CH-1 RESOURCES AND DEVELOPMENT

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'.

Classification of Resources

- The resources can be classified as:
  - On the basis of origin – biotic and abiotic
  - On the basis of exhaustibility – renewable and non-renewable
  - On the basis of ownership – individual, community, national and international
  - On the basis of status of development – potential, developed stock and reserves.

On the Basis of Origin

- **Biotic Resources:** These are obtained from 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. For example, rocks and metals.

On the Basis of Exhaustibility

- **Renewable Resources:** The resources which can be renewed or reproduced by physical, chemical or mechanical processes are known as renewable resources. For example, solar and wind energy, water, forests and wildlife, etc.
- **Non-Renewable Resources:** The resources once consumed cannot be replaced are known as non-renewable resources. These resources take millions of years in their formation.For example: Oil, Coal etc.

On the Basis of Ownership

- **Individual Resources:** The resources owned privately by individuals are called Individual resources. For example: Plot, houses etc. owned by a person.
- **Community Owned Resources:** The resources which are accessible to all the members of the community. For example: Public parks, picnic spots owned by a community.
- **National Resources:** The resources which come under nation are known as National Resources. Technically, all the resources belong to the nation.
- **International Resources:** The resources lying beyond 200 kms of Exclusive Economic Zone in the oceans are called International Resources. No one can use these resources without the permission of international institutions.

On the Basis of the Status of Development

- **Potential Resources:** Resources which are found in a region, but have not been utilised. For example: the regions Rajasthan and Gujarat have enormous potential for the development of wind and solar energy.
- **Developed Resources:** Resources which are surveyed and their quality and quantity have been determined for utilisation.
- **Stock:** The resources that have been surveyed, but cannot be used due a lack of technology. For example: water is a compound of two inflammable gases; hydrogen and oxygen, which can be used as a rich source of energy but we don't have technical know-how to use them.
- **Reserves:** The resources that have been surveyed and we can use them with present technology but their use has not been started are known as Reserves. For example: the water in the dams, forests etc.

DEVELOPMENT OF RESOURCES

- Resources are vital for human survival.
- It was believed that resources are free gifts of nature so, human beings used them indiscriminately and this has led to the following major problems:
  - Depletion of resources for satisfying the greed of few individuals.
  - Accumulation of resources in few hands which divides the society into rich and poor.
  - Indiscriminate exploitation of resources has led to global ecological crises such as, global warming, ozone layer depletion, environmental pollution and land degradation.
- For a sustained quality of life and global peace, an equitable distribution of resources has become essential.
- For using resources judiciously, we need to adopt sustainable economic 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.

ISSUE OF SUSTAINABILITY IMPORTANT FOR DEVELOPMENT

Sustainable development means that a development should meet the needs of the present without compromising the ability of future generations to meet their needs.

a. Conservation is defined as the management of resources by human beings in a judicious and planned way without disturbing environment.

b. It is necessary due to the following reasons :

i. We have limited quantity of resources.

ii. Irrational consumption and over utilisation of resources may lead to socio-economic and environmental problems.

iii. It is also required for sustainable development.

c. Gandhiji said, 'There is enough for everybody's need and not for any body's greed'. He stated that the root cause for resource depletion at the global level was the greedy and selfish individuals and exploitative nature of modern technology. He was against mass production and was in favour of the production by the masses.

RIO DE JANEIRO EARTH SUMMIT 1992

a. First International Earth Summit : It was the first International Earth Summit – which was held in June 1992 in Rio de Janeiro in Brazil. More than 100 heads of states participated in it.

b. Object : The Summit was convened for addressing the problems of environmental protection and socio- economic development at the global level.

c. Achievements :

i. The participants signed the Declaration on Global Climatic Changes and Biological Diversity.

ii. It endorsed the Global Forest Principles.

iii. It adopted Agenda 21 for achieving Sustainable Development in the 21st century.

d. Agenda 21 : Its aim it to achieve global sustainable development in the 21st century. 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 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 set up for implementing resource development plans.

iii. Matching the resource development plans with overall national development plans.

Land Resources

- Land is a natural resource of utmost importance.
- It supports natural vegetation, wild life, human life, economic activities, transport and communication systems.
- Land is present in limited size so we must use them effectively.

Land Resources in India

- About 43 percent of the land area is plain, which provides facilities for agriculture and industry.
- About 30 percent of the total surface area of the country are mountains which ensure perennial flow of some rivers and provide facilities for tourism and ecological aspects.
- About 27 per cent of the area of the country is the plateau region that possesses rich reserves of minerals, fossil fuels and forests.

Land Use Pattern in India

- The use of land is determined by:
  - Physical factors such as topography, climate, soil types
  - Human factors such as population density, technological capability and culture and traditions etc.
- Land use data, however, is available only for 93 per cent of the total geographical area because the land use reporting for most of the north-east states except Assam has not been done fully.
  - Also, some areas of Jammu and Kashmir occupied by Pakistan and China have also not been surveyed.

