

Chapter 1: Resources and Development

Class 10 Geography Comprehensive Notes

1 Introduction to Resources

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 a **Resource**.

The process of transformation of things available in our environment involves an interdependent relationship between **nature**, **technology**, and **institutions**. Human beings interact with nature through technology and create institutions to accelerate their economic development. Human beings themselves are essential components of resources as they transform material available in our environment into resources and use them.

2 Classification of Resources

Resources can be classified in the following ways:

2.1 On the Basis of Origin

- **Biotic Resources:** These are obtained from the biosphere and have life such as human beings, flora and fauna, fisheries, livestock, etc.
- **Abiotic Resources:** All those things which are composed of non-living things are called abiotic resources. Examples: rocks, metals, land, and water.

2.2 On the Basis of Exhaustibility

- **Renewable Resources:** Resources which can be renewed or reproduced by physical, chemical, or mechanical processes are known as renewable or replenishable resources. Examples: solar and wind energy, water, forests, and wildlife.
- **Non-Renewable Resources:** These occur over a very long geological time. Minerals and fossil fuels are examples of such resources. They take millions of years in their formation. Some of the resources like metals are recyclable, and some like fossil fuels cannot be recycled and get exhausted with their use.

2.3 On the Basis of Ownership

- **Individual Resources:** These are also owned privately by individuals. Examples: plots, houses, pasture lands, ponds, water in wells owned by individuals.
- **Community Owned Resources:** There are resources which are accessible to all the members of the community. Examples: village commons (grazing grounds, burial grounds), public parks, picnic spots, playgrounds in urban areas.
- **National Resources:** Technically, all the resources belong to the nation. The country has legal powers to acquire even private property for public good. All the minerals, water resources, forests, wildlife, land within the political boundaries, and oceanic area up to 12 nautical miles (22.2 km) from the coast termed as territorial water and resources therein belong to the nation.

- **International Resources:** There are international institutions which regulate some resources. The oceanic resources beyond 200 nautical miles of the Exclusive Economic Zone belong to open ocean, and no individual country can utilize these without the concurrence of international institutions.

2.4 On the Basis of Status of Development

- **Potential Resources:** Resources which are found in a region but have not been utilized. Example: The western parts of India particularly Rajasthan and Gujarat have enormous potential for the development of wind and solar energy, but so far these have not been developed properly.
- **Developed Resources:** Resources which are surveyed and their quality and quantity have been determined for utilization. The development of resources depends on technology and level of their feasibility.
- **Stock:** Materials in the environment which have the potential to satisfy human needs but human beings do not have the appropriate technology to access these. Example: Water is a compound of two inflammable gases; hydrogen and oxygen, which can be used as a rich source of energy, but we do not have the required technical 'know-how'.
- **Reserves:** These are the subset of the stock, which can be put into use with the help of existing technical 'know-how' but their use has not been started. These can be used for meeting future requirements.

3 Development of Resources

Resources are vital for human survival as well as for maintaining the quality of life. Indiscriminate use of resources by human beings has led to the following major problems:

1. Depletion of resources for satisfying the greed of a few individuals.
2. Accumulation of resources in a few hands, which, in turn, divided the society into two segments i.e., haves and have-nots or rich and poor.
3. Indiscriminate exploitation of resources has led to global ecological crises such as global warming, ozone layer depletion, environmental pollution, and land degradation.

3.1 Sustainable Development

Sustainable economic development means “development should take place without damaging the environment, and development in the present should not compromise with the needs of the future generations.”

3.2 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 convened for addressing urgent problems of environmental protection and socio-economic development at the global level. 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.

3.3 Agenda 21

It is the declaration signed by world leaders in 1992 at the United Nations Conference on Environment and Development (UNCED). Its aim is to achieve global sustainable development. It is an agenda to combat environmental damage, poverty, disease through global cooperation 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.

4 Resource Planning

Planning is the widely accepted strategy for judicious use of resources. It has importance in a country like India, which has enormous diversity in the availability of resources.

4.1 Resource Planning in India

Resource planning is a complex process which involves:

- (i) **Identification and inventory of resources** across the regions of the country. This involves surveying, mapping, and qualitative and quantitative estimation and measurement of the resources.
- (ii) **Evolving a planning structure** endowed with appropriate technology, skill, and institutional setup for implementing resource development plans.
- (iii) **Matching the resource development plans** with overall national development plans.

4.2 Conservation of Resources

Irrational consumption and over-utilization of resources may lead to socio-economic and environmental problems. To overcome these problems, resource conservation at various levels is important. *Gandhiji was very apt in voicing his concern about resource conservation in these words: "There is enough for everybody's need and not for any body's greed."* He placed the greedy and selfish individuals and exploitative nature of modern technology as the root cause for resource depletion at the global level. He was against mass production and wanted to replace it with the production by the masses.

