation, Crop Rotation, Control over Deforestation and Overgrazing,** etc.

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