Land Degradation and Conservation measures

- Human activities such as deforestation, over grazing, mining and quarrying contributed in land degradation.
- Measures to control land degradation:
  - Afforestation
  - Planting of shelter belts of plants
  - Control on over grazing
  - stabilisation of sand dunes by growing thorny bushes
  - Proper management of waste lands
  - Control of mining activities

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.

Classification of Soils

On the basis of the factors responsible for soil formation, colour, thickness, texture, age, chemical and physical properties, the soils of India can be classified in different types:

Alluvial Soils:

- Entire northern plains are made of alluvial soil.
- Also found in the eastern coastal plains particularly in the deltas of the Mahanadi, the Godavari, the Krishna and the Kaveri rivers.

- Fertile soil therefore, fit for agriculture purpose.
- Regions of alluvial soils are intensively cultivated and densely populated.
- Rich in potash, phosphoric acid and lime which are ideal for the growth of sugarcane, paddy, wheat and other cereal and pulse crops.

Black Soil:

- Black in colour and are also known as regur soils.
- Ideal for growing cotton and is also known as black cotton soil.
- Found in the plateaus of Maharashtra, Saurashtra, Malwa, Madhya Pradesh and Chhattisgarh also along the Godavari and the Krishna valleys.
- Made up of extremely fine i.e. clayey material.
- Well-known for their capacity to hold moisture.
- Rich in calcium carbonate, magnesium, potash and lime.

Red and Yellow Soils:

- Found in the areas of low rainfall in the eastern and southern parts of the Deccan plateau.
- Also found in parts of Odisha, Chhattisgarh, southern parts of the middle Ganga plain and along the piedmont zone of the Western Ghats.
- Develop a reddish colour due to diffusion of iron in crystalline and metamorphic rocks.

Laterite Soils:

- Develops in areas with high temperature and heavy rainfall.
- Found in Karnataka, Kerala, Tamil Nadu, Madhya Pradesh, and the hilly areas of Odisha and Assam.
- Suitable for cultivation with adequate doses of manures and fertilizers.
- Low Humus content because decomposers, like bacteria, get destroyed due to high temperature.

Arid Soils:

- Found in the western parts of Rajasthan.
- After proper irrigation these soils become cultivable.
- Lacks humus and moisture because dry climate, high temperature make evaporation faster.
- Salt content is very high and common salt is obtained by evaporating the water.

Forest Soils:

- Found in the hilly and mountainous areas where sufficient rain forests are available.
- Feature differs based on location.
- Loamy and silty in valley sides and coarse grained in the upper slopes.
- Silt in the lower parts of the valleys particularly on the river terraces and alluvial fans are fertile.

Soil Erosion and Soil Conservation

- Natural ways of Soil erosion: Wind, glacier and water lead to soil erosion.
- Human activities: Deforestation, over-grazing, construction and mining etc., contributes in soil erosion.
- Measures to control Soil erosion:
  - ❍ Strip cropping
  - ❍ Planting shelter belts
  - ❍ In the hilly areas, using contour ploughing and terrace farming.

RENEWABLE RESOURCES

- Resources whose quantity is not reduced due to use and which can be repeatedly used without fear of exhaustion are termed as renewable resources.
- They can be renewed or reproduced by physical, chemical or mechanical process.
- Renewable resources like sunlight, wind, water are flow resources, whose stock is continuous and are being used since time immemorial.
- Biotic resources that are renewable, may be temporarily diminished but may be renewed again by natural process and proper management.
- Example: Wind, water, forests, etc.

