Resources and Development (Easy Notes for Class 10th)

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Introduction:

The food living beings consume, water intake, clothes wear and live in, all are the products of nature. And humans have termed these sources of livelihood as resources. All living beings need these resources but often human beings become indifferent towards the problems related to resources. Here, in the first chapter we will learn about the types, uses and conservation measures of resources.

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’.

Interdependent relationship between nature, technology and institutions:

Human beings obtain natural resources and convert them into a new resource. During this process, interaction takes place between human beings and nature. Here, technology (a man-made resource) works as a link and institutions (human-made) help to accelerate economic development. Thus, nature, technology and institutions show an interdependent relationship.

‘Resources are free gift of nature’. Do you agree?

Resources available in our environment have become useful because of the presence of human resource. *Human being transform materials available in the environment and use them*. Therefore, resources are free gift of nature is not true.

How does technical & economic development increase resource use?

As industries, agriculture, and cities expand, the demand for resources like energy, minerals, and land also rises. With advanced technology boosting production and transportation growing rapidly, economic progress drives even greater resource use.

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Classification of Resources:

1. On the basis of Origin:

Biotic Resources: All the living components present on earth are biotic.

- For Example: Flora, Fauna, human beings, fisheries, livestock etc.

Abiotic Resources: All the non-living components on earth are abiotic.

- For Example: Land, water, air, rocks and metals.

2. Exhaustibility:

Renewable Resources: The resources which can be renewed or reproduced by physical, chemical or mechanical processes are known as renewable or replenishable resources.

- For Example: Solar and wind energy, water, forests and wildlife, etc.

Non-Renewable Resources: These resources take millions of years in their formation.

- For Example: Minerals and fossil fuels.

3. Ownership:

Individual Resources: Resources owned privately by individuals are individual resources.

- For Example: Plots, houses, fields, pasture lands, ponds, water in wells etc.

Community Owned Resources: There are resources which are accessible to all the members of the

community.

- For Example: Public parks, village commons (grazing grounds, burial grounds, village ponds, etc.), playgrounds, picnic spots etc.

National Resources: All the resources which come under the territorial boundary of a country belong to nation. Therefore, these are national resources.

- For Example: Forests, wildlife, land within political boundaries and oceanic area upto 12 nautical miles (22.2 km) from the coast.

International Resources: These are resources regulated by international institutions.

- For Example: The oceanic resources beyond 200 nautical miles of the Exclusive Economic Zone.

Note:- *Territorial water* = 12 nautical miles, *Exclusive Economic Zone* = 12-200 nautical miles, and *International waters/ high seas* = beyond 200 nautical miles.

4. Status of Development:

Potential Resources: Resources which are found in a region, but have not been utilized.

- For Example: Rajasthan and Gujarat have potential for the development of wind and solar energy.

Developed Resources: Resources which are surveyed and their quality and quantity have been determined for utilization.

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Stock: Materials in the environment which have the potential to satisfy human needs but human beings do not have the appropriate technology to access.

- For Example: We can use Hydrogen as it is rich source of energy but we do not have advanced technical 'know how' for that.

Reserves: Resources which are left unused for the requirement of future generation.

- For Example: Use of hydroelectricity.

Development Of Resources:

The conception that resources are free gift of nature made the people use them indiscriminately. This led to the following major problems.

1. **Depletion of resources.**
2. **Accumulation of resources in few hands.**
3. **Global Ecological crises** (global warming, ozone layer depletion, pollution, land degradation etc.)

Thus, we need to use resources with care.

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 generation.' *(NCERT Definition)*

Rio de Janeiro Earth Summit, 1992:

This summit held in **Rio de Janeiro in Brazil**. More than 100 heads of states met for addressing urgent problems of environmental protection and socio-economic development at global level.

- The assembled leaders signed the Declaration on Global Climatic Change and Biological Diversity.
- The Rio Convention approved the global Forest Principles and adopted **Agenda 21.**
    - World leader adopted *Agenda 21* in 1992 at the United Nations Conference on Environment and Development (UNCED). The place was same; ***Rio de Janeiro, Brazil.***
        1. It is an agenda to combat environmental damage, poverty, disease through global co-operation on common interests, mutual needs and shared responsibilities.
        2. One major objective of the Agenda 21 is that every local government should draw its own local Agenda 21.

