RESOURCES & DEVELOPMENT

CHAPTER COVERAGE

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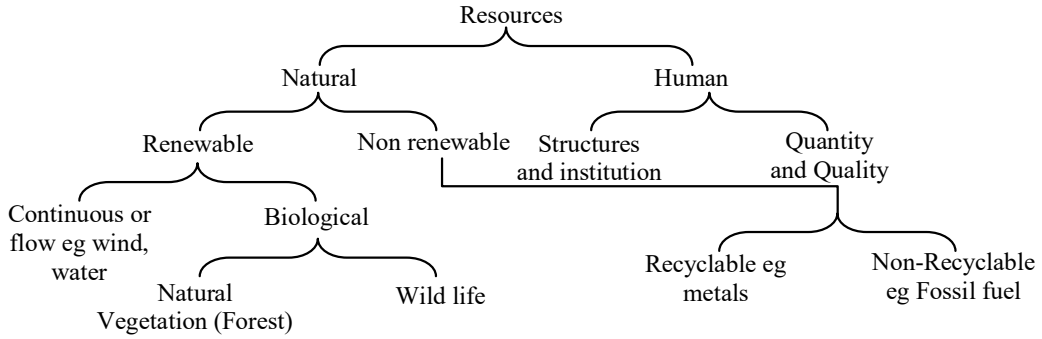
Definition Resources

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 Resource.



(a) Importance of Resources :

(i) Resources form the backbone of the economy of the nation.

(ii) Resources form the base for economic strength & prosperity.

(iii) By utilising natural resources, humans have created their own world of living.

(b) Characteristics :

(i) Resources have utility.

(ii) Resources are normally available in limited quantity.

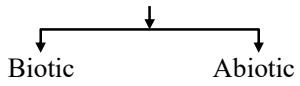
(iii) Man has to make efforts to get utility from the resources.

(iv) Resources help us to create goods or provide services.

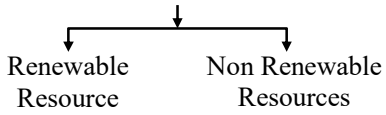
(v) Utility of a resource or its usability changes with improvement in science and technology.

➢ Types of Resources or Classification of Resources

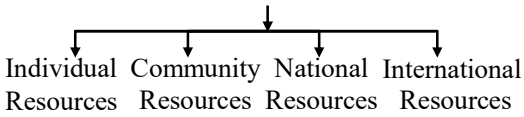
1. On the basis of origin :



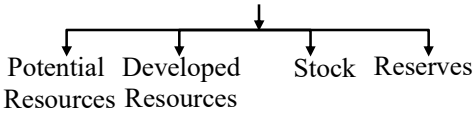
2. On the basis of exhaustibility :



3. On the basis of ownership :



4. On the basis of state of development :



◈ On the Basis of Origin

(A) Biotic : All those resources which are obtained from biosphere and have life are known as biotic resources. eg. Human beings, flora, fauna etc. are example of renewable biotic resources.

(B) Abiotic : All those resources which are composed of non living things are called abiotic resources. They can be renewable as well as non renewable resources.

Example :

1. Renewable abiotic resource - Land, Water.
2. Non renewable abiotic resource - Iron, Bauxite.

◈ On the Basis of Exhaustibility

(A) Renewable Resources : Those resources that can be used again and again or can be reproduced by physical, mechanical and chemical processes.

Example : Solar energy, air, water, soil, forest & wild life.

(B) Non-Renewable Resources : Those resources that can not be replaced at all.

1. They take millions of years to form.
2. They occur over a long geological time.
3. It is divided into Recyclable and Non Recyclable Resources.
4. Metals and Fossil fuels are non renewable resources. However metals are Recyclable but fossil fuels are non- recyclable.

◈ On the Basis of Ownership

(A) Individual Resources : Resources which are owned by private individuals are known as individual resources.

Examples : Plot, Fields, House, Car, Book etc.

(B) Community Resources : Resources which are owned by all members of the community.

Example : village pond, public parks, play ground etc.

