



RESOURCES AND DEVELOPMENT

CLASS 10

Resources

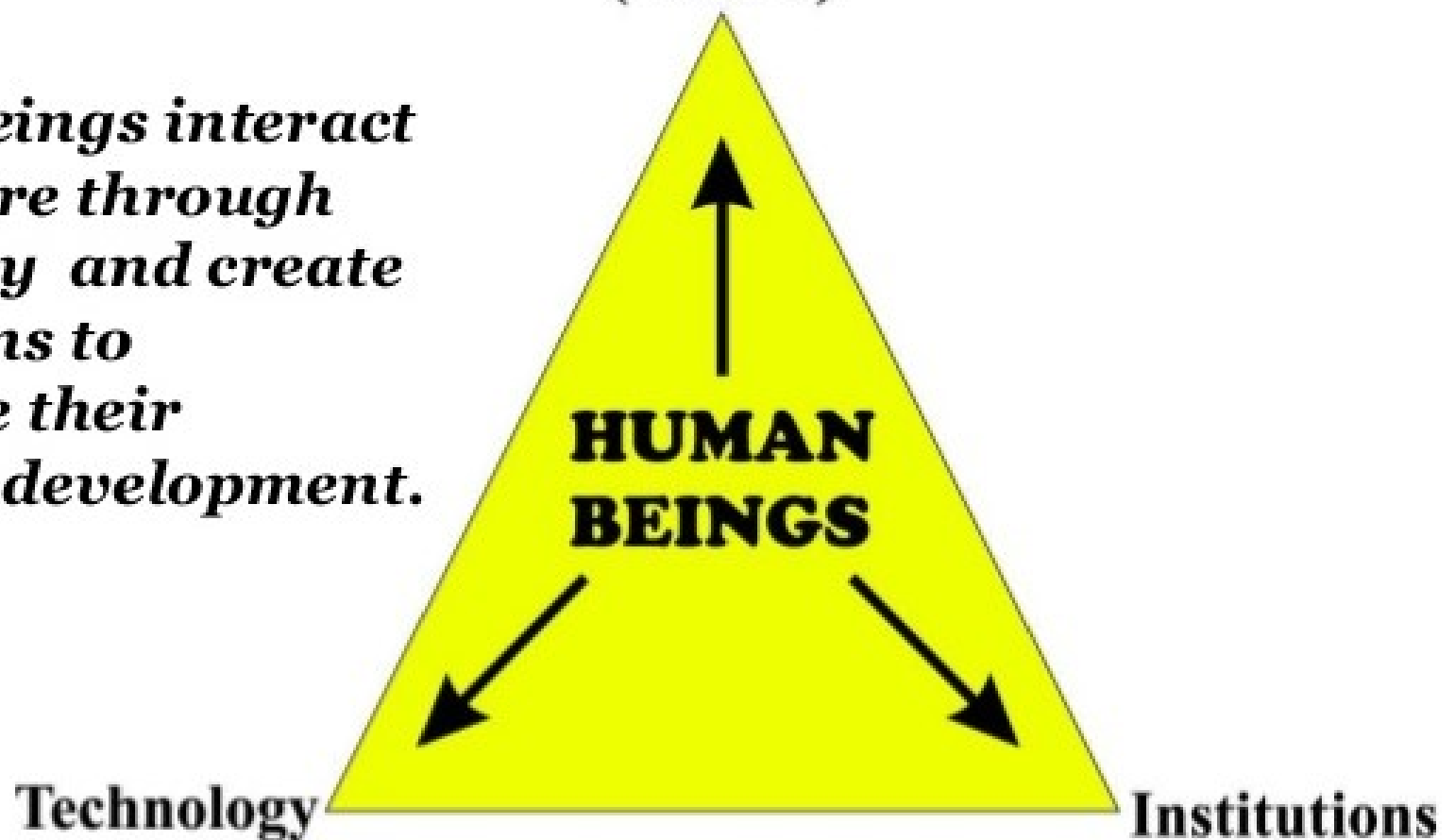
Everything available in our environment which can be used to satisfy our needs, provided, it is technologically accessible, economically feasible and culturally acceptable can be termed as a resource.