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Resource Planning:

Resources are vital for economic development. However, their distribution is uneven.

For Example:

States	Resources (rich in)	Resources (lack in)
1. Jharkhand, Chhattisgarh and Madhya Pradesh	mineral and coal deposits	Proper Infrastructure & resource management system
2. Arunachal Pradesh.	Water	infrastructural development
3. Rajasthan.	Solar and Wind energy	Water
4. Ladakh (U.T)	Cultural heritage	Water, infrastructure and vital minerals.

Therefore, we need ***balanced resource planning*** at the national, state, regional and local levels.

Resource planning in India:

1. **Identification and inventory** of resources across the regions of the country.
2. **Evolving a planning structure** endowed with appropriate technology, skill and institutional set up for implementing resource development plans.
3. **Matching the resource development plans** with overall national development plans.

Conservation of Resources:

- Irrational use of resources have made us face socio-economic and environmental problems.
- The root cause for resource depletion is the greed of individuals. This is why, Gandhiji stated ***"There is enough for everybody's need and not for any body's greed."***
  - **Schumacher** also presented Gandhian Philosophy in his book ***'Small is Beautiful'.***
- **The Brundtland Commission Report**: It introduced the concept of **Sustainable Development**.
  - Subsequently, it got published in a book ***' Our Common Future'*** as a conservation measure.

Land Resources:

Land is a *natural resource* which supports natural vegetation, wildlife, human life, economic activities, transport and communication system. We use land for *different purposes*. India has *variety of relief features,* namely; Plains (43%), mountains (30%), Plateaus (27%) and Islands.

Land Utilization:

1. Forests
2. Land not available for cultivation.
3. Other uncultivated land (excluding fallow land)
4. Fallow lands
5. Net Sown area or gross cropped area.

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The Land Use Pattern In India:

- Two factors determine the use of land.
  - **Physical factors:** topography, climate, soil type.
  - **Human factors:** population density, technological capability and culture and tradition etc.
- Total geographical area of India is 3.28 million sq km.
- However, the available data is only 93%.
  - *Reason:-* The land use area for most of the north-east states except Assam has not been done fully.
  - Some areas of Jammu and Kashmir occupied by Pakistan and China have also not been surveyed.

1. ***Net Sown Area:*** It is over 80% of the total area in Punjab and Haryana. And less than 10% in Arunachal Pradesh, Mizoram, Manipur and Andaman Nicobar Islands.
2. ***Forests:*** Forest area of India is 24.62%.
   - **Note:** According to National Forest Policy (1952), desired forest cover is 33%.

Land Degradation And Conservation Measures:

In India, different states faced Land degradation due to several reasons. *(important for mcqs)*

Cause of Degradation	States
Mining	Jharkhand, Chhatisgarh, Madhya Pradesh & Odisha
Overgrazing	Gujarat, Rajasthan, Madhya Pradesh & Maharashtra
Over Irrigation	Punjab, Haryana, Western Uttar Pradesh

Causes for land degradation:

- Deforestation
- Over grazing
- Over Irrigation
- Industrial waste
- Huge amount of dust from cement industries.

Conservation measures:

- Afforestation
- Management of Grazing land
- Proper Irrigation
- Proper treatment for industrial waste.
- Control mining activities.

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Soil as a Resource:

- Soil is the most important renewable natural resource.
- It is a medium of plant growth and supports different types of living organisms on the earth.
- The important factors for soil formation are relief, parent rock or bed rock, climate, vegetation and other forms of life and time.
- Moreover, soils can have different color, thickness, texture, age, chemical and physical properties.
- Thus, we classify soils in different types.