(C) National Resources : All the resources which are under the control of state or union government.

Example : All mineral resources, like water, land, forest and wild life.

(D) International Resources : These are international institutions that control all areas which do not belong to any individual country.

Example : Area beyond the exclusive economic zone belong to the open ocean & no individual country can utilize this area without the permission of international institutions.

◈ On the Basis of Development

(A) Potential Resources : Resources which are found in a region but have not been utilised due to lack of capital or other reasons.

Example : Rajasthan and Gujarat have enormous potential for the development of wind and solar energy, but so far these have not been developed properly.

(B) Developed Resources : Resources which have been surveyed and their quality and quantity have been determined for utilisation. Example : Coal resource of India.

(C) Stock : These are the material in the environment which have the potential to satisfy the human needs but could not be used due to lack of appropriate technology. Example : Water (H_2O) is a compound of two gases, but we do not have the technology to trap the energy of Hydrogen (H_2) & Oxygen (O_2).

(D) Reserves : Resources which can be put into use with the existing technology but their uses have been postponed keeping in mind the needs of the future generations. Example : Forest, River Water etc.

➢ Development of Resources

Resources are vital for human survival, development and for maintaining the quality of life. Over utilization of resources has led to many problems.

1. **Depletion of Resources :** Over utilisation has led to depletion of resources for meeting the greed of few individuals.
2. **Concentration of Resources :** This has divided the society into 'haves' and 'have nots' and rich and poor.
3. **Global Ecological Crisis :** It has led to global ecological crisis such as global warming, depletion of ozone layer, pollution and land degradation.
4. **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. Rio-de-Janeiro Earth Summit. 1992 adopted Agenda-21 for achieving sustainable development.

➢ Resource Planning

◈ **Definition : Resource Planning** - It is a technique or skill of proper or judicious use of resources.

◈ **Need for resource planning :**

1. Most of the resources are limited in supply.
2. Most of the resources are unevenly distributed over the country.
3. Over utilisation of resources may lead to pollution of environment.
4. Planning of resources is also required to become self dependent.
5. Under utilisation of resources will lead to under development of the economy.

◈ **Importance :** Planning is a 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. There are regions which are rich in certain types of resources but are deficient in some other resources. There are some regions which can be considered self sufficient in terms of the availability of resources and there are some regions which have acute shortage of some vital resources. This calls for balanced resource planning at national, state, regional and local levels

➢ Resource Planning in India

This involves 3 processes/stage :

1. Identification & Inventory of resources : This includes surveying, mapping, qualitative & quantitative estimation & measurement of resources.

2. Making a plan structure using appropriate technology skill and institutional setup so that all resources developmental plans can be implemented.

3. Matching the resources development plans with the National development plans.

◈ **Conservation of Resources :** Conservation of Natural Resources means judicious and planned use of natural resources so that we can get the maximum possible benefit from these resources over the longest possible period of time.

◈ **Need :**

1. Most of the resources are nonrenewable, one they get exhausted, can never be reused.

2. Economic development of a nation depends to a great extent on the richness, development and management of the resources.

3. In-appropriate & reckless utilization of resources can deplete them.

4. Overexploitation causes damage to the existing environment.

➢ Land Resources

Land is an important resources because.

1. It supports natural vegetation.

2. It supports wild life & human life.

3. It supports human economic activities and transport and communication system.

India has land under a variety of relief features

(a) 43 % of plains which is important for agriculture & industries.

(b) 30 % is mountains. They help to provide rivers facilities for tourism wildlife & ecological aspects.

(c) 27 % is plateau region which is rich in minerals, fossils fuels & forest.

➢ Land Utilization

The land resources are used for the following purposes :

1. Forest

2. Land not available for cultivation

(a) Barren and waste lands

(b) Land used for non agricultural activities such as building roads, factories.

3. Uncultivated land :

(a) Permanent pasture & grazing land

(b) Land under the crop groves.

(c) Cultivable waste land

4. Fallow land which is left uncultivated for one to five years.

5. Net sown 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

Land use depends upon the following factors :

1. **Physical factors :** It includes topography, climate, soil.