Interdependent relationship between nature,
technology and institutions

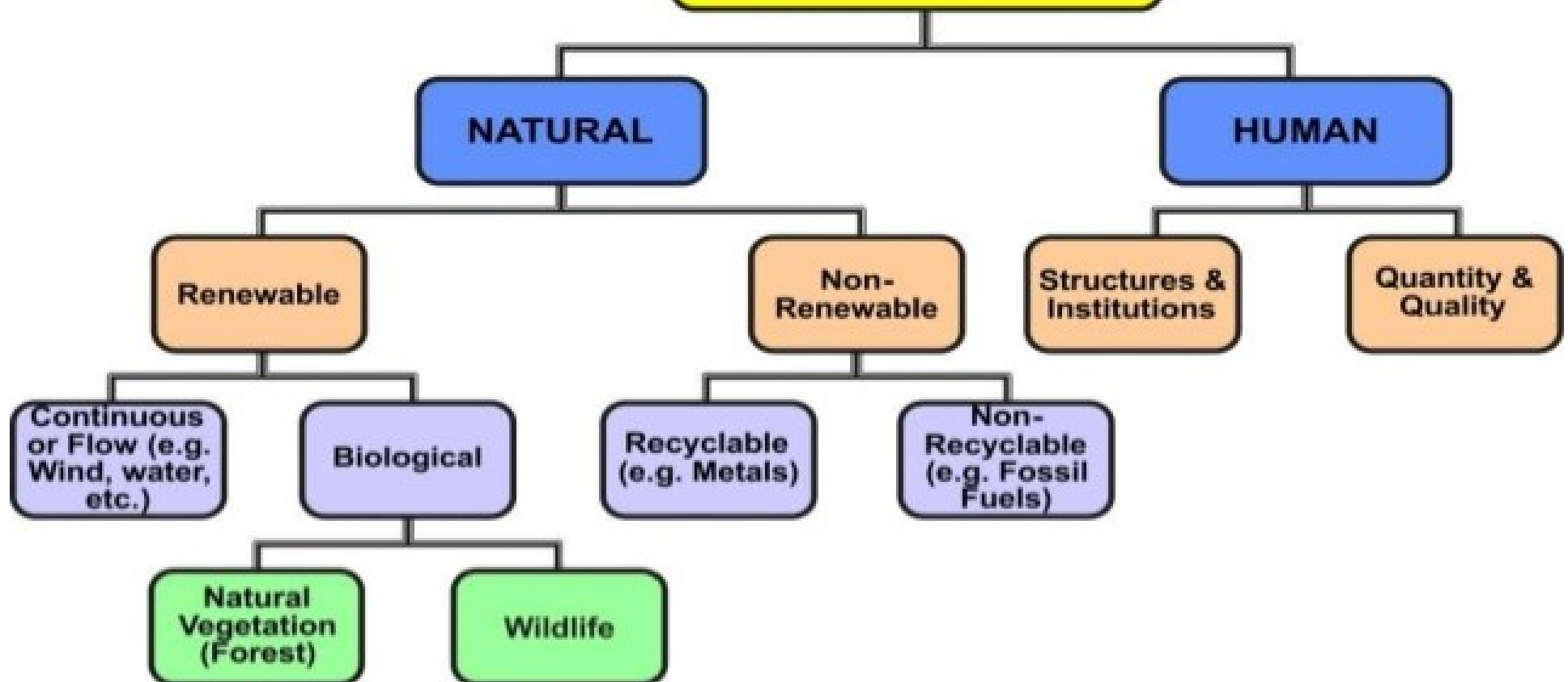
Physical Environment
(Nature)

*Human beings interact
with nature through
technology and create
institutions to
accelerate their
economic development.*