NON-RENEWABLE RESOURCES

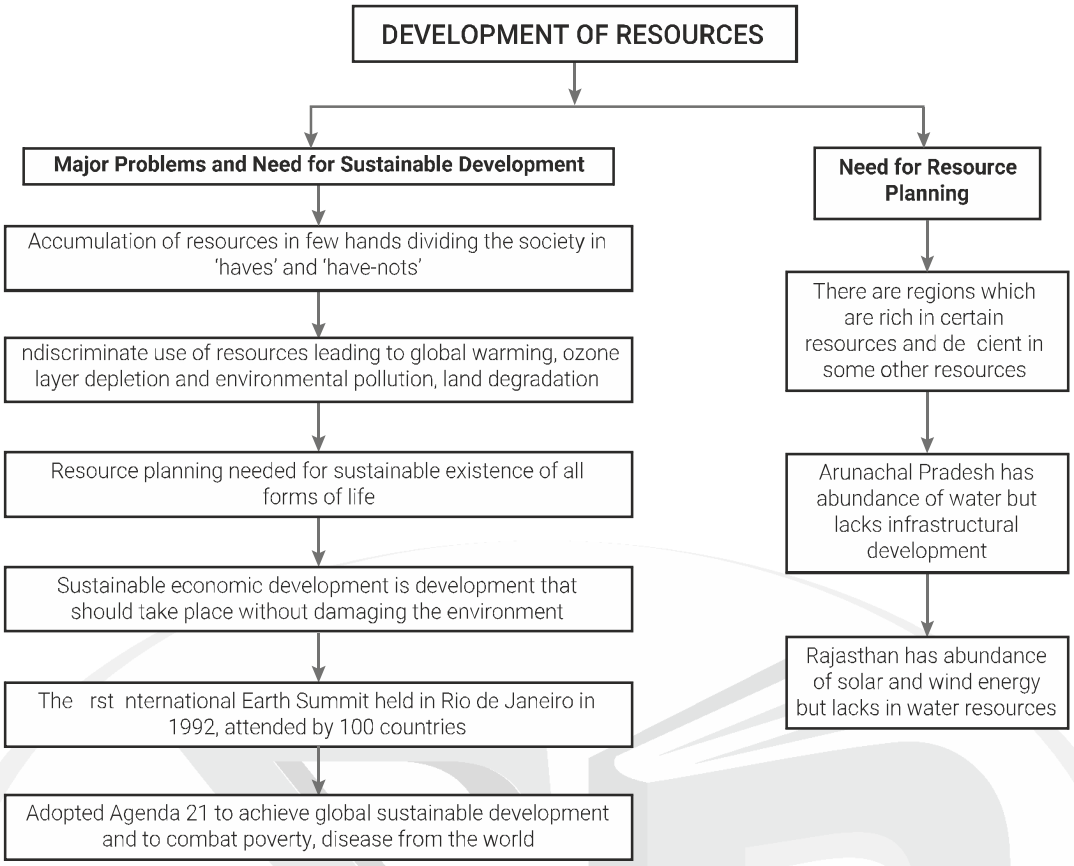
- Substances whose stock gets reduced and are gradually exhausted with use are termed as non-renewable resources. They are exhaustible resources.
- They cannot be increased or recovered.
- Their quantity is more or less xed because their formation takes long geological period of millions of years.
- These resources can never be renewed or replenished.
- Example: fossil fuels like coal, petroleum and minerals.