5 Land Resources

Land is a natural resource of utmost importance. It supports natural vegetation, wildlife, human life, economic activities, transport, and communication systems. However, land is an asset of a finite magnitude.

Relief Features of India:

- **Plains (43%):** Provide facilities for agriculture and industry.
- **Mountains (30%):** Ensure perennial flow of some rivers, provide facilities for tourism and ecological aspects.
- **Plateaus (27%):** Possess rich reserves of minerals, fossil fuels, and forests.

5.1 Land Degradation and Conservation Measures

Human activities have not only brought about degradation of land but have also aggravated the pace of natural forces to cause damage to land.

- **Causes of Land Degradation:** Mining (leaves deep scars and traces of over-burdening), Overgrazing (in states like Gujarat, Rajasthan, MP), Over-irrigation (waterlogging leading to increase in salinity and alkalinity in Punjab, Haryana, Western UP), Mineral processing (generates huge quantities of dust).
- **Conservation Measures:** Afforestation, proper management of grazing, planting of shelterbelts of plants, control on overgrazing, stabilization of sand dunes by growing thorny bushes, proper management of wastelands, control of mining activities.

6 Soil as a Resource

Soil is the most important renewable natural resource. It is the medium of plant growth and supports different types of living organisms on the earth.

6.1 Classification of Soils in India

- **Alluvial Soils:** The most widely spread and important soil. The entire northern plains are made of alluvial soil. These have been deposited by three important Himalayan river systems—the Indus, the Ganga, and the Brahmaputra. According to their age, alluvial soils can be classified as **Bangar** (old alluvial, higher concentration of kanker nodules) and **Khadar** (new alluvial, more fine particles and more fertile).
- **Black Soils:** Also known as regur soils. Black soil is ideal for growing cotton and is also known as black cotton soil. Found in the Deccan trap (Basalt) region spread over northwest Deccan plateau and is made up of lava flows. They are rich in soil nutrients, such as calcium carbonate, magnesium, potash, and lime, but poor in phosphoric contents. They develop deep cracks during hot weather.
- **Red and Yellow Soils:** Red soil develops on crystalline igneous rocks in areas of low rainfall in the eastern and southern parts of the Deccan plateau. These soils develop a reddish color due to diffusion of iron in crystalline and metamorphic rocks. It looks yellow when it occurs in a hydrated form.
- **Laterite Soils:** Develops in areas with high temperature and heavy rainfall. This is the result of intense leaching due to heavy rain. Humus content of the soil is low because most of the microorganisms, particularly the decomposers, like bacteria, get destroyed due to high temperature. Suitable for cultivation with adequate doses of manures and fertilizers.
- **Arid Soils:** Range from red to brown in color. They are generally sandy in texture and saline in nature. Due to the dry climate, high temperature, evaporation is faster and the soil lacks humus and moisture. The lower horizons of the soil are occupied by Kankar because of the increasing calcium content downwards.
- **Forest Soils:** Found in the hilly and mountainous areas where sufficient rain forests are available. The soils texture varies according to the mountain environment where they are formed. They are loamy and silty in valley sides and coarse grained in the upper slopes.

6.2 Soil Erosion and Soil Conservation

The denudation of the soil cover and subsequent washing down is described as **soil erosion**. The processes of soil formation and erosion go on simultaneously, and generally, there is a balance between the two. Sometimes, this balance is disturbed due to human activities like deforestation, over-grazing, construction, and mining.

Types of Soil Erosion:

- **Gully Erosion:** The running water cuts through the clayey soils and makes deep channels as gullies. The land becomes unfit for cultivation and is known as bad land (e.g., ravines in the Chambal basin).
- **Sheet Erosion:** Sometimes water flows as a sheet over large areas down a slope. In such cases, the topsoil is washed away. This is known as sheet erosion.
- **Wind Erosion:** Wind blows loose soil off flat or sloping land known as wind erosion.

Soil Conservation Methods:

- **Contour Ploughing:** Ploughing along the contour lines can decelerate the flow of water down the slopes.
- **Terrace Farming:** Steps can be cut out on the slopes making terraces. Terrace cultivation restricts erosion (common in Western and Central Himalayas).
- **Strip Cropping:** Large fields can be divided into strips. Strips of grass are left to grow between the crops. This breaks up the force of the wind.
- **Shelter Belts:** Planting lines of trees to create shelter also works in a similar way to break the force of the wind and stabilize sand dunes.

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