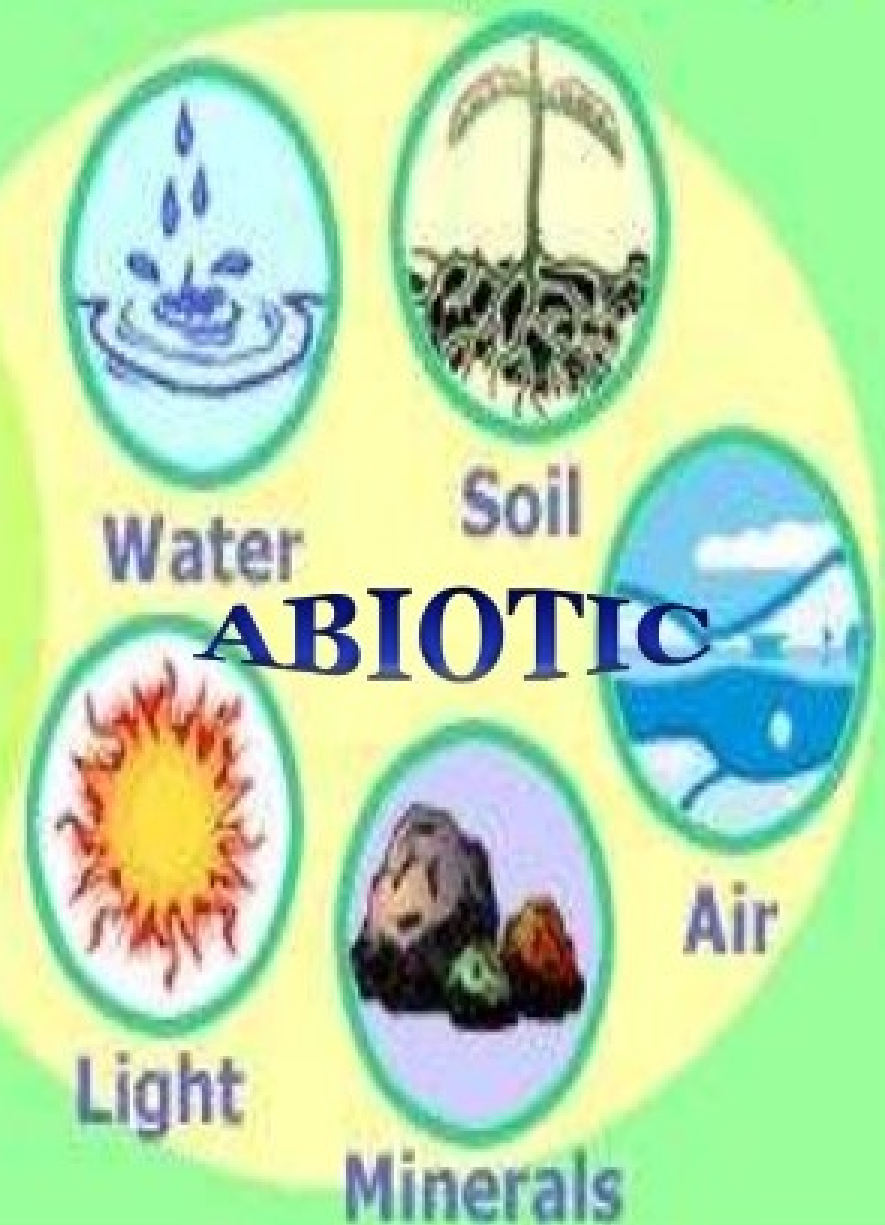
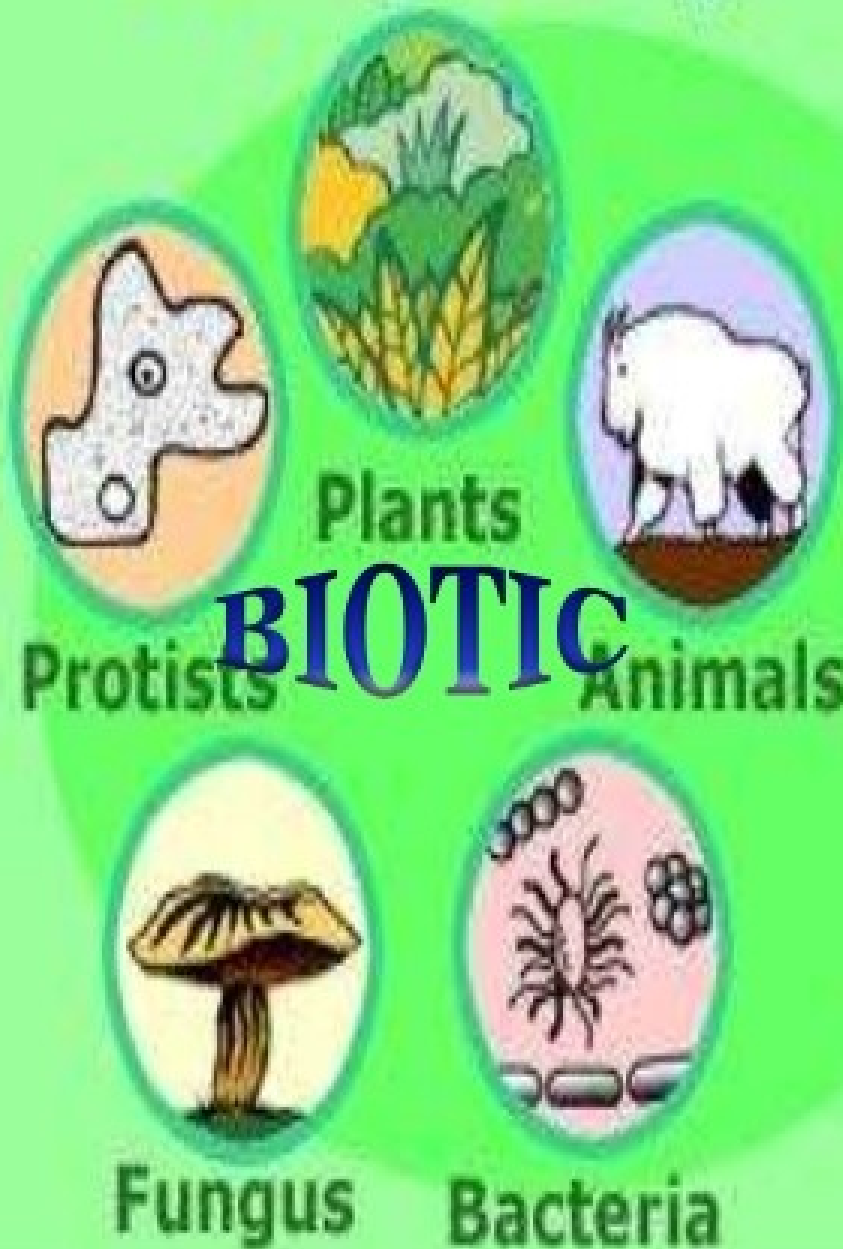
CLASSIFICATION OF RESOURCES