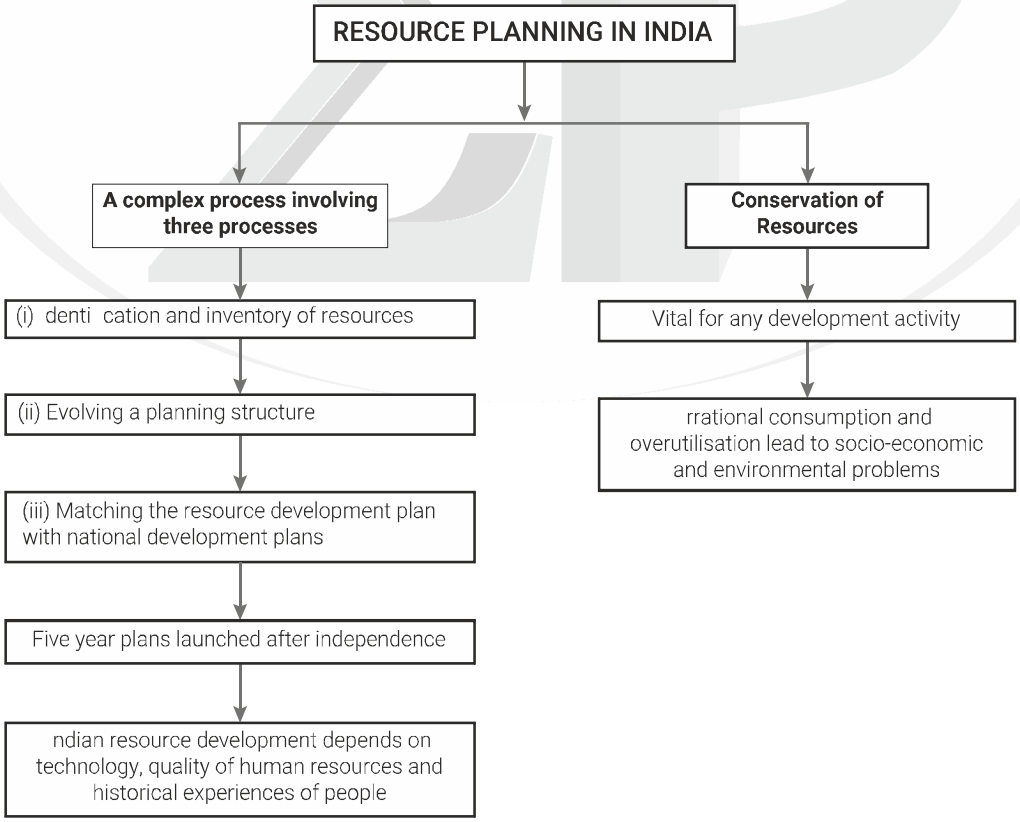
ON THE BASIS OF OWNERSHIP

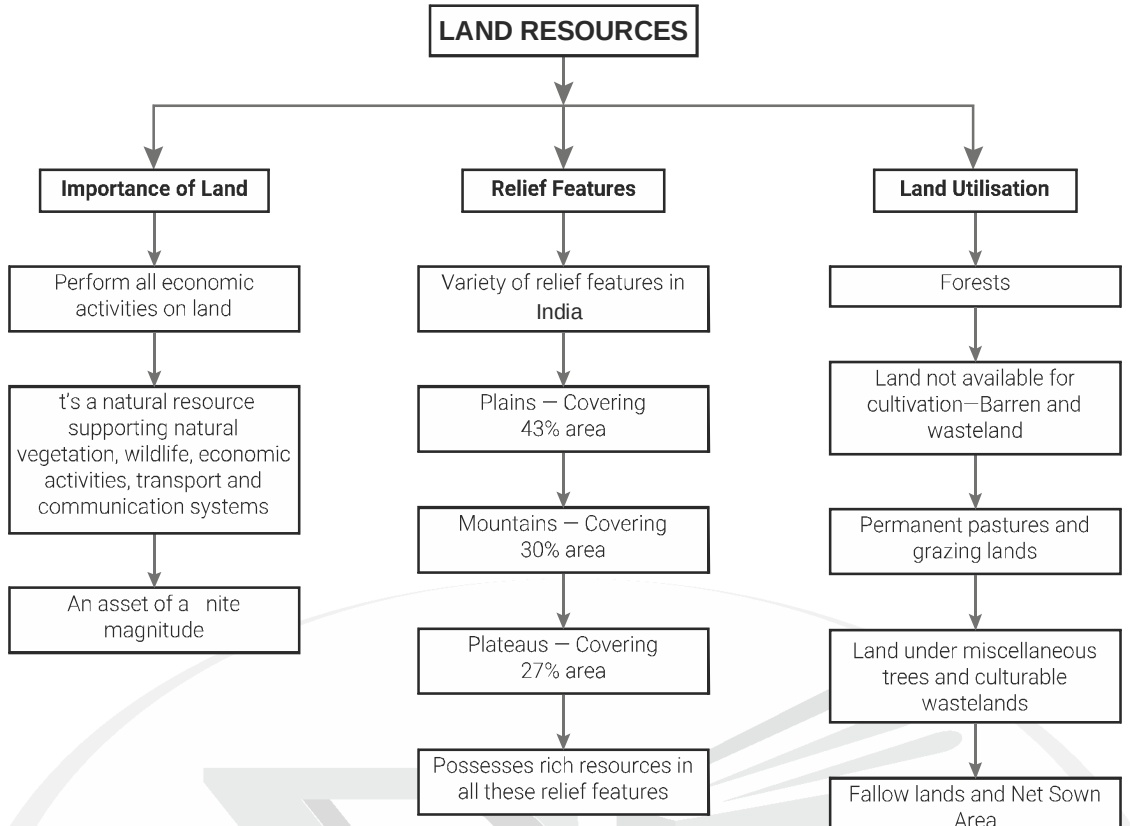
- **Individual**: Owned privately by individuals e.g., plots, house, car, wells, etc.
- **Community**: Accessible to all the members of the community e.g., public parks, picnic spots, playgrounds, etc.
- **National**: Technically, all the resources available in the country are national resources e.g., forests, wildlife, land division and the political territories
- **International**: The oceanic resources beyond 200 km of the Exclusive Economic Zone belong the international