2. **Human factors :** Population density, Technological capability, Culture, Traditions etc.

3. Total area of India is 3.28 million km^2. Land use data accounts for only 93 % because for most of the north-east states land use reporting is not done.

S. No.	Categories	1960-61	2002-03
1	Forest	18. 11%	22. 57%
2	Barren & Waste Land	12. 01%	06. 29%
3	Area under nonagricultural uses	04. 95%	07. 92%
4	Permanent pasture & grazing land	04. 71%	03. 45%
5	Tree crops and grasses	01. 5%	01. 1%
6	Cultivable, land waste	06. 23%	04. 41%
7	Fallow other than current fallow	03. 5%	03. 82%
8	Current fallow	03. 73%	07. 03%
9	Net sown area	45. 26%	43. 41%

(a) Net sown area differs greatly from one state to the other.

(b) In Punjab & Haryana it is over 80 % and in Arunachal Pradesh, Mizoram, Manipur, Andman and Nicobar island it is less than 10 %.

(c) Waste land includes rocky arid and desert area, land used for housing, roads, railways etc.

(d) According to National Forest Policy 33 % should be under forest cover but in India it is only 22 %.

➢ Land Degradation & Conservation Measures

◈ **Land Degradation :** It is a process through which land becomes unfit for cultivation.

Factors Responsible for Land Degradation :

1. **Mining :** It is the most important factor for land degradation.

(i) The mining sites are abandoned after excavation work is over. The excavation work leaves deep scars and other material which degrades the soil. This is common in states like Jharkhand, Chattisgarh, Madhya Pradesh and Orissa.

(ii) Mineral processing, grinding of lime stone, ceramic industry releases a heavy amount of dust, which later settles down in the surrounding areas.

2. **Overgrazing :** Overgrazing of land by animals results in removal of grass over a large area making it easy for wind and water to remove the soil. Example Gujarat, Rajasthan, Madhya Pradesh, Maharastra etc.

3. **Water Logging :** Over irrigation of land is also responsible for land degradation, water logging, increases salinity and alkalinity in soil making it unfit for cultivation.

4. **Industrialisation :** Industrial waste also leads to water and land degradation.

➢ Solutions

1. Afforestation should be encouraged.
2. Proper management of grazing.
3. Control on overgrazing.
4. Planting of shelter belts of plants
5. Stabilisation of sand dunes by growing thorny bushes.
6. Proper management of waste land.
7. Control of mining activities.
8. Proper discharge & disposal of industrial waste.
9. Moisture conservation and weed control.

➢ Soil

Soil is a living system which takes millions of years to form.

◈ **Formation of soil :** Soil is the thin upper surface layer on the earth, comprising mineral particles formed by the breaking down of rocks, weathered mineral particles, decaying organic matter, living organism, water and air.

◈ **Importance of Soil :**

1. Soil is the medium in which plants grow. All living things depends directly or indirectly on soil for food.
2. Agricultural production is basically dependent on the fertility of the soil.
3. The rich deep fertile soils supports high density of population through agricultural prosperity.

◈ **Important factors of soil formation**

1. **Parent Material :** The source of the rock fragments that make up the soil is parent material which may either be bedrock or loose sediments transported elsewhere by water wind or ice.
2. **Relief :** The most important being the slope of land Steep slope encourages the swift flow of the water, so steep slopes usually have a thin soil layer.
3. **Climate :** Temperature and moisture (rainfall) are the climatic variables of greatest significance in soil formation.
4. **Natural Vegetation :** Vegetation of various kinds growing in soil performs certain vital function.

   (A) The decayed leaf material adds much needed humus to soil there by increasing its fertility.

   (B) Roots hold the soil together and so prevent erosion.

➢ Classification of Soil

Soil can be classified on the basis of colour, thickness texture & physical properties. Indian soil are classified as :

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

1. Alluvial soil :

◈ **Formation :** Most of the soil are derived from the sediments deposited by rivers as in the Indo-Gangetic plain. It consists of sand silt and clay.