RESOURCES



Living Things

Non Living Things



On the basis of origin

❖ *Biotic Resources*

- Obtained from biosphere
- Have life
- E.g.- human beings, flora and fauna, fisheries, livestock etc.

❖ *Abiotic Resources*

- composed of non-living things
- E.g., rocks and metals.

DIVIDING THE ENVIRONMENT



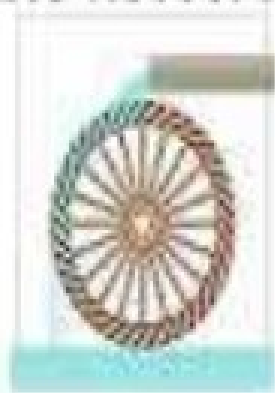
BIOTIC
FACTORS

ABIOTIC
FACTORS

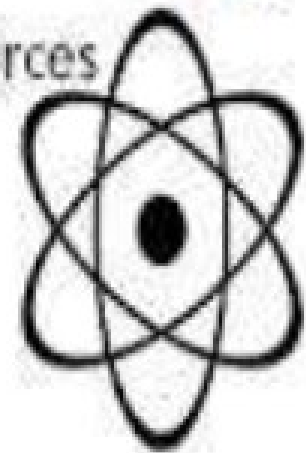
On the basis of exhaustibility



Renewable Resources



Non-renewable Resources





Renewable Resources are renewable or replenishable resources which can be renewed or reproduced by physical, chemical or mechanical processes, e.g., solar and wind energy, water, forests and wildlife, etc. Renewable resources may further be divided into

- continuous or flow resources, e.g., wind, water

Non-Renewable Resources are formed over a substantially long geological time, e.g., minerals and fossil fuels. These can subdivided into

- recyclable resources, e.g. metals,
- non-recyclable resources, e.g. fossil fuels, which cannot be recycled and get exhausted with their use

On the basis of ownership

Individual

**Community
owned**

National

International

Individual Resources are resources that are owned privately by individuals, e.g.

- land owned by farmers (allotted by the government against the payment of revenue)
- plantations, pasture lands, ponds, water in wells owned by individuals
- plots, houses and other property owned by people in the city etc.

Community Resources are resources accessible to all the members of a community. Examples :

- Village commons (grazing grounds, burial grounds, village ponds, etc.)
- public parks, picnic spots, and playgrounds in urban areas

National Resources are all the resources that belong to a nation. Examples :

- roads, canals, railways, etc.
- minerals, water resources, forests, wildlife, etc.
- land within the political boundaries,
- territorial water and the resources within

The term **territorial water** refers to the oceanic area upto 12 nautical miles (19.2 km) from the coast.