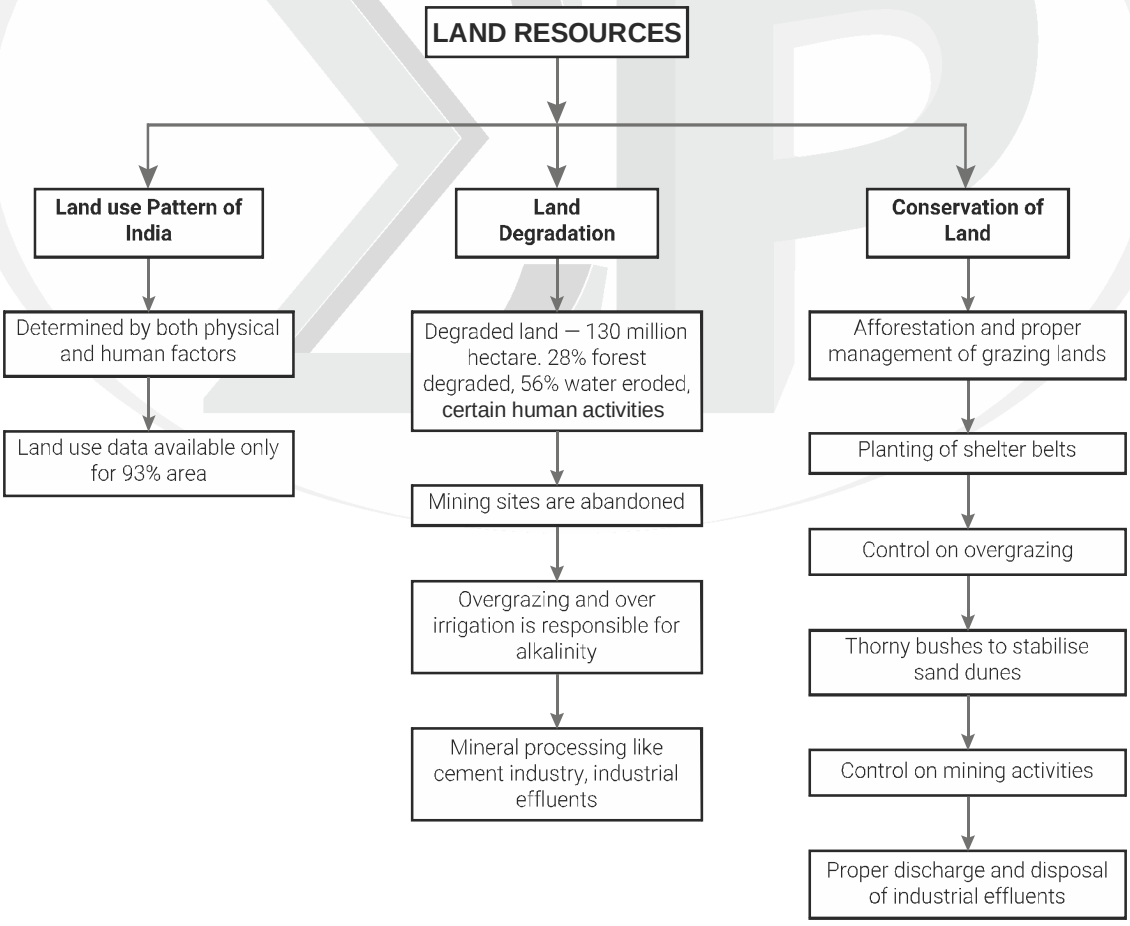
ON THE BASIS OF STATUS OF DEVELOPMENT

- **Potential**: Which are found in a region but have not been yet utilised
- **Developed**: Which are surveyed and their quality, quantity has been determined for utilisation
- **Stock**: Which have the potential to satisfy human needs but they do not have appropriate technology to access them
- **Reserves**: Can be put into use with the help of technical know-how but their use has not been started


DEVELOPMENT OF RESOURCES
Major Problems and Need for Sustainable Development
Accumulation of resources in few hands dividing the society in 'haves' and 'have-nots'
ndiscriminate use of resources leading to global warming, ozone layer depletion and environmental pollution, land degradation
Resource planning needed for sustainable existence of all forms of life
Sustainable economic development is development that should take place without damaging the environment
The rst nternational Earth Summit held in Rio de Janeiro in 1992, attended by 100 countries
Adopted Agenda 21 to achieve global sustainable development and to combat poverty, disease from the world
Need for Resource Planning
There are regions which are rich in certain resources and de cient in some other resources
Arunachal Pradesh has abundance of water but lacks infrastructural development
Rajasthan has abundance of solar and wind energy but lacks in water resources


RESOURCE PLANNING IN INDIA
A complex process involving three processes
(i) denti cation and inventory of resources
(ii) Evolving a planning structure
(iii) Matching the resource development plan with national development plans
Five year plans launched after independence
ndian resource development depends on technology, quality of human resources and historical experiences of people
Conservation of Resources
Vital for any development activity
rrational consumption and overutilisation lead to socio-economic and environmental problems


LAND RESOURCES
Importance of Land
Perform all economic activities on land
t's a natural resource supporting natural vegetation, wildlife, economic activities, transport and communication systems
An asset of a nite magnitude
Relief Features
Variety of relief features in India
Plains — Covering 43% area
Mountains — Covering 30% area
Plateaus — Covering 27% area
Possesses rich resources in all these relief features
Land Utilisation
Forests
Land not available for cultivation—Barren and wasteland
Permanent pastures and grazing lands
Land under miscellaneous trees and culturable wastelands
Fallow lands and Net Sown Area


LAND RESOURCES
Land use Pattern of India
Determined by both physical and human factors
Land use data available only for 93% area
Land Degradation
Degraded land — 130 million hectare. 28% forest degraded, 56% water eroded, certain human activities
Mining sites are abandoned
Overgrazing and over irrigation is responsible for alkalinity
Mineral processing like cement industry, industrial effluents
Conservation of Land
Afforestation and proper management of grazing lands
Planting of shelter belts
Control on overgrazing
Thorny bushes to stabilise sand dunes
Control on mining activities
Proper discharge and disposal of industrial effluents