◈ **Features :**

1. This is the most wide spread soil in India.
2. It is the most fertile soil.
3. Due to high fertility, they are intensively cultivated and are densely populated.
4. They are very fine grained, rich in potash and phosphoric acid but deficient in nitrogen and humus.
5. According to age alluvial soil is classified into :

   (A) Old alluvial or Bhangar

   (B) New Alluvial or Khadar

	Khadar		Bhangar
1	The Khadar soil are found in low areas of valley bottom which are flooded every year.	1	The Bhangar soil are found in the higher reaches about 30 m above the flood level.
2	These soil are fine in texture.	2	These are coarse in texture.
3	The Khadar soils are more fertile.	3	The Bhangar soils are less fertile.

- **Crops :** Rice, Wheat, Sugarcane, Tobacco, Jute, Fruits and Vegetables.
- **Regions :** Extends over Northern plains, small parts of Rajasthan & Gujarat, Eastern Coastal plains particularly deltas of Mahanadi, Godavari, Krishna & Kaveri.

2. Black Soil :

- **Formation :** These soils have been formed due to the weathering of the lava spread over large areas during volcanic activity in the Deccan Plateau and different climatic conditions.
- **Features :**
  1. The block soils are made of extremely fine material i.e., clayey material.
  2. These soils are rich in soil nutrients such as calcium carbonate, magnesium carbonate, potash and lime.
  3. The soil is known for its capacity to hold moisture.
  4. During dry condition deep cracks develop in the soil, this help in proper aeration of the soil.
  5. When wet, the soil becomes sticky and is difficult to work with.
  6. It is also known as regur soil.
- **Regions :** These soils are mainly found in Maharastra, Western Madhya Pradesh, parts of Karnataka, Andhra Pradesh, Gujarat and Tamil Nadu.
- **Crops :** Cotton, sugarcane, wheat, tobacco and oil seeds.

3. Red and Yellow Soil :

- **Formation :** It is formed from igneous rock. Red colour is due to the presence of iron in the crystalline, igneous & metamorphic rock.
- **Features :**
  1. Soils are loamy in deep depression and in uplands they consist of loose gravels, highly coarse material.
  2. Soils are deficient in phosphoric acid, organic matter and nitrogenous material but are fairly rich in potash.
  3. Crops are cultivated with the use of fertilizers.
- **Crops :** Cotton, wheat, rice, pulses, millets etc. can be produced by using fertilizers and irrigations.

- **Regions :** Tamil Nadu, parts of Karnataka, South east of Maharastra, Madhya Pradesh, Orissa and on the Chota Nagpur Plateau of Jharkhand.

4. Literate Soil :

- **Formation :** It develops in areas with high temperature and heavy rainfall. It is a result of intense leaching owing to heavy tropical rains.
- **Features :**
  1. The soils are acidic in nature, coarse and crumbly in texture.
  2. Due to lack of nitrogen, potassium and organic elements laterite soil lack fertility and are not suitable for cultivation.
  3. When the soils are manured and irrigated some crops can be cultivated.
  4. They provide valuable building material.
- **Crops :** Tea, Coffee, Rubber, Cinchona, Coconut, Cashewnut and Tapioca.
- **Regions :** Karnataka, Kerala, Tamil Nadu, Madhya Pradesh and hilly areas of Orissa.

5. Forest Soil :

- **Formation :** The soils are formed due to mechanical weathering caused by snow, rain, temperature variation etc.
- **Features :**
  1. These soils are heterogeneous in nature and their character changes with mountain environment and altitude.
  2. The soils are very rich in humus but are deficient in potash, phosphorus and lime.
  3. The soils are especially suitable for plantation of tea, coffee, spices and tropical fruits.
- **Regions :** Hilly region of Jammu & Kashmir, Sikkim, Assam and Arunachal Pradesh.