The country has legal powers to acquire even private property for public good. Urban Development Authorities get empowered by the government to acquire land



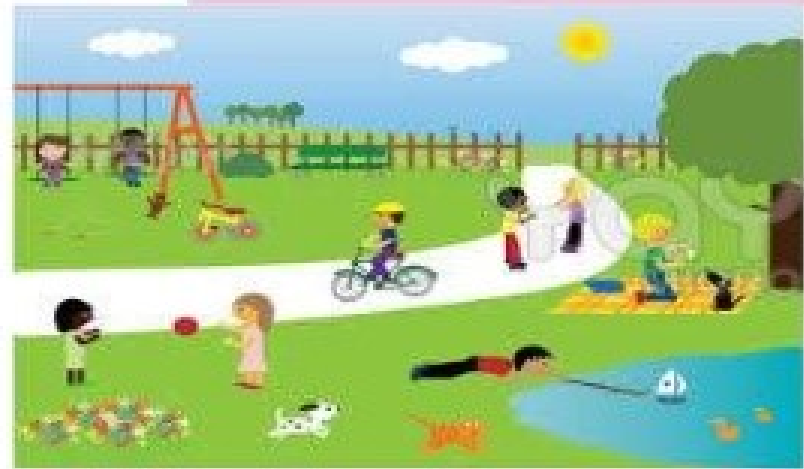
International Resources are regulated by certain international institutions. These include :

- the oceanic resources beyond 200 km of the Exclusive Economic Zone, which belong to open ocean and no individual country can utilise these without the concurrence of international institutions.

- India had to obtain the right to mine manganese nodules from the bed of the Indian Ocean from an area which lies beyond the exclusive economic zone.



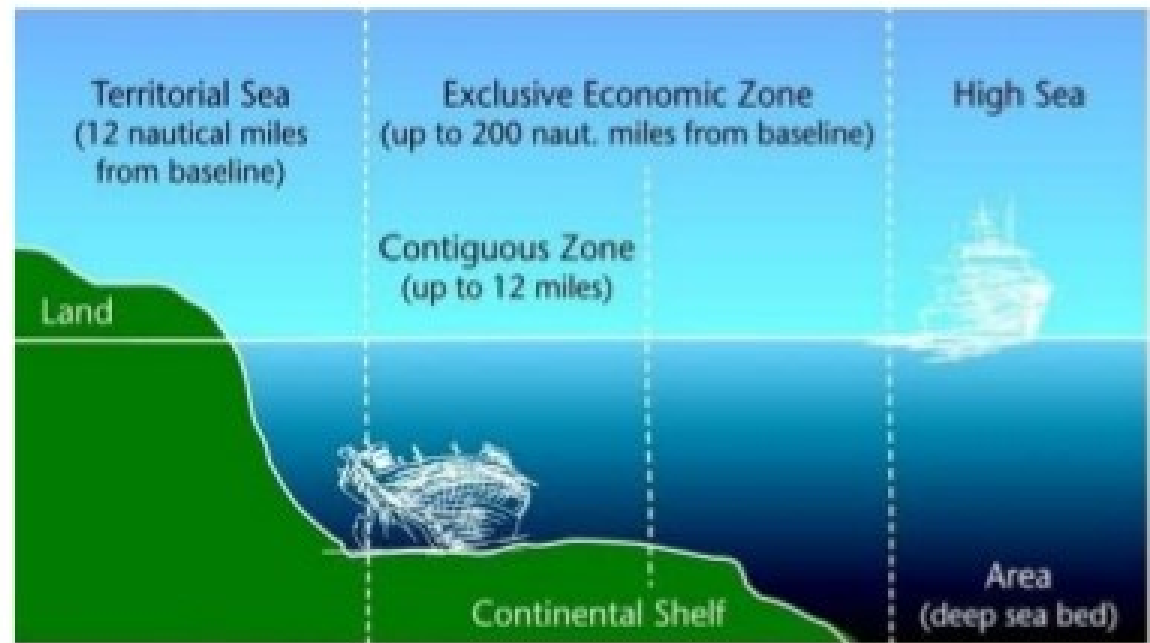
Individual



Community owned



National



international

ON THE BASIS OF DEVELOPMENT





Potential Resources are resources found in a region which have not been utilised. Examples :

- wind and solar energy development potential in the states of Gujarat and Rajasthan.

Developed Resources are resources that have been surveyed and determined for utilisation both qualitatively and quantitatively. The development of resources depends on technology and level of their feasibility.

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

- water is a compound of two inflammable gases; hydrogen and oxygen, which could be used as a rich source of energy if we had the required technical 'know-how'. Hence, it can be considered as stock.

Reserves are the subset of the stock, which are yet to be put into use with the help of existing technical 'know-how'. These can be used for meeting future requirements. Example :

- River water can be used for generating hydroelectric power but presently, it is being utilised only to a limited extent.

Thus, the water in the dams is a reserve which can be used in the future.