SOIL AS A RESOURCE

ALLUVIAL SOIL

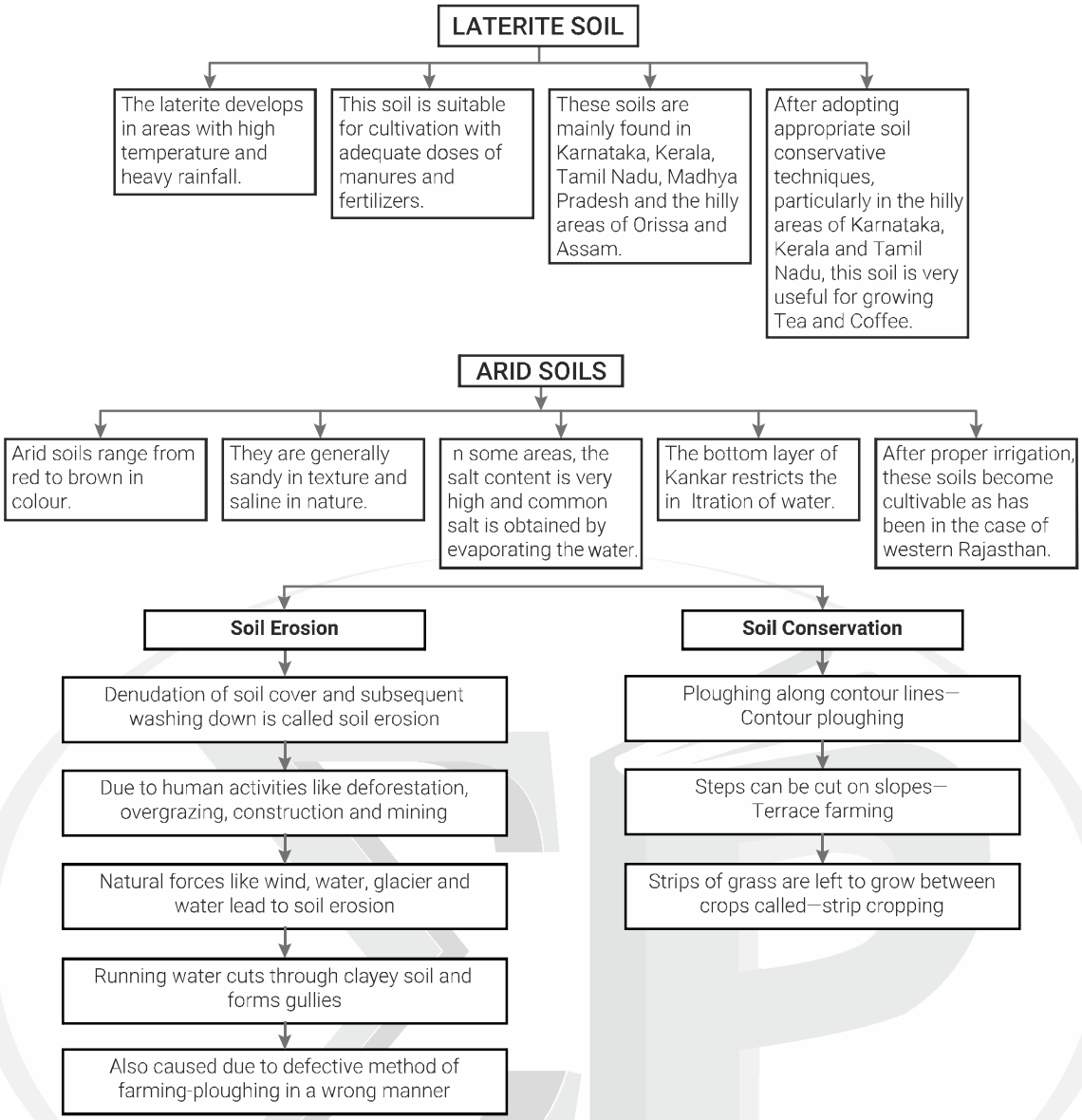
- The entire northern plains are made up of alluvial soil.
  - These have been deposited by these important Himalayan river systems.
    - ndus
    - Ganga
    - Brahmaputra
- Alluvial soil is also found in the eastern coastal plains particularly in the deltas of
  - Mahanadi river
  - Krishna river
  - Godavari river
  - Kaveri river
- The alluvial soil consists of various proportions of sand, silt and clay.
  - Alluvial soils are described on the basis of their age.
    - (Old) Bangar
      - has higher concentration of 'Kanker' nodules
        - less fertile than Khadar
    - (New) Khadar
      - has less concentration of 'Kanker' nodules than Bangar
        - is more fertile than Bangar
- Mostly these soils contain adequate proportion of potash, phosphoric acid and lime which are ideal for the growth of sugarcane, paddy, wheat and other cereal and pulse crops.

BLACK SOIL

- These soils are black in colour and are also known as 'regur' soils.
- They are ideal for growing cotton and is also known as 'black cotton' soil.
- This type of soil is typical of the Deccan trap (Basalt) region, spread over northwest Deccan plateau and is made up of lava flows.
- The black soils are made up of extremely fine, i.e., clayey material
- These soils are sticky when wet and difficult to work on unless tilled immediately after the first shower or during the pre-monsoon period.

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.
- Yellow and red soils are found in parts of Orissa, Chhattisgarh, southern parts of the middle Ganga plain and along the piedmont zone of the western ghats.
- These soils develop a reddish colour due to diffusion of iron in crystalline and metamorphic rocks.
  t looks yellow when it occurs in a hydrated form.