Classification of Soils (in India):

Alluvial Soil:

- **Area:** Entire Northern Plains and eastern coastal plains (particularly in the deltas of the Mahanadi, the Godavari, the Krishna and the Kaveri rivers).
- **Nutrients:** Potash, phosphoric acid and lime.
- **Classification**
  - **Landform / Size:-**
    - Upper course (Mountains, Piedmont Plains) :- **Coarse soil** (bigger particles like **gravel**

& **sand**)
    - Middle Course (Floodplains, Meanders) :- **Medium-sized particles** (like **silt**)
    - Lower Course *(near delta areas)* :- **Fine soil** (mainly **clay** & **silt**, good for agriculture)
        - **Note:-** *Coarse alluvial soil is present in the piedmont plains. For example,* ***Duars*** *(in the foothills of the Eastern Himalayas, in Assam & West Bengal),* ***Chos*** *(in the foothills of the Shivaliks, in Punjab and Haryana), and* ***Terai*** *(in the southern foothills of the Himalayas, in Uttarakhand, Uttar Pradesh, and Bihar)*
    - **Age:- Bangar** (old Alluvial) and **Khadar** (New alluvial)
- **Crops:** sugarcane, paddy, wheat and other cereal and pulse crops.
- **Features:**
    - It has high fertility.
    - Regions of alluvial soils are intensively cultivated and densely populated.

Black Soil:

- It is also known as ***regur soil.***
- **Area:** Deccan trap (Basalt) region and plateaus of Maharashtra, Saurashtra, Malwa, Madhya Pradesh and Chhattisgarh.
- **Nutrients:** calcium carbonate, magnesium, potash and lime.
- **Crops:** Cotton
- **Characteristics:**
    - It has capacity to hold moisture.
    - It develop deep cracks during hot weather, which help in the proper aeration of the soil.

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Red and Yellow Soils:

- **Area:** Odisha, Chhattisgarh, southern parts of middle Ganga plain and along the piedmont zone of Western Ghats.
- **Features:**
    - Red soil develops on crystalline igneous rocks in areas of low rainfall.
    - 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 Soil:

- Laterite has been derived from the Latin word *'later'* which means **brick.**
- **Area:** Southern States, Western Ghats region of Maharashtra, Odisha, some parts of West Bengal and North-east regions.
- **Nutrients:** Iron and Aluminium
- **Crops:** Tea, coffee and cashew nut.
- The Laterite soil develops under tropical and subtropical climate with alternate wet and dry season.
- This soil is the result of intense leaching due to heavy rainfall.

Arid Soil:

- Another name for this soil is ***desert soil.***
- **Area:** Western Rajasthan, Rann of Kutch, Gujarat.
- **Nutrients:** Calcium carbonate, gypsum and sodium.
- **Crops:** Corn, sorghum, pearl millet etc.
- **Characteristics:**
  - Arid soils range from red to brown in color.
  - They are generally sandy in texture and saline in nature.
  - Due to dry climate, high temperature, evaporation is faster and the soil lacks humus and moisture.
  - The kankar layer formations in the bottom horizons restrict the infiltration of water.

Forest Soil:

- **Area:** Hilly and mountainous region.
- The soil 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*.
- In the snow covered areas of Himalayas, these soils experience denudation and are acidic with low humus content.
- Forest soils in valleys are very fertile.

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Soil Erosion and Soil Conservation:

Soil Erosion: It is a process in which natural forces like wind, glacier and water wash away the upper fertile layer of the soil.

Types of soil Erosion:- Gully erosion, Rill erosion and Sheet erosion

The loss of upper fertile layer causes decrease in the productivity level and reduce the capacity to hold water. Thus, we need some **conservation measures** for soil.

1. **Contour Ploughing:** Ploughing along the contour lines can decelerate the flow of water down the slopes.
2. **Terrace Farming or Step Farming:** Steps can be cut out on the slopes making terraces as this type of farming restricts erosion.
3. **Strip Farming:** Large fields can be divided into strips (strips of grass) as this breaks up the force of the wind.
4. **Shelter belts:** Planting lines of trees can help in stabilizing the soil in its place. Thus, we can use these belts to prevent soil erosion.

Category

1. Class 10th

Date
2025/07/31