Problems created by indiscriminate use of resource by man

- a.** Many resources got depleted. E.g.: Forest
- b.** Resources got accumulated in the hands of few people. The society is divided into rich and poor.
- c.** Global warming, ozone layer depletion, environmental degradation are other problems.

SUSTAINABLE DEVELOPMENT

The economic development which does not damage the environment and at the same time takes care of the needs of the future generations is called sustainable development.



Resource Planning

Resource planning is a technique or skill of proper utilization of resources.

STAGES OF RESOURCE PLANNING

A) identification and listing of resources

Surveying, mapping and the measurement of the qualities and the quantities of the resources are the important activities undertaken at this stage.

B) planning for exploitation

Develop a planning structure with suitable technology, skill and institutional setup.

C) Match resource development plans with national development plans.

IMPORTANCE OF RESOURCE PLANNING

It is necessary for the balanced development of India.

1) Some regions of India are rich in certain resources and poor in some other resources.

E.g.: Rajasthan is poor in water resources but rich in solar and wind energy.

2) Some regions are self sufficient while other regions are very poor in important resources. Ex: Madhya Pradesh is rich in many resources but Ladakh is poor in resources.

3) Wastage of resources can be avoided by planning.

4) Environmental pollution can be reduced.

5) Over exploitation of resources can be avoided.

Resource conservation

Planned use of resources in order to meet the present needs and to store a part for the future generations is called **resource conservation**.

It is necessary because

- 1) Many resources are non-renewable and exhaustible. If we conserve them we can use them for a longer period of time.
- 2) Conservation of resources helps us to reduce wastage. It will help in economic progress.
- 3) Resource conservation helps us to protect the environment.

Ganghiji's ideas on resource conservation

- According to Gandhiji, “There is enough for everybody's need and not for anybody's greed.
- Greedy and selfish individuals and the exploitative nature of modern technology are the root cause for resource depletion.
- He was against mass production and wanted to replace it with production by masses.

Land Degradation

Large scale soil erosion caused by running water and wind.

- Dumping of waste materials from mining centers and industrial units.
- Over irrigation leads to increase in salinity and alkalinity in the soil.
- Over grazing by animals and deforestation by man.
- Waste water from the industrial units pollute the lands.
- Mineral processing like grinding of limestone for cement industry and calcite and soap stone for ceramic industry creates a lot of dust. This dust is deposited in the neighboring land.

LAND CONSERVATION MEASURES

- Soil erosion can be prevented by ending deforestation, controlling grazing, encouraging afforestation and practicing terrace farming in hilly areas.
- Preparation of shelter belts of plants and stabilizing of sand dunes by growing thorny bushes will help to prevent land degradation in deserts.
- Mining activities should be controlled. New technology which reduces wastage can be adopted.
- Industrial waste should be chemically treated to remove the harmful substances.
- Urban waste should be used for the production of biogas and bio-manure.
- Over irrigation should be stopped and new method of irrigation should be followed.

A close-up photograph of two hands cupped together, holding a small mound of dark brown soil. The hands are positioned in the center of the frame, with the fingers slightly curled. The background is a blurred expanse of similar soil, suggesting a garden or field setting. The lighting is soft and natural, highlighting the texture of the soil and the skin of the hands. Overlaid on the soil in the hands is the text "Soil as a resource" in a white, serif font.

Soil as a
resource



❑ The upper most layer of the earth's crust which is loose, broken and useful for plants is called soil.

❑ Soil consists of mineral matter such as sand and clay and organic matter such as humus, bacteria and earth worms.

❑ Soil is formed mainly due to the process of weathering. As a result of weathering a layer of loose rock materials is formed on the land surface. If this layer remains undisturbed for a long period of time, chemical, physical and organic changes take place in it. These changes lead to the formation of soil.

FACTORS WHICH INFLUENCE SOIL FORMATION PROCESS

1) Climate:

Climate decides the rate of weathering and the type of vegetation.

2) Topography:

Topography of the land decides the accumulation of soil.

3) Nature of parent rock:

It decides compositions and texture of the soil.

4) Vegetation:

Vegetation decides the amount of humus available in the soil.