ASSIGNMENT

SOLVED NCERT QUESTIONS

1. Answer the following questions in about 30 words.

a. Name three states having black soil and the crop which is mainly grown in it.

b. What type of soil is found in the river deltas of the eastern coast? Give three main features of this type of soil.

c. What steps can be taken to control soil erosion in the hilly areas?

d. What are the biotic and abiotic resources? Give some examples.

Ans. a. The three states are: — Maharashtra, — Madhya Pradesh, — Gujarat
And the crop which is mainly grown on black soil is cotton.

b. Alluvial soil is formed in the river deltas of the eastern coast. Its main features are -
Alluvial soil is rich in potassium and phosphoric acid and lime.
It has a high water retention capacity.
And it is highly fertile soil.

c. 'Shelter belt plantation' and 'Terrace farming' can be done to prevent soil erosion in hilly areas.

d. Biotic resources: Resources obtained from living organisms in our environment are called biotic resources. Example – trees, animals, insects, etc. Abiotic resources: Things composed of non-living things present in our environment are termed as abiotic resources. Example: earth, water, metals, etc.

2. Answer the following questions in about 120 words.

a. Explain land use pattern in India and why has the land under forest not increased much since 1960-61?

b. How have technical and economic development led to more consumption of resources?

Ans. a. About 45 per cent of land is used as net sown areas, i.e., farming. About 22 per cent of land is under forest and the rest of the land is used for various purposes; such as housing, recreation and industrial activities. The main reason that forest land has not increased since 1960-61 is that there is an increase in population and subsequent increase in demand for resources.

b. Technical and economic development involves more utilisation and exploitation of resources for the purpose of present development. As the history of our colonisation shows, it was mainly one of the higher levels of technological development of the colonising countries that helped them to exploit resources of the regions and establish their own power over the colonies.

i. Technological development has led to more industries and therefore use of natural resources has increased.

ii. As means of transportation and communication are developing fast, they help in the mobility of the resources.

iii. Due to technological advancement, techniques of mining and quarrying are also improving,leading to safer mining and more resources and more economic development.

iv. Green Revolution led to the introduction of latest mechanical devices, fertilisers, HYV seeds,etc., leading to more and more production and consumption of resources.

OTHER IMPORTANT QUESTION

ONE MARK QUESTIONS

1. What is Net Sown Area?

Ans. It is the actual area under cultivation. This area is cultivated once or twice in about two to three years.

2. What is gross cropped area?

Ans. It is the actual area under cultivation along with the fallow land, which is left uncultivated in fertility.

3. What is 'Bangar'?

Ans. Bangar is a old alluvial soil. It has high concentration of kanker nodules in it.

4. What is 'khadar'?

Ans. Khadar is a new alluvial soil. It has more fine particles and is more fertile than the bangar.

5. What is soil erosion?

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

6. How is soil eroded?

Ans. Soil is eroded due to human activities like deforestation, overgrazing and construction and mining, etc. Natural forces like wind, glacier and water also lead to soil erosion.

7. What is contour ploughing?

Ans. Ploughing along the contour lines can decelerate the flow of water down the slopes. This is called contour ploughing.

THREE MARKS QUESTIONS

1. Describe the process of resource planning in India.

Ans. Resource planning is a complex process. It involves the following process :

a. Identification and inventory of resources across the regions of the country : It involves surveying, mapping, qualitative and quantitative estimation and measurement of the resources.

b. Evolving a planning structure : In it, we make appropriate use of technology, skill and institutional set up for implementing resource development plans.

c. Matching the resource development plans : It matches the development of resources with overall national development plans.

2. Distinguish between Khadar and Bangar.

Ans.

Khadar	Bangar
1. It is new alluvial soil.	1. It is an old alluvial soil.
2. It is more fertile.	2. It is less fertile.
3. It is found near the banks of rivers.	3. It is found farther away from the river.
4. It has fine particles.	4. It has kanker nodules in it.

3. Why was the Rio de Janeiro Earth Summit, 1992 held?

Ans. a. In June 1992, more than 100 heads of states met in Rio de Janeiro, Brazil for the first International Earth Summit.

b. It was held for addressing urgent problems of environmental protection and socio-economic development at the global level.

c. This convention adopted Agenda 21, for achieving sustainable development in the 21st century

4. Which factors affect the land use pattern of India?

Ans. a. The land use pattern is determined by certain physical factors of the country such as topography, climate and soil types. The availability of geographical area determines its uses by the country. In India, we have various forms of land like plains, plateaus, mountains, etc. The economic development of the country depends on the technological development of the country thus leading to the planning of land use pattern.

b. There are certain human factors also affecting the land use pattern. They include population density of the country, technological capability and, culture and traditions of the country, etc.

The economic development of the country depends on the technological development of the country thus leading to the planning of land use pattern.