6. Arid Soil :

- **Feature :**
  1. Colour ranges from red to brown.
  2. Sandy in texture, Saline in nature. Common salt is obtained by evaporating the water.
  3. Soil lacks humus & moisture due to dry climate and high temperature.
  4. Lower layer of the soil contain Kankar due to calcium content.
  5. With irrigational facilities soil becomes cultivable.
- **Regions :** Western Rajasthan, Northern Gujarat and Southern Punjab.

➢ Soil Erosion

◈ **Soil Erosion :** It is the removal of soil by the forces of nature like wind and water, more rapidly than the various soil forming process can replace it.

➢ Human Factor Causing Soil Erosion

1. **Deforestation :** This has resulted in reckless cutting of forest which has led to the problem of soil erosion
2. **Overgrazing :** This leads to loose structure of soil and the soil is easily washed away by rains.
3. **Faulty Methods of Agriculture :** Ploughing field along the slope makes it easier for running water and wind to cause erosion.

Natural factors are the force of wind glacier & water.

Running water causes erosion in the following ways:

1. When deep cuts & channels are formed through the clayey soil gulleys are formed.
2. When land become unfit for cultivation it is called bad land.
3. When water flows as sheet over large areas down a slope, the soil is washed away, it is called sheet erosion.
4. Wind causes erosion by blowing away the loose soil over flat or sloping land.

◈ **Steps that can be taken to improve soil erosion by farming :**

1. Ploughing should be done along contour lines. This will reduce the flow of water.
2. Steps should be cut on the slopes to make terraces & restrict erosion.
3. Field should be divided into strips & strips of grass should be left to grow between the crops. Such strip cropping breaks the force of wind.
4. Planting trees in a row as shelter belts. These shelter belts check the spread of desert.

GLOSSARY

1. **Abiotic Resources :** All those resources which are composed of non living things eg. land, water, soil.

2. **Afforestation :** It means planting trees.

3. **Biotic Resources :** All those resources which have life. Eg. Forest and their product agricultural crop, animals and birds, marine life.

4. **Conservation :** It means judicious and planned use of natural resource so that we can get the greatest possible benefit from these resources over the longest possible period of time.

5. **Fallow land :** It is a cultivable land which is being allowed to rest, uncropped or partially cropped for one or more reason so that it can regain its fertility.

6. **Gully Erosion :** It takes place when running water cuts deep ravines in the absence of vegetation. It makes soil unfit for cultivation.

7. **Land degradation :** Rendering the land unfit for cultivation is called degradation of land.

8. **Renewable Resources :** These are the resources which can be renewed or reproduced by physical, mechanical, chemical processes in a given period of time. eg. solar energy, forest, agricultural product.

9. **Man made Resources :** These are those resources which are created by human beings with the help of machines.

10. **Natural Resource :** Resources which are endowment/gift of nature. eg. River, mountain, land, vegetation, minerals.

11. **Non-renewable Resources :** There are those resources which once used, cannot be replenished. eg. coal, petroleum, minerals etc.

12. **Ravine :** This is a land which is unsuitable for cultivation due to soil erosion.

13. **Resource Planning :** It is a technique or skill or proper utilisation of resources.

14. **Soil :** The upper most layer of the earth's crust, which is loose fragmented and useful for growing plants is called soil.

15. **Soil Erosion :** The removal of soil by the forces of nature, particularly wind and water.

16. **Resources :** Object or things in the environment that fulfill the basic needs of man. These are technologically accessible, economically feasible and culturally acceptable.

17. **Resource Development :** An exercise that makes it possible to utilise the available natural resources for human satisfaction.

18. **Contour ploughing :** Ploughing along the contour lines instead of up and down the slope.

19. **Sheet Erosion :** Erosion of the top soil along gentle slopes caused by rain water.

20. **Bad land :** Land which is unsuitable for cultivation.

21. **Leaching :** Process of carrying away of soil nutrients by rain water.

22. **Net sown area :** It is the area sown with crops at least once is any of the crop season of the year but counted only once.

23. **Shelter belts :** Rows of trees which are planted in between the crops are known as shelter belts.

24. **Stock :** These are the materials in the environment which have the potential to satisfy the human needs, but could not be used as the human beings do not have the appropriate technology.