Types of soils

There are 6 types of soils –

- **Alluvial soil**
- **Red soil**
- **Black soil**
- **Laterite soil**
- **Desert soil**
- **Mountain soil**





ALLUVIAL
SOIL

- **Alluvial soil is the most fertile and wide spread soil found in India.**
- **It is formed due to the deposition of fine silt called alluvium by the rivers.**
- **It is found in the northern plains, Gujarat plains and the coastal plains.**
- **It consists of sand, silt and clay.**
- **It is divided into khadar and Bangar [new alluvium and old alluvium]**
- **It contains soil nutrients such as potash, phosphoric acid and lime. So, it is fertile and good for the growth of sugarcane, rice, wheat and pulses.**

Difference between Khadar and bhangar

Bhangar	Khadar
Bhangar is the largest part of the northern plain and is composed of the oldest alluvial soil.	The floodplains formed by younger alluvium are called Khadar.
They lie above the flood plains. They resemble terraces.	The soil in this region is renewed every year and is highly fertile.
The soil of this region is locally known as kankar and is composed of calcareous deposits.	This region is very suitable for intensive agricultural activities.

Black Soil



Black Soil

- Also known as regur soil.
- Regur means cotton – best soil for cotton cultivation.
- Most of the Deccan is occupied by Black soil.
- High water retaining capacity.
- Soil is sticky when wet and shrink when dried.
- Self-ploughing is a characteristic of the black soil as it develops wide cracks when dried.
- Rich in: Iron, lime, calcium, potassium, aluminum and magnesium.
- Deficient in: Nitrogen, Phosphorous and organic matter.
- Colour: Deep black to light black.
- It is mainly found in the Deccan Trap region of Maharashtra, Gujarat, Madhya Pradesh and Chattisgarh.

Red Soil



- ❖ Seen mainly in low rainfall area.
- ❖ Porous, friable structure.
- ❖ Absence of lime, kankar (impure calcium carbonate).
- ❖ Deficient in: lime, phosphate, manganese, nitrogen, humus and potash.
- ❖ Colour: Red colour due to diffusion of iron in crystalline and metamorphic rocks. The lower layer is reddish yellow or yellow.
- ❖ Texture: Sandy to clay and loamy.
- ❖ Wheat, cotton, pulses, tobacco, oilseeds, potato etc are cultivated.
- ❖ It is found in Tamil Nadu, Karnataka, Andhra Pradesh, Orissa, Chhattisgarh and Jharkhand.



Laterite Soil

- Name from Latin word 'Later' which means Brick.
- Become so soft when wet and so hard when dried.
- Found in the areas of high temperature and high rainfall.
- Formed as a result of high leaching due to rainfall.
- Organic matters of the soil will be removed fast by the bacteria as it is high temperature and humus will be taken quickly by the trees and other plants. Thus, humus content is low.
- Rich in: Iron and Aluminum
- Deficient in: Nitrogen, Potash, Potassium, Lime, Humus
- Colour: Red colour due to iron oxide.
- Rice, Ragi, Sugarcane and Cashew nuts are cultivated mainly.
- It is good for the cultivation of tea, coffee and cashew nut.
- It is found in Kerala, Karnataka, Tamil Nadu, Madhya Pradesh, Orissa and Assam.

ARID SOIL



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- a) Seen under Arid and Semi-Arid conditions.
 - b) Deposited mainly by wind activities.
 - c) High salt content.
 - d) Lack of moisture and Humus.
 - e) Kankar or Impure Calcium carbonate content is high which restricts the infiltration of water.
 - f) Texture: Sandy
 - g) Colour: Red to Brown.
 - h) Found in western Rajasthan.

FACTORS WHICH INFLUENCE SOIL FORMATION PROCESS

1) Climate:

Climate decides the rate of weathering and the type of vegetation.

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Topography of the land decides the accumulation of soil.