FIVE MARKS QUESTIONS

1. What are the causes of land degradation? What are the ways to solve this problem?

Ans. Causes of land degradation :

a. Mining sites are abandoned after the excavation work is done, leaving deep scars of overburdening. In states like Odisha, Jharkhand, Madhya Pradesh, Chhattisgarh, deforestation due to mining has caused severe land degradation.

b. Overgrazing in states like Gujarat, Rajasthan, Madhya Pradesh, and Maharashtra is one of the main reasons behind land degradation.

c. Over irrigation and water logging lead to increase in salinity and alkalinity in the states of Punjab, Haryana and western Uttar Pradesh, thereby leading to land degradation.

d. Mineral processing like grinding of limestone for cement industry and calcite and soapstone for ceramic industry generate huge quantities of dust in the atmospehre. It stops the infiltration of water in the soil.

e. Industrial effluents as wastes have become a mjor source of land and water pollution in many parts of the country.

Ways to check land degradation :

a. Afforestation and proper management of grazing can help to check land degradation.

b. Planting of shelter belts help in checking the sand causing land degradation near the deserts.

c. Overgrazing can be checked and avoided.

d. Stabilisation of sand dunes by growing thorny bushes can also check land degradation.

e. Proper management of waste land can be taken up.

f. Control on mining activities, so that mining does not affect the land and by refilling the scars.

g. Proper discharge and disposal of industrial effluents and wastes after treatment can reduce land and water degradation in industrial areas.

2. What are the various methods of soil conservation?

a. Contour ploughing : Ploughing along the contour lines can check the flow of water down the slopes. It is called contour ploughing. It can be practised on the hills.

b. Terrace cultivation : Steps can be cut out on the slopes making terraces. It restricts soil erosion. It is practiced in western and central Himalays.

c. 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 wind. This method is called strip cropping.

d. Planting of shelter belts : Planting lines of trees to create shelter also checks the soil erosion. Rows of such trees are called Shelter Belts. These shelter belts have contributed significantly to the stabilisation of sand dunes and in stabilising the desert in western India.

3. By what name is black soil also known as? In which regions are black soils formed and why?

Ans. These soils are black in colour and are also known as regur soils. Since black soil is ideal for growing cotton, it is also known as black cotton soil.

It is believed that climatic conditions along with the parent rock material are the important factors for the formation of black soil. The type of soil is typical of the Deccan Trap (Basalt) region spread over northwest Deccan plateau and is made up of lava flows. They cover the plateaus of Maharashtra, Malwa, Madhya Pradesh, Chattisgarh and extend in the South east direction along the Godavari and the Krishna Valleys.

4. Why do we need to conserve resources?

Ans. a. The availability of resources is a necessary condition for the development of any region.

b. Resources are vital for any developmental activity.

c. But irrational consumption and over utilisation of resources may lead to socio-economic and environmental problems.

d. To overcome these problems, resource conservation at various levels is important.

e. If the present trend of resource depletion by a few individuals and countries continue, the future of our planet is in danger.

Therefore, we need to conserve resources for sustainable existence of all forms of life.

5. "India is rich in certain types of resources but deficient in some other resources." Do you agree with the statement? Support your answer with examples.

Ans. Resource planning is necessary in a country like India, which has enormous diversity in the availability of resources.

Need :

a. There are regions which are rich in certain types of resources but are deficient in some other resources.

b. There are some regions which are self-sufficient and there are some regions which have acute shortage of some vital resources.

Examples :

a. The states of Jharkhand, Chhattisgarh and Madhya Pradesh are rich in minerals and coal deposits.

b. Arunanchal Pradesh has abundant water resources but lacks infrastructural development.

c. The state of Rajasthan has enough solar energy and wind energy but lacks water resources.

d. The cold desert of Ladakh has a very rich cultural heritage but is deficient in water, infrastructure and some vital minerals.

This calls for balanced resource planning at the national, state, regional and local levels.

6. "The Earth has enough resources to meet the need of all but not enough to satisfy the greed of even one person." How is this statement relevant to the discussion of development? Discuss.

Ans. Gandhiji was very opt in voicing his concern about resource conservation.

a. He said there is enough for everybody's need and not for anybody's greed.

b. He regarded the greedy and selfish individuals and the exploitative nature of modern technology as the root cause for resource depletion at the global level.

c. He was against mass production and wanted to replace it with the production by the masses.

7. "Planning is widely accepted strategy for judicious use of resources in a country like India." Justify this statement with two relevant points and an example.

Ans. a. An equitable distribution of resources has become essential for a sustained quality of life and global peace.

b. If the present trend of resource depletion by a few individuals and countries continues, the future of our planet is in danger.

c. Therefore, resource planning is essential for sustainable existence of all forms of life. Sustainable existence is a component of sustainable development.

Examples : Some of the resources like coal, petroleum are available in limited quantity and for a limited period of time. These resources are depleting fast. So, we need to plan the judicious use of Resources.

8. Why is soil considered as a living system? Mention any two factors that are responsible for soil formation.

Ans. The soil is a living system, it takes millions of years to form soil upto a few cms in depth. Relief, parent rock, climate, vegetation and other forms of life and time are important factors in the formation of soil. Various forces of nature such as change in temperature, actions of running water, wind and glaciers, activities of decomposers, etc. contribute to the formation of soil. Chemical and organic changes which take place in the soil are equally important.