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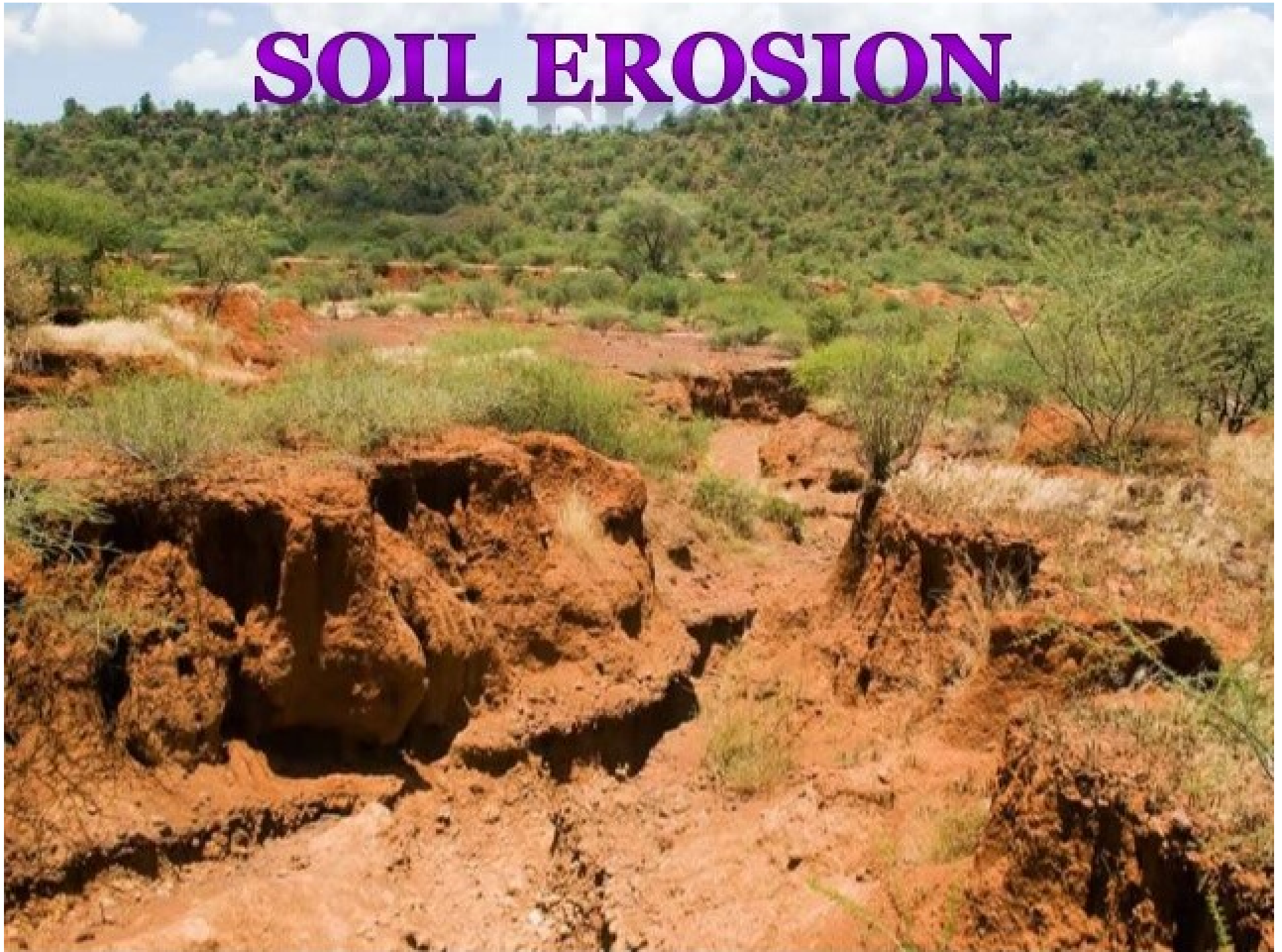
It decides compositions and texture of the soil.

4) Vegetation:

Vegetation decides the amount of humus available in the soil.

- 
- ❖ Forest soils are formed in the forest areas where sufficient rainfall is available.
 - ❖ The soils vary in structure and texture depending on the mountain environment where they are formed.
 - ❖ They are loamy and silty on valley sides and coarse-grained in the upper slopes.
 - ❖ In the snow-bound areas of the Himalayas, they experience denudation, and are acidic with low humus content.
 - ❖ The soils found in the lower valleys are fertile.

SOIL EROSION



- 
- Removal of top soil from one place to another by natural agencies is called soil erosion.
 - It is caused by running water and wind.
 - Deforestation, over grazing and unscientific agricultural practices are responsible for large scale soil erosion.
 - Two types: gully erosion and sheet erosion.

GULLY EROSION

- The rain water when moves down on an uneven land scoops away the soil and form deep channels called **gullies**. This type of erosion is called **gully erosion**.
- A land which is broken into many small parts by the gullies is called **bad land**. A bad land is unfit for cultivation and for other economic activities.

Gullies



SHEET EROSION



Some times water flows as a sheet over large areas down a slope. The water takes away the top soil. This type of erosion is called sheet erosion.

Soil conservation measures

1. Contour ploughing

Ploughing along the contour lines can decelerate the flow of water down the slopes.



2. Terrace farming

Steps can be cut out on the slopes making terrace.
Terrace cultivation restricts soil erosion.



3. Strip cropping

Large fields are divided into strips. Strips of grass are left to grow between the crops. This breaks up the force of the wind. This method is called strip cropping.



4. Shelter belt

Planting lines of trees to create